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For use with Microsoft Windows 95™ and  
NT 4.0™

## **User's Guide**

**HP 70207B**

**PC Display for MMS**



**HP Part No. 70207-90010**  
**Printed in USA June 1998**

**Edition A.1.0**

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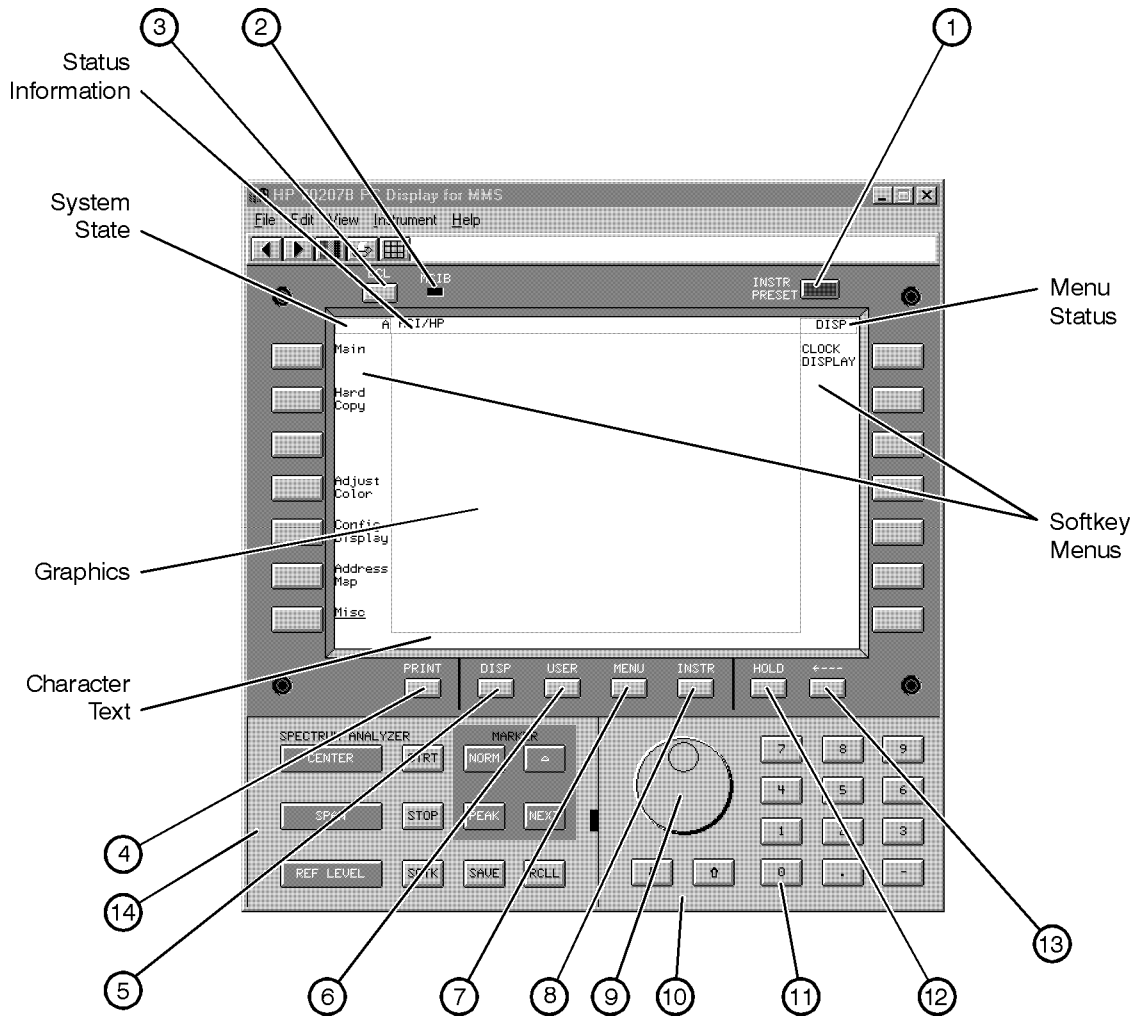
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## Operation at a Glance



- |    |                     |   |
|----|---------------------|---|
| 1  | <b>INSTR PRESET</b> | Use the instrument preset key to activate all of the preset conditions of the presently selected instrument.<br><br>(The <b>DISPLAY PRESET</b> softkey is different from the <b>INSTR PRESET</b> key; when the <b>DISPLAY PRESET</b> softkey is pressed, it clears the screen and breaks all links that it has with any modules and then it offers the screen and a keyboard link to the last module that had the keyboard link.) |
| 2  | MSIB                | The Modular System Interface Bus (MSIB) fault indicator light indicates the status of the MSIB. If the light is on, there is an MSIB problem or the bus is resetting.   |
| 3  | <b>LCL</b>          | Use the local key to reinstate front panel operation if the instrument has been under remote control from an HP-IB card that is being controlled from a separate program. (HP-IB control is not presently supported on the HP 70207B PC Display for MMS.)   |
| 4  | <b>PRINT</b>        | Use the print key to print the current display screen to your printer. Your printer is specified through the Print dialog box.  |
| 5  | <b>DISPLAY</b>      | Use the display key to access all display functions through display softkeys.   |
| 6  | <b>USER</b>         | Use the user key to access user-defined menus that are available on some modules; this key is not available on all instruments.   |
| 7  | <b>MENU</b>         | Use the menu key to access all normal instrument functions and system control operations that are controlled by the keyboard.   |
| 8  | <b>INSTR</b>        | When there are multiple instruments in a system, the instrument key is used to move (allocate) the display and keyboard between instruments.  |
| 9  | Knob                | Use the knob to change parameters and select other operating values.  |
| 10 | <b>▽</b> <b>△</b>   | Use the two step keys to change parameters up or down.  |
| 11 | <b>0-9</b>          | Use the numeric keypad to enter numeric values.   |
| 12 | <b>HOLD</b>         | Use the hold key to deactivate an active function to prevent further control setting changes.   |
| 13 | <b>←</b>            | Use the backspace key to move from a lower level of menu keys to the previous level or to backspace the cursor while entering text.   |
| 14 | Instrument Keypad   | The instrument keypad provides up to 15 instrument-specific keys; the instrument keypad varies depending on the selection made from the pull down Instrument menu.  |

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## **In This Book**

This book describes the hardware and software installation procedures needed to setup and use the HP 70207B PC Display for MMS as well as all procedures required to perform local MSIB operation.

Chapter 1 “Installing the HP 70207B PC Display for MMS”, provides information related to installing and configuring the HP 70207B PC Display for MMS into a personal computer that is running Microsoft Windows NT 4.0 or Microsoft Windows 95.

Chapter 2 “If You Have Problems”, provides information to help identify and resolve some common problems that may occur during installation or use of your HP 70207B PC Display for MMS software.

Chapter 3 “Introducing the HP 70207B PC Display for MMS” presents a first look at the HP 70207B PC Display for MMS. You will be introduced to some of the main features. Then, you will learn about the different regions of the display. Finally, you’ll learn what each of the front panel hard-labeled keys can do as well as how to use and access different instrument keypads.

Chapter 4 “Operating/Local MSIB Operation”, prepares you for your first steps in using the HP 70207B PC Display for MMS in a system. This chapter provides local MSIB operation instructions only. You will learn how to build or stack windows on your display and assign the keyboard or display or both to an instrument by using various softkey menus. Then, you will learn how to set options that turn on or off certain annotations of the display screen. Finally, you’ll learn how to produce outputs on a printer, copy display screens into other Microsoft Windows applications, log either data or key-press sequences into files so that they can be retrieved and used at a later date, perform predefined measurements using DLPs, and save or recall the memory or state of an instrument using the LIF\_VOL file.

Chapter 5 “Softkey Reference”, introduces the conventions used in the softkey menus. Then all of the softkeys available through the **DISPLAY** key are described. The softkeys are described according to their position on the display menus.

Chapter 6 “Concepts”, provides concept information that is related to the Hewlett-Packard Modular System Interface Bus (MSIB).

An index is also added at the end of this user’s guide to aid the user in finding key items of interest.

**Before you begin**, you should become familiar with the front panel controls. For information on what each control is used for, refer to “Operation at a Glance” and Chapter 3.

### **Programming/Remote Operation**

If you have questions related to remote connectivity or remote use of your HP 70207B PC Display for MMS, contact Hamilton Software, Inc. for information:

Hamilton Software, Inc.  
2270 Northpoint Parkway  
Santa Rosa, Ca. 95407  
Phone: (707) 542-2700  
Fax: (707) 542-3443  
Email: support@hamsoft.com  
URL: <http://www.hamsoft.com>

## Notation Conventions

This book uses the following notation conventions:

<b>HARD-LABELED KEYS</b>	A key name that looks like this represents a hard-labeled key (permanently fixed key) that is located on the front panel of the HP 70207B PC Display for MMS.
Display Text	Text that looks like this represents messages that appear on a display screen.
<b>Softkey</b>	Text that looks like this (with an initial uppercase letter followed by all lowercase letters) represents a top level softkey. All top level softkeys access a set of softkeys that are functionally related; these softkeys are generally found only on the left side of the display.
<b>SOFTKEY</b>	Text that looks like this (with all uppercase letters) represents a softkey that executes its function. When a softkey is underlined, it is set to on; clicking on an underlined softkey toggles it between on and off.
<b>softkey</b>	Text that looks like this (with all lowercase letters) represents a softkey that accesses another menu of related softkeys.
<b>MORE</b>	Some of the softkey functions are too numerous to display all at once, and for this reason are divided into “pages”. Press <b>MORE</b> to view additional pages.
<b>prev menu</b>	Use the previous-menu key, <b>prev menu</b> , or backspace (←) key, to return to previously displayed level of keys.

# Contents

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<b>1. Installing the HP 70207B PC Display for MMS</b>	
Preparing for Installation . . . . .	1-2
Part 1. Beginning Hardware Installation . . .	1-4
Part 2. HP 70207B Software Installation	
Using Microsoft Windows NT 4.0 . . . . .	1-10
Part 2. HP 70207B Software Installation	
Using Microsoft Windows 95 . . . . .	1-30
Part 3. Completing Hardware Installation . .	1-46
<b>2. If You Have Problems</b>	
Technical Overview . . . . .	2-2
Power-up Problems . . . . .	2-4
Installation Problems . . . . .	2-6
Resolving Resource Conflicts . . . . .	2-9
Error Messages or Error Indications . . . . .	2-13
Dialog Box Messages . . . . .	2-19
Communication on the MSIB I/O . . . . .	2-24
Duplicate MSIB Addresses . . . . .	2-29
If You Need to Contact Hewlett-Packard . . .	2-33
Returning Your MSIB Interface Card to Hewlett-Packard . . . . .	2-35
<b>3. Introducing HP 70207B PC Display for MMS</b>	
Main Features . . . . .	3-2
Front Panel Regions and Hard-Labeled Keys	3-7
Selectable Instrument Keypads . . . . .	3-13

<b>4. Operating/Local MSIB Operation</b>	
Configuring Display Windows . . . . .	4-3
Configuring Display Options . . . . .	4-41
Performing Common Tasks . . . . .	4-51
Working with the LIF_VOL File . . . . .	4-77
<b>5. <input type="checkbox"/> DISPLAY Softkey Reference</b>	
<input type="checkbox"/> DISPLAY Main . . . . .	5-4
<input type="checkbox"/> DISPLAY Hard Copy . . . . .	5-10
<input type="checkbox"/> DISPLAY Adjust Color . . . . .	5-13
<input type="checkbox"/> DISPLAY Config Display . . . . .	5-18
<input type="checkbox"/> DISPLAY Address Map . . . . .	5-25
<input type="checkbox"/> DISPLAY Misc . . . . .	5-32
<b>6. Concepts</b>	
Understanding the MSIB Addressing Scheme	6-2

**Index**

## Installing the HP 70207B PC Display for MMS

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### Overview

#### In this chapter you will learn about:

- Hardware requirements to run the HP 70207B PC Display for MMS.
  - How to install the MSIB interface card into a computer.
  - How to install the HP 70207B PC Display for MMS software and the software drivers used by the MSIB interface card.
- 

### Important

The HP 70207B PC Display for MMS software is designed for and can only be run using Microsoft Windows NT 4.0<sup>®</sup> or Microsoft Windows 95<sup>®</sup>. If you are not sure about your equipment setup or you need further information, refer to the documentation that came with your computer.

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If you have Microsoft Windows NT 4.0 or Microsoft Windows 95 running on your computer, the following procedures will guide you through installation of the HP 70207B PC Display for MMS.

Preparing for Installation .....	1-2
Part 1. Beginning Hardware Installation .....	1-4
Part 2. HP 70207B Software Installation	
Using Microsoft Windows NT 4.0 .....	1-10
Part 2. HP 70207B Software Installation	
Using Microsoft Windows 95 .....	1-30
Part 3. Completing Hardware Installation .....	1-46



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## Preparing for Installation

Complete installation involves the installation of an MSIB interface card and two separate software programs: both the MSIB interface card driver and the HP 70207B PC Display for MMS software program are installed automatically when running Setup.

Before you install the MSIB interface card, its software driver, or the HP 70207B PC Display for MMS software, be sure that your computer system includes at least the minimum system requirements and that you know your hardware components and current resource settings.

### Hardware Required

To run the HP 70207B PC Display for MMS software, your computer system must have the following components:

- Either Microsoft Windows NT 4.0 or Microsoft Windows 95 installed and running.

The HP 70207B PC Display for MMS software can only run on Microsoft Windows NT 4.0 or Microsoft Windows 95.

#### Microsoft Windows NT 4.0

- Administrative access to the computer is required in order to install the software or set the MSIB address of the HP 70207B PC Display for MMS.
- One available interface card slot (ISA slot).
- One available interrupt address (IRQ) selected from the following list (3, 5, 9, 10, 11, 12, 14, or 15).
- A computer based on a Pentium microprocessor chip or equivalent.
- 24 MB of RAM memory minimum; **48 MB of RAM memory or higher is recommended.**
- A hard disk with at least 10 MB of free storage space.
- One 3.5-inch high-density floppy drive.
- A mouse or other compatible pointing device.
- A standard VGA display adapter along with a compatible monitor (The monitor must support a

## Preparing for Installation

minimum resolution of 800x600 pixels with 256 colors.); **a fast PCI SVGA graphics card running in 256 color mode is recommended.**

- A CD-ROM drive; this is required to use Carbon Copy™. Carbon Copy is used for support capability; it does not have to be installed in order to run the HP 70207B PC Display for MMS.

### Microsoft Windows 95

- BIOS support for Plug and Play.
- One available interface card slot (ISA slot).
- One available interrupt address (IRQ) selected from the following list (3, 5, 9, 10, 11, 12, 14, or 15).
- A computer based on a Pentium microprocessor chip or equivalent.
- 16 MB of RAM memory minimum; **32 MB of RAM memory or higher is recommended.**
- A hard disk with at least 10 MB of free storage space.
- One 3.5-inch high-density floppy drive.
- A mouse or other compatible pointing device.
- A standard VGA display adapter along with a compatible monitor (The monitor must support a minimum resolution of 800x600 pixels with 256 colors.); **a fast PCI SVGA graphics card running in 256 color mode is recommended.**
- A CD-ROM drive; this is required to use Carbon Copy™. Carbon Copy is used for support capability; it does not have to be installed in order to run the HP 70207B PC Display for MMS.

### Note

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The HP 70207B PC Display for MMS supports *only* 256 colors. If the driver for the computer video card uses more than 256 colors in its color palette or if it uses a non-standard color palette, graphics problems will occur when using this program. Avoid these graphics problems by using the 256 standard color palette.

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## Part 1. Beginning Hardware Installation

Installation is broken into three parts.

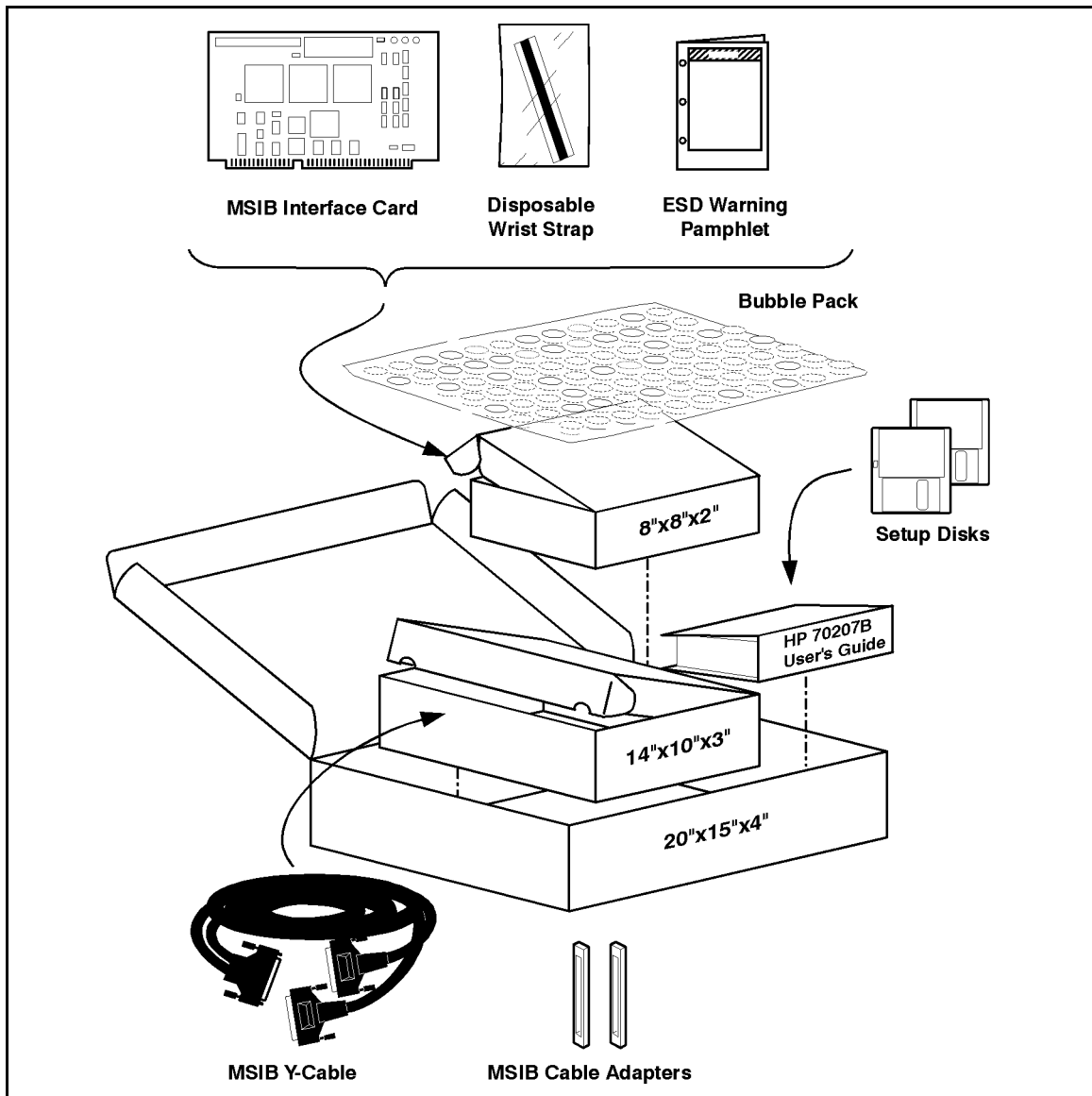
This is Part 1 of installation; it contains information needed to prepare a computer for software installation.

### **Part 1. Beginning Hardware Installation**

Step 1. Unpacking and Inspecting Contents .....	1-5
Step 2. Accessing Your Computer's ISA Slots .....	1-7
Step 3. Before Touching the MSIB Interface Card	1-8
Step 4. Installing the MSIB Interface Card .....	1-9
Part 2. HP 70207B Software Installation	
Using Microsoft Windows NT 4.0 .....	1-10
Part 2. HP 70207B Software Installation	
Using Microsoft Windows 95 .....	1-30
Part 3. Completing Hardware Installation .....	1-46

## Part 1. Beginning Hardware Installation

### Step 1. Unpacking and Inspecting Contents



## Part 1. Beginning Hardware Installation

1. Unpack and inspect the shipping container and its contents thoroughly to ensure that nothing was damaged during shipment.

If the container or cushioning material is damaged, the contents should be checked both mechanically and electrically. If the contents are damaged or defective, contact your nearest Hewlett-Packard Sales and Service Office. (Refer to “If You Need to Contact Hewlett-Packard” in Chapter 2.) Keep the shipping materials for the carrier’s inspection.

2. Verify that all parts and materials were included in the shipping container.

One:	<i>HP 70207B User’s Guide</i>
Two:	Setup Disks
One:	HP 9300-1408 Disposable Grounding Wrist Strap
One:	HP 5957-4369 Electrostatic Discharge (ESD) Warning Pamphlet
One:	HP 70207-60007 MSIB Interface Card ( <b>Do not touch until properly ESD safe!</b> )
One:	HP 70207-60003 2.5 m MSIB Y-Cable
Two:	HP 70207-20003 MSIB cable adapters
One:	HP 9211-2932 Carton-outer (20x15x4)
One:	HP 9211-6262 Carton-inner (8x8x2) for MSIB Interface Card
One:	HP 9211-4207 Carton-outer (14x10x3) for MSIB Y-Cable
One:	HP 9223-0606 Bubble Pack Sheet (18x24)
(Optional):	Computer and Monitor with Microsoft Windows NT 4.0 Installed
(Optional):	Computer and Monitor with Microsoft Windows 95 Installed

## Part 1. Beginning Hardware Installation

### Step 2. Accessing Your Computer's ISA Slots

#### CAUTION

Refer to the documentation that came with your computer for installation safety instructions and for how to open your computer.

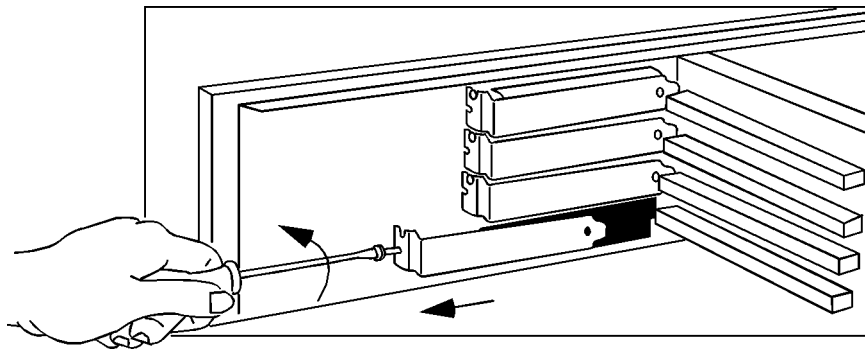
1. Turn off the computer and all peripherals, and disconnect the computer from the electrical outlet; if your monitor is using a separate ac line cord, disconnect it from the electrical outlet.

2. Open the computer so that the accessory card slots (ISA slots) are visible.

As long as the MSIB interface card does not physically interfere with any internal computer components, it can be inserted into any one of the unused ISA slots in your computer.

3. Choose an empty ISA slot and remove the slot cover from the back of the computer by loosening or removing the screw that holds the slot cover in place.

The following drawing shows a view of ISA slots that are horizontally mounted; your computer's ISA slots may be vertically mounted, but the process would be the same.



## Part 1. Beginning Hardware Installation

### Step 3. Before Touching the MSIB Interface Card

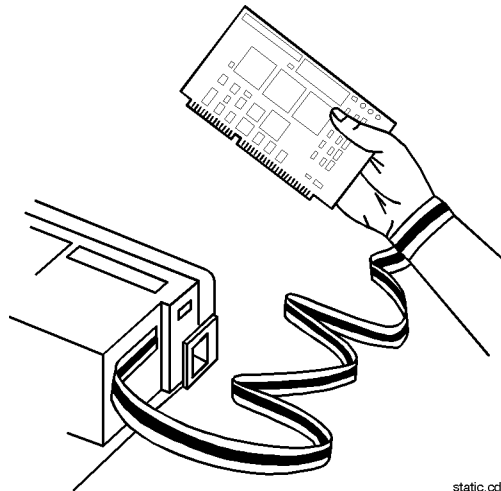
#### CAUTION

To prevent possible ESD damage, you must be properly grounded with a grounding wrist strap before touching the MSIB interface card.

1. Using the disposable grounding wrist strap, supplied with your MSIB interface card, unwrap the first two folds of the wrist strap and wrap the exposed adhesive side firmly around your wrist.

Wear this grounding wrist strap before unpacking or touching the MSIB interface card; it is provided for control of static electricity. Failure to use the grounding wrist strap properly can result in damage to electronic devices and assemblies.

2. Unroll the rest of the wrist strap and peel the liner from the copper foil at the opposite end.
3. Attach the copper foil to a convenient and exposed electrical ground somewhere on the computer's chassis. This should be an unpainted metal surface of the computer cabinet.



static.cdr

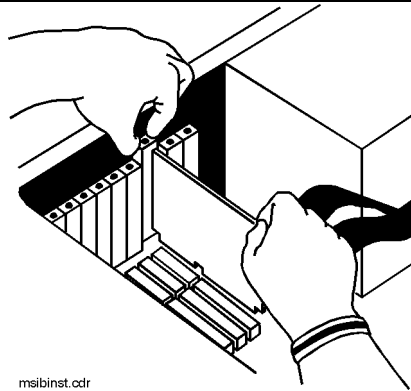
## Part 1. Beginning Hardware Installation

### Step 4. Installing the MSIB Interface Card

1. With the grounding wrist strap connected between you and your computer's chassis, remove the MSIB interface card from the static-safe bag.
2. Position the MSIB interface card in the empty ISA slot from which you previously removed the slot cover, and insert the MSIB interface card firmly into the ISA slot until you feel it snap into place.

The following drawing shows a view of ISA slots that are vertically mounted; your computer's ISA slots may be horizontally mounted, but the process would be the same.

3. Tighten or replace the screw for the slot cover; this screw holds the MSIB interface card support bracket to the back panel of the computer. The blue MSIB IO connector is used for internal testing at the factory and is not connected during this installation procedure.
4. Replace the top cover on your computer and install all necessary hardware screws that you previously removed. (Refer to the documentation that came with your computer for installation safety instructions and for how to replace the cover.)
5. Remove the disposable grounding wrist strap from your arm and the computer chassis.





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## **Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0**

Installation is broken into three parts.

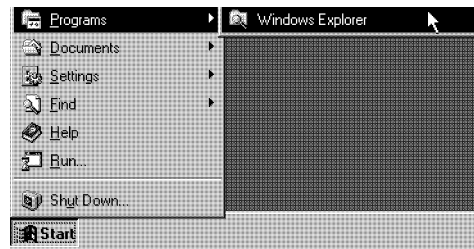
This is Part 2 of installation; it contains information needed to install a new driver and software in a computer using Microsoft Windows NT 4.0.

If you get an error message while installing the software, follow the directions in the message and refer to “Installation Problems” in Chapter 2 for troubleshooting instructions.

Part 1. Beginning Hardware Installation .....	1-4
<b>Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0</b>	
Step 5. To access the Readme.txt file .....	1-11
Step 6. (Optional). To remove previous versions .....	1-12
Step 7. To install a new driver and software ....	1-14
Step 8. Before initial use .....	1-26
Part 2. HP 70207B Software Installation Using Microsoft Windows 95 .....	1-30
Part 3. Completing Hardware Installation .....	1-46

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### Step 5. To access the Readme.txt file



1. If you have not already done so, insert the HP 70207B PC Display for MMS Setup #1 disk into your 3.5-inch high-density floppy disk drive.
2. From the Microsoft Windows NT 4.0 taskbar, click Start, point to Programs, and click on Windows Explorer.
3. Using the Windows Explorer program, select the drive containing the Setup #1 disk.
4. Double-click `Readme.txt`. A Microsoft Windows NT 4.0 application, such as Microsoft WordPad®, is used to view the file.
5. Read the entire file before using the HP 70207B PC Display for MMS program.

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### Step 6. (Optional). To remove previous versions

#### Notes

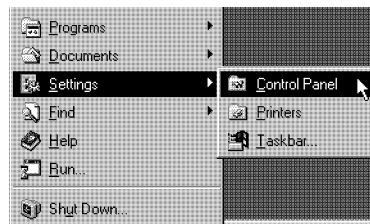
- 
- If this is a first-time installation and there are no previous versions of this software to remove, skip this step and continue with “Step 7. To install a new driver and software”.
  - Prior to installing any new versions, all previous versions of the MSIB interface card driver and HP 70207B PC Display for MMS software must be removed from your computer.
  - During the un-install process, Microsoft Windows NT 4.0 may prompt you to delete various DLL files that it has detected as not being used. If you are not sure about removing a particular file, answer **No** to the prompt and the file will not be removed; it is safe to leave these files on your system.
  - When previous versions of the MSIB interface card driver and the HP 70207B PC Display for MMS software are removed with the following procedure, all data that is properly saved in the Storage folder is retained.
  - Before proceeding, refer to the documentation that you received with your software update for additional information or updates to this procedure.
-

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### Removing previous versions

Both the MSIB interface card driver and HP 70207B PC Display for MMS software are removed by the un-install wizard.

1. From the Microsoft Windows NT 4.0 taskbar, click Start, point to Settings, and click on Control Panel.



2. From the Control Panel, double-click the Add/Remove Programs icon.



3. From the list displayed on the Add/Remove Programs Properties dialog box, select the name of the HP 70207B PC Display for MMS software and click the Add/Remove box.



## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### Step 7. To install a new driver and software

Prior to installing any new versions, all previous versions of the MSIB interface card driver and HP 70207B PC Display for MMS software should be removed from your computer. (Refer to the procedure, “Step 6. (Optional). To remove previous versions”.)

#### Note

---

After completing installation of your MSIB interface card and turning the power on to your computer, Microsoft Windows NT 4.0 may detect that new hardware has been added.

- If this occurs, Microsoft Windows NT 4.0 attempts to locate the device driver for the MSIB interface card.
- If Microsoft Windows NT 4.0 cannot find the device driver, it displays a prompt asking you to supply one.

Answer “NO” to the prompt and do not supply a device driver at this time. The device driver (`msibnt.sys`) is automatically supplied from the Setup disk during installation.

---

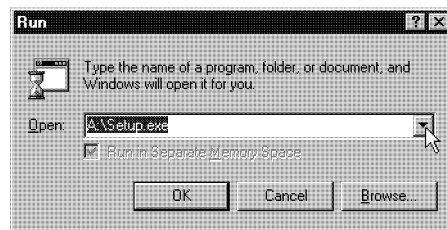
## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### Installing a new driver and software

1. If you have not already done so, insert the HP 70207B PC Display for MMS Setup #1 disk into your 3.5-inch high-density floppy disk drive.
2. From the Microsoft Windows NT 4.0 taskbar, click Start, point to and click on Run...



3. In the Run dialog box, set the dialog entry box (Open:) to point at the drive containing the Setup #1 disk. (The Setup #1 disk is typically located in drive A which can be designated by typing: A:\Setup.exe) You may also use the pull-down arrow located to the right-side of this dialog entry box to select the drive containing the Setup #1 disk.



After clicking the OK button, the install wizard automatically installs from the Setup disks.

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

4. Follow the directions throughout the setup process until the installation is complete.



“Setup was successful” is displayed when all files have been copied. You are then prompted to press the Close button.

---

### Security Concerns

During installation, you have the opportunity to set a destination folder.

- If you have security concerns related to saved instrument states, select a disk drive and directory path that can be secured.
- If the disk drive and directory path location needs to be changed at a later date, the HP 70207B PC Display for MMS software must be removed and reinstalled in a new location.

- 
5. Follow the directions in the next section to confirm the driver and software have been installed properly.

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### Note

If you get a message warning that the IRQ address or the I/O port address is already being used by another resource, you must select a different IRQ address or a different I/O port address or both before the MSIB interface card can be used. (Refer to the procedures, “Viewing IRQ addresses or I/O port addresses” and “Changing the IRQ address or I/O port address”.)



### Confirming driver and software installation

Although setup may seem to have passed, driver and software installation must be confirmed; this is because Microsoft Windows NT 4.0 is not Plug and Play compliant and not all devices report when they are using an IRQ.

1. Ensure that the HP 70207B PC Display for MMS program is not running.
2. Disconnect the MSIB Y-cable from the MSIB interface card if it is connected; it should not be connected until the driver and software installation has been confirmed.
3. Start the HP 70207B PC Display for MMS program and observe its behavior.

If everything is operating correctly, you should observe the following conditions:

- the user interface should appear
- several screens of information are displayed



## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

```
Hardware control subsystem initializing ...  
Installing hardware drivers:  
HSIB32.DLL  
  
Starting up the hardware control subsystem...
```

```
HSIB in Reset ...
```

- Note that the red MSIB indicator is on.
- Note that the red MSIB indicator is extinguished.

```
HSIB Reset Released  
Testing module presence...  
  
Gathering module capabilities  
Identifying module (0,2): PC Display
```

- Note “(0,2)” may be different for your configuration.

Either the HP 70207B PC Display for MMS title screen or a blank screen will be displayed. This is dependent on the last state of the program when it was shut down. To display the title screen, select Break Links from the pull down Instrument menu.

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

4. Click **(DISPLAY) Address Map**.

An address map dialog box appears and displays modules on ROW 0. The HP 70207B PC Display for MMS should be shown at its current column address.

- Installation is confirmed** if all of the items described in Step 3 above occurred in a reasonable amount of time (approximately 20 seconds).

If installation is confirmed, continue to “Part 3. Completing Hardware Installation” on page 1-46.

- A resource conflict may exist** if any of the items described in Step 3 above took an unreasonable amount of time (longer than 40 seconds).

If a resource conflict is suspected, perform the following procedures to view and manually set the IRQ addresses or I/O port addresses of the MSIB interface card.

- “Viewing IRQ addresses or I/O port addresses”.
- “Setting the IRQ address or I/O port address of the MSIB interface card”.
- Repeat this procedure, “Confirming driver and software installation”.

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### Viewing IRQ addresses or I/O port addresses

The MSIB interface card must have a unique IRQ address and I/O port address to function properly. Because of the design of the MSIB interface card, the IRQ address must be set to one of the following: (3, 5, 9, 10, 11, 12, 14, or 15).

IRQ addresses (interrupt request line addresses)  
Hardware lines over which devices can send signals to get the attention of the processor when the device is ready to accept or send information. Typically, each device connected to the computer uses a unique IRQ address.

I/O port addresses (input/output port addresses)  
Locations within the input/output address space of your computer.

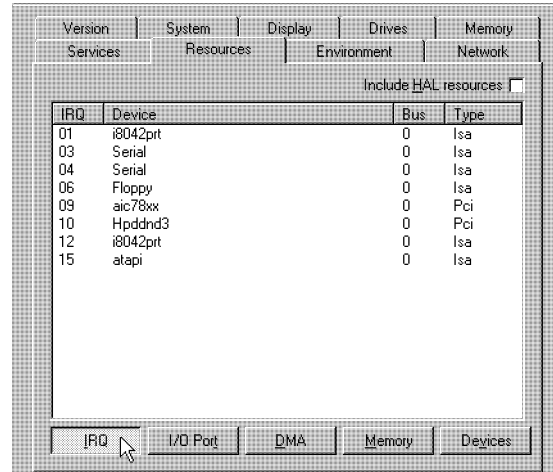
### To view a list of IRQ addresses or I/O port addresses used by your system devices:

1. From the Microsoft Windows NT 4.0 taskbar, click Start, point to Settings, point to Administrative Tools (Common), and click on Windows NT Diagnostics.



2. Select the “Resources” tab and the IRQ key (located along the bottom of the display). The display shows all devices and their current IRQ addresses.

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0



**Example of IRQ Addresses**

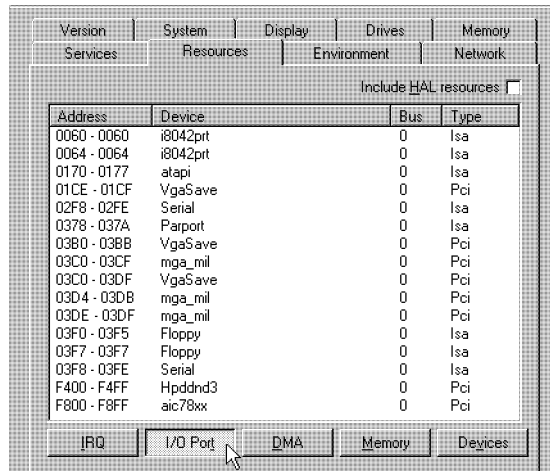
Use the following table to list the IRQs that are being used by your computer.

### IRQs Currently In Use

IRQ	Device Description
3	
5	
9	
10	
11	
12	
14	
15	

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

3. Select the "I/O Port" key (along the bottom of the display) to view the I/O port addresses that are being used by all current devices.



Include HAL resources:

Address	Device	Bus	Type
0060 - 0060	i8042prt	0	Isa
0064 - 0064	i8042prt	0	Isa
0170 - 0177	atapi	0	Isa
01CE - 01CF	VgaSave	0	Pci
02F8 - 02FE	Serial	0	Isa
0378 - 037A	Parport	0	Isa
03B0 - 03BB	VgaSave	0	Pci
03C0 - 03CF	mga_mil	0	Pci
03C0 - 03DF	VgaSave	0	Pci
03D4 - 03DB	mga_mil	0	Pci
03DE - 03DF	mga_mil	0	Pci
03F0 - 03F5	Floppy	0	Isa
03F7 - 03F7	Floppy	0	Isa
03F8 - 03FE	Serial	0	Isa
F400 - F4FF	Hpdnd3	0	Pci
F800 - F8FF	aic78xx	0	Pci

IRQ | I/O Port | DMA | Memory | Devices

**Example of I/O Port Addresses**

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

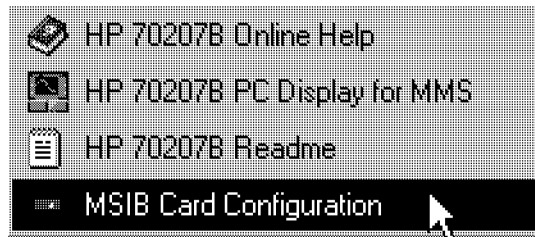
### Setting the IRQ address or I/O port address of the MSIB interface card

#### Note



Administrative access to the computer is required in order to perform this procedure.

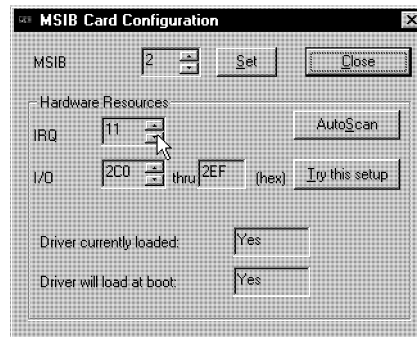
1. From the Microsoft Windows NT 4.0 taskbar, click Start, point to Programs, point to Hewlett-Packard, and click MSIB Card Configuration.



2. Determine which IRQ address you wish to set from the previous section.

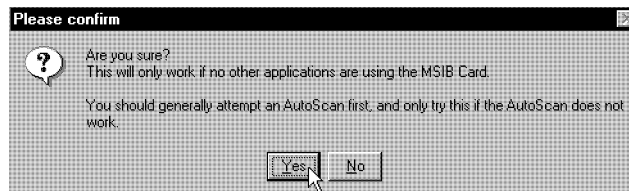
## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

3. Use the **▲** or **▼** keys, on the MSIB Card Configuration dialog box, and select an unoccupied IRQ address for the MSIB interface card.



4. Click the **Try this setup** button.

The following message is displayed to remind you that this function may be performed automatically by selecting the **AutoScan** button.



- Click **No** if you would like to attempt an automatic IRQ and I/O address assignment.
- Click **Yes** if you have already attempted an automatic IRQ and I/O address assignment and failed.

System configuration settings are checked to verify that the IRQ and I/O address being selected is available.

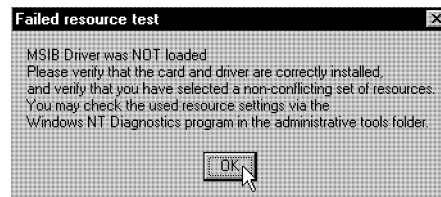
## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

- If an OK dialog box is displayed, click the **OK** button.



Close the MSIB Card Configuration dialog box by clicking its OK button.

- If an OK dialog box is not displayed, repeat Step 2 of this procedure until an IRQ and I/O address is accepted.



5. Repeat the procedure, "Confirming driver and software installation".



## **Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0**

### **Step 8. Before initial use**

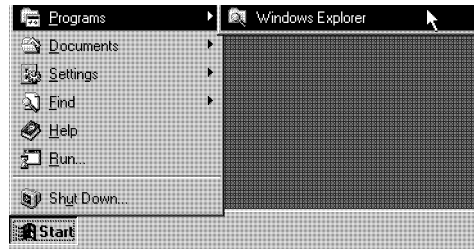
If this is your first time using the HP 70207B PC Display for MMS, it is recommended that you review the Readme.txt file and perform the following procedures.

You should also refer to Chapter 3 to familiarize yourself with some of the main features.

1. To access the Readme.txt file
2. To move the taskbar
3. To create a shortcut icon

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### To access the Readme.txt file



1. From the Microsoft Windows NT 4.0 taskbar, click Start, point to Programs, and click on Windows Explorer.
2. Using the Windows Explorer program, select the drive and folder name of where the HP 70207B PC Display for MMS software was installed; the folder name was designated during initial setup and has a default of C:\Program Files\Hewlett-Packard\HP 70207B.
3. Double-click Readme.txt.  
A Microsoft Windows NT 4.0 application, such as Microsoft WordPad®, is used to view the file.
4. Read the entire file before using the HP 70207B PC Display for MMS program.

## **Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0**

### **To move the taskbar**

If you use Microsoft Windows NT 4.0 with the taskbar along the bottom of your computer display, and depending on which options you have selected on the Taskbar Properties dialog box, the taskbar may cover the bottom portion of the HP 70207B PC Display for MMS image.

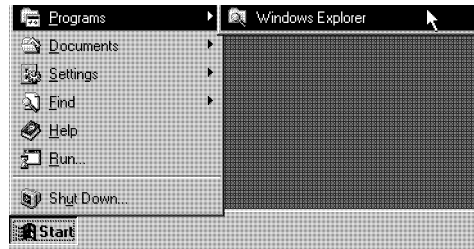
You can either move the taskbar to a different edge of your computer display or you can change the setting on the Taskbar Properties dialog box.

1. To move the taskbar, point to an empty part of the taskbar and then drag it to the location you want.

For information about changing the taskbar settings, refer to your Microsoft Windows NT 4.0 documentation.

## Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0

### To create a shortcut icon



1. From the Microsoft Windows NT 4.0 taskbar, click Start, point to Programs, and click on Windows Explorer.
2. Using the Windows Explorer program, select the drive and folder name of where the HP 70207B PC Display for MMS software was installed; the folder name was designated during initial setup and has a default of C:\Program Files\Hewlett-Packard\HP 70207B.
3. Click once on `mms32.exe` so that it is selected.
4. Click the right-side button on the mouse and select Create Shortcut.
5. Point to the newly created file ("Shortcut to `mms32.exe`").
6. Click and hold this filename then drag it to your computer screen outside of the Windows Explorer program to any desired location.

The HP 70207B PC Display for MMS can be started by clicking on the shortcut icon.

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#### Tip

To remove a shortcut icon:

1. Point to the shortcut icon for the HP 70207B PC Display for MMS.
  2. Click the right-side button on the mouse and select Delete.
-

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## **Part 2. HP 70207B Software Installation Using Microsoft Windows 95**

Installation is broken into three parts.

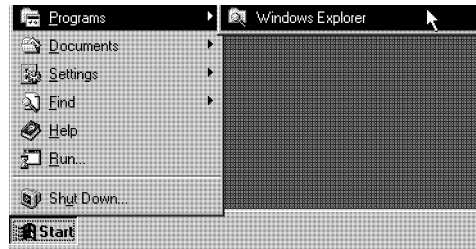
This is Part 2 of installation; it contains information needed to install a new driver and software in a computer using Microsoft Windows 95.

If you get an error message while installing the software, follow the directions in the message and refer to “Installation Problems” in Chapter 2 for troubleshooting instructions.

Part 1. Beginning Hardware Installation .....	1-4
Part 2. HP 70207B Software Installation	
Using Microsoft Windows NT 4.0 .....	1-10
<b>Part 2. HP 70207B Software Installation</b>	
<b>Using Microsoft Windows 95</b>	
Step 5. To access the Readme.txt file .....	1-31
Step 6. (Optional). To remove previous versions	1-32
Step 7. To install a new driver and software ....	1-37
Step 8. Before initial use .....	1-42
Part 3. Completing Hardware Installation .....	1-46

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### Step 5. To access the Readme.txt file



1. If you have not already done so, insert the HP 70207B PC Display for MMS Setup #1 disk into your 3.5-inch high-density floppy disk drive.
2. From the Microsoft Windows 95 taskbar, click Start, point to Programs, and click on Windows Explorer.
3. Using the Windows Explorer program, select the drive containing the Setup #1 disk.
4. Double-click `Readme.txt`. A Microsoft Windows NT 4.0 application, such as Microsoft WordPad®, is used to view the file.
5. Read the entire file before using the HP 70207B PC Display for MMS program.

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### Step 6. (Optional). To remove previous versions

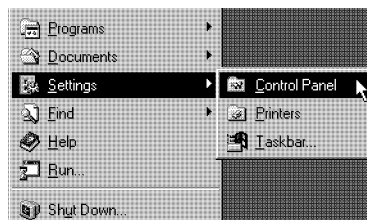
#### Notes

- 
- If this is a first-time installation and there are no previous versions of this software to remove, skip this step and continue with “Step 7. To install a new driver and software”.
  - Prior to installing any new versions, all previous versions of the MSIB interface card driver and HP 70207B PC Display for MMS software (or HP 70207A PC Display for MMS software) must be removed from your computer.
  - During the uninstall process, Microsoft Windows 95 may prompt you to delete various DLL files that it has detected as not being used. If you are not sure about removing a particular file, answer **No** to the prompt and the file will not be removed; it is safe to leave these files on your system.
  - When previous versions of the MSIB interface card driver and the HP 70207B PC Display for MMS software (or HP 70207A PC Display for MMS software) are removed with the following procedure, all data that is properly saved in the Storage folder is retained.
  - Before proceeding, refer to the documentation that you received with your software update for additional information or updates to this procedure.
-

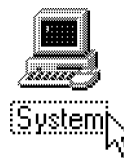
## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### Removing previous drivers

1. From the Microsoft Windows 95 taskbar, click Start, point to Settings, and click on Control Panel.



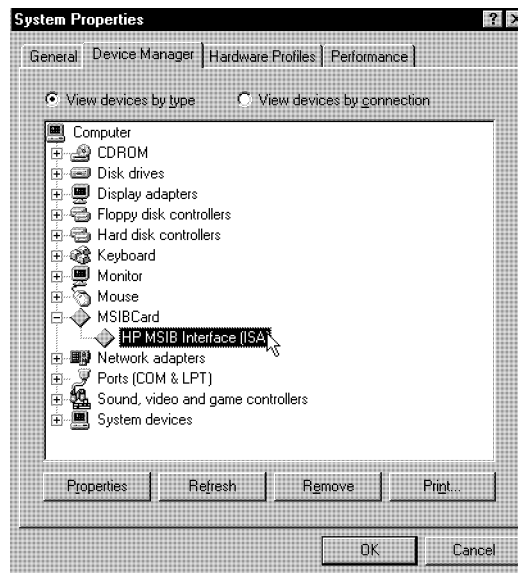
2. From the Control Panel, double-click the System icon.





## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

3. From the hardware list displayed on the System Properties dialog box, under the Device Manager tab, double-click MSIBCard, and then single-click HP MSIB Interface (ISA).



If MSIBCard does not show up on the Device Manager list, your computer may not support Plug and Play devices; this is required for operation with the HP 70207B PC Display for MMS. Refer to the documentation that came with your computer to determine if your computer supports Plug and Play devices.

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

4. Click the Remove box; this deletes the MSIB interface card driver.



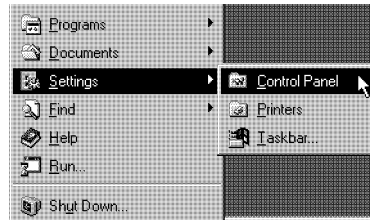
Until a software driver is installed, you will not be able to use the MSIB interface card. (Refer to “Step 7. To install a new driver and software” for instructions on installing the software driver.)

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### Removing previous software

Prior to installing any new versions, all previous versions of the MSIB interface card driver and HP 70207B PC Display for MMS software should be removed from your computer.

1. From the Microsoft Windows 95 taskbar, click Start, point to Settings, and click on Control Panel.



2. From the Control Panel, double-click the Add/Remove Programs icon.



3. From the list displayed on the Add/Remove Programs Properties dialog box, select the name of the HP 70207A/B PC Display for MMS software and click the Add/Remove box.



## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### Step 7. To install a new driver and software

Prior to installing any new versions, all previous versions of the MSIB interface card driver and HP 70207B PC Display for MMS software (or HP 70207A PC Display for MMS software) should be removed from your computer. (Refer to the procedure, “Step 6. (Optional). To remove previous versions”.)

#### Installing the MSIB interface card driver

After completing installation of your MSIB interface card and turning the power on to your computer:

1. Microsoft Windows 95 should detect that new hardware has been added and an Update Device Driver Wizard dialog box should appear.
2. Microsoft Windows 95 should attempt to locate the device driver for the MSIB interface card.

The files `hs1ui.dll` and `h_msib1.vxd` are required for the MSIB interface card to operate. These files are supplied on the Setup #1 disk.

3. When the Update Device Driver Wizard dialog box appears, set the dialog entry box (Copy files from:) to point at the drive containing the Setup #1 disk. (The Setup #1 disk is typically located in drive A which can be designated by typing: `A:\`) You may also use the pull-down arrow located to the right-side of this dialog entry box to select the drive containing the Setup #1 disk.

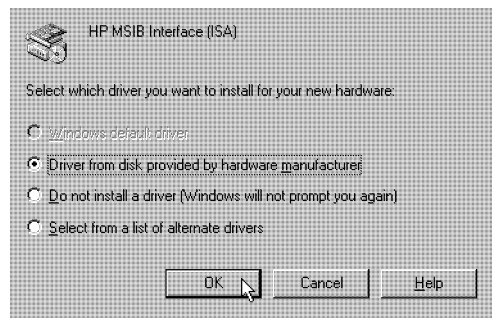


After clicking the OK button, the MSIB interface card driver automatically installs from the Setup disks and configures the MSIB interface card.

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### Note

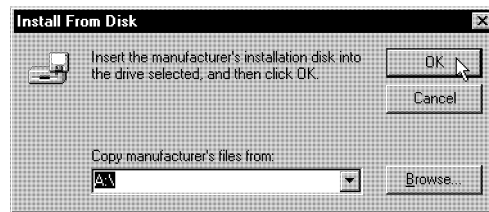
- If you are using Microsoft Windows 95 Version 4.00.950b or above, skip these steps and continue with “Installing the HP 70207B PC Display for MMS software” on Page 1-40.
- If you are using an older version of Microsoft Windows 95 (for example, Version 4.00.950) or Version 4.00.950a), use the following procedure:
  - a. On the dialog box that appears click the OK box.



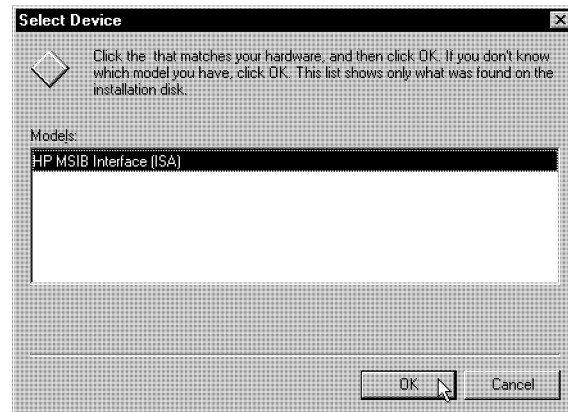
If you are updating from a previous version of software and you have already performed the procedures described under, “Step 6. (Optional). To remove previous versions”, shut down Microsoft Windows 95 and cycle the power on your computer off and then back on so that this dialog box appears.

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

- b. When prompted for a software driver for the MSIB interface card, insert the HP 70207B PC Display for MMS Setup #1 disk into your 3.5-inch high-density floppy disk drive and click the OK box.



- c. On the dialog box that appears click the OK box.

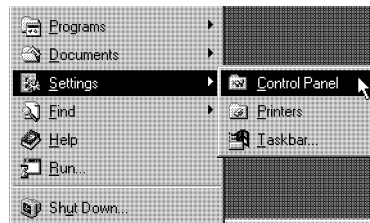


The MSIB interface card driver automatically installs from the Setup disk and configures the MSIB interface card.

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### Installing the software

1. From the Microsoft Windows 95 taskbar, click Start, point to Settings, and click on Control Panel.

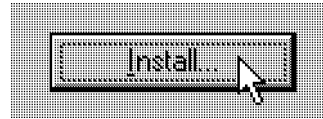


2. From the Control Panel, double-click the Add/Remove Programs icon.



## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

3. Click the Install box.



4. Follow the directions throughout the setup process until the installation is complete.



---

### Security Concerns

During installation, you have the opportunity to set a destination folder.

- If you have security concerns related to saved instrument states, select a disk drive and directory path that can be secured.
  - If the disk drive and directory path location needs to be changed at a later date, the HP 70207B PC Display for MMS software must be removed and reinstalled in a new location.
-



## **Part 2. HP 70207B Software Installation Using Microsoft Windows 95**

### **Step 8. Before initial use**

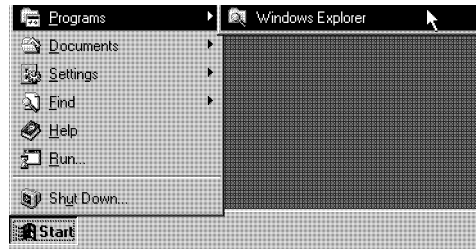
If this is your first time using the HP 70207B PC Display for MMS, it is recommended that you review the Readme.txt file and perform the following procedures.

You should also refer to Chapter 3 to familiarize yourself with some of the main features.

1. To access the Readme.txt file
2. To move the taskbar
3. To create a shortcut icon

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### To access the Readme.txt file



1. From the Microsoft Windows 95 taskbar, click Start, point to Programs, and click on Windows Explorer.
2. Using the Windows Explorer program, select the drive and folder name of where the HP 70207B PC Display for MMS software was installed; the folder name was designated during initial setup and has a default of C:\Program Files\Hewlett-Packard\HP 70207B.
3. Double-click Readme.txt.  
A Microsoft Windows 95 application, such as Microsoft WordPad®, is used to view the file.
4. Read the entire file before using the HP 70207B PC Display for MMS program.

## **Part 2. HP 70207B Software Installation Using Microsoft Windows 95**

### **To move the taskbar**

If you use Microsoft Windows 95 with the taskbar along the bottom of your computer display, and depending on which options you have selected on the Taskbar Properties dialog box, the taskbar may cover the bottom portion of the HP 70207B PC Display for MMS image.

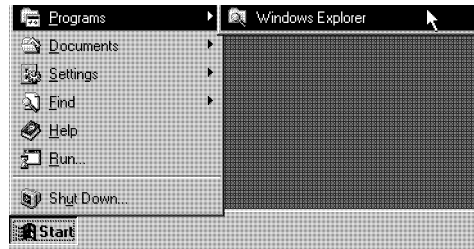
You can either move the taskbar to a different edge of your computer display or you can change the setting on the Taskbar Properties dialog box.

1. To move the taskbar, point to an empty part of the taskbar and then drag it to the location you want.

For information about changing the taskbar settings, refer to your Microsoft Windows 95 documentation.

## Part 2. HP 70207B Software Installation Using Microsoft Windows 95

### To create a shortcut icon



1. From the Microsoft Windows 95 taskbar, click Start, point to Programs, and click on Windows Explorer.
2. Using the Windows Explorer program, select the drive and folder name of where the HP 70207B PC Display for MMS software was installed; the folder name was designated during initial setup and has a default of C:\Program Files\Hewlett-Packard\HP 70207B.
3. Click once on `mms32.exe` so that it is selected.
4. Click the right-side button on the mouse and select Create Shortcut.
5. Point to the newly created file ("Shortcut to `mms32.exe`").
6. Click and hold this filename then drag it to your computer screen outside of the Windows Explorer program to any desired location.

The HP 70207B PC Display for MMS can be started by clicking on the shortcut icon.

---

#### Tip

To remove a shortcut icon:

1. Point to the shortcut icon for the HP 70207B PC Display for MMS.
  2. Click the right-side button on the mouse and select Delete.
-

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## Part 3. Completing Hardware Installation

Installation is broken into three parts.

This is Part 3 of installation; it contains information needed to connect the MSIB interface card and HP 70207B PC Display for MMS into an HP 70000 Series modular measurement system.

Part 1. Beginning Hardware Installation .....	1-4
Part 2. HP 70207B Software Installation	
Using Microsoft Windows NT 4.0 .....	1-10
Part 2. HP 70207B Software Installation	
Using Microsoft Windows 95 .....	1-30
<b>Part 3. Completing Hardware Installation</b>	
Step 9. Connecting the MSIB Y-Cable .....	1-47
Step 10 (Optional).	
Extending MSIB Cable Length .....	1-48

## Part 3. Completing Hardware Installation

### Step 9. Connecting the MSIB Y-Cable

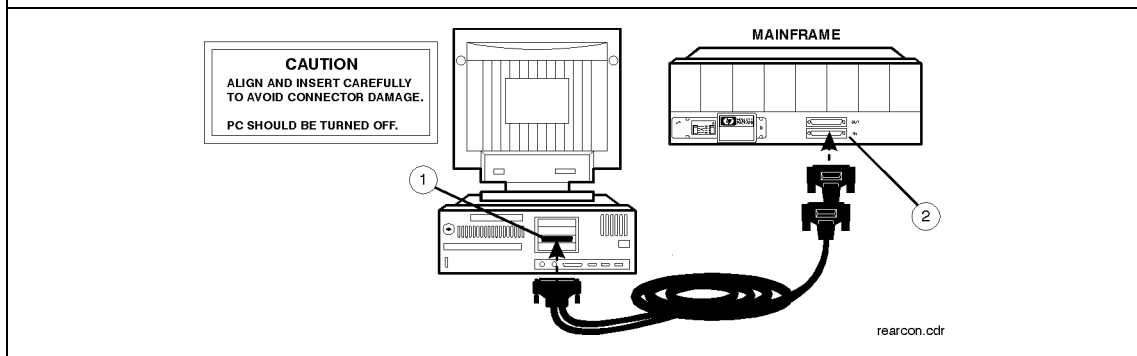
#### CAUTION

Care should be taken when connecting the MSIB Y-cable to the MSIB interface card. Damage can occur if the MSIB Y-cable connection is not properly aligned. Ensure power is not applied while making or removing connections.

1. Remove the protective cap from the MSIB Y-cable and inspect the pins for damage or misalignment. **Do not install MSIB Y-cable if pins are bent or damaged.** If necessary, obtain service from Hewlett-Packard. Refer to "If You Need to Contact Hewlett-Packard" in Chapter 2.
2. Align the MSIB Y-cable to the MSIB interface card's MSIB connector (1).  
**Do not force the connectors together!** (See the above caution.)
3. Tighten the captive-screws on the MSIB Y-cable to the MSIB interface card.  
**Do not over tighten the screws!**
4. Connect the two free-ends of the MSIB Y-cable (that are not connected to the MSIB interface card) to the HP 70001A mainframe's IN and OUT MSIB connectors (2).

The MSIB cables are connected serially, coupling the input of one HP 70001A mainframe to the output of the next until a loop is completed. The cabling shown in this diagram is for a single mainframe MMS system; for more information about cable connections on multiple mainframes, refer to the *HP 70000 Modular Spectrum Analyzer Installation and Verification Manual*.

5. If the MSIB Y-cable is too short for your desired system configuration, refer to the procedure, "Step 10 (Optional). Extending MSIB Cable Length" on the next page.
6. Connect the ac line cord to your computer and display.



### Part 3. Completing Hardware Installation

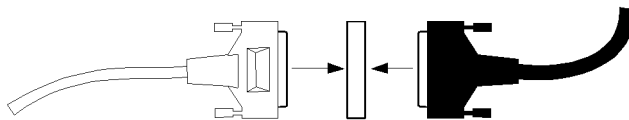
#### Step 10 (Optional). Extending MSIB Cable Length

1. Using MSIB cable adapters, connect additional MSIB cables to the two free-ends of the MSIB Y-cable that are not connected to the MSIB interface card.

An MSIB cable adapter is used between each additional connection. An MSIB cable adapter is a threaded metal clip that allows two MSIB cables to be connected. It uses the male screws from each MSIB cable connector to hold the MSIB connectors mechanically in place.

2. Return to the previous page, “Step 9. Connecting the MSIB Y-Cable”.

**MSIB  
Cable Adapter**



adapt.cdr

MSIB Cables <sup>1</sup>
HP 70800A 0.5 m MSIB cable
HP 70800B 1.0 m MSIB cable
HP 70800C 2.0 m MSIB cable
HP 70800D 6.0 m MSIB cable
HP 70800E 30.0 m MSIB cable
HP 70207-60003 2.5 m MSIB Y-cable
HP 70207-20003 MSIB cable adapter (2 Quantity)

<sup>1</sup> To order MSIB cables, in lengths up to 1.2 km, contact Hewlett-Packard. (Refer to “If You Need to Contact Hewlett-Packard” in Chapter 2.)

## If You Have Problems

---

### Overview

#### In this chapter you will learn about:

- What to do when you have problems with either the installation or the operation of the HP 70207B PC Display for MMS.

This chapter contains information to help identify and resolve some problems that may occur with your HP 70207B PC Display for MMS software or the MSIB interface card.

To help guide you and isolate many problems, we recommend that you check specific items in the following order:

1. Technical Overview ..... 2-2
2. Power-up Problems ..... 2-4
3. Installation Problems ..... 2-6
4. Resolving Resource Conflicts ..... 2-9
5. Error Messages or Error Indications ..... 2-13
6. Dialog Box Messages ..... 2-19
7. Communication on the MSIB I/O ..... 2-24
8. Duplicate MSIB addresses ..... 2-29

For release notes and other information about your particular version of the HP 70207B PC Display for MMS program, refer to the procedure, "To access the Readme.txt file" under "Part 2. HP 70207B Software Installation Using Microsoft Windows NT 4.0" in Chapter 1 or "Part 2. HP 70207B Software Installation Using Microsoft Windows 95" in Chapter 1.



---

## Technical Overview

The HP 70207B PC Display for MMS consists of an MSIB interface card, hardware drivers for the MSIB interface card, software for the user interface, and an MSIB Y-cable that is used to connect between the MSIB interface card in a computer and one or more MMS mainframes or displays.

### MSIB interface card

The MSIB interface card physically installs in a computer using one available ISA slot and connector. The MSIB interface card also has one MSIB connector that is used to connect to the MSIB Y-cable.

The MSIB interface card requires one free IRQ from the following list: 3, 5, 9, 10, 11, 12, 14, or 15. (For further information, refer to “Resolving Resource Conflicts”.)

### Internal MSIB control loop

The internal MSIB control loop is used to communicate with the HP 70207B PC Display for MMS; the MSIB Y-cable is not part of this loop.

### External MSIB control loop

The external MSIB control loop is used to communicate with the MMS system connected through the MSIB Y-cable.

**MSIB Y-cable** The MSIB Y-cable provides connection between a computer and one or more mainframes or displays.

### Hardware drivers

For the the MSIB interface card to operate, one hardware driver named `msibnt.sys` is required for Microsoft Windows NT 4.0, and two

## **Technical Overview**

hardware drivers named `hs1ui.dll` and `h_msib1.vxd` are required for Microsoft Windows 95. These hardware drivers must be installed and properly set up in order to communicate between the MSIB interface card and the HP 70207B PC Display for MMS software. (For further information, refer to the procedure, “To verify operation of the internal MSIB control loop”.)

### **Program software**

Program software is used to provide a user interface for the HP 70207B PC Display for MMS. It consists of all files installed during installation, but do not include the hardware driver files listed above.

---

## Power-up Problems

### If the computer will not complete its power up

#### CAUTION

---

To prevent possible ESD damage, you must be properly grounded with a grounding wrist strap before touching the MSIB interface card.

---

- Remove the MSIB interface card using the reverse of the MSIB interface card installation procedure.

If the computer will not complete its power up during the original installation, verify that your computer system includes at least the minimum system requirements necessary to install and run the HP 70207B PC Display for MMS. Refer to “Preparing for Installation” in Chapter 1.

- Attempt to restart the computer.
  - If it boots up without any errors, then the MSIB interface card may be bad, or there may be a resource conflict.
  - If this problem occurs during installation, refer to “Resolving Resource Conflicts”.
- Examine the MSIB interface card and the computer’s connector for any obvious physical damage.

If you do not see any obvious damage, you can try reinstalling the MSIB interface card using the installation procedure. If the problem repeats itself, the MSIB interface card may be bad, or there may be a resource conflict.

- If necessary, obtain service from Hewlett-Packard. Refer to “If You Need to Contact Hewlett-Packard”.

## Power-up Problems

### **If the MSIB interface card does not complete power up or If the system's power-on self test fails**

Each time the HP 70000 Series modular measurement system is turned on, the system runs through an initializing routine (power-on self test) during which the front panel STATUS LEDs on each module flash on momentarily and then turn off.

The MSIB interface card, used with the HP 70207B PC Display for MMS software, executes a power-on self-test when power is applied. If the self-test fails, the HP 70207B PC Display for MMS terminates the sequence and displays a dialog box with indications of the problem.

To solve this problem:

- Refer to the sections, "Installation Problems", "Error Messages or Error Indications", and "Dialog Box Messages".

---

## Installation Problems

Installation involves the installation of an MSIB interface card, connection to one or more HP 70001A mainframes using an MSIB Y-cable, and the installation of software files from the Setup disks. For installation instructions, refer to Chapter 1.

### To verify operation of the internal MSIB control loop:

1. Ensure that the HP 70207B PC Display for MMS program is not running.
2. Disconnect the MSIB Y-cable from the MSIB interface card.
3. Start the HP 70207B PC Display for MMS program and observe its behavior.

If everything is operating correctly, you should observe the following conditions:

- the user interface should appear
- several screens of information are displayed

```
Hardware control subsystem initializing ...
Installing hardware drivers:
MSIB32.DLL

Starting up the hardware control subsystem...
```

```
MSIB in Reset ...
```

- Note that the red MSIB indicator is on.

## Installation Problems

- Note that the MSIB indicator is extinguished.

```
MSIB Reset Released
Testing module presence...

Gathering module capabilities
Identifying module (0,2): PC Display
```

- Note “(0,2)” may be different for your configuration.

Either the HP 70207B PC Display for MMS title screen or a blank screen will be displayed. This is dependent on the last state of the program when it was shut down. To display the title screen, select Break Links from the pull down Instrument menu.

4. Select “Address Map” using the mouse. The HP 70207B PC Display for MMS should be shown at its current column address.

Installation is verified if all of the above steps above occurred in a reasonable amount of time (approximately 20 seconds). If any step took a very long time, then this is indicative of a resource conflict. (For further information, refer to “Resolving Resource Conflicts”.)

### To verify operation of the external MSIB control loop

The previous documented procedure, “To verify operation of the internal MSIB control loop”, must have passed.

1. Shut down the computer and attach the MSIB Y-cable to the computer.
2. Restart the computer.
3. Connect the MSIB Y-cable ends together.
4. Start the HP 70207B PC Display for MMS application.

## **Installation Problems**

5. You should have observed the same results as in the previous documented procedure, “To verify operation of the internal MSIB control loop”.

## Resolving Resource Conflicts

1. Print and read the `Readme.txt` file that is located in the installation directory for the HP 70207B PC Display for MMS.
2. Follow the instructions in the `Readme.txt` file to resolve any IRQ or IO port range conflicts.
3. Verify a successful installation using the previous documented procedure, "To verify operation of the internal MSIB control loop".

**If a window titled `Mms32` appears when starting the program with an error message**

An error has occurred in your program. To keep working anyway, click Ignore and save your work in a new file. To quit this program, click Close. You will lose information you entered since your last Save.

This is usually caused by having 16 colors in the color palette. The HP 70207B PC Display for MMS program requires 256 colors.

To solve this problem:

1. Select Close.  
This will cause another error box to be displayed.
2. Select Close on 2nd Error box.
3. Change your settings in the Display Properties to 256 colors.



## Resolving Resource Conflicts

### If a window titled “Unable to access MSIB Driver” is displayed with text

Unable to access HSIB card.  
Please verify that the HSIB card is installed,  
and that the card is configured properly.

This error can occur in windows95; and indicates the MSIB card is not installed, or the hardware drivers were unable to load or were unable to be configured.

To solve these problems:

1. Ensure there is an MSIB card installed in the computer.
2. Reinstall the hardware drivers using the Add/Remove Programs program in the Control Panel file window.
3. Refer to the “Resolve Resource Conflicts” section.

### If a window titled “Unable to access MSIB Driver” is displayed with text

The device driver for the HSIB Card could not be configured automatically.  
This can be due to the card not being present in the system, or the auto-config for the card failing.  
If the card is installed, you may attempt to set a manual configuration with the HSIB Card Configuration tool. You may also need to remove unused peripherals from your PC to free resources that could be used by the HSIB Card."

This error can occur in Microsoft Windows NT 4.0 and indicates that we couldn't successfully load the device driver. The reasons are specified in the text.

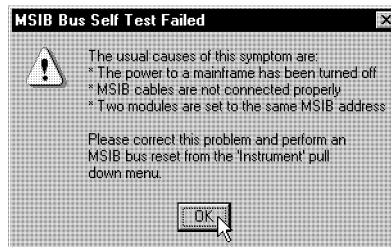
## **Resolving Resource Conflicts**

To solve these problems:

1. Ensure there is an MSIB card installed in the computer.
2. Reinstall the hardware drivers using Add/Remove Programs in the Control Panel file window.
3. Refer to the “Resolve Resource Conflicts” section.

## Resolving Resource Conflicts

### If you have problems with the MSIB interface card or the MSIB loop



The MSIB Bus Self Test Failed screen may appear:

- if the power to a mainframe has been turned off
- if the MSIB cables are not connected properly
- if two modules are set to the same MSIB address
- if the MSIB interface card is not installed properly or not responding
- if the MSIB interface card driver can not be found or detected by Microsoft Windows
- Check that you have installed the MSIB interface card properly.

For instructions on installing the MSIB interface card, refer to "Part 1. Beginning Hardware Installation" in Chapter 1.

## **Error Messages or Error Indications**

Symptoms of various problems with possible causes and solutions are listed. The symptoms are listed in the order they should be considered. Each symptom has a brief description or explanation to help provide insight into their cause. A solution or list of possible solutions are then presented. You may be referred to some more detailed procedures that follow this list.

- If necessary, obtain service from Hewlett-Packard. Refer to “If You Need to Contact Hewlett-Packard”.

### **If the red MSIB indicator is on**

An external MMS mainframe is enabling the reset line, or an MSIB cable is disconnected.

To solve this problem:

1. Check that all MMS mainframes are powered up.
2. Check that all of the MSIB loop is connected.
3. Restart the HP 70207B PC Display for MMS program.

If the indication remains the same, then an MMS mainframe is still enabling the reset line.

For additional information, refer to “Communication on the MSIB I/O”.

### **If a window titled “MSIB Bus Self Test Failed” is displayed with text**

The usual causes of this symptom are:

- \* The power to a mainframe has been turned off
- \* MSIB cables are not connected properly
- \* Two modules are set to the same MSIB address

Please correct this problem and perform an MSIB Reset from the pull down Instrument menu.

## **Error Messages or Error Indications**

This is a general MSIB error. The reasons are specified. This is usually a connection issue of cables or addresses.

To solve these problems:

1. Check that the MSIB cables are connected.
2. Check that all mainframes are powered up.
3. Select Reset from the pull down Instrument menu.

If this does not clear the problem then there may be an address conflict between two MMS modules other than the HP 70207B PC Display for MMS.

The modules in conflict may be flashing their ERR lamps at a 1 Hz rate.

To solve this problem:

- a. Verify that each MMS module has a unique MSIB address.

To determine the correct configuration and location of the MSIB address switches, refer to the installation and verification manuals for the MMS modules in your system.

- b. Restart the HP 70207B PC Display for MMS program.

(For further information, refer to “Duplicate MSIB Addresses”.)

**If a window titled “MSIB Presence Scan Failed” is displayed with text**

Unable to transmit to module (X, Y)  
Please check your MSIB modules, addresses, and cabling  
and restart this application.

### **Error Messages or Error Indications**

X and Y are the MSIB row and column address that failed to communicate on the bus. The actual module affected may be one less than the address indicated.

This is usually caused by an address conflict with the HP 70207B PC Display for MMS.

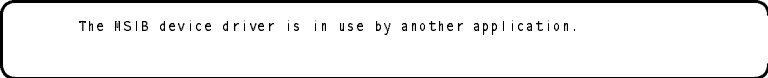
To solve this problem:

1. Verify that each MMS module has a unique MSIB address.

To determine the correct configuration and location of the MSIB address switches, refer to the installation and verification manuals for the MMS modules in your system.

2. Restart the HP 70207B PC Display for MMS program.  
(For further information, refer to “Duplicate MSIB Addresses”.)

**If a window titled “Unable to access MSIB Driver” is displayed with text**



The MSIB device driver is in use by another application.

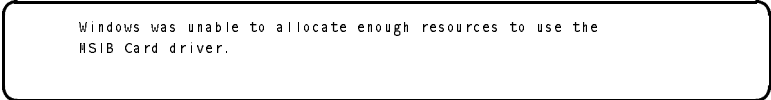
This is usually caused when the program was shut down and restarted too quickly.

To solve this problem:

1. Wait several seconds and try to run the program again.
2. If step 1 did not solve the problem shut down and reboot windows95; or Microsoft Windows NT 4.0.

## **Error Messages or Error Indications**

### **If a window titled “Unable to access MSIB Driver” is displayed with text**



Windows was unable to allocate enough resources to use the MSIB Card driver.

The hardware driver could not get enough memory from the system to operate.

To solve this problem:

1. Shut down other programs and try to run the program again.
2. If step 1 did not solve the problem. Shut down and reboot the computer.

### **If “None of the Row 0 modules accepts display” is displayed at bottom of the display area after pressing “Next Instr”**

This indicates that the HP 70207B PC Display for MMS is not finding any master modules on Row 0 in the address Map.

Possible causes:

- The MSIB Y-cable is not connected to the PC.
- There are no master modules in the system.
- The HP 70207B PC Display for MMS was abnormally interrupted.
- The HP 70207B PC Display for MMS was put into pass-through mode.

To solve these problems:

1. Check that the MSIB Y-cable is connected properly.
2. Select Address Map and examine it for master modules on Row 0. If there are some master modules or you

### **Error Messages or Error Indications**

know there should be, then select Reset on the pull down Instrument menu.

If this does not solve the problem, then close and restart the HP 70207B PC Display for MMS program.



## Error Messages or Error Indications

### If the red “E” in the upper-left corner of the display is on

An error is being reported by an MMS master module. If any module fails the power-on self test, it may not establish a link with the HP 70207B PC Display for MMS.

If it does establish a link and there is an error to report, a red E will appear in the system state region located in the upper-left corner of the HP 70207B PC Display for MMS screen.

This E is the same as the red LED marked “ERR” on other HP 70000 Series modules. Its purpose is to indicate an error detected by one of the master modules on MSIB ROW 0 of the address map.

To solve this problem:

1. Click **DISPLAY REPORT ERRORS**.

This will bring up a Reported Errors dialog box with a list of errors being reported by all master modules in the system. You can copy the errors to the Clipboard for documentation purposes by highlighting the text, clicking the right mouse button, and selecting Copy from the displayed menu. Further local control of the HP 70207B PC Display for MMS is inhibited until the **OK** button is selected.

For additional information, refer to the documentation for the module that is reporting the error.

## Dialog Box Messages

### **“DLL version mismatch” “Out of mem, or DLL corrupt” “DLL not found” “Path not found” “Sharing Error” “Unknown Error”**

A DLL error occurred.

To solve this problem:

1. Note the complete message for future use if necessary.
2. Perform the Uninstall procedure.
3. Reinstall the HP 70207B PC Display for MMS using Setup.

For additional information, refer to Chapter 1.

### **“HP 70207B Storage. The storage file has an invalid lif header and may need to be reformatted.”**

The LIF\_VOL file is not configured in a LIF format. This may have been caused by a master module formatting the LIF\_VOL file in a format other than LIF.

To solve this problem:

1. Purge the LIF\_VOL file.

Although your instrument may support formats other than LIF, the HP 70207B PC Display for MMS only supports the LIF format when working with the LIF\_VOL file.

2. Restart the HP 70207B PC Display for MMS program.

For additional information, refer to the Microsoft Windows 95 documentation.

## Dialog Box Messages

### **“Data File Record, Available disk space less than 5 megabytes: Shutting off Data Recording”**

You have run out of disk space for data recording. This is a function of the size of your hard drive or other storage device. You may have forgotten to stop data recording.

To solve this problem:

1. If you have forgotten, stop data recording.

You may want to purge the file that has been storing data.

2. To record further, transfer the file that you chose for the recording onto another media.

For additional information, refer to the procedure, “To record a work session in a data file” in Chapter 4, and to the Microsoft Windows 95 documentation.

## Dialog Box Messages

### **“Out of memory, Unable to allocate memory” or “Out of Memory, Import aborted: Not enough memory to hold file”**

You do not have enough memory to run the HP 70207B PC Display for MMS program or import a file. You may have too many other programs running at the same time.

To solve this problem:

1. Verify that your computer system includes at least the minimum system requirements necessary to install and run the HP 70207B PC Display for MMS.
2. Shut down other programs as necessary.
3. You may have to restart Microsoft Windows 95 in order to regain memory from other programs.

For additional information, refer to “Preparing for Installation” in Chapter 1.

### **“Import aborted. File system busy (Open files)”**

The LIF\_VOL file is currently being used by another MMS master module.

To solve this problem:

1. Determine which MMS master module is currently using the LIF\_VOL file, and wait until it has finished its operation.

You may have to exit the other MMS master module's storage menus.

## Dialog Box Messages

### **“Import aborted. Error opening external lif volume” or "Import to storage file, Import aborted: Unable to read lif dir entry in external lif volume"**

The DLP you are loading from is not in LIF format or the file is unreadable.

To solve this problem:

1. Verify that the file is in LIF format.  
HP 70207B PC Display for MMS only supports LIF format. Compatible DLPs end with a three character .lif extension (for example, filename.lif).
2. If you have a backup copy of the file in LIF format, use it to create a working copy.
3. Try again, using the working copy, to copy the DLP to the LIF\_VOL file.

### **“Import aborted. Error writing file. Error . . . ”**

You do not have enough room in your LIF\_VOL file for the file or DLP, or another file error has occurred.

To solve this problem:

1. You may need to create a new LIF\_VOL file.
2. May need to purge some existing files (DLPs, state, etc.) from the LIF\_VOL file.

The process of purging files from the LIF\_VOL file is performed through the menu keys of a master module.

For additional information, refer to “Working with the LIF“VOL File” in Chapter 4, and the documentation for the master module.

---

#### **Note**

Importing a DLP from a floppy disk will first import the file to the LIF\_VOL file, and then the DLP is available to be loaded into an MMS master module.

---

## Dialog Box Messages

### **“Import aborted. Error opening read file. Error: ... ” or “Import aborted. Error reading file. Error: ... ”**

Unable to read a DLP from the floppy disk drive.

To solve this problem:

1. Ensure you are using the correct disk.
2. If you have a backup copy of the file in LIF format, use it to create a working copy.
3. Try again, using the working copy, to copy the DLP to the LIF\_VOL file.

### **“Import aborted. Error opening write lif file. Error: ... ”**

Unable to load a DLP to the LIF\_VOL file.

To solve this problem:

1. Rename the LIF\_VOL file to another filename.
2. Restart the HP 70207B PC Display for MMS program.

This causes a new LIF\_VOL file to be created.

For additional information, refer to the procedure, “To create multiple LIF\_VOL files” in Chapter 4, and to the Microsoft Windows 95 documentation.

### **“Macro, The Time Interval must be greater than one second”**

Time interval is too short for macro to execute commands.

To solve this problem:

1. Increase the time interval to greater than one second.

In addition, the time interval must be greater than the time it takes to complete the slowest command.

---

## Communication on the MSIB I/O

### Notes

- All references to MMS mainframes also include MMS stand-alone instruments that operate on the external MSIB.
  - For additional troubleshooting procedures that are not covered in this document, refer to the documentation supplied with each module.
- 

### Preliminary checks:

- Check that MSIB communications are working.  
To determine if MSIB communications are working:
  1. Restart the HP 70207B PC Display for MMS program.
  2. Click **DISPLAY** **Address Map**.
  3. Verify that the MSIB address map contains all of the addressable MMS modules in your system. You may need to scroll the address map to view the complete system.
- Check that the MSIB loop is complete.  
If more than one MMS mainframe is connected to the MSIB, all MSIB cables must be connected forming a loop with the “MSIB OUT” of one MMS mainframe connected to the “MSIB IN” of the next MMS mainframe, otherwise the MSIB cannot operate.
- Check that all ends of all MSIB cables are seated securely so that the external MSIB loop is complete.  
Do not over-tighten the attaching screws during this process.  
If all MMS mainframes and the HP 70207B PC Display for MMS’s MSIB error lights remain off, continue to the procedure, “To check MSIB cables”.

## Isolating a catastrophic problem to a specific MMS mainframe or MMS module

### Note

---

If you have multiple MMS mainframes, repeat this procedure for each MMS mainframe.

---

If a module has a catastrophic problem during power up, it may cause any of the following indications:

- a blank display on an HP 70004A color display
- a VOLT/TEMP or CURRENT light on the MMS mainframe
- any other error light on the MMS mainframe that it is installed in
- it may flash its own error light at a 1 Hz rate
- it may not respond at all (if it is dead)

To isolate a problem to a specific MMS mainframe or MMS module:

1. Turn power off to all MMS mainframes.
2. Disconnect all MSIB cables from the MMS mainframe.  
Each MMS mainframe should be isolated from the rest of the system.
3. Turn power on to the MMS mainframe being tested.
4. Check that you have power to the MMS mainframe.

You should be able to hear the fan or feel the air flow from the fan if the MMS mainframe is operating. All error lights on the MMS mainframe should be off.



## Communication on the MSIB I/O

If you have one of the following symptoms:

- I/O error or HP-MSIB error light on the MMS mainframe (MSIB cables disconnected):

This indicates a problem with the MMS mainframe. For additional information, refer to the service guide for the MMS mainframe.

- Fan not operating, VOLT/TEMP light on, CURRENT light on, or blank display on a HP 70004A color display:

This indicates either the MMS mainframe is faulty or one of the MMS modules is preventing it from operating.

### CAUTION

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When removing or installing MMS modules, the power to the MMS mainframe must be off. Do not remove or install modules with power applied to the MMS mainframe.

---

To solve this problem:

1. Remove the modules one at a time to determine what instrument is causing this problem.

For additional information, refer to that module's service documentation.

- No problem indications after all MMS mainframes have been checked.

If the MMS mainframe appears to function correctly with the fan operating and there are no error lights with the MSIB cables disconnected, then:

- one of the MSIB cables was not seated fully
- one of the MSIB cables is faulty
- the MMS mainframe is unable to communicate on the MSIB

For additional information, refer to the procedure, "To check MSIB cables".

## Communication on the MSIB I/O

### To check MSIB cables

Because the MSIB loop is connected in series, any one of the MSIB cables or MMS mainframes could disrupt MSIB communication. If any one of the MSIB cables or MMS mainframes in a system are defective, the entire MSIB loop will not work.

- Check that MSIB communications are working.

To determine if MSIB communications are working:

1. Restart the HP 70207B PC Display for MMS program.
2. Click **DISPLAY** **Address Map**.
3. Verify that the MSIB address map contains all of the addressable MMS modules in your system. You may need to scroll the address map to view the complete system.

- Check that the MSIB interface card, MSIB Y-cable, and the HP 70207B PC Display for MMS are operating correctly.

To check operation of the MSIB interface card, MSIB Y-cable, and the HP 70207B PC Display for MMS:

1. Close the HP 70207B PC Display for MMS program.
2. Connect the two free-ends of the MSIB Y-cable together. (The ends that are not connected to the MSIB interface card.)
3. Start the HP 70207B PC Display for MMS program.
4. Click **Break Links**, available from the pull down Instrument menu.

The title screen for the HP 70207B PC Display for MMS should be displayed.

5. Click **Address Map**.

Only the HP 70207B PC Display for MMS should be in the address map. You may need to scroll the address map.

If you receive error messages during this procedure refer to the sections, "Installation Problems", "Error Messages or Error Indications", and "Dialog Box Messages".

## Communication on the MSIB I/O

- Check mainframes and cables are operating correctly.

To check that mainframes and cables are operating correctly:

1. Set up a minimum system with only the HP 70207B PC Display for MMS and a single MMS mainframe.

If this single MMS mainframe system works, then you can check the MSIB cables (70800X cables) by inserting them in series between one of the ends from the MSIB Y-cable and the MMS mainframe, and then restarting the HP 70207B PC Display for MMS.

If this single MMS mainframe system does not work, then refer to the “Single mainframe system”.

2. If the single MMS mainframe system and all of the MSIB cables are good, then substitute the remaining MMS mainframes (each time forming a single MMS mainframe system) until the problem is located.

If the problem has not been located, verify that the system does not have modules with duplicate MSIB addresses. For additional information, refer to the section, “Duplicate MSIB Addresses”.

- If necessary, obtain service from Hewlett-Packard. Refer to “If You Need to Contact Hewlett-Packard”.

## Duplicate MSIB Addresses

### CAUTION

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When removing or installing MMS modules, the power to the MMS mainframe must be off. Do not remove or install modules with power applied to the MMS mainframe.

---

All modules in an MMS system must have a unique MSIB row and column address. If two or more modules have the same MSIB address, the MSIB bus can not be used for communication. When you find the conflicting MMS modules, you will have to change one of them to a new MSIB address that is unoccupied. You will also need to reevaluate the system that the module was in to see if the system addressing is correct for that system. For additional information, refer to the documentation for that system.

## Duplicate MSIB Addresses

### To isolate an MSIB addressing conflict:

#### Method 1

Remove all modules and compare their MSIB addresses to each other and to the HP 70207B PC Display for MMS. You will need to change the MSIB address on one of the conflicting modules.

#### Method 2

Methods 2 and 3 depends on the error indication.

If a window titled “MSIB Bus Self Test Failed” is displayed with text

The usual causes of this symptom are:  
\* The power to a mainframe has been turned off  
\* MSIB cables are not connected properly  
\* Two modules are set to the same MSIB address

Please correct this problem and perform an  
MSIB Reset from the pull down instrument menu.

This is a general MSIB error. The reasons are specified. This is usually a connection issue of cables or addresses.

To solve this problem:

1. Turn off power to all MMS mainframes.
2. Remove all modules from the MMS mainframes, and turn power back on.
3. Restart the HP 70207B PC Display for MMS program.
4. Click **DISPLAY** Address Map.
5. Verify that the MSIB address map contains only the HP 70207B PC Display for MMS.

## Duplicate MSIB Addresses

### CAUTION

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When removing or installing MMS modules, the power to the MMS mainframe must be off. Do not remove or install modules with power applied to the MMS mainframe.

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6. Insert each module one by one, restart the HP 70207B PC Display for MMS and examine the address map.

The address map should contain the HP 70207B PC Display for MMS and the modules you have inserted.

7. Note the MSIB address of each module that you install.

If the address map displays only the HP 70207B PC Display for MMS, then the last module that you installed is the module that is in conflict with one of the previously installed modules. Compare the MSIB address of this module against the MSIB address switch settings of all previously installed modules. One of the conflicting modules MSIB address will need to be changed.

### Method 3

Methods 2 and 3 depends on the error indication.

If a window titled “MSIB Presence Scan Failed” is displayed with text

Unable to transmit to module (X, Y)  
Please check your MSIB modules, addresses, and cabling  
and restart this application.

X and Y are the MSIB row and column address that failed to communicate on the bus. The actual module affected may be one less than the address indicated.

To solve this problem:

1. Note the MSIB address of the HP 70207B PC Display for MMS.

## **Duplicate MSIB Addresses**

Click on About to display the MSIB address of the HP 70207B PC Display for MMS

The MSIB address of the HP 70207B PC Display for MMS can be displayed by clicking on About which is available from the pull down Help menu.

2. Locate the module it is in conflict with by examining each of MSIB address on each of the MMS modules that can communicate over the MSIB.

The MSIB address is usually set using address switches (DIP switches) that are accessed through the cover of each module. When the conflicting MMS module is found, you will need to change the MSIB address of the HP 70207B PC Display for MMS or the conflicting module.

To change the MSIB address of the HP 70207B PC Display for MMS refer to the procedure, "To set the MSIB address of the MSIB interface card" and to change the address of the conflicting module refer to its documentation.

## If You Need to Contact Hewlett-Packard

Before calling Hewlett-Packard or returning your MSIB interface card, please read your warranty information. Warranty information is printed at the front of this document.

In any correspondence or telephone conversations, refer to the MSIB interface card by its full model number. With this information, the Hewlett-Packard representative can determine whether your unit is still within its warranty period.

If it is possible, start the HP 70207B PC Display for MMS program, click on About which is available from the pull down Help menu, and note the revision of the HP 70207B PC Display for MMS software.

To help isolate any problems, have available:

- the exact key sequences that generated the problem
- a list of instrument model numbers used in the system
- any other information that may help isolate the problem

A current list of Hewlett-Packard Service Centers can be accessed on the Internet at:  
<http://www.tmo.hp.com/tmo/contacts/>

If you do not have access to the Internet, one of the following Hewlett-Packard locations can direct you to your nearest Hewlett-Packard representative:



## If You Need to Contact Hewlett-Packard

### HP Service Centers

<b>United States</b>	Hewlett-Packard Company Test and Measurement Call Center 24 Inverness Place East Englewood, CO 80112 (800) 403-0801 (800) 857-8161 (FAX)
<b>Canada</b>	Hewlett-Packard Canada Ltd. 5150 Spectrum Way Mississauga, Ontario L4W 5G1 (905) 206-4725 (905) 206-4739 (FAX)
<b>Europe</b>	Hewlett-Packard European Marketing Centre Postbox 667 1180 AR Arnstelveen Netherlands (31/20) 547-6669 (31/20) 647-8706
<b>Japan</b>	Hewlett-Packard Japan Ltd. 27-15, Yabe 1-Chome, Sagamihara, Kanagawa 229 Japan (81426) 567 832 (81426) 567 843 (FAX)
<b>Latin America</b>	Hewlett-Packard Latin America Region Headquarters 5200 Blue Lagoon Drive, 9th Floor Miami, Florida 33126 U.S.A. (305) 267 4245 (305) 267 4288 (FAX)
<b>Australia/New Zealand</b>	Hewlett-Packard Calibration Services Australia Ltd. 31-41 Joseph Street Blackburn, Victoria 3130 Australia 1800 802 540 1800 681 776 (FAX)
<b>Asia-Pacific</b>	Hewlett-Packard Asia-Pacific Ltd. 17-21/F Shell Tower, Times Square 1 Matheson Street, Causeway Bay Hong Kong (852) 25 997 777 (852) 25 069 261 (FAX)

## Returning Your MSIB Interface Card to Hewlett-Packard

Hewlett-Packard has sales and service offices around the world to provide complete support for your MSIB interface card. To obtain servicing information or to order replacement parts, contact your nearest Hewlett-Packard sales and service office.

Use the following procedure to return your MSIB interface card to Hewlett-Packard:

1. Fill out a service tag (available at the end of this document) and attach it to the MSIB interface card. Please be as specific as possible about the nature of the problem. Send a copy of any or all of the following information:
  - any error messages that appeared on the display screen
  - any other specific data on the performance of the MSIB interface card

### CAUTION

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Damage can result if the original packaging materials are not used. Packaging materials should be anti-static and should cushion the MSIB interface card on all sides.

Never use styrene pellets in any shape as packaging materials. They do not adequately cushion the MSIB interface card or prevent it from moving in the shipping container. Styrene pellets can also cause equipment damage by generating static electricity.

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2. Place the MSIB interface card in its original ESD packaging materials.

If the original ESD packaging materials are not available, you can contact a Hewlett-Packard sales and service office to obtain information on ESD packaging materials.

3. Place the MSIB interface card, after wrapping it with ESD packaging material, in its original shipping container or a strong shipping container that is made

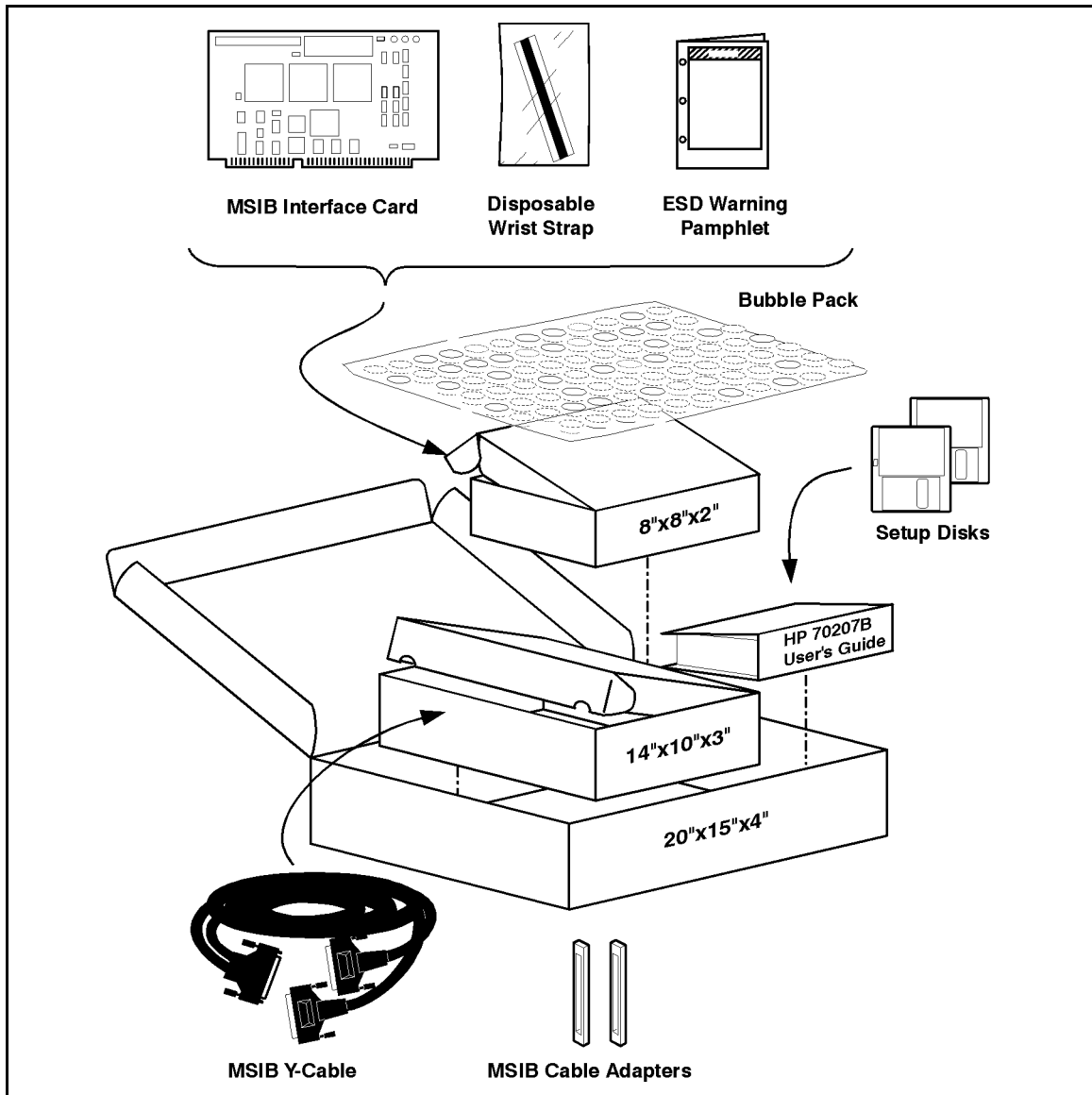
### **Returning Your MSIB Interface Card to Hewlett-Packard**

of double-walled corrugated cardboard with 159 kg (350 lb) bursting strength.

The shipping container must be both large enough and strong enough to accommodate your MSIB interface card and allow at least 3 to 4 inches on all sides for packing material.

4. Seal the shipping container securely with strong nylon adhesive tape.
5. Mark the shipping container "FRAGILE, HANDLE WITH CARE" to help ensure careful handling.
6. Retain copies of all shipping papers.

## Returning Your MSIB Interface Card to Hewlett-Packard



## Returning Your MSIB Interface Card to Hewlett-Packard

One:	<i>HP 70207B User's Guide</i>
Two:	Setup Disks
One:	HP 9300-1408 Disposable Grounding Wrist Strap
One:	HP 5957-4369 Electrostatic Discharge (ESD) Warning Pamphlet
One:	HP 70207-60007 MSIB Interface Card <b>(Do not touch until properly ESD safe!)</b>
One:	HP 70207-60003 2.5 m MSIB Y-Cable
Two:	HP 70207-20003 MSIB cable adapters
One:	HP 9211-2932 Carton-outer (20x15x4)
One:	HP 9211-6262 Carton-inner (8x8x2) for MSIB Interface Card
One:	HP 9211-4207 Carton-outer (14x10x3) for MSIB Y-cable
One:	HP 9223-0606 Bubble Pack Sheet (18x24)
(Optional):	Computer and Monitor with Microsoft Windows NT 4.0 Installed
(Optional):	Computer and Monitor with Microsoft Windows 95 Installed

## Introducing HP 70207B PC Display for MMS

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### Overview

#### In this chapter you will learn about:

- Main features of the HP 70207B PC Display for MMS.
- Regions of the display screen, and the kinds of information that can be found in each region.
- Front panel hard-labeled keys and their use.
- Instrument keypads that can be selected.

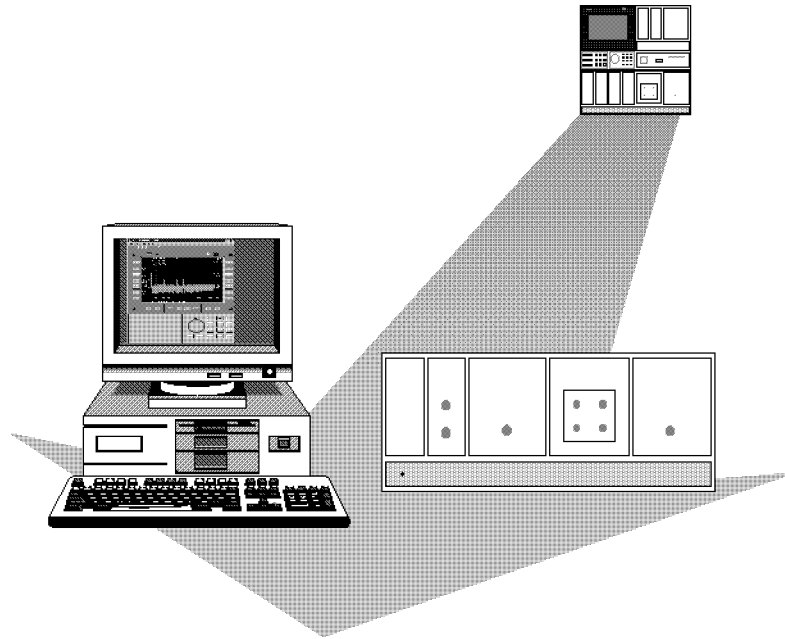
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This chapter presents a first look at the HP 70207B PC Display for MMS. You will be introduced to some of the main features. Then, you will learn about the different regions of the display. Finally, you'll learn what each of the front panel hard-labeled keys can do as well as how to use and access different instrument keypads.

Main Features .....	3-2
Front Panel Regions and Hard-Labeled Keys .....	3-7
Selectable Instrument Keypads .....	3-13

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## Main Features



The HP 70207B PC Display for MMS includes a third-party software package that runs on both Microsoft Windows NT 4.0 and Windows 95 and works in conjunction with an MSIB interface card; together, they serve as the “front panel interface” and operate similar in functionality to the HP 70004A color display. Because the HP 70207B PC Display for MMS runs on the Microsoft Windows environment, it has many added convenient features enabled such as color printing and pasting display outputs into other applications.

If you are familiar with the operation of the HP 70004A color display front panel, you will be pleased to see that the HP 70207B PC Display for MMS operates in a similar fashion for instruments in the HP 70000 Series modular measurement system. It is possible to use one HP 70207B PC Display for MMS in a single measurement system or with multiple measurement systems.

### 3-2 Introducing HP 70207B PC Display for MMS

## **Main Features**

Some of the main features of the HP 70207B PC Display for MMS include:

### **Plug and Play Installation**

If you are running under Microsoft Windows 95, installation is easy with personal computer Plug and Play standards. The MSIB interface card (printed circuit board) is installed in any available 16-bit ISA slot in the computer, the software driver and the HP 70207B PC Display for MMS program are installed, cables are connected between the MSIB interface card and instrumentation, and the system is ready to use.

If you are running under Microsoft Windows NT 4.0, installation does not use Plug and Play standards.

**Main Interface** The main interface driver, after installation, runs under Microsoft Windows and operates similar in functionality to the HP 70004A color display. The main interface can display both MMS and non-MMS (optional) instruments (1, 2, 3, or 4) simultaneously. Menu keys (softkeys), data and control keys, a digital-control knob, toolbar buttons, and pull down menus are accessed through a mouse or other pointing device.

### **Hard-Labeled Keys**

The HP 70207B PC Display for MMS has a set of hard-labeled keys (permanently fixed keys) above and below the display screen that are used to perform such functions as: presetting the active instrument, moving the keyboard between instruments in the system,



## Main Features

changing parameters with step keys, and printing, as well as many other functions.

### Selectable Instrument Keypads

Different instrument keypads can be selected from the pull down Instrument menu.

Instrument keypads can be selected from among those used to control a spectrum analyzer, an optical spectrum analyzer, a microwave transition analyzer, a 12 Gbit bit error rate tester (BERT), or a blank keypad if the instrument being used does not correspond to one of the available instrument keypads.

**Softkey Menus** The HP 70207B PC Display for MMS has one screen with 14 softkeys (menu keys). The softkeys are labeled by either the display or the instrument that controls the keyboard. These softkeys are used for all manual instrument control functions; they establish an interactive front panel for any instrument.

### F-Key Shortcuts

F-key shortcuts allow you to select corresponding softkeys without using a mouse. F-key shortcuts are displayed as annotation on softkey menu buttons. Whether the shortcut annotation is visible or not, their functionality is still available at all times.

### MSIB

Instrumentation is locally controlled using the Modular System Interface Bus (MSIB). The MSIB supports high-speed digital communication among instrument modules connected to a local MSIB loop.

## **Main Features**

### **Adjustable Colors Palettes**

Colors can be altered by selecting from among four default color palettes; each of these color palettes can also be customized.

Color changes made through this program only affect the interface produced by the HP 70207B PC Display for MMS and will not change the color scheme used by Microsoft Windows NT 4.0 overall. Changes to the overall Microsoft Windows NT 4.0 color scheme are made through the **Display Properties** dialog box; this is accessible through the Display icon located on the Control Panel.

### **Copy to Clipboard**

Copy to Clipboard is used for including displayed information in other documents. The Copy to Clipboard feature enhances the ease of integrating MMS instrumentation into automated test systems.

### **Data Capture/Playback**

Data can be captured to a file during a measurement and played back at a later time. Playback does not require the MSIB interface card; this allows data to be played back on computers that may not have an MSIB interface card and driver, but do have the HP 70207B PC Display for MMS software installed.

### **Key Sequence Capture/Playback**

A series of key-press sequences can be captured to a file during a measurement and played back at a later time so that the exact same measurement is performed. (This allows easy comparison of data.)

## Main Features

- File Storage** Data and key sequence files are stored and retrieved using the Microsoft Windows filing system.
- Down Loadable Programs (DLPs)** DLPs are files of instructions that perform predefined measurements and can be accessed through the pull down Instrument menu.

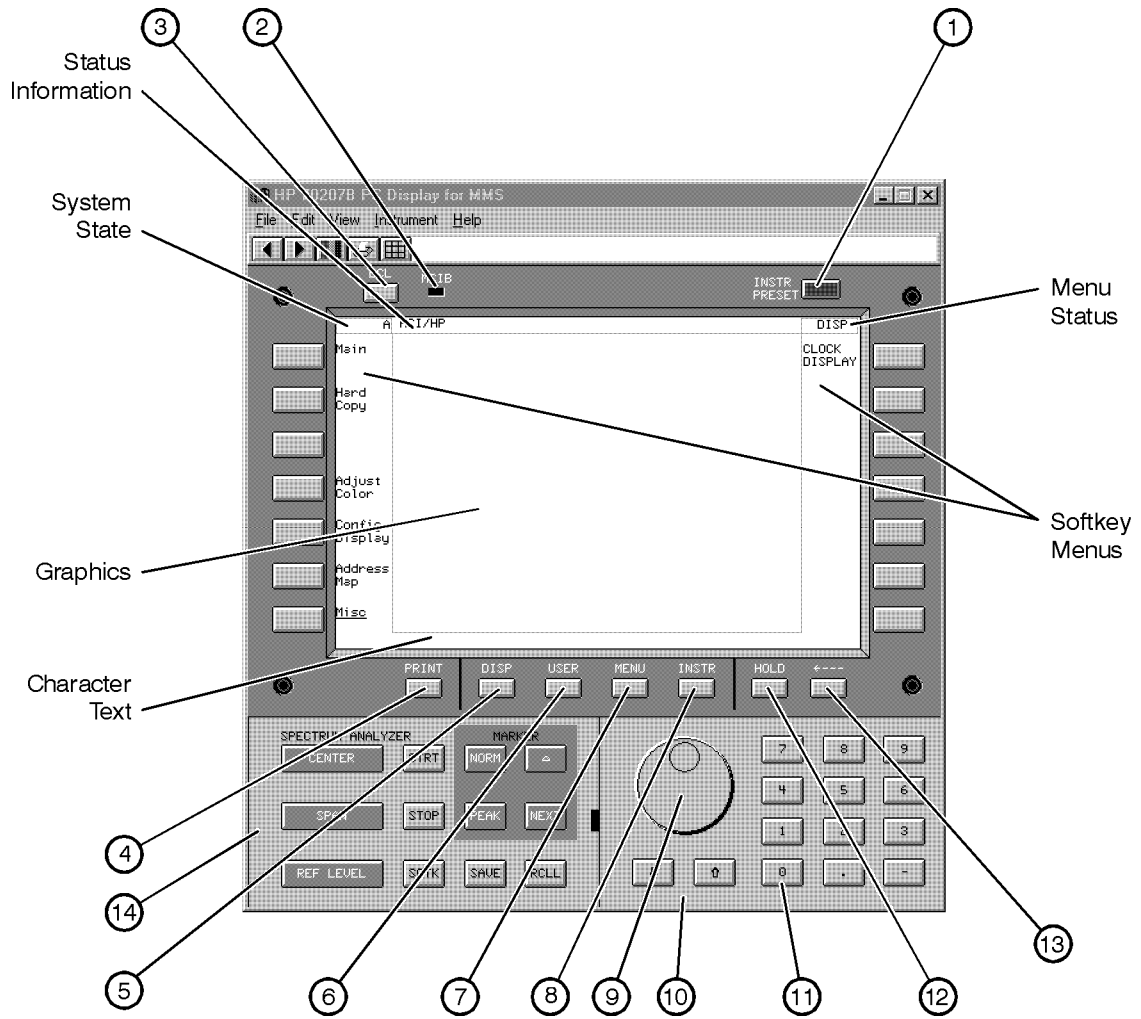
### Note

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The HP 70207B PC Display for MMS's feature set is similar to the HP 70004A color display's feature set with the following list of exceptions. In addition to these exceptions, other features may operate slightly different because of the product being integrated into a Microsoft Windows NT 4.0 environment.

- HP-IB** There is no remote control of the HP 70207B PC Display for MMS over HP-IB.
- PLOT** HP-IB plotters are not supported with the HP 70207B PC Display for MMS.
- Persistence Mode** Persistence mode is not currently supported by the HP 70207B PC Display for MMS.
- No B/W color mode with HP 70843A** When using the HP 70843A 12 GBit bit error rate tester (BERT), switching between black and white mode or color mode only selects a different color set. The display can not be changed to black and white only.
-

## Front Panel Regions and Hard-Labeled Keys



## Front Panel Regions and Hard-Labeled Keys

### Regions of the Display Screen

The display screen is divided into six information regions:

Status Information Region	The display uses the status information region to present system status information, such as the real-time clock and the HSI/HP logo annotation.
Graphics Region	The graphics region, which can be subdivided into four windows, displays graphics and text.
Menu Status Region	The menu status region displays either DISP, USER, or MENU depending on which menu is being displayed in the softkey menu region. INST is displayed when the user presses the <b>(INSTR)</b> key.
Softkey Menus Region	The softkey menus region displays menus accessed through the <b>(DISPLAY)</b> , <b>(USER)</b> , or <b>(MENU)</b> keys.
Character Text Region	The character text region (or character line) is one line of text (53 characters long) used for displaying prompts and other human interface information.
System State Region	<p>The system state region contains the letters A or E or both. Depending on the state of the condition that generates the letters, they may or may not be lit.</p> <p>An A (Active), shown as green, is on when the display controls the keyboard or when the display is being selected in a configuration function. An E (Error), shown as red, is on when an error has occurred in <i>any</i> module on ROW 0 of the MSIB address map. When this occurs, click <b>(DISPLAY)</b> and <b>REPORT ERRORS</b> and an explanation dialog box will appear.</p>

### Hard-Labeled Keys

Use the hard-labeled keys (permanently fixed keys) above and below the display screen to perform such functions as: presetting the instrument, selecting the keyboard between instruments in the system, changing parameters with step keys, and printing, as well as many other functions.

The following section lists each available hard-labeled key and describes how each key is used:

## Front Panel Regions and Hard-Labeled Keys

**INSTR PRESET**

(1) The instrument preset key is the green key located on the upper-right corner of the display. Use the instrument preset key to activate all the preset conditions of the instrument presently controlled by the keyboard.

**DISPLAY PRESET** is different from **INSTR PRESET**; when **DISPLAY PRESET** is pressed, it clears the screen and breaks all links that it has with any modules and then it offers the screen and a keyboard link to the last module that controlled the keyboard.

### MSIB

(2) The MSIB fault indicator light indicates the status of the MSIB. If the light is on, there is an MSIB problem or the bus is resetting.

### Tip

The MSIB can be reset by clicking on Reset, available from the pull down Instrument menu.



Clicking on Reset performs the same function as pressing **purge window** followed by **PURGE ALL** and also sends a reset MSIB command to all modules connected to the MSIB.

All windows are removed from the display, all instrument information being displayed disappears, all keyboard and display links with instruments are broken, and the HP 70207B PC Display for MMS is placed in an initialized state.

## Front Panel Regions and Hard-Labeled Keys

**LCL** (3) Use the local key to reinstate front panel operation if the instrument has been under remote control from an HP-IB card that is being controlled from a separate program. (HP-IB control is not presently supported on the HP 70207B PC Display for MMS.)

**PRINT** (4) Use the print key to print the current display screen to your printer. Your printer is specified through the Print dialog box.

### Tip

Print is available from the pull down File menu, clicking the PRINT button, or clicking the printer icon.



**DISPLAY** (5) The **DISPLAY** key accesses system and display functions (addressing and configuration of the instruments in the system), whereas the **USER** and **MENU** keys access instrument functions that are specific to the instrument that is in control of the keyboard.

**USER** (6) The user key is used to access user-defined menus that are available on some modules; this key is not available on all instruments. Refer to your instrument's user guide for information about transferring functions from the **MENU** key to the **USER** key region.

## Front Panel Regions and Hard-Labeled Keys

**MENU**

(7) The menu key accesses all normal instrument functions of the instrument controlled by the keyboard. Use this key to call the top-level softkey menus to the screen.

A multitude of instrument functions are available under the **MENU** key. For example, there are over 150 instrument functions available for the modular spectrum analyzer using the **MENU** key. The exact number depends on the modules present. A different set of menu functions appear for each instrument in your system. For more information, refer to your instrument's user guide.

**INSTR**

(8) When there are multiple instruments in a system, the instrument key is used to move (allocate) the display and keyboard between instruments.

Depending on how your system is configured, you may have from one to four different instruments displayed simultaneously. When the instrument key is pressed, the display puts colored borders around the currently defined windows; the colors are controlled by the HP 70207B PC Display for MMS software and can not be altered through the Microsoft Windows Control Panel.



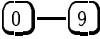

In the softkey location nearest each of these windows is a menu key containing the first seven characters in the instrument's model number on the first line, and the module's MSIB address [ROW and COLUMN (#,#)] on the second. If any of the menu keys are pressed, the keyboard is offered to that window's instrument. If the instrument accepts the keyboard, it displays the instrument's menu keys as if the **MENU** key had been pressed.

**Knob**

(9) Use the knob to change parameters and select other operating values.




## Front Panel Regions and Hard-Labeled Keys

-   (10) The step keys change parameters up or down.
-  (11) The numeric keypad is used to enter numbers.
-  (12) The hold key is used to deactivate an active function and prevent further control setting changes.

For example, on a spectrum analyzer, if the **SPAN** menu key has just been set to 1 MHz, it remains the active function. So, if the knob is turned or the step keys are changed accidentally, the span will change to a new value. **HOLD** removes the active function from the display and disables it so that it can not be accidentally changed.

If **HOLD** is pressed twice, the menu keys on the right-hand side of the display (while in **MENU**) are blanked. **INSTR PRESET** also blanks the right-hand menu keys.

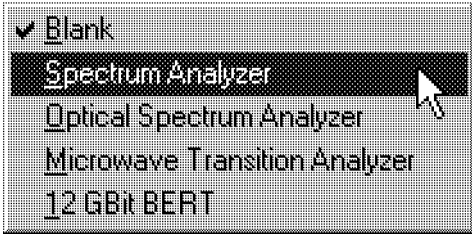
-  (13) Use the backspace key to move from a lower level of menu keys to the previous level or to backspace the cursor while entering text.

In the context of the **DISPLAY**, **MENU**, and **USER** functions, the backspace key is used to return to the next higher level of menu functions. A very useful function of the backspace key is to move from the **USER** keys to the last set of **MENU** keys accessed. This eliminates the need to access the **MENU** key and each subsequent level of keys to get to the desired function that you last accessed.

---

## Selectable Instrument Keypads

(14) The instrument keypad provides up to 15 instrument-specific keys, and varies depending on the selection made from the pull down Instrument menu.



Instrument keypads can be selected from among those used to control a spectrum analyzer, an optical spectrum analyzer, a microwave transition analyzer, a 12 Gbit bit error rate tester (BERT), or a blank keypad if the instrument being used does not correspond to one of the available instrument keypads.

**Note**

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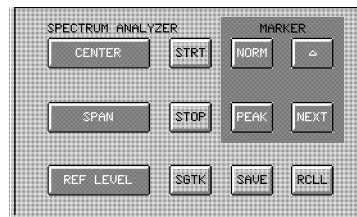
Using the functions on a keypad with the incorrect instrument may cause unpredictable results.

---

An instrument keypad allows the operator to access or activate functions using the HP 70207B PC Display for MMS. Each function is enabled by clicking on the function key that controls that function. Once enabled, the function (along with its current data value) is displayed in the graphics region of the display. To change the value of the active function, use the display's data knob, step keys, or numeric keyboard.

## Selectable Instrument Keypads

### Spectrum Analyzer Instrument Keypad

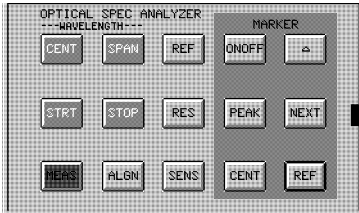


Key Label	Function	Description of Function <sup>1</sup>
<b>CENTER</b>	Center Frequency	Activates the center frequency function, which can then be tuned continuously over the range of the spectrum analyzer using the data controls.
<b>SPAN</b>	Frequency Span	Changes the total display frequency range symmetrically about the center frequency.
<b>REF LEVEL</b>	Reference Level	Changes the absolute amplitude power or voltage represented by the top graticule on the screen.
<b>STRT</b>	Start Frequency	Sets the frequency at the left side of the graticule.
<b>STOP</b>	Stop Frequency	Sets the frequency at the right side of the graticule.
<b>SGTK</b>	Signal Track	Allows the analyzer to automatically maintain drifting signals at the center of the screen. As the signal drifts, the spectrum analyzer is retuned to bring the signal and marker to the center of the screen. This allows real-time monitoring of the change.
<b>NORM</b>	Normal	Activates a frequency marker at the center of the screen on the active trace. The data controls are used to position the marker. An annotation in the active function region and in the upper-right corner indicate the frequency and amplitude of the marker.
<b>PEAK</b>	Peak Search	Places a marker on the higher peak.
<b>Δ</b>	Delta Peak	Provides a means of finding and displaying the frequency and amplitude differences (delta) between two signals.
<b>NEXT</b>	Next Peak	Places the marker on the next higher peak.
<b>SAVE</b>	Save	Saves the spectrum analyzer states to the state registers.
<b>RCLL</b>	Recall	Retrieves spectrum analyzer states from the state registers.

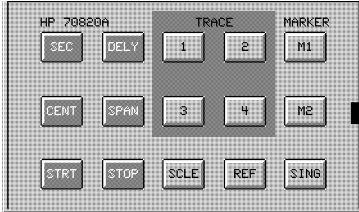
<sup>1</sup> Refer to the *HP 70000 Modular Spectrum Analyzer Operating Manual* for additional information on the use of these functions.

Selectable Instrument Keypads

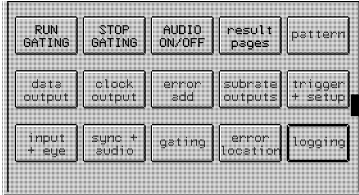
Optical Spectrum Analyzer Instrument Keypad



Microwave Transition Analyzer Instrument Keypad



12 GBit BERT Instrument Keypad



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| —

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## Operating/Local MSIB Operation

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### Overview

#### In this chapter you will learn about:

- Configuring your system and assigning instruments (modules) to different windows.
- Turning on or off various annotations on the display, and changing colors.
- Performing common tasks such as printing, copying displays to other applications, and logging data and key sequences in files that can be played back at a later date.
- Working with the LIF\_VOL file that is used to store Down Loadable Programs (DLPs), state files, memory files, and on some instruments, trace information and user-key definitions.

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This chapter provides local MSIB operation instructions only.

If you have questions related to remote connectivity or remote use of your HP 70207B PC Display for MMS, refer to “Programming/Remote Operation” in the front section of this document.

This chapter prepares you for your first steps in using the HP 70207B PC Display for MMS in a system. You will learn how to build or stack windows on your display and assign the keyboard or display or both to an instrument by using various softkey menus. Then, you will learn how to set options that turn on or off certain annotations of the display screen. Finally, you'll learn how to produce outputs on a printer, copy display screens into other Microsoft Windows applications, log either data or key-press sequences into files so that they can be retrieved and used at a later date, perform predefined measurements using DLPs, and save or recall the memory or state of an instrument using the LIF\_VOL file.

Configuring Display Windows .....	4-3
Configuring Display Options .....	4-41
Performing Common Tasks .....	4-51
Working with the LIF_VOL File .....	4-77

## 4-2 Operating/Local MSIB Operation

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## Configuring Display Windows

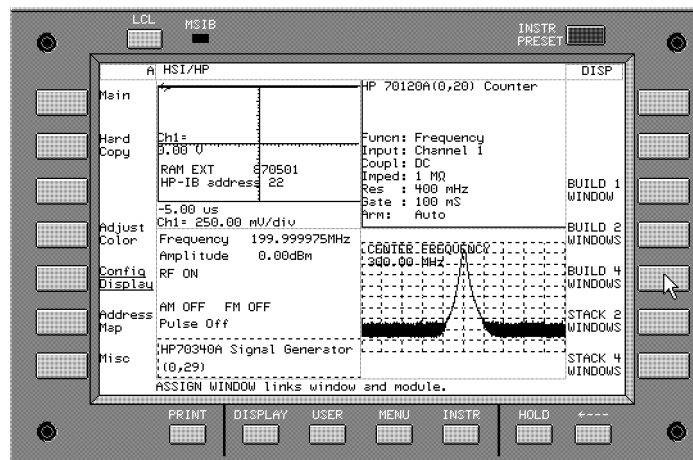
In this section, you will learn how to build or stack windows on your display and assign the keyboard or display or both to an instrument by using various softkey menus. After you have configured your system, you can view your configuration and then start using it, or purge it and start over.

To build 1, 2, or 4 windows on the display .....	4-4
To stack 2 or 4 windows on the display .....	4-6
To move an instrument to a different window .....	4-8
To establish a link to a single instrument .....	4-15
To view the address map or assign links .....	4-17
To assign the display (only) to an instrument .....	4-21
To assign the keyboard (only) to an instrument ....	4-23
To assign both the display and keyboard to an instrument .....	4-25
To set the HP-IB address of a master module .....	4-27
To set the MSIB address of the MSIB interface card in a Microsoft Windows NT 4.0 environment ....	4-29
To set the MSIB address of the MSIB interface card in a Microsoft Windows 95 environment .....	4-32
To show system configurations .....	4-35
To purge a window configuration .....	4-37
To purge a single window .....	4-39



## Configuring Display Windows

To build 1, 2, or 4 windows on the display



1. Click **DISPLAY** Config Display build window.
2. Click **BUILD 1 WINDOW** or **BUILD 2 WINDOWS** or **BUILD 4 WINDOWS**.

You can move or assign an instrument to a window by the following:

- a. Click **assign window**.
- b. Point to a window and click to select it as the destination window. (You may also use the **△** and **▽** keys, or turn the display knob, to select a window.) The selected window is highlighted with a green border and the window number is indicated at the bottom of the screen.
- c. Click **MSIB COLUMN** and use the **△** and **▽** keys, or turn the display knob, to designate a master module's column address. The MSIB address and module name is indicated at the bottom of the screen.

## Configuring Display Windows

- d. Click **EXECUTE**; the master module that is found at the specified MSIB column address is assigned to the selected window.

A window is a user-defined portion of the HP 70207B PC Display for MMS that is set aside for a single instrument (master) to display information. Each instrument can only be assigned to one window at a time because each instrument can establish only one display link with the HP 70207B PC Display for MMS; this is done automatically with the use of **assign window**.

If you are having problems finding an instrument to assign to a window, refer to the procedure, "To view the address map or assign links".

### Note

When building windows, the display searches the address map for instruments on ROW 0 and fills them in order (1-4). Instruments are assigned in order of address (30-0). Exceptions to this process occur when windows are assigned to instruments and those instruments are removed from the system; no attempt is made to find instruments for those windows unless windows are purged using **purge window**. A window previously assigned to an instrument will retain the assignment in a new configuration.

2	3
1	4

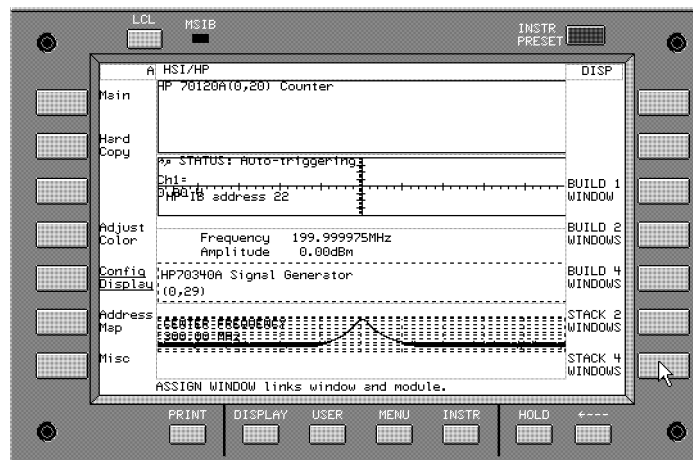
4
3
2
1

1	2
---	---

2
1

## Configuring Display Windows

### To stack 2 or 4 windows on the display



1. Click **DISPLAY** Config Display build window.
2. Click **STACK 2 WINDOWS** or **STACK 4 WINDOWS**.

You can move or assign an instrument to a window by the following:

- a. Click **assign window**.
- b. Point to a window and click to select it as the destination window. (You may also use the **△** and **▽** keys, or turn the display knob, to select a window.) The selected window is highlighted with a green border and the window number is indicated at the bottom of the screen.
- c. Click **MSIB COLUMN** and use the **△** and **▽** keys, or turn the display knob, to designate a master module's column address. The MSIB address and module name is indicated at the bottom of the screen.
- d. Click **EXECUTE**; the master module that is found at the specified MSIB column address is assigned to the selected window.

## Configuring Display Windows

A window is a user-defined portion of the HP 70207B PC Display for MMS that is set aside for a single instrument (master) to display information. Each instrument can only be assigned to one window at a time because each instrument can establish only one display link with the HP 70207B PC Display for MMS; this is done automatically with the use of `assign window`.

If you are having problems finding an instrument to assign to a window, refer to the procedure, "To view the address map or assign links".

### Note

---

When building windows, the display searches the address map for instruments on ROW 0 and fills them in order (1-4). Instruments are assigned in order of address (30-0). Exceptions to this process occur when windows are assigned to instruments and those instruments are removed from the system; no attempt is made to find instruments for those windows unless windows are purged using `purge window`. A window previously assigned to an instrument will retain the assignment in a new configuration.

2	3
1	4

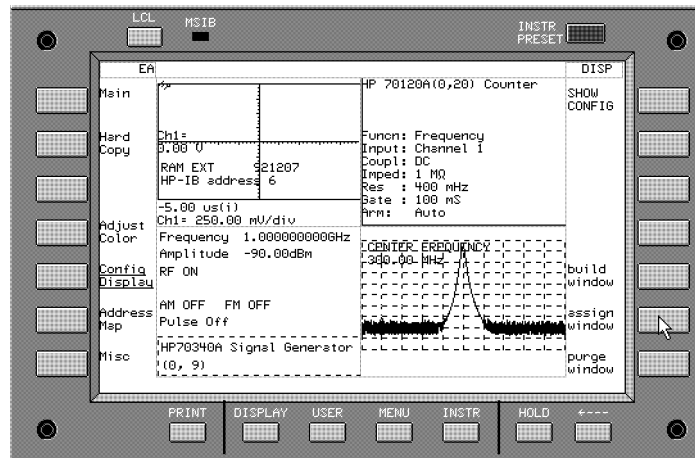
4
3
2
1

1	2
---	---

2
1

## Configuring Display Windows

### To move an instrument to a different window



1. Click **DISPLAY** Config Display build window.

If windows are not already configured, refer to one of the following procedures:

- “To build 1, 2, or 4 windows on the display”
- “To stack 2 or 4 windows on the display”

Depending on your selection, up to four instruments are assigned to the windows that are built.

You can move or assign an instrument to a window by the following:

- a. Click **assign window**.
- b. Point to a window and click to select it as the destination window. (You may also use the **△** and **▽** keys, or turn the display knob, to select a window.) The selected window is highlighted with a green border and the window number is indicated at the bottom of the screen.
- c. Click **MSIB COLUMN** and use the **△** and **▽** keys, or turn the display knob, to designate a master

## Configuring Display Windows

module's column address. The MSIB address and module name is indicated at the bottom of the screen.

- d. Click **EXECUTE**; the master module that is found at the specified MSIB column address is assigned to the selected window.

A window is a user-defined portion of the HP 70207B PC Display for MMS that is set aside for a single instrument (master) to display information. Each instrument can only be assigned to one window at a time because each instrument can establish only one display link with the HP 70207B PC Display for MMS; this is done automatically with the use of **assign window**.

If you are having problems finding an instrument to assign to a window, refer to the procedure, "To view the address map or assign links".

### Note

When building windows, the display searches the address map for instruments on ROW 0 and fills them in order (1-4). Instruments are assigned in order of address (30-0). Exceptions to this process occur when windows are assigned to instruments and those instruments are removed from the system; no attempt is made to find instruments for those windows unless windows are purged using **purge window**. A window previously assigned to an instrument will retain the assignment in a new configuration.

2	3
1	4

4
3
2
1

1	2
---	---

2
1

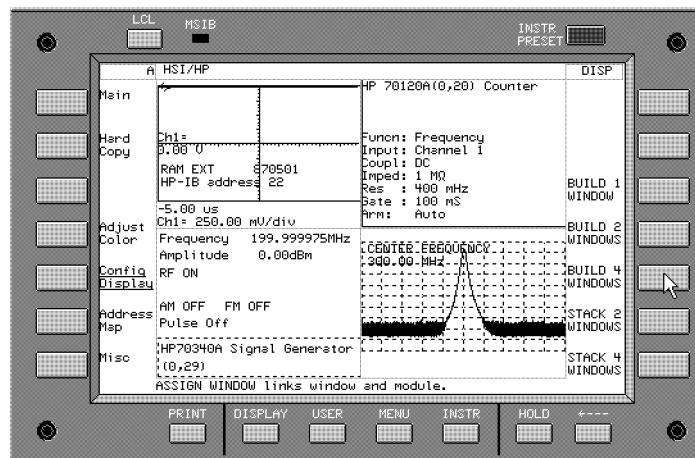
## Configuring Display Windows

### Example of moving (rearranging) instruments between windows 1 and 4

In this example, you will learn how to build four windows and then rearrange the instruments that are assigned between windows 1 and 4.

1. Click **DISPLAY** Config Display build window.
2. Click **BUILD 4 WINDOWS**.





A similar process can be used whether you build two or four windows or stack two or four windows.



In this example, our system might have four master modules (instruments) that are assigned to windows 1 through 4 as follows:

- Window 1 HP 70340A synthesized signal generator
- Window 2 HP 70700A digitizer
- Window 3 HP 70120A universal counter
- Window 4 HP 70900A local oscillator source

## Configuring Display Windows

3. Assign the instrument that is presently in window 4 to window 1 by the following steps (in our example, the HP 70900A local oscillator source is assigned from window 4 to window 1):
  - a. Click **assign window**.
  - b. Point to window 1 and click to select it as the destination window. (You may also use the  and  keys, or turn the display knob, to select a window.) The selected window is highlighted with a green border and the window number is indicated at the bottom of the screen.
  - c. Click **MSIB COLUMN** and use the  and  keys, or turn the display knob, to designate a master module's column address.
  - d. Select the MSIB column address of the instrument that is currently assigned to window 4. (In our example, the HP 70900A local oscillator source is assigned to window 4.)

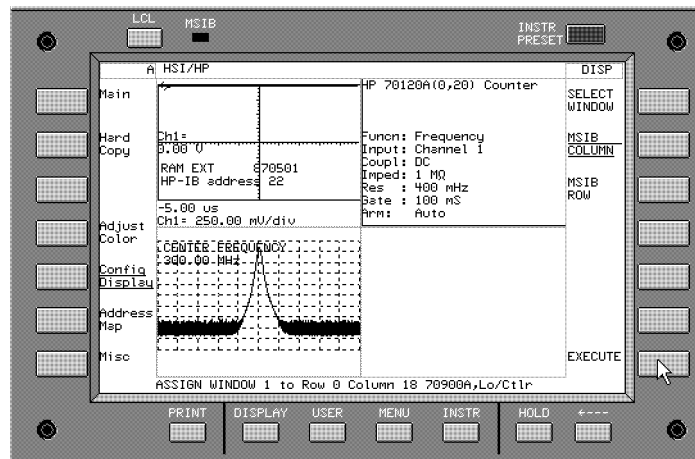
The MSIB address and module name is indicated at the bottom of the screen.



## Configuring Display Windows

- e. Click **EXECUTE**.

The instrument that is found at the specified MSIB column address is assigned to the selected window; in this example, it is assigned to window 1. The instrument that was assigned to window 4 should now be assigned to window 1, and window 4 should be empty. Your display would look similar to the following.



4. Now, assign the instrument that was previously in window 1 to window 4:
- Click **assign window**.
  - Point to window 4 and click to select it as the destination window. (You may also use the  $\Delta$  and  $\nabla$  keys, or turn the display knob, to select a window.) The selected window is highlighted with a green border and the window number is indicated at the bottom of the screen.
  - Click **MSIB COLUMN** and use the  $\Delta$  and  $\nabla$  keys, or turn the display knob, to designate a master module's column address.

## Configuring Display Windows

- d. Select the MSIB column address of the instrument that was previously assigned to window 1. (In our example, the HP 70340A synthesized signal generator was previously assigned to window 1.)
- e. Click **EXECUTE**.

The instrument that is found at the specified MSIB column address is assigned to the selected window; in this example, it is assigned to window 4.

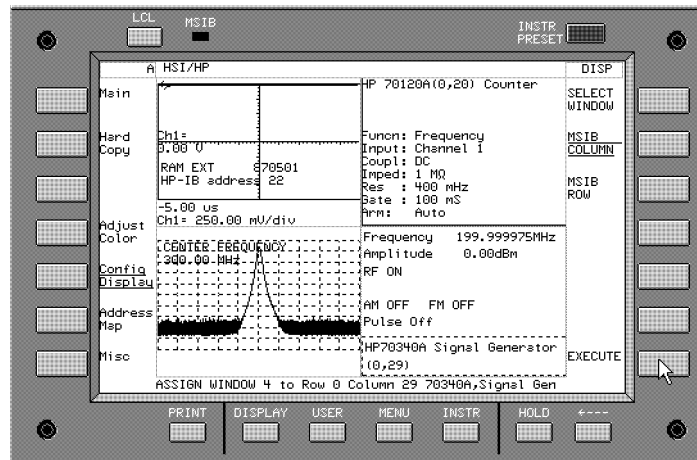
## Configuring Display Windows

In our example, after the instruments have been reassigned, we would have the four master modules assigned to windows 1 through 4 as follows:

- Window 1 HP 70900A local oscillator source
- Window 2 HP 70700A digitizer
- Window 3 HP 70120A universal counter
- Window 4 HP 70340A synthesized signal generator

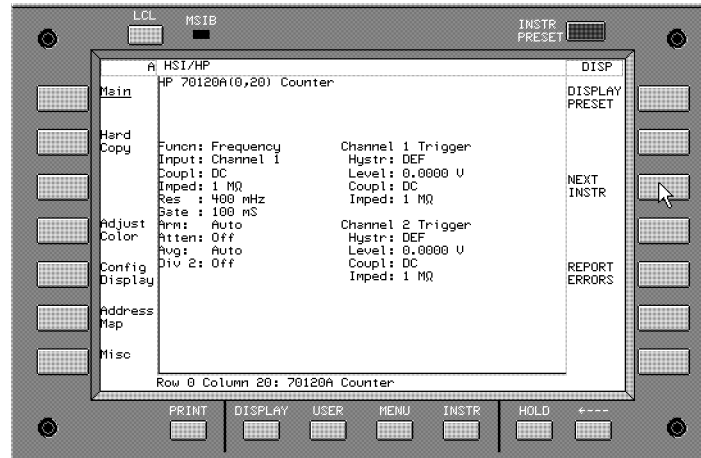
The instrument that was assigned to window 1 should now be assigned to window 4; the instrument that was assigned to window 4 should now be assigned to window 1.

After the reassignments in our example, the display would look similar to the following:



## Configuring Display Windows

To establish a link to a single instrument



1. Click **(DISPLAY) NEXT INSTR.**

If the MSIB interface card does not have a link to an instrument, it will look for the instrument with the lowest column address on the MSIB and allocate the entire screen and the 14 softkeys to that instrument.

If a link already exists, the link is terminated and a new link is created to the next instrument in the system. If there is only one instrument in the system, it will relink to the MSIB interface card used by the HP 70207B PC Display for MMS.

MSIB address ROW 0, COLUMN 31 is reserved for self test of the MSIB interface card and is not available.

2. Continue to press **NEXT INSTR**; you can also use the **(Δ)** or **(▽)** keys to select the instrument with the next higher or next lower address.
3. Click **(USER)** or **(MENU)** and use the appropriate softkeys.

## Configuring Display Windows

All keys under (USER) and (MENU) are created by and responded to by an instrument (such as a spectrum analyzer), while all keys under (DISPLAY) are generated by the HP 70207B PC Display for MMS. For information on using softkeys that are accessed by (USER) or (MENU), refer to the user guide for the specific instrument that is selected.

### Tip

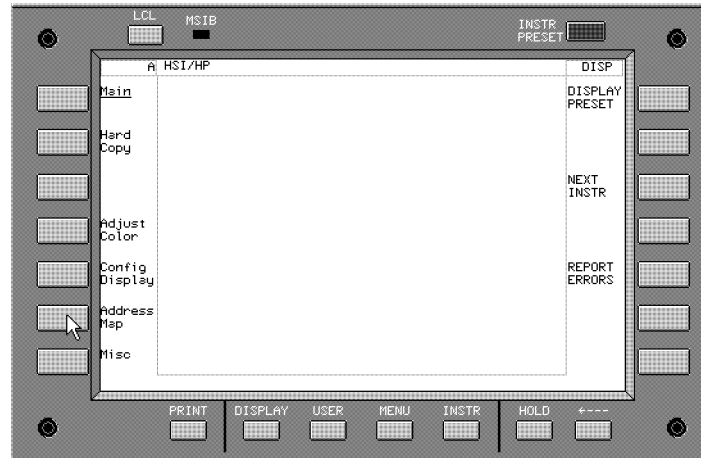
You can also establish a link to the next instrument by clicking on the next or previous instrument icons.



The information displayed, once the MSIB interface card is given to an instrument, depends on the specific instrument selected. Since NEXT INSTR only establishes communication links between the MSIB interface card and the instrument, instrument settings are not affected when an instrument is selected; however, any previously defined windows are erased.

## Configuring Display Windows

To view the address map or assign links



**Address Map** allows access to softkeys that access the MSIB address map. The address map is a graphical representation (“snap shot”) of HP 70000 Series modular measurement system elements and displays that are on the MSIB. The address map configuration is updated after the MSIB reset line is released. This occurs when the system is first powered up, or by clicking Reset, available from the pull down Instrument menu.

Address Map								
	Column 0	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Row 0			70207B PC Display HP-IBNO	70700A DIGITIZER HP-IB 3	70004A DISPLAY HP-IB 4	70120A Counter HP-IB 5	70340A Signal Gen HP-IB 6	

1. Click **(DISPLAY)** **Address Map** .

## Configuring Display Windows

An address map dialog box appears and displays modules on ROW 0.

- Use the ◀ and ▶ keys on the bottom of the address map dialog box to view alternate columns of the address map; if the width of the address map is small enough to fit on your computer's display, these arrow keys are not needed and do not appear.

The width of the address map is dependent on the highest column address being used. If the highest column being used in your system is COLUMN 18, then column 19 through 30 are not needed and do not appear.

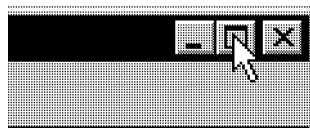
MSIB address ROW 0, COLUMN 31 is reserved for self test of the MSIB interface card and is not available.

- Use the ▲ and ▼ keys on the right-side of the address map dialog box to view alternate rows of the address map; if there are no modules in the address map above ROW 0, these arrow keys are not needed and do not appear.

The height of the address map is dependent on the highest row address being used. If the highest row being used in your system is ROW 5, then rows 6 and 7 are not needed and do not appear.

### Tip

To view a larger image of the address map, click on the Maximize button.



## Configuring Display Windows

2. Place the cursor over a box in the address map that contains a master module, that you want to display, capable of establishing links with the HP 70207B PC Display for MMS.
3. Click once to access the Assign Links menu.
4. After viewing the address map and the assign links menu, click **Cancel** or select the kind of link you wish to establish with a selected module.

---

### Note

The HP 70207B PC Display for MMS's MSIB COLUMN address is factory-preset to 2 and may be changed, but its MSIB ROW address is permanently set to 0. When used with other factory-preset modules, you may not have to change the preset addressing unless two or more of the same model modules are used. For more information, and depending on the environment you are using, refer to either of the procedures, "To set the MSIB address of the MSIB interface card in a Microsoft Windows NT 4.0 environment" or "To set the MSIB address of the MSIB interface card in a Microsoft Windows 95 environment".

---

### Tip

You can access the address map by clicking on the address map icon.





## Configuring Display Windows

### Default MSIB Address Map for Spectrum Analyzers

	Column 18	Column 19	Column 20
Row 7	blank	HP 70310	blank
Row 6	RF sections <sup>1</sup>	HP 70300	HP 70620 or HP 70621 <sup>2</sup>
Row 5	HP 70907	HP 70301	blank
Row 4	HP 70903	blank	HP 70810B Option 850
Row 3	HP 70911	HP 70620 or HP 70621 <sup>3</sup>	HP 70810B
Row 2	HP 70700	HP 70600 or HP 70601	blank
Row 1	HP 70902	blank	blank
Row 0	HP 70900	blank	blank

1 This includes: HP 70904A RF section, HP 70905A/B RF section, HP 70906A/B RF section, HP 70908A RF section, HP 70909A or HP 70910A RF section.

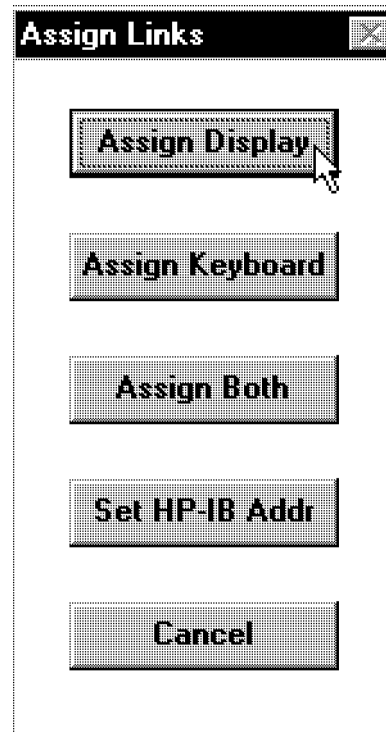
2 When preamplifying the lightwave section's input signal.

3 When preamplifying the preselector's or RF section's input signal.

For more information about addressing criteria, refer to "Understanding the MSIB Addressing Scheme" in Chapter 6 or refer to the *HP 70000 Modular Spectrum Analyzer Installation and Verification Manual*.

## Configuring Display Windows

To assign the display (only) to an instrument



1. Click **DISPLAY** Address Map .
2. Place the cursor over a box in the address map that contains a master module, that you want to display, capable of establishing links with the HP 70207B PC Display for MMS.
3. Click once to access the Assign Links menu.
4. Click **Assign Display** .

The screen is immediately allocated to that module. If the module is ready to output trace information, the information is displayed.

## Configuring Display Windows

5. To assign the display back to an instrument, either repeat this procedure with the original instrument selected from the address map or press **NEXT INSTR** until the desired instrument is selected. **NEXT INSTR** reallocates both the keyboard and display to the next instrument.

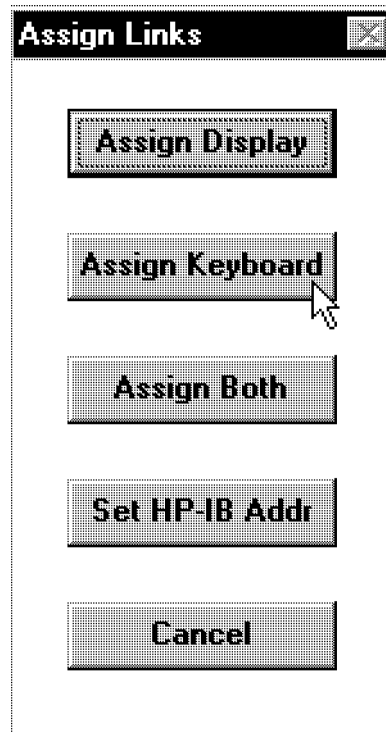
**Assign Display** assigns the whole screen to a particular instrument, even though the keyboard may be assigned elsewhere.

This allows the user to view the trace output from one instrument on the display, while controlling a different instrument with the keyboard. The two display resources, the keyboard and the display screen, can be allocated separately.

If you only have the keyboard assigned to an instrument, no information from that instrument is displayed until the display is assigned to that instrument.

## Configuring Display Windows

To assign the keyboard (only) to an instrument



1. Click **DISPLAY** Address Map .
2. Place the cursor over a box in the address map that contains the master module you wish to control.
3. Click once to access the Assign Links menu.
4. Click **Assign Keyboard** .  
The keyboard is immediately allocated to that module.
5. To assign the keyboard back to an instrument, either repeat this procedure with the original instrument selected from the address map or press **NEXT INSTR** until the desired instrument is selected. **NEXT INSTR**

## Configuring Display Windows

reallocates both the keyboard and display to the next instrument.

**Assign Keyboard** is used to allocate the keyboard to a specific module. The keyboard can then be used to control the instrument settings. This is useful for instruments not on ROW 0.

The keyboard and the screen can be allocated separately. **Assign Keyboard** links the keyboard with an instrument, but does not necessarily display any trace data from that instrument. Because of this, the softkeys may not correspond to the instrument display shown.

Only a master module such as the HP 70900B local oscillator source can receive the keyboard. Attempts to allocate the keyboard to slave modules will result in an error.

If you only have the keyboard assigned to an instrument, no information from that instrument is displayed until the display is assigned to that instrument.

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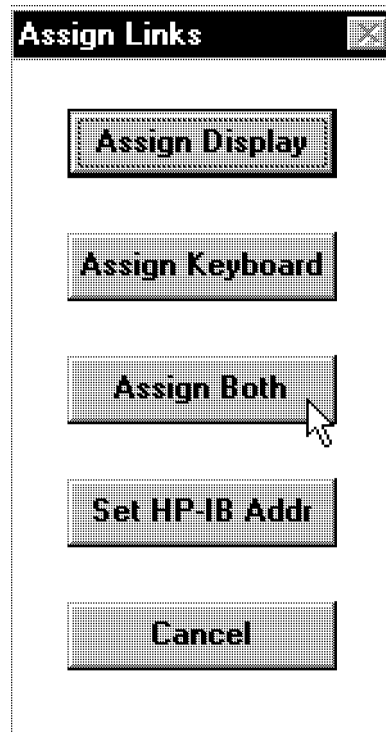
### Tip

Use the **(INSTR)** key as the primary way of transferring the keyboard between instruments once they are assigned to windows. When the **(INSTR)** key is pressed, the display assigns colored borders to the currently defined windows. Near each window, a softkey containing the first seven characters in the module's model number and address (row and column) are displayed. If a labeled softkey is pressed, the keyboard is offered to that window's instrument. If the instrument accepts the keyboard it will display its menu keys, as though the **(MENU)** key had been pressed.

---

## Configuring Display Windows

To assign both the display and keyboard to an instrument



1. Click **DISPLAY** Address Map or click the address map icon.
2. Place the cursor over a box in the address map that contains the master module you wish to control.
3. Click once to access the Assign Links menu.
4. Click **Assign Both**.

**Assign Both** establishes contact between the display and a specific instrument, and then allocates the screen

## Configuring Display Windows

and keys to the module currently highlighted by the rectangle in the address map.

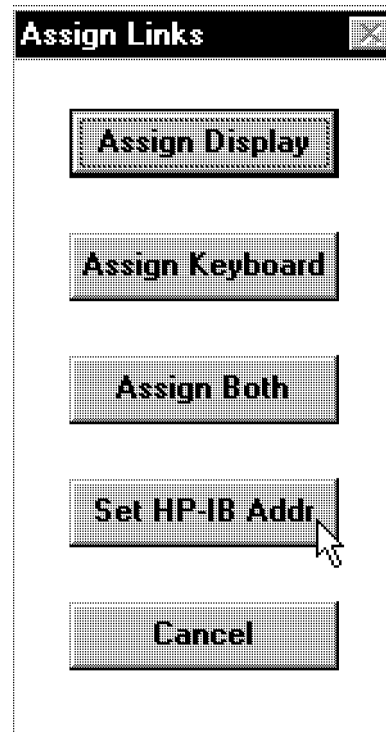
`Assign Both` differs from `NEXT INSTR`:

`Assign Both` can be used to establish a link with a master module that is not located on ROW 0 of the address map. It requires that a particular module be specified, while `NEXT INSTR` selects an instrument on its own by scanning ROW 0 until it finds a master module. `NEXT INSTR` only scans ROW 0 for master modules.

Both softkeys, however, disconnect any links between the display and any other instruments, and both destroy any existing windows in the display.

## Configuring Display Windows

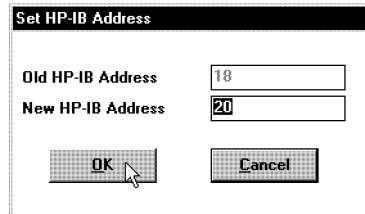
To set the HP-IB address of a master module



1. Click **DISPLAY** Address Map .
2. Place the cursor over a box in the address map that contains a master module capable of HP-IB.
3. Click once to access the Assign Links menu.
4. Click **Set HP-IB Addr** .



## Configuring Display Windows



5. Enter the new HP-IB address using the keypad.

For example, select **2**, **0** on the computer keyboard, and click **OK** in the dialog box. The HP-IB address of the module should immediately change to 20. If it does not change to 20, the master module may be disabling the HP-IB function. (For further information, refer to the master module's documentation.)

**Set HP-IB Addr** changes the HP-IB address of any master module currently on HP-IB if that module will permit it.

All modules that have an HP-IB address must be master modules and must be located on ROW 0; slave modules cannot have HP-IB addresses.

HP-IB addresses are limited to the range 0-30 and HP-IB address 21 is used by many controllers.

The HP-IB capability of some HP 70000 Series modular measurement system elements can be disabled (by the HP-IB enable switch) and cannot communicate on HP-IB. Modules show that they are disabled by replacing their HP-IB address with the word HP-IB NO in the address map; which means that their HP-IB enable switch is in the OFF position or the module does not have HP-IB capability. (For information on setting the HP-IB enable switch for a particular module, refer to the installation and verification manual for that module.)

## Configuring Display Windows

### To set the MSIB address of the MSIB interface card in a Microsoft Windows NT 4.0 environment

#### Note



Administrative access to the computer is required in order to perform this procedure.

1. Click **(DISPLAY)** Address Map.

A screenshot of the "Address Map" dialog box. The dialog box has a title bar that says "Address Map". Below the title bar is a table with 8 columns and 1 row. The columns are labeled "Column 0" through "Column 7". The row is labeled "Row 0". The table contains the following data:

	Column 0	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Row 0			70207B PC Display HP-IBNO	70700A DIGITIZER HP-IB 3	70004A DISPLAY HP-IB 4	70120A Counter HP-IB 5	70340A Signal Gen HP-IB 6	

At the bottom left of the dialog box, there is a scroll bar.

An address map dialog box appears and displays modules on ROW 0. The MSIB interface card, used by the HP 70207B PC Display for MMS, is factory-preset to MSIB COLUMN address 2 and may be changed, but its MSIB ROW address is permanently set to 0.

2. Determine which MSIB address you wish to set the MSIB interface card at by viewing the unoccupied address boxes on ROW 0.

All modules in an MMS system must have a unique MSIB row and column address. If two or more modules have the same MSIB address, the MSIB bus can not be used for communication. If you have conflicting MMS module addresses, you will have to change one of them to a new MSIB address that

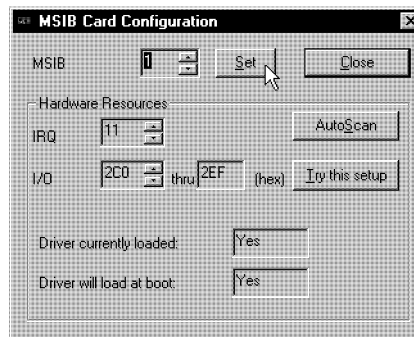
## Configuring Display Windows

is unoccupied. For further information, refer to “Duplicate MSIB Addresses” in Chapter 2.

3. From the Microsoft Windows NT 4.0 taskbar, click Start, point to Programs, point to Hewlett-Packard, and click MSIB Card Configuration.



4. Use the **▲** or **▼** keys, on the MSIB Card Configuration dialog box, to select an unoccupied MSIB address for the MSIB interface card and click the **Set** button.

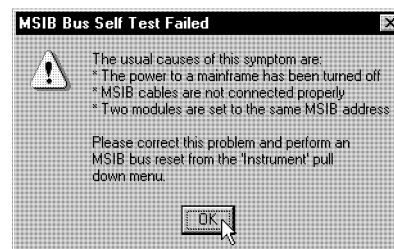


## Configuring Display Windows

5. Click the **Close** button on the MSIB Card Configuration dialog box.
6. Close and restart the HP 70207B PC Display for MMS program.

In order for a new MSIB address to take affect, you must close and restart the HP 70207B PC Display for MMS program.

If the MSIB address that you select and set causes a conflict, the HP 70207B PC Display for MMS's MSIB error light stays on and the following message is displayed:



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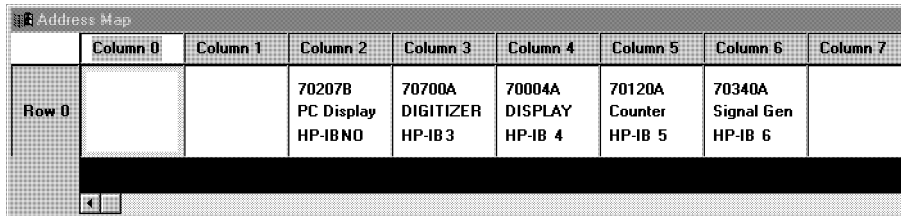
### Tip

To resolve this problem:

- Repeat this procedure from step 2, and select a different MSIB address for the MSIB interface card.
-

## Configuring Display Windows

To set the MSIB address of the MSIB interface card in a Microsoft Windows 95 environment

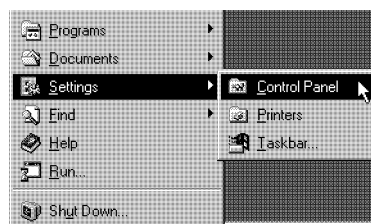


	Column 0	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Row 0			70207B PC Display HP-IBNO	70700A DIGITIZER HP-IB 3	70004A DISPLAY HP-IB 4	70120A Counter HP-IB 5	70340A Signal Gen HP-IB 6	

1. Click **DISPLAY** Address Map.

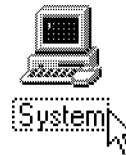
An address map dialog box appears and displays modules on ROW 0. The HP 70207B PC Display for MMS's MSIB COLUMN address is factory-preset to 2 and may be changed, but its MSIB ROW address is permanently set to 0.

2. Determine which MSIB address you wish to set the MSIB interface card at by viewing the unoccupied address boxes on ROW 0.
3. Close the HP 70207B PC Display for MMS program.
4. From the Microsoft Windows 95 taskbar, click Start, point to Settings, and click on Control Panel.

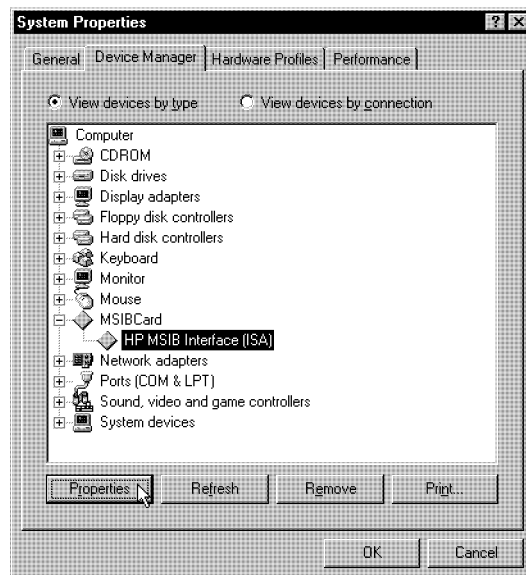


## Configuring Display Windows

5. From the Control Panel, double-click the System icon.



6. From the hardware list displayed on the System Properties dialog box, under the Device Manager tab, double-click MSIBCard, single-click HP MSIB Interface (ISA), and then click the Properties box.

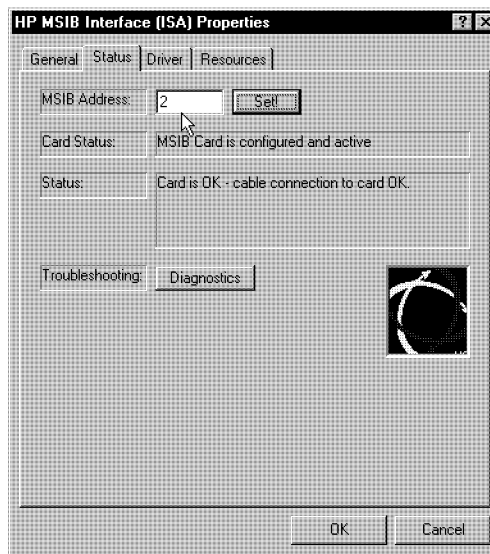


If MSIBCard does not show up on the Device Manager list, your computer may not support Plug and Play devices; this is required for operation with the HP 70207B PC Display for MMS. For further

## Configuring Display Windows

information, refer to the documentation that came with your computer to determine if your computer supports Plug and Play devices.

7. Under the Status tab, place the pointer in the MSIB Address: field (the field containing the present MSIB address) and click once.

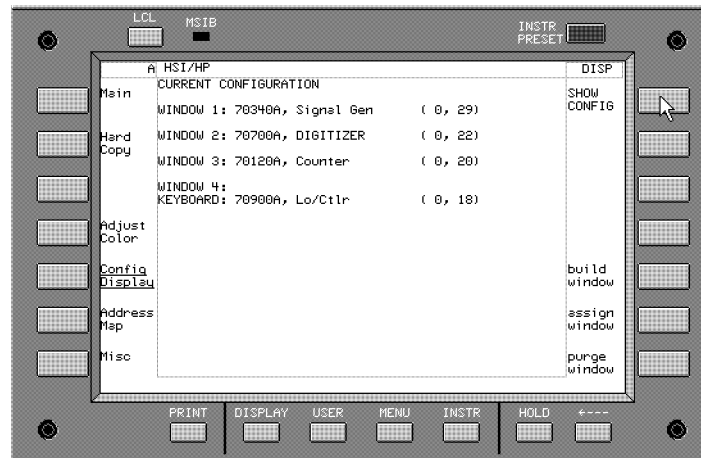


8. Enter the new MSIB address and click the Set box.
9. Start the HP 70207B PC Display for MMS program.
10. Click **DISPLAY** Address Map and verify the new MSIB address of the MSIB interface card.

The Diagnostics box, under the HP MSIB Interface (ISA) Properties tab does not test a newly selected MSIB address, it is only used to verify that the MSIB bus reset and internal testing are operating correctly.

## Configuring Display Windows

To show system configurations



1. Click **(DISPLAY)** Config Display **SHOW CONFIG**.

The display has five resources that it can assign to any of several HP 70000 Series elements: these resources consist of a screen composed of up to four windows and one keyboard.



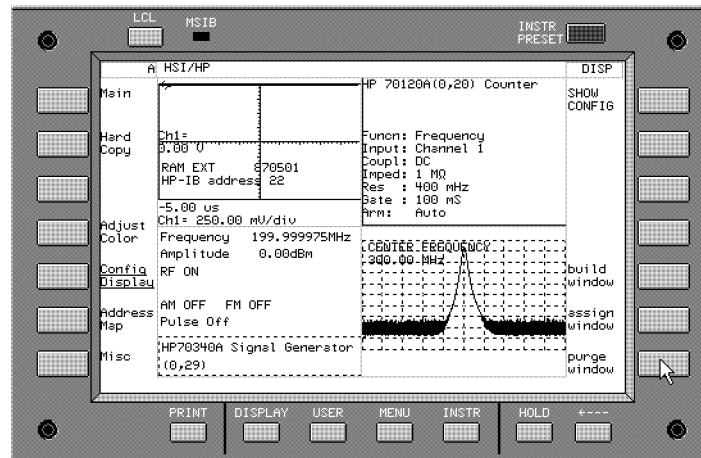
## Configuring Display Windows

`SHOW CONFIG` displays the following information:

- each window number (windows 1 through 4)
- whether or not a window is defined in the configuration being viewed; if a window is not defined in the configuration being viewed, it will display the word: `undefined`
- if a window is defined, then the following is also displayed:
  - the instrument that the keyboard is assigned to
  - the abbreviated name of the instrument that is assigned to each window; the abbreviated name refers to the instrument that can write to a given window.
  - following the abbreviated name is the MSIB ROW and COLUMN address

## Configuring Display Windows

### To purge a window configuration



1. Click **DISPLAY** Config Display purge window.

If you wish to abort the purge, click **←** to return to the previous menu.

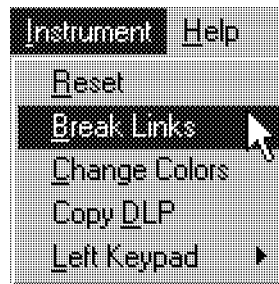
2. Click **PURGE ALL** to purge information from all four windows.

All windows are destroyed, trace information displayed in the windows disappears from the display, and any links with instruments are broken.

## Configuring Display Windows

### Tips

- Windows can be purged one at a time. (For further information, refer to the procedure, “To purge a single window”.)
- Clicking on Break Links, available from the pull down Instrument menu, performs the same function as pressing `purge window` followed by `PURGE ALL`.

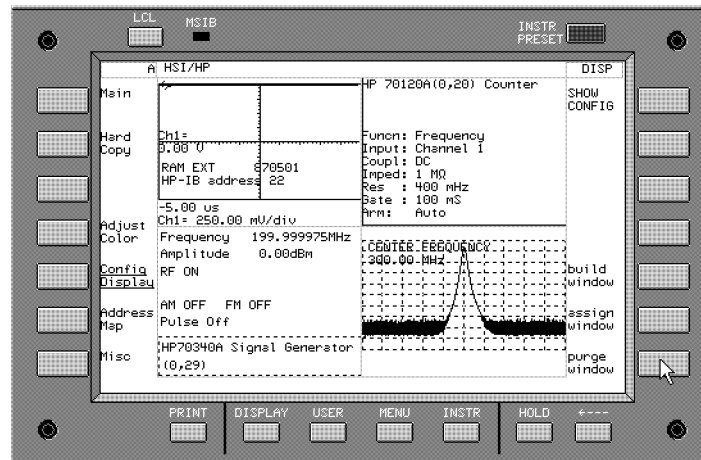


All windows are removed from the display, all instrument information being displayed disappears, all keyboard and display links with instruments are broken, and the HP 70207B PC Display for MMS is placed in an initialized state.

- To reestablish a display link, either use the address map to assign links, press `NEXT INSTR` (this causes ROW 0 to be scanned for master modules), or create new window links using one of the following procedures:
  - To build 1, 2, or 4 windows on the display
  - To stack 2 or 4 windows on the display

## Configuring Display Windows

### To purge a single window



1. Click **DISPLAY** Config Display purge window.
2. Click assign window.
3. Point to a window and click to select it as the window to be purged. (You may also use the **↑** and **↓** keys, or turn the display knob, to select a window.) The selected window is highlighted with a green border and the window number is indicated at the bottom of the screen.
4. Click **MSIB COLUMN** and use the **↑** and **↓** keys, or turn the display knob, to designate a column that does not contain a master module and instead displays the text No Module Present.

The MSIB name and address of a master module is indicated at the bottom of the screen. When the text No Module Present is displayed, then no module will be assigned if that address is selected.

5. Click **EXECUTE**. This process assigns a selected window to an address that does not contain an instrument; there is no module present at the selected address.

## Configuring Display Windows

The window can be reassigned by repeating this process, with the exception that an address associated with an instrument is selected. (For further information, refer to the procedure, “To move an instrument to a different window”.)

A window is a user-defined portion of the HP 70207B PC Display for MMS that is set aside for a single instrument (master) to display information. Each instrument can only be assigned to one window at a time because each instrument can establish only one display link with the HP 70207B PC Display for MMS; this is done automatically with the use of `assign window`.

## Configuring Display Options

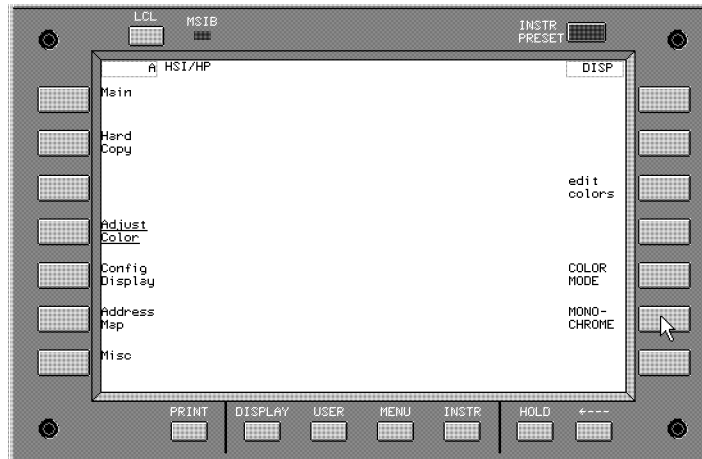
In this section, you will learn how to set the display to either color or monochrome, change or edit colors used during color mode, and turn on or off various annotations that appear on the display screen, hard-copy printouts, or on images saved to the Microsoft Windows Clipboard.

After you have reviewed the following display options, you can start using the HP 70207B PC Display for MMS, or click Break Links, available from the pull down Instrument menu and start over.

- To set the display color to monochrome ..... 4-42
- To change or edit the display colors ..... 4-43
- To include
  - or remove the F-key shortcut annotation ..... 4-46
- To include or remove the HSI/HP logos annotation . 4-47
- To include or remove the clock annotation ..... 4-49

## Configuring Display Options

### To set the display color to monochrome



1. Click **(DISPLAY)** Adjust Color **MONOCHROME**.

**MONOCHROME** sets the HP 70207B PC Display for MMS screen to black on white.

#### Tip

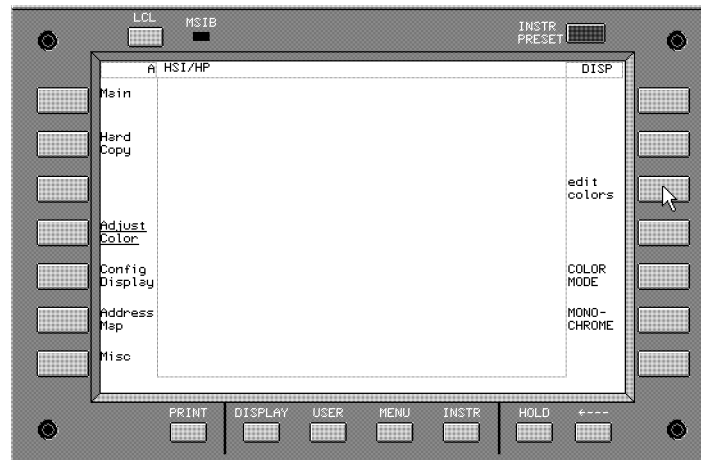
You can change between monochrome or color by clicking on the color selection icon.



You may prefer the **MONOCHROME** setting for copying images to the Clipboard and making hard-copy printouts.

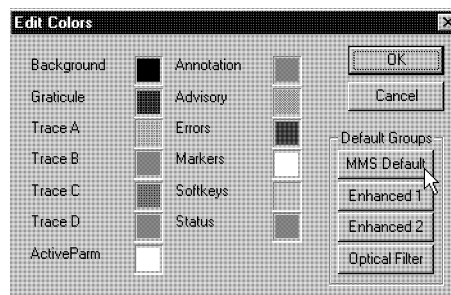
## Configuring Display Options

To change or edit the display colors



1. Click **(DISPLAY)** Adjust Color edit colors.

**edit colors** displays the currently selected color group (scheme) that is used to produce the HP 70207B PC Display for MMS interface. There are four default color groups to choose from, and each color group can be customized.





## Configuring Display Options

To customize a particular item in a color group:

- a. If you want to start from default colors, first select one of the four color groups; if you only want to customize a particular item in the present color group, then proceed to the next step.
- b. Point to the colored box next to an item identifier and single-click the colored box.

A basic color palette is displayed. This basic color palette functions in the same way the basic color palette used by Microsoft Windows functions; changes made to this basic color palette only affect the interface produced by the HP 70207B PC Display for MMS and will not change the color scheme used by Microsoft Windows overall. Changes to the overall Microsoft Windows color scheme are made through the *Display Properties* dialog box accessible through the Control Panel.

From the basic color palette, you can select any one of the basic colors, or you can define a custom color.

To define a custom color:

- a. Click the basic color closest to the custom color you wish to define.

The basic color that is selected is indicated in three ways, and a custom color can be defined by changing any one of them:

- Cursor in the palette box
  - Hue, Sat(uration), and Lum(inosity)
  - Red, Green, and Blue
- b. Click .

Only one custom color can be added to the current color palette and saved; the saved custom color is then available the next time that the HP 70207B PC Display for MMS is used.

Items that can have their color changed:

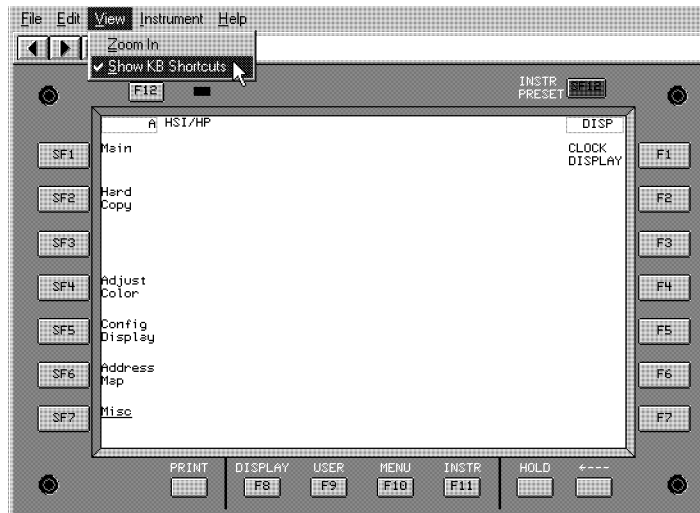
The following items can be changed within each color group, but changes will affect all windows of your HP 70207B PC Display for MMS:

## Configuring Display Options

Background	Changes the color used in an instrument's window.
Graticule	Changes the color of the graticule lines in an instrument's window.
Trace A	Changes the color used to display trace A.
Trace B	Changes the color used to display trace B.
Trace C	Changes the color used to display trace C.
Trace D	Changes the color used to display trace D which are limit lines.
ActiveParm	Changes the color of the HP 70900B local oscillator source active parameter display. For example, CENTER FREQUENCY, SPAN, MARKER, etc.
Annotation	Changes the color used to display the instrument settings along the top or bottom of the display.
Advisory	Changes the color used to display warning messages produced by the HP 70900B local oscillator source.
Errors	Changes the color used to display error messages.
Markers	Changes the color used to display trace markers.
Softkeys	Changes the color used when displaying softkey menu labels.  Also changes the color used to display information that is displayed in the status information region.  The display uses the status information region to present system status information, such as the real-time clock and the HSI/HP logo annotation.

## Configuring Display Options

### To include or remove the F-key shortcut annotation



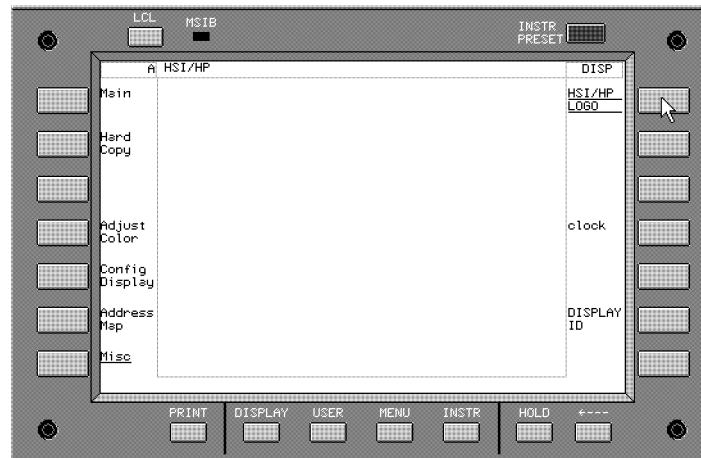
1. Click the View menu.
2. Click Show KB Shortcuts to turn on or off the F-key shortcut annotation.

F-key shortcuts allow you to select corresponding softkeys without using a mouse. F-key shortcuts are displayed as annotation on softkey menu buttons.

You can turn the F-key shortcut annotation on or off. This controls whether the F1 through F12, SF1 through SF7, and SF12 are visible on their corresponding softkeys. Whether the shortcut annotation is visible or not, their functionality is still available at all times.

## Configuring Display Options

### To include or remove the HSI/HP logos annotation



1. Click **DISPLAY** **Misc** **HSI/HP LOGOS**.

**HSI/HP LOGOS** turns the HSI/HP logos on or off. This controls whether the HSI/HP logos are available on the display screen, on hard-copy printouts, or on images saved to the Microsoft Windows Clipboard.

To include HSI/HP logos when making hard-copy printouts or copying images to the Microsoft Windows Clipboard, both **HSI/HP LOGOS** and copy options must be on.

You can set copy options with the following:

Click **DISPLAY** **Hard Copy** **copy options** **LOGO COPY**.

All copy options (**KEY COPY**, **LOGO COPY**, and **CLOCK COPY**) are linked so that when any one of the

## Configuring Display Options

copy options is turned on or off, all of the copy options are set to the same state of either on or off.

If the copy options are off, only the graphics region is printed or copied. If the copy options are on, the whole display screen is printed or copied; the HSI/HP logos are only included in this whole display screen output if **HSI/HP LOGOS** is on.

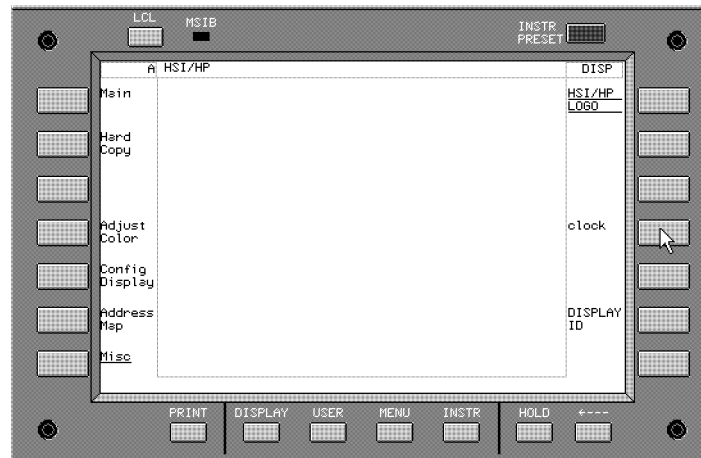
		HSI/HP Logos	
		On	Off
copy options	On	Yes - Display Yes - Printouts Yes - Clipboard	No - Display No - Printouts No - Clipboard
	Off	Yes - Display No - Printouts No - Clipboard	No - Display No - Printouts No - Clipboard

Yes = Annotation Appears  
No = Annotation Does Not Appear

annologo.cdr

## Configuring Display Options

### To include or remove the clock annotation



1. Click **[DISPLAY]** **Misc** **clock** **CLOCK DISPLAY**.

**CLOCK DISPLAY** turns the real-time clock annotation on or off. This controls whether the real-time clock annotation is available on the display screen, on hard-copy printouts, or on images saved to the Microsoft Windows Clipboard.

To include real-time clock annotation when making hard-copy printouts or copying images to the Microsoft Windows Clipboard, both **CLOCK DISPLAY** and copy options must be on.

You can set copy options with the following:

Click **[DISPLAY]** **Hard Copy** **copy options** **CLOCK COPY**.

All copy options (**KEY COPY**, **LOGO COPY**, and **CLOCK COPY**) are linked so that when any one of the

## Configuring Display Options

copy options is turned on or off, all of the copy options are set to the same state of either on or off.

If the copy options are off, only the graphics region is printed or copied. If the copy options are on, the whole display screen is printed or copied; the real-time clock annotation is only included in this whole display screen output if **CLOCK COPY** is on.

		Real-Time Clock Annotation	
		On	Off
copy options	On	Yes - Display Yes - Printouts Yes - Clipboard	No - Display No - Printouts No - Clipboard
	Off	Yes - Display No - Printouts No - Clipboard	No - Display No - Printouts No - Clipboard

Yes = Annotation Appears  
No = Annotation Does Not Appear

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### Tip

The system clock should be set so that it corresponds to your local time. This should be done so that any information that you store or print is given a correct time stamp (a time stamp shows: hours, minutes, seconds, month, day, and year).

The HP 70207B PC Display for MMS obtains its time stamp from the Microsoft Windows clock which can be altered using the Control Panel.

---

## Performing Common Tasks

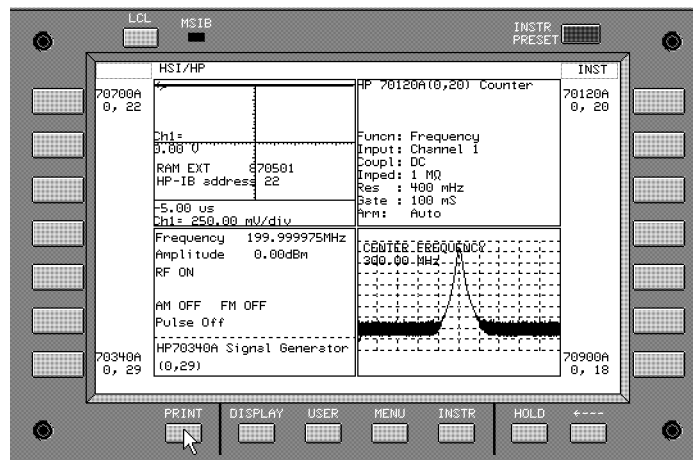
In this section, you will learn how to produce outputs on a printer, copy display screens into other Microsoft Windows applications, change the size of your display image with either the zoom feature or by changing the desktop pixel-size settings, log either data or key-press sequences into files so that they can be retrieved and used at a later date, and what it means to reset the MSIB.

To make a print of the display .....	4-52
To copy displays	
into Microsoft Windows applications .....	4-53
To zoom the display in and out .....	4-54
To select an instrument specific keypad .....	4-55
To access an instrument's menu keys	
or reassign the keyboard .....	4-57
To record a macro key sequence	
and save it to a file .....	4-59
To playback a	
recorded macro key sequence file .....	4-63
To record a work session in a data file .....	4-67
To playback a recorded data work session data file	4-72
To reset the MSIB .....	4-76



## Performing Common Tasks

### To make a print of the display



1. Click **(DISPLAY)** Hard Copy .
2. Click **copy options** , to change or set output options.  
(For further information, refer to the section, "Configuring Display Options".)
3. Click **(PRINT)**.

#### Tip

Print is available from the pull down File menu, clicking the PRINT button, or clicking the printer icon.



## Performing Common Tasks

### To copy displays into Microsoft Windows applications



1. Configure the display as desired.  
Everything on your display screen is saved to the Microsoft Windows Clipboard. The display screen is affected by display options. (For further information, refer to the section, "Configuring Display Options".)
2. Click the pull down Edit menu.
3. Click on Copy Screen.
4. Start or switch to an already open Microsoft Windows application (for example, WordPad).

Using a Microsoft Windows application:

- a. Click the Edit menu.
- b. Click Paste.

A copy of the screen image that was copied to the Clipboard from HP 70207B PC Display for MMS should appear on the Microsoft Windows application.

The HP 70207B PC Display for MMS copies the screen image to the Microsoft Windows Clipboard. Once an image is on the Clipboard, any Microsoft Windows application that supports paste from the Clipboard has access to the screen image.

## Performing Common Tasks

### To zoom the display in and out

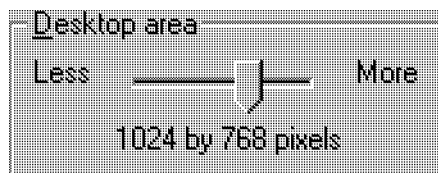


1. Click the View menu.
2. Click Zoom In or Zoom Out (depending on which one is available).

When using Zoom In, the lower-left and lower-right keypads are not available.

#### Tip

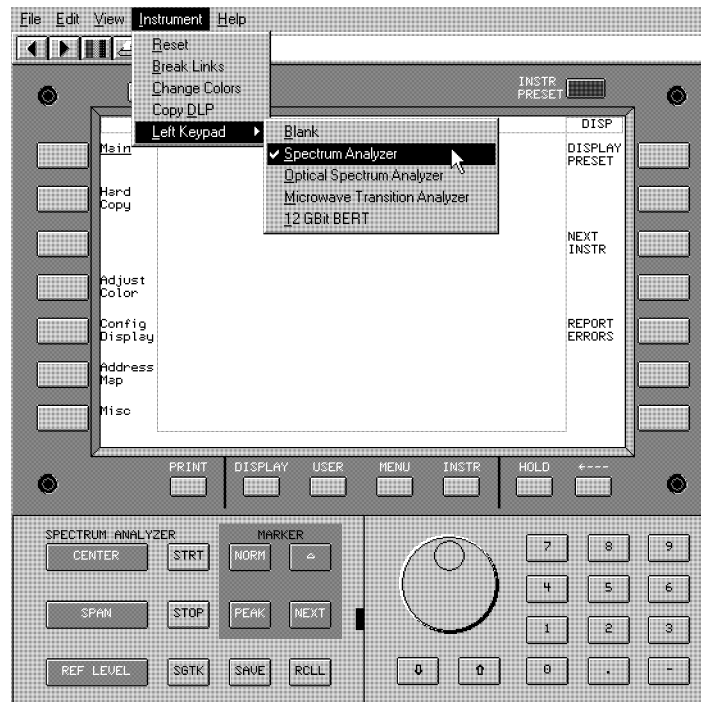
To make your image smaller (increased resolution), you may wish to change the scale of the display image by altering the Desktop area on the Display Properties dialog box; this is available through the Control Panel.



The minimum fully supported resolution is 800x600 pixels.

## Performing Common Tasks

### To select an instrument specific keypad



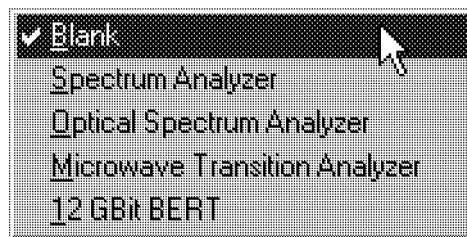
1. Click the Instrument menu.
2. Point to Left Keypad, and click the name of a desired keypad.

Instrument keypads can be selected from among those used to control a spectrum analyzer, an optical spectrum analyzer, a microwave transition analyzer, a 12 Gbit bit error rate tester, or a blank keypad if the instrument being used does not correspond to one of the available instrument keypads. (For further information, refer to “Selectable Instrument Keypads” in Chapter 3.)

## Performing Common Tasks

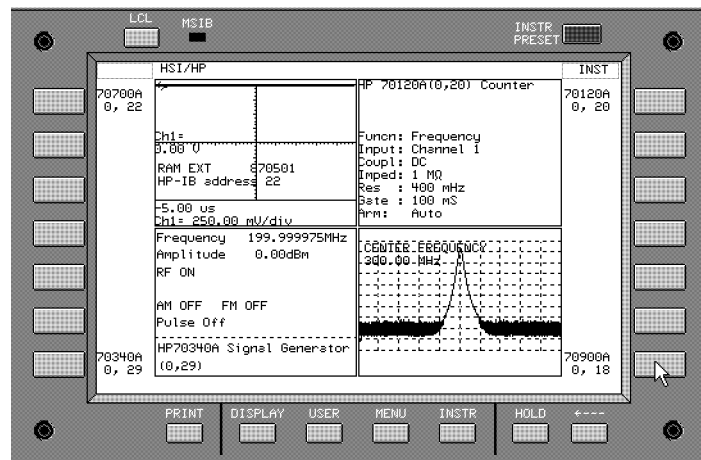
### Tip

You may wish to select a blank left keypad if you are using an instrument that does not correspond to any of the keypads available.



## Performing Common Tasks

### To access an instrument's menu keys or reassign the keyboard



1. If windows are not already configured, click **DISPLAY** followed by **NEXT INSTR** to establish a link to the next instrument in the system, or refer to one of the following procedures:

- “To build 1, 2, or 4 windows on the display”
- “To stack 2 or 4 windows on the display”

Depending on your selection, up to four instruments are assigned to the windows that are built. If you have more than four instruments in your system, repeatably building or stacking windows assigns new instruments to the windows each time.

2. Click **INSTR**.
3. Click the key associated with the model and MSIB address of the desired instrument.

The menu keys for the selected instrument replace the display's softkeys; to return to the display's softkeys, click on **DISPLAY**.

## Performing Common Tasks

### Tip

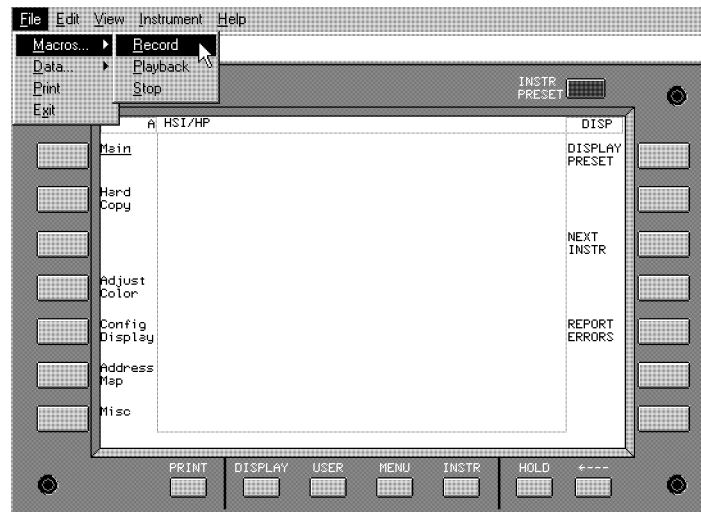
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If windows are already configured, you can access the menu keys of an instrument by clicking **INSTR** followed by the key associated with a model. The key label displays both the model and MSIB address of the instrument assigned to a window.

---

## Performing Common Tasks

To record a macro key sequence and save it to a file



1. If it is open, close the Macro Playback dialog box.
2. Click the pull down File menu.
3. Point to Macros and click Record.

A Macro Recording dialog box will appear that allows a file name to be specified.



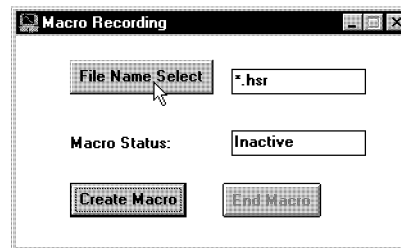
## Performing Common Tasks

4. Enter a file name for the key sequence you are about to perform.

The file name must be a maximum of eight characters, followed by a period, followed by the three character extension `.hsr` (for example, `filename.hsr`). All key sequence files must be named with a `.hsr` extension.

### Tip

Click on File Name Select to access a file browser that allows you to specify a different destination file.



If you do not specify a folder destination, the file is stored in a default folder (directory). This folder is located below the destination point of where the HP 70207B PC Display for MMS software was installed during initial setup (the default is `C:\Program Files\Hewlett-Packard\HP 70207B`).

## Performing Common Tasks

5. Click on the Create Macro dialog box.

If, during the last step, you specified a file name that already exists, you will get a warning and an opportunity to cancel. If you decide to use the name anyway, the new file will overwrite the previous file and all data in the previous file is lost.

Prior to starting a Macro Recording, the state of the display and the instrument should be saved. Because Macro Playback starts from the current state, Macro Recording should be started by recalling a stored instrument state or starting with an instrument preset.

6. Enter the key sequence that creates the desired results on your HP 70207B PC Display for MMS.

When using this feature, all key presses **are saved** for later playback in the exact order that they are performed. Because key presses are played back and executed in your system, an MSIB interface card, all hardware, and firmware that was used during recording is needed to play back a recorded macro key sequence file.

This is different from the Data Record feature (data logging), that when used, displays only the results (generated data) of key presses and does not actually execute any commands in your system.

When selecting softkeys, the actual softkey (or F-key shortcut) must be selected and not its text label; if the text labeling is selected, the key press will not be recorded. A text label is the name of a function or menu that is displayed next to a corresponding softkey.

## Performing Common Tasks

7. Click on the End Macro dialog box to end the key sequence recording.

Key presses on the address map will not be saved.

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**Tip**

Clicking on Stop, available from the pull down File menu under Macros, can also be used to end the key sequence recording.



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**Tip**

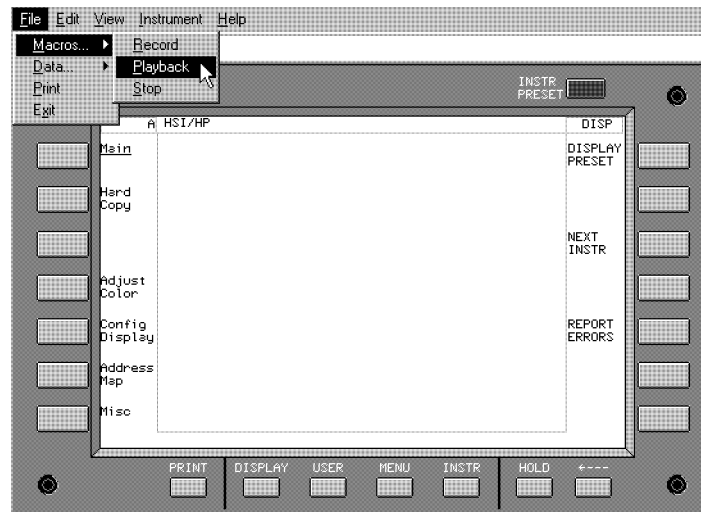
The Macro Recording dialog box may be left open so that you can create and save key sequences to multiple files with different file names. Prior to attempting to play back any recorded key sequence file, the Macro Recording dialog box must be closed.

Because the Macro Playback mode takes control of the HP 70207B PC Display for MMS and preempts its normal behavior, you must close the Macro Recording dialog box before attempting to use the Macro Playback feature.

---

## Performing Common Tasks

### To playback a recorded macro key sequence file



1. If it is open, close the Macro Recording dialog box.
2. Click the pull down File menu.
3. Point to Macros and click Playback.

A Macro Playback dialog box will appear that allows a file name to be specified.

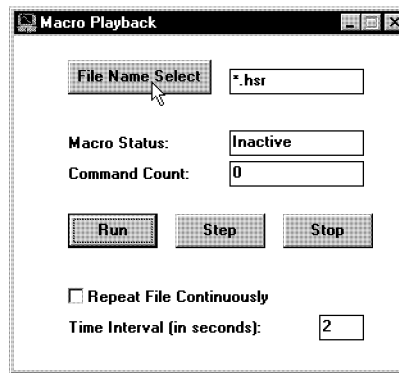
## Performing Common Tasks

4. Enter a file name for the key sequence you want to play back.

The file name must be a maximum of eight characters, followed by a period, followed by the three character extension `.hsr` (for example, `filename.hsr`). All key sequence files must be named with a `.hsr` extension.

### Tip

Click on File Name Select to access a file browser that allows you to specify a different destination file.



If you do not specify a folder destination, the file is stored in a default folder (directory). This folder is located below the destination point of where the HP 70207B PC Display for MMS software was installed during initial setup (the default is `C:\Program Files\Hewlett-Packard\HP 70207B`).

## Performing Common Tasks

5. Select Repeat File Continuously, if desired.

If this box is selected, the macro repeats continuously, but each time that the macro repeats, it starts where the previous run of the macro ends. When repeating the same procedure, ensure that the instrument is set to a known state at the beginning of each cycle. You can use an instrument preset (**INSTR PRESET**) or using the HP 70900B local oscillator source as an example, you can click **State save SAVE STATE** and then as the first step in a Macro Recording, you click **State recall RECALL STATE**.

6. Click on the Run dialog box.

All key-press sequences that were previously saved are played back in the exact order that they were performed. Because key-press sequences are actually executing, an MSIB interface card and instrumentation are required in the system.

This is different from playing back a work session data file (data logging), where the results of a key-press sequence are played back as displayed data, and the key-presses themselves are not actually executed.

### Tip

---

When using Run, you can vary the Time Interval between each step.

For example, each time that you select Run, there is a one second time delay between each recorded playback step by default. You can change this delay by entering a different value for the Time Interval; values for the Time Interval are specified in seconds and 1 second is the minimum value.

Longer Time Intervals may be needed between steps when using some equipment that requires a longer settling time.

---

## Performing Common Tasks

7. Either allow the key sequence to execute to completion (Macro Status will display the word End), or you can click on the Stop dialog box to end the play back of your key sequence.

### Tip

Clicking on Stop, available from the pull down File menu under Macros, can also be used to end the play back of your key sequence.

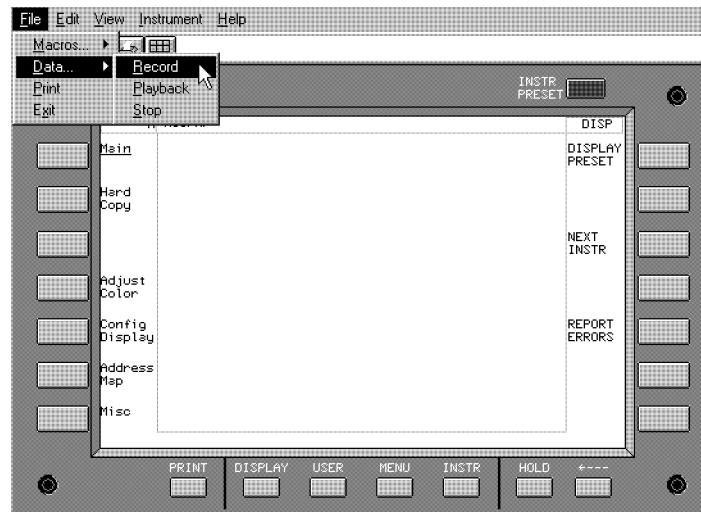


8. Close the Macro Playback dialog box when finished.

Because the Macro Playback mode takes control of the HP 70207B PC Display for MMS and preempts its normal behavior, you must close the Macro Playback dialog box when finished.

## Performing Common Tasks

### To record a work session in a data file



1. If it is open, close the Macro Playback dialog box.
2. Because data can only be saved from a single instrument configuration, select one of the following two choices:
  - If your system contains only a single instrument, skip to Step 3 of this procedure.
  - If your system contains multiple instruments, perform the following steps in order to select a single instrument:
    - a. Click **(DISPLAY) Address Map**.
    - b. Place the cursor over a box in the address map that contains a master module that you want to display and is capable of establishing links with the HP 70207B PC Display for MMS.
    - c. Click once to access the Assign Links menu.



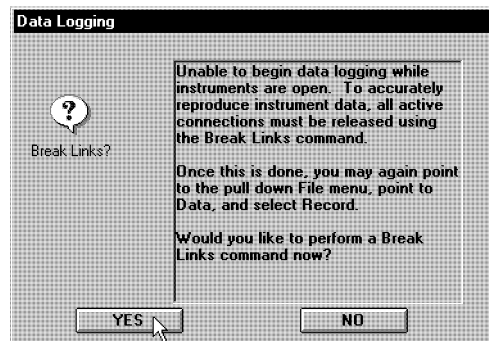
## Performing Common Tasks

- d. Click **Assign Both**.

**Assign Both** establishes contact between the display and a specific instrument, and then allocates the screen and keys to the module currently highlighted by the rectangle in the address map.

3. Click the pull down Instrument menu and click Break Links.

If you try to start recording a work session data file with a window open, you are prompted to start from an initial state.



4. Click the pull down File menu.
5. Point to Data and click Record.

A Data Recording dialog box will appear that allows a file name to be specified.

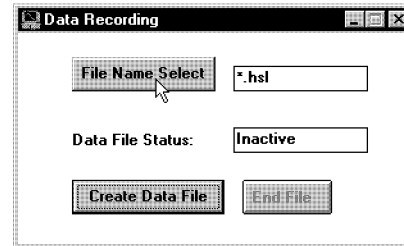
6. Enter a file name for the work session you are about to perform.

The file name must be a maximum of eight characters, followed by a period, followed by the three character extension `.hsl` (for example, `filename.hsl`). All work session (Data Recording) files must be named with a `.hsl` extension.

## Performing Common Tasks

### Tip

Click on File Name Select to access a file browser that allows you to specify a different destination file.



If you do not specify a folder destination, the file is stored in a default folder (directory). This folder is located below the destination point of where the HP 70207B PC Display for MMS software was installed during initial setup (the default is C:\Program Files\Hewlett-Packard\HP 70207B).

7. Click on the Create Data File dialog box.

If, during the last step, you specified a file name that already exists, you will get a warning and an opportunity to cancel. If you decide to use the name anyway, the new file will overwrite the previous file and all data in the previous file is lost.

8. Enter the key sequence that creates the desired results on your HP 70207B PC Display for MMS; data generated from each key press is saved in a data file.
- The file size of this function is dynamic. If left to run for a long enough time, it can utilize most of the free space on the storage device. If the storage device has less than 5 MBytes of space available, the recording will stop and a dialog box will appear informing you that you have run out of space to store data. To recover the space used for a Data Recording, you can record over that file or purge it using Windows Explorer.

## Performing Common Tasks

- When using this feature, all key-press sequences **are not saved** for later playback, only the data generated from each key press is saved.
- You may notice that when playing back a recorded data file, the key sequences appear to be executing. However, what you see are changes on the display annotation that occurred after each key selection was made. Because the actual key sequence is not executing in your system and you are only viewing a data file, you do not need an MSIB interface card to play back a recorded data file.
- Alternatively, when using the Macros Record feature (key sequence recording), all key-press sequences **are saved** for later playback. Because key-press sequences are played back and executed in your system, an MSIB interface card and instrumentation are needed to play back the recorded key sequence file.

## Performing Common Tasks

9. Click on the End File dialog box when the display data is what you want saved in the currently selected file.

Clicking on Stop, available from the pull down File menu under Data, can also be used to end the data recording session.



---

### Tip

The Data Recording dialog box may be left open so that you can create and save data to multiple files with different file names. Prior to attempting to play back any recorded data file, the Data Recording dialog box must be closed.

Because the Data File Playback mode takes control of the HP 70207B PC Display for MMS and preempts its normal behavior, you must close the Data Recording dialog box before attempting to use the Data File Playback feature.

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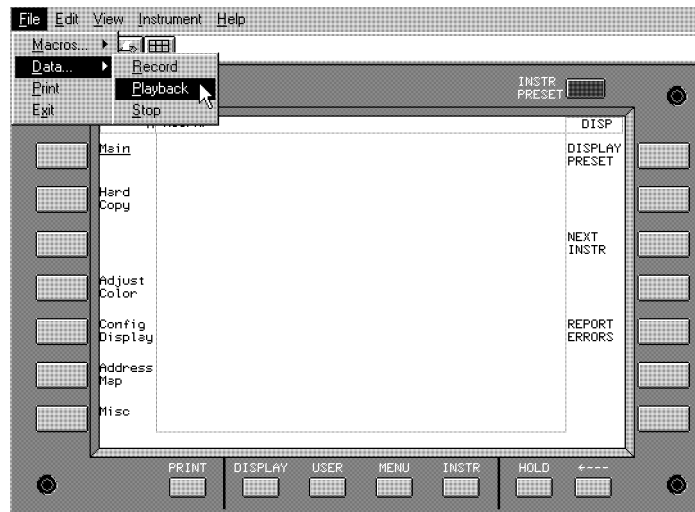
### Note

**To ensure that all classified information has been removed** from your HP 70207B PC Display for MMS, remove all files, using Microsoft Windows Explorer, that have been created with the data logging, key sequence recording, and LIF\_VOL storage features.

---

## Performing Common Tasks

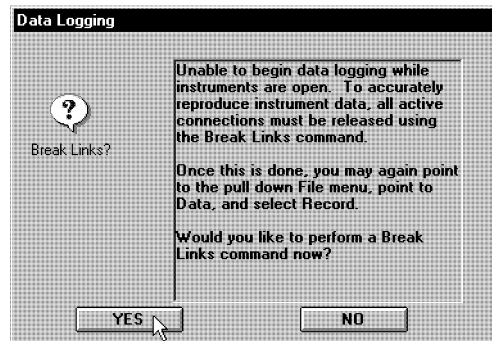
### To playback a recorded work session data file



1. If it is open, close the Data Recording dialog box.
2. Click the pull down Instrument menu and click Break Links.

If you try to start playback a recorded data file with a window open, you are prompted to start from an initial state.

## Performing Common Tasks



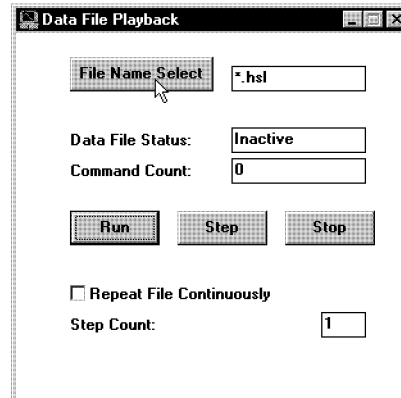
3. Click the pull down File menu.
4. Point to Data and click Playback.  
A Data File Playback dialog box will appear that allows a file name to be specified.
5. Enter a file name for the work session you want to play back.

The file name must be a maximum of eight characters, followed by a period, followed by the three character extension .hsl (for example, filename.hsl). All work session (data recording) files must be named with a .hsl extension.

## Performing Common Tasks

### Tip

Click on File Name Select to access a file browser that allows you to specify a different destination file.



If you do not specify a folder destination, the file is stored in a default folder (directory). This folder is located below the destination point of where the HP 70207B PC Display for MMS software was installed during initial setup (the default is C:\Program Files\Hewlett-Packard\HP 70207B).

6. Click on the Run Data dialog box or click on Step to manually step through the recorded data file.

You may notice that when playing back a recorded data file, the key sequences appear to be executing, but they are not; what is being seen are changes on the display annotation that occurred after each key selection was made. Because the actual key sequence is not executing in your system and you are only viewing a data file, you do not need an MSIB interface card to play back a recorded data file.

Alternatively, when using the Macros Record feature (key sequence recording), all key-press sequences **are saved** for later playback. Because key-press sequences are played back and executed in your system, an

## Performing Common Tasks

MSIB interface card and instrumentation are needed to play back the recorded key sequence file.

### Tip

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Click on the Step dialog box to step through the recorded data file by a specified Step Count.

You can vary the number of steps that are skipped, in your data file, each time the Step dialog box is clicked by changing the Step Count (shown in the lower-right corner).

For example, each time that you click on the Step dialog box, one key press from the recorded key sequence is played back. If you change the Step Count to a different value other than one, then each time you click on Step, the data file is incremented by the Step Count; this may be desirable if you want to step through a data file at a rate faster than one step at a time.

When finished using the Step function, click on the Stop dialog box.

---

7. Click on the Stop dialog box to end the play back of your data from the data file.

Clicking on Stop, available from the pull down File menu under Data, can also be used to end the play back of your data file.

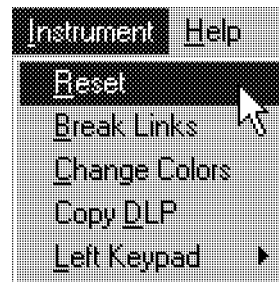
8. Close the Data File Playback dialog box when finished.

Because the Data File Playback mode takes control of the HP 70207B PC Display for MMS and preempts its normal behavior, you must close the Data File Playback dialog box when finished.



## Performing Common Tasks

### To reset the MSIB



1. Click on Reset, available from the pull down Instrument menu.

Resetting the MSIB performs the same function as pressing `purge window` followed by `PURGE ALL` and also sends a reset MSIB command to all modules connected to the MSIB.

All windows are removed from the display, all instrument information being displayed disappears, all keyboard and display links with instruments are broken, and the HP 70207B PC Display for MMS is placed in an initialized state.

The MSIB fault indicator light indicates the status of the MSIB. If the light is on, there is an MSIB problem.

## Working with the LIF\_VOL File

In this section, you will learn how to save and retrieve files of an MMS instrument using a special file named LIF\_VOL.

The LIF\_VOL file is used to store Down Loadable Programs (DLPs), state files, and on some instruments, memory files, trace information, and user-key definitions.

- DLPs are files of instructions that perform predefined measurements.
- State files store the current state of an instrument.
- Memory files store the current memory of an instrument which may include DLPs, trace information, and user-key definitions, etc.

Details of the LIF\_VOL file ..... 4-78

To add a DLP to the LIF\_VOL file ..... 4-81

To list the contents of the LIF\_VOL file ..... 4-84

To load and run a DLP from the LIF\_VOL file ..... 4-85

To save instrument state in the LIF\_VOL file ..... 4-88

To recall instrument state from the LIF\_VOL file ... 4-90

To save instrument memory in the LIF\_VOL file ... 4-92

To recall instrument memory from  
the LIF\_VOL file ..... 4-95

To format the LIF\_VOL file ..... 4-97

To create multiple LIF\_VOL files ..... 4-100

To access the HP 70004A color display's  
RAM and ROM cards ..... 4-103

## Working with the LIF\_VOL File

### Details of the LIF\_VOL file

The LIF\_VOL file is used to store Down Loadable Programs (DLPs), state files, and on some instruments, memory files, trace information, and user-key definitions.

- DLPs are files of instructions that perform predefined measurements.
- State files store the current state of an instrument.
- Memory files store the current memory of an instrument which may include DLPs, trace information, and user-key definitions, etc.

**LIF\_VOL Size**      The LIF\_VOL file is a 4 MB MS-DOS binary file that is created and formatted into Logical Interchange Format (LIF) during initial installation of the HP 70207B PC Display for MMS software.

Logical Interchange Format (LIF) is a Hewlett-Packard standard mass storage format that can be used for interchange of files among various Hewlett-Packard computer systems. A LIF volume contains a header (identifying it as a LIF volume) and a directory that defines the contents (for example, files) of the volume. The size of the directory is fixed when the volume is initialized and sets an upper bound on the number of files that can be created on the volume.

**LIF\_VOL Location**      The LIF\_VOL file is located in the “Storage” folder that is created below the destination point of where the HP 70207B PC Display for MMS software is installed. Its location is automatically determined during the installation process and cannot be changed without removing

## Working with the LIF\_VOL File

and reinstalling the HP 70207B PC Display for MMS software. (The default destination for the HP 70207B PC Display for MMS software is C:\Program Files\Hewlett-Packard\HP 70207B)

- LIF\_VOL Access MMS instrumentation can only access the LIF\_VOL file and cannot directly access your floppy drive. In addition, MMS instrumentation can only access the LIF\_VOL file when an MMS instrument's "mass storage is" (MSI) points to the HP-MSIB device and the address of the HP-MSIB is the same as the HP 70207B PC Display for MMS's column address. (For further information, refer to the procedure, "To load and run a DLP from the LIF\_VOL file".)
- LIF\_VOL Address The LIF\_VOL file can be treated as an HP-MSIB device similar to the HP 70004A color display's HP-MSIB card reader; the HP 70004A color display's HP-MSIB card reader accepts RAM/ROM cards that also utilize LIF. The LIF\_VOL's HP-MSIB address is the same as the HP-MSIB column address of the HP 70207B PC Display for MMS. The default column address for the HP 70207B PC Display for MMS is 2.
- DLP Names All files must have unique filenames in the LIF\_VOL file. Using a previously defined name will overwrite the previous file. For DLPs distributed on a floppy disk, the actual LIF\_VOL DLP filename is stored in the header file section of the floppy disk file. This means that renaming a file on a floppy disk will not change the name that is stored in the LIF\_VOL file.

## Working with the LIF\_VOL File

DLP Access	To get a DLP from a floppy disk to an MMS instrument, the DLP must first be copied into the LIF_VOL file. (For further information, refer to the procedure, "To add a DLP to the LIF_VOL file".)
DLP Usage	Files designed for a specific type of instrument should only be downloaded into that specific type of instrument. For example, downloading a DLP that was designed for an HP 70820A microwave transition analyzer into an HP 70900B local oscillator source produces unpredictable results. If you have multiple instruments that each save data, it is recommended that you use different LIF_VOL files for each instrument. (For further information, refer to the procedure, "To create multiple LIF_VOL files".)

**Working with the LIF\_VOL File**

**To add a DLP to the LIF\_VOL file**

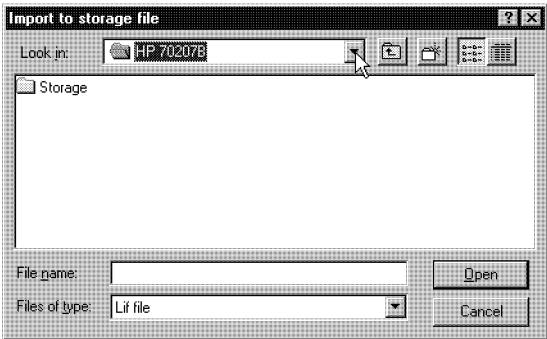


- 1. Insert a disk containing a DLP into your computer's disk drive.


Down Loadable Programs (DLPs) are files of instructions that perform predefined measurements or give a personality to an instrument.

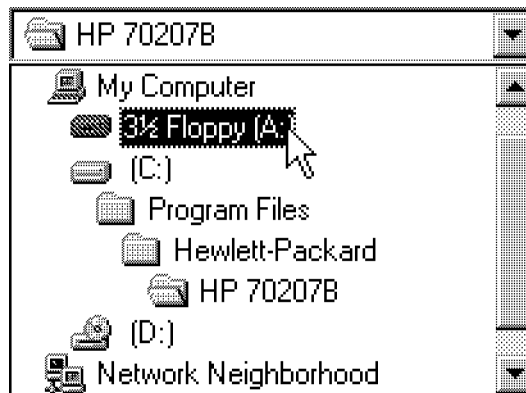
- 2. Click on Copy DLP, available from the pull down Instrument menu.

A file browser appears that allows you to specify the DLPs location and the name of the DLP to be loaded into the LIF\_VOL file.



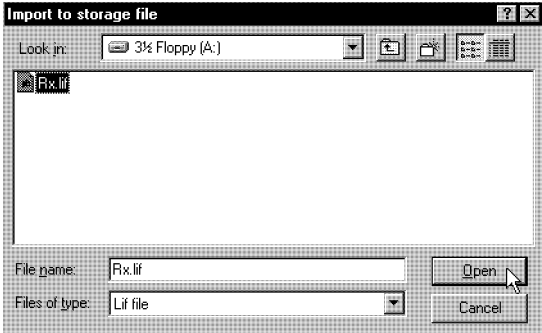
### Working with the LIF\_VOL File

3. From the HP 70207B dialog box, click  and designate the disk drive containing the DLP being loaded; this is usually either drive a: or drive b:.



### Working with the LIF\_VOL File

- 4. Click on the name of the DLP to be loaded into the LIF\_VOL file and click **Open**. For example, the following figure shows the Receiver DLP being added to the LIF\_VOL file.



The DLP should load into the LIF\_VOL file from the floppy disk.

All files must have unique filenames in the LIF\_VOL file. Using a previously defined name will overwrite the previous file. For DLPs distributed on a floppy disk, the actual LIF\_VOL DLP filename is stored in the header file section of the floppy disk file. This means that renaming a file on a floppy disk will not change the name that is stored in the LIF\_VOL file.



## Working with the LIF\_VOL File

### To list the contents of the LIF\_VOL file

Because the information that is stored in the LIF\_VOL file is in LIF format, you cannot list the contents of the LIF\_VOL file using the Microsoft Windows filing system.

Using the HP 70900B local oscillator source as an example, you can list the contents of the LIF\_VOL file with the following:

1. Click **(MENU) Misc MORE 1 of 3 catalog & MSI**.

A listing of either INTRNL MEMORY (for the HP 70900B local oscillator source), HP-MSIB CARD (for the HP 70207B PC Display for MMS), or a "Storage device error" is generated. This error is reported if the HP-MSIB card is selected and an HP-MSIB storage device, such as the LIF\_VOL file, is not at the HP-MSIB address indicated.

2. Click **HP-MSIB CARD**.
3. Enter the MSIB column address of the HP 70207B PC Display for MMS (the default is MSIB column address 2).

A listing of the LIF\_VOL file should be displayed.

Each LIF\_VOL file is 4 MByte and can hold many DLPs, state files, memory files, trace information, or user-key definitions. Because the information that is stored in the LIF\_VOL file is in LIF format, you cannot list the contents of the LIF\_VOL file using the Microsoft Windows filing system.

### To load and run a DLP from the LIF\_VOL file

DLPs are files of instructions that perform predefined measurements. Because each master module in an HP 70000 Series modular measurement system may have a different key sequence when accessing functions, refer to the *User's Guide* for the master module being used.

#### Note

---

Before performing this procedure, you must have already performed the procedure, "To add a DLP to the LIF\_VOL file".

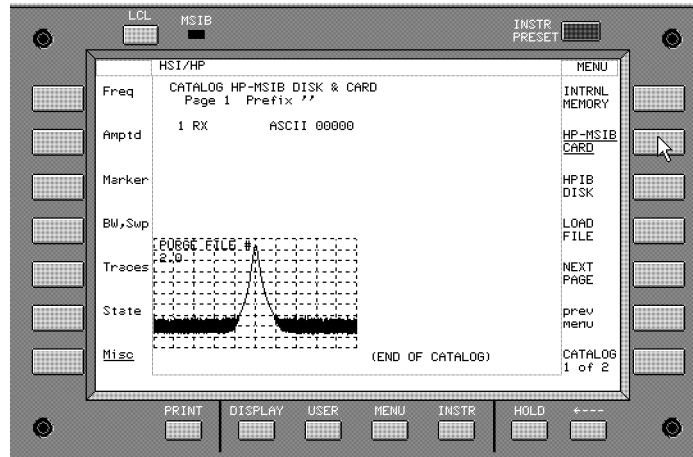
---

Using the HP 70900B local oscillator source as an example, you can load and run a DLP from the LIF\_VOL file with the following key sequence:

1. Click **NEXT INSTR** until the HP 70900B local oscillator source is selected as the current instrument; you can also use any of the other procedures described in this document to assign the keyboard and display to the HP 70900B local oscillator source.
2. Click **(MENU) Misc MORE 1 of 3 catalog & MSI**.

A listing of either INTRNL MEMORY (for the HP 70900B local oscillator source), HP-MSIB CARD (for the HP 70207B PC Display for MMS), or a "Storage device error" is generated. This error is reported if the HP-MSIB card is selected and an HP-MSIB storage device is not at the HP-MSIB address indicated.

## Working with the LIF\_VOL File



3. Click **HP-MSIB CARD**.

The current MSIB column address is displayed.

4. Enter the MSIB column address from the numeric keypad that corresponds to the column address of the HP 70207B PC Display for MMS (the default is MSIB column address 2).

For example, this is shown as

HP-MSIB ADDR (COL) 2.0.

### Tip

The **HP-MSIB CARD** softkey can be used to access either the LIF\_VOL file (used by the HP 70207B PC Display for MMS) or the RAM and ROM cards that are used with the HP 70004A color display when one is present. (For further information, refer to the procedure, “To access the HP 70004A color display’s RAM and ROM cards”.)

5. Read the list of DLPs available and click **LOAD FILE** if the desired DLP is listed.

If different DLPs are desired, refer to the procedure, “To add a DLP to the LIF\_VOL file”.

## Working with the LIF\_VOL File

6. From the list of DLPs that are displayed, enter the number of the DLP to be loaded and click **ENTER**.

It is recommended that only one DLP be loaded at a time. Before loading additional DLPs, clear the instrument's internal memory. The **CLEAR** key, that is listed on the HP 70900B local oscillator source's menu, is used to clear the entry of the DLP being selected; it does not clear the DLP from internal memory.

To clear an instrument's internal user memory:

- a. Click **(MENU)** **Misc** **MORE 1 of 3** **catalog & MSI**.
- b. Click **HP-MSIB CARD**, **INTRNL MEMORY**, **CATALOG 1 of 2**.
- c. Click **FORMAT**.

This clears all DLP information from an HP 70900B local oscillator source's internal user memory so that new DLPs can be loaded. After clearing the instrument's internal memory, return to step one of, "To load and run a DLP from the LIF\_VOL file".

If you wish to abort the formatting process, click **(←)** to return to the previous menu.

- d. Click **CONFIRM FORMAT**.

During formatting, irregularities in screen sweeps may occur, but return to normal once format is complete.

7. Click **(USER)**.
8. Click on the softkey that corresponds to the name of a desired DLP.

Not all DLPs are listed and therefore can not be selected in this manner. In our example, the Receiver DLP (RX), which appears as a softkey, was selected and loaded.

## Working with the LIF\_VOL File

### To save instrument state in the LIF\_VOL file

State files store the current state of an instrument. Because the state of an instrument is affected by the version of its firmware, you must have equipment with the same version of firmware that was used when an instrument state was saved. If equipment in your current configuration does not have the same firmware version that was used when an instrument state was saved, the instrument state may not be recalled or if recalled, it may not function properly.

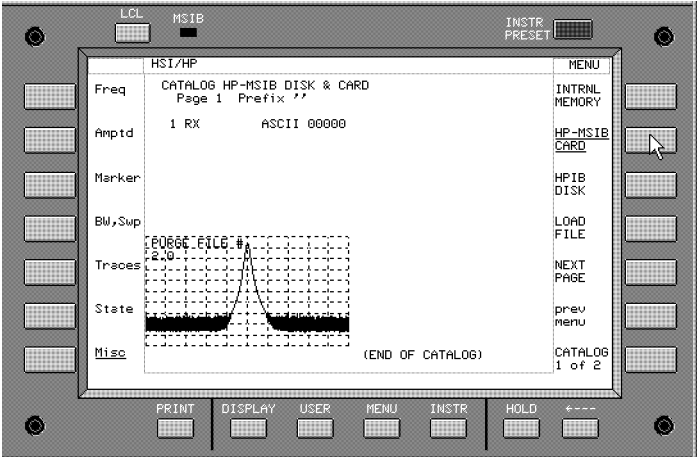
Because each master module in an HP 70000 Series modular measurement system may have a different key sequence when accessing functions, refer to the *user's guide* for the master module being used.

Using the HP 70900B local oscillator source as an example, you can save an instrument's state in the LIF\_VOL file with the following key sequence:

1. Click **NEXT INSTR** until the HP 70900B local oscillator source is selected as the current instrument; you can also use any of the other procedures described in this document to assign the keyboard and display to the HP 70900B local oscillator source.
2. Click **(MENU) Misc MORE 1 of 3 catalog & MSI**.

A listing of either INTRNL MEMORY (for the HP 70900B local oscillator source), HP-MSIB CARD (for the HP 70207B PC Display for MMS), or a "Storage device error" is generated. This error is reported if the HP-MSIB card is selected and an HP-MSIB storage device is not at the HP-MSIB address indicated.

### Working with the LIF\_VOL File



3. Click **HP-MSIB CARD**.

The current MSIB column address is displayed.

4. Enter the MSIB column address from the numeric keypad that corresponds to the column address of the HP 70207B PC Display for MMS (the default is MSIB column address 2).

For example, this is shown as  
 HP-MSIB ADDR (COL) 2.0.

**Tip**

The **HP-MSIB CARD** softkey can be used to access either the LIF\_VOL file or the RAM and ROM cards that are used with the HP 70004A color display when one is present. (For further information, refer to the procedure, “To access the HP 70004A color display’s RAM and ROM cards”.)

5. Click **(State) save SAVE STATE**.

**Tip**

If the lower-left spectrum analyzer keypad is available, you can access the **SAVE STATE** function by clicking on **(SAVE)**.

## Working with the LIF\_VOL File

### To recall instrument state from the LIF\_VOL file

State files store the current state of an instrument. Because the state of an instrument is affected by the version of its firmware, you must have equipment with the same version of firmware that was used when an instrument state was saved. If equipment in your current configuration does not have the same firmware version that was used when an instrument state was saved, the instrument state may not be recalled or if recalled, it may not function properly.

Using the HP 70900B local oscillator source as an example, you can recall an instrument's state from the LIF\_VOL file with the following key sequence:

1. Click **(MENU) Misc MORE 1 of 3**.

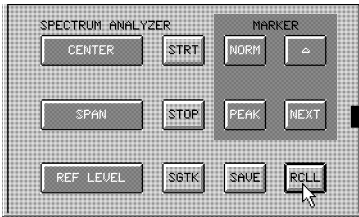
A listing of either INTRNL MEMORY (for the HP 70900B local oscillator source), HP-MSIB CARD (for the HP 70207B PC Display for MMS), or a "Storage device error" is generated. This error is reported if the HP-MSIB card is selected and an HP-MSIB storage device is not at the HP-MSIB address indicated.

2. Click **catalog & MSI HP-MSIB CARD**.
3. Click **(State) recall RECALL STATE**.

**Working with the LIF\_VOL File**

**Tip**

If the lower-left spectrum analyzer keypad is available, you can access the **RECALL STATE** function by clicking on **RCLL**.





## Working with the LIF\_VOL File

### To save instrument memory in the LIF\_VOL file

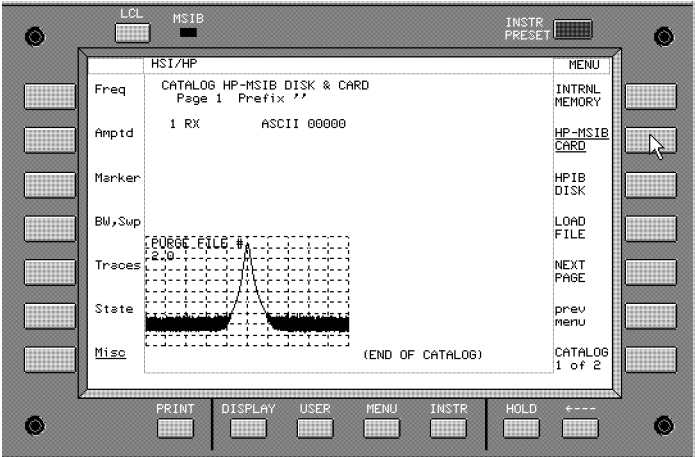
Memory files store the current memory of an instrument which may include DLPs, trace information, and user-key definitions, etc. Instrument memory can only be recalled from an instrument with the same firmware that was used to save the instrument memory. If equipment in your current configuration does not have the same firmware version that was used when an instrument memory was saved, the instrument memory may not be recalled or if recalled, it may not function properly.

Because each master module in an HP 70000 Series modular measurement system may have a different key sequence when accessing functions, refer to the *user's guide* for the master module being used.

Using the HP 70900B local oscillator source as an example, you can save an instrument's memory in the LIF\_VOL file with the following key sequence:

1. Click **NEXT INSTR** until the HP 70900B local oscillator source is selected as the current instrument; you can also use any of the other procedures described in this document to assign the keyboard and display to the HP 70900B local oscillator source.
2. Click **(MENU) Misc MORE 1 of 3**.

### Working with the LIF\_VOL File



3. Click **catalog & MSI HP-MSIB CARD**.

The current MSIB column address is displayed. A listing of either INTRNL MEMORY (for the HP 70900B local oscillator source), HP-MSIB CARD (for the HP 70207B PC Display for MMS), or a “Storage device error” is generated. This error is reported if the HP-MSIB card is selected and an HP-MSIB storage device is not at the HP-MSIB address indicated.

4. Enter the MSIB column address from the numeric keypad that corresponds to the column address of the HP 70207B PC Display for MMS (the default is MSIB column address 2).

For example, this is shown as  
 HP-MSIB ADDR (COL) 2.0.

**Tip**

The **HP-MSIB CARD** softkey can be used to access either the LIF\_VOL file or the RAM and ROM cards that are used with the HP 70004A color display when one is present. (For further information, refer to the procedure, “To access the HP 70004A color display’s RAM and ROM cards”.)

### Working with the LIF\_VOL File

5. Click **(State)** **save** **SAVE MEMORY**.

#### **Tip**

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If the lower-left spectrum analyzer keypad is available, you can access the **SAVE MEMORY** function by clicking on **(SAVE)**.

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### To recall instrument memory from the LIF\_VOL file

Memory files store the current memory of an instrument which may include DLPs, trace information, and user-key definitions, etc. Instrument memory can only be recalled from an instrument with the same firmware that was used to save the instrument memory. If equipment in your current configuration does not have the same firmware version that was used when an instrument memory was saved, the instrument memory may not be recalled or if recalled, it may not function properly.

Using the HP 70900B local oscillator source as an example, you can recall an instrument's memory from the LIF\_VOL file with the following key sequence:

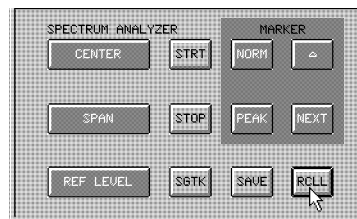
1. Click **(MENU)** **Misc** **MORE 1 of 3**.

A listing of either INTRNL MEMORY (for the HP 70900B local oscillator source), HP-MSIB CARD (for the HP 70207B PC Display for MMS), or a "Storage device error" is generated. This error is reported if the HP-MSIB card is selected and an HP-MSIB storage device is not at the HP-MSIB address indicated.

2. Click **catalog & MSI** **HP-MSIB CARD**.
3. Click **(State)** **recall** **RECALL MEMORY**.

## Working with the LIF\_VOL File

**Tip** If the lower-left spectrum analyzer keypad is available, you can access the **RECALL MEMORY** function by clicking on **RCLL**.



## To format the LIF\_VOL file

### Note

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Because the LIF\_VOL file is formatted during initial installation of the HP 70207B PC Display for MMS software, you do not have to perform the formatting process before its first use. **FORMAT** is not formatting any of your computer's disks, it is only initializing the storage format of a single file (Storage\LIF\_VOL) in your system. If a master module has a selection to format a disk in more than one format, you must select the LIF format. Other formats cannot be read by the HP 70207B PC Display for MMS.

If after using the LIF\_VOL file, it becomes full (no further information can be added to it) you can:

- format the current LIF\_VOL file and continue with the newly formatted LIF\_VOL file. If you format the current LIF\_VOL file, all data that it contains is destroyed!
- create a new LIF\_VOL file while retaining the current LIF\_VOL file's information in a storage file. (For further information, refer to the procedure, "To create multiple LIF\_VOL files".)

Although you may create as many LIF-formatted storage files (with different names) as you like, only the file named LIF\_VOL is used by the HP 70207B PC Display for MMS program.

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Because each master module in an HP 70000 Series modular measurement system may have a different key sequence to access the format function, refer to the *user's guide* for the master module being used.

Using the HP 70900B local oscillator source as an example, you can format the LIF\_VOL file with the following key sequence:

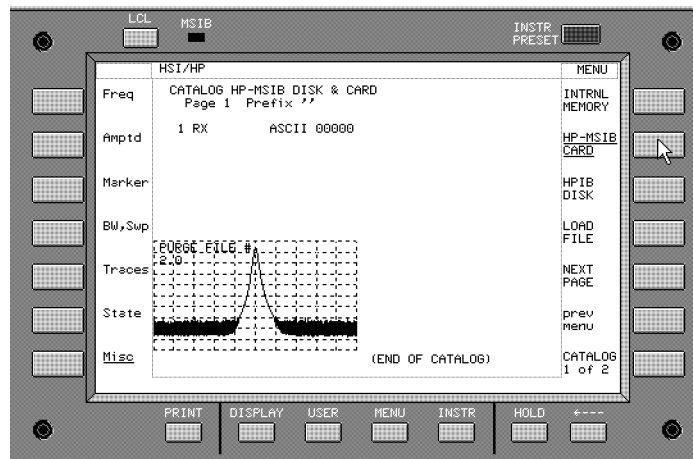
1. Click **NEXT INSTR** until the HP 70900B local oscillator source is selected as the current instrument; you can also use any of the other procedures described in this

## Working with the LIF\_VOL File

document to assign the keyboard and display to the HP 70900B local oscillator source.

2. Click **(MENU) Misc MORE 1 of 3 catalog & MSI**.

A listing of either INTRNL MEMORY (for the HP 70900B local oscillator source), HP-MSIB CARD (for the HP 70207B PC Display for MMS), or a “Storage device error” is generated. This error is reported if the HP-MSIB card is selected and an HP-MSIB storage device is not at the HP-MSIB address indicated.



3. Click **HP-MSIB CARD**.

The current MSIB column address is displayed.

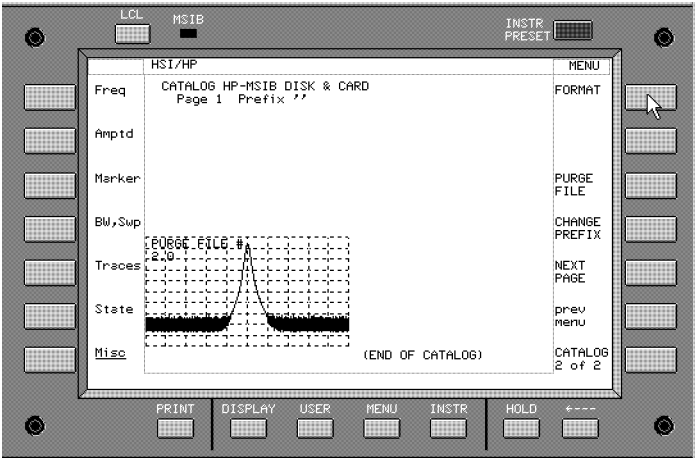
4. Enter the MSIB column address from the numeric keypad that corresponds to the column address of the HP 70207B PC Display for MMS (the default is MSIB column address 2).

For example, this is shown as  
HP-MSIB ADDR (COL) 2.0.

**Working with the LIF\_VOL File**


**Tip**

The **HP-MSIB CARD** softkey can be used to access either the LIF\_VOL file (used by the HP 70207B PC Display for MMS) or the RAM and ROM cards that are used with the HP 70004A color display when one is present. (For further information, refer to the procedure, "To access the HP 70004A color display's RAM and ROM cards".)



- 5. Click **Catalog 1 of 2 FORMAT**.

Formatting will destroy all of the information in the current LIF\_VOL file. If you wish to preserve the contents of the current LIF\_VOL file before the formatting process, refer to the procedure, "To create multiple LIF\_VOL files".

If you wish to abort the formatting process, click  to return to the previous menu.

- 6. Click **CONFIRM FORMAT**.

Depending on your computer's speed, format time varies. Irregularities in screen sweeps may occur, but return to normal once format is complete.

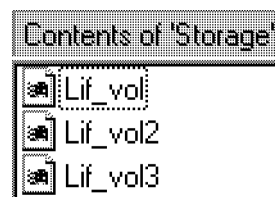


## Working with the LIF\_VOL File

### To create multiple LIF\_VOL files

#### Note

Although you may create as many LIF-formatted files (with different names) as you like, only the file named LIF\_VOL is used by the HP 70207B PC Display for MMS program.



1. Using the Windows Explorer program, select the "Storage" folder. This folder is located below the destination point of where the HP 70207B PC Display for MMS software was installed during initial setup (the default is C:\Program Files\Hewlett-Packard\HP 70207B).

The LIF\_VOL file is a 4 MB MS-DOS binary file that is created and formatted into Logical Interchange Format (LIF) during initial installation of the HP 70207B PC Display for MMS software; its location is automatically determined during the installation process and cannot be changed without removing and reinstalling the HP 70207B PC Display for MMS software.

2. Designate a custom name for the current LIF\_VOL file so that it is not destroyed when using the **FORMAT** function.

To designate a custom name for your LIF\_VOL file:

- a. Place the pointer on the LIF\_VOL filename in the Windows Explorer dialog box.
- b. Click the right-side button on the mouse and select Rename.

## Working with the LIF\_VOL File

- c. Type the new name that you would like the LIF\_VOL file labeled with.

You can press the backspace key to erase the complete name before typing. Each new name must be unique; in our example, we used LIF\_VOL2 and LIF\_VOL3, but any name may be used as long as it is different from LIF\_VOL.

3. Return to the procedure "To format the LIF\_VOL file".

You may repeat this process and create as many LIF-formatted files (with different names) as you like, but only the file named LIF\_VOL is used by the HP 70207B PC Display for MMS program.

### Tip

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If you have multiple, custom-named, LIF-formatted files, you can select only one of them to be used as the current LIF\_VOL file. The HP 70207B PC Display for MMS program only recognizes the LIF-formatted file named LIF\_VOL.

To designate an alternate file as the current LIF\_VOL file:

1. Rename the current LIF\_VOL file to another name other than LIF\_VOL.
  - a. Place the pointer on the current LIF\_VOL file in the Windows Explorer dialog box.
  - b. Click the right-side button on the mouse and select Rename.
  - c. Type the new name that you would like the current LIF\_VOL file labeled with.

You can press the backspace key to erase the complete name before typing. Each new name must be unique; in our example, we used LIF\_VOL2 and LIF\_VOL3, but any name may be used as long as it is different from LIF\_VOL.

If you do not rename the current LIF\_VOL file to a different unique name prior to the next step, you will lose all data in the current LIF\_VOL file.

## Working with the LIF\_VOL File

2. Rename one of the custom-named LIF-formatted files as the current LIF\_VOL file.
  - a. Select the custom-named LIF-formatted file that you want to designate as the LIF\_VOL file.
  - b. Place the pointer on the custom-named LIF-formatted file in the Windows Explorer dialog box.
  - c. Click the right-side button on the mouse and select Rename.
  - d. Type the name LIF\_VOL.

You can press the backspace key to erase the complete name before typing.

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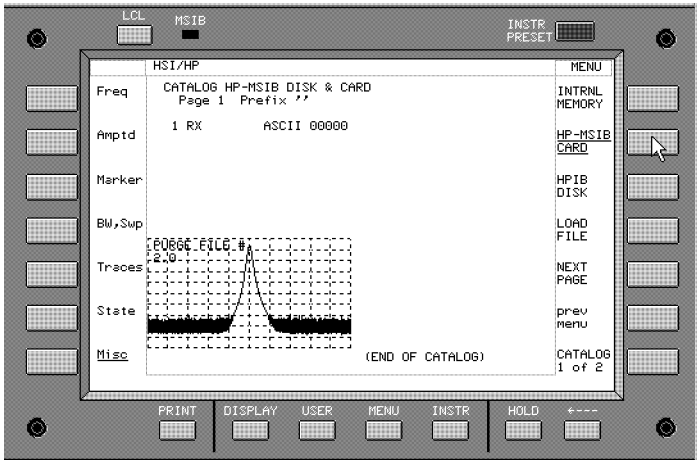
### Note

To **ensure that all classified information has been removed** from your HP 70207B PC Display for MMS, remove all files, using Microsoft Windows Explorer, that have been created with the data logging, key sequence recording, and LIF\_VOL storage features.

---

**Working with the LIF\_VOL File**

**To access the HP 70004A color display's RAM and ROM cards**



If an HP 70004A color display is connected to your system, the RAM and ROM cards can be designated for storing and retrieving information instead of using the LIF\_VOL file.

When the **HP-MSIB CARD** softkey is selected, the current MSIB column address is displayed. This is shown as HP-MSIB ADDR (COL) followed by an MSIB column address; the default MSIB column addresses are 2 for the HP 70207B PC Display for MMS and 4 for the HP 70004A color display.

**To change the MSIB column address that the HP-MSIB CARD softkey is accessing:**

1. Enter a new MSIB column address from the numeric keypad. The MSIB column address you enter should correspond to either the HP 70207B PC Display for MMS or the HP 70004A color display.
2. Click **ENTER**.

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## **DISPLAY** Softkey Reference

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### Overview

#### In this chapter you will learn about:

- Softkeys available when **DISPLAY** is selected and what each softkey can do.

This chapter introduces the conventions used in the softkey menus. Then all of the softkeys available through the **DISPLAY** key are described. The softkeys are described according to their position on the display menus.

For information on how to use the softkeys for a specific instrument other than the display (softkeys that appear when selecting instruments with the **USER**, **MENU**, or **INSTR** keys), refer to the instrument's user documentation.

Main .....	5-4
Hard Copy .....	5-10
Adjust Color .....	5-13
Config Display .....	5-18
Address Map .....	5-25
Misc .....	5-32

When you first start your HP 70207B PC Display for MMS, an initial set of top-level softkeys will appear. Depending on which hard key is selected: **DISPLAY**, **USER**, or **MENU**, a different set of top-level softkeys are available; the softkey set is dependent on the instrument in control of the keyboard.

Selecting one of the top-level softkeys on the left side of the display allows access to a menu of softkeys on the right side of the display. Each softkey that is displayed on the right side either performs a function directly or accesses another menu of related softkeys.

**Softkey** Text that looks like this (with an initial uppercase letter followed by all lowercase letters) represents a top level softkey. All top level softkeys access a set of softkeys that are functionally related; these softkeys are generally found only on the left side of the display.

**SOFTKEY** Text that looks like this (with all uppercase letters) represents a softkey that executes its function. When a softkey is underlined, it is set to on; clicking on an underlined softkey toggles it between on and off.

**softkey** Text that looks like this (with all lowercase letters) represents a softkey that accesses another menu of related softkeys.

**MORE** Some of the softkey functions are too numerous to display all at once, and for this reason are divided into “pages”. Press **MORE** to view additional pages.

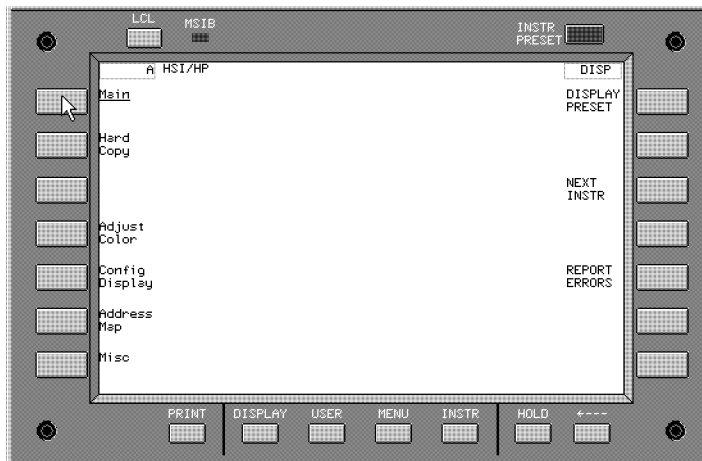
**prev menu** Use the previous-menu key, **prev menu**, or backspace **←** key, to return to previously displayed level of keys.

#### **HARD-LABELED KEYS**

A key name that looks like this represents a hard-labeled key (permanently fixed key) that is located on the front panel of the HP 70207B PC Display for MMS.

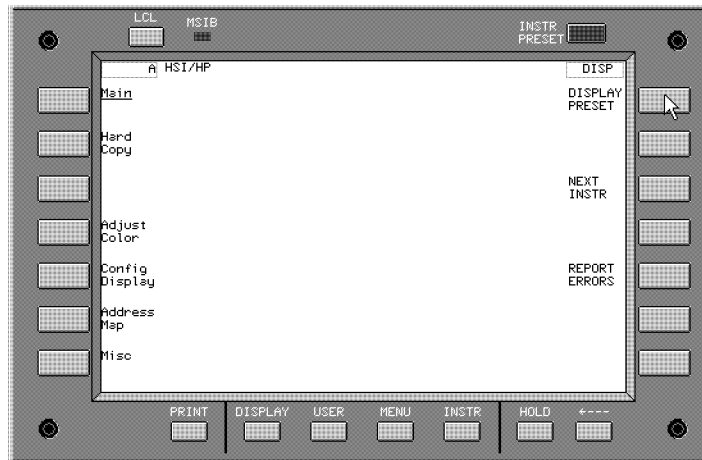


## DISPLAY Main



**Main** allows access to softkeys that preset the display, find the next available instrument on the MSIB address map, and show a report of system errors.

## DISPLAY PRESET



Key Path: **DISPLAY** DISPLAY PRESET

Actions:  Clears and resets the display to one window and then assigns the window (entire screen) to the last instrument that owned the keyboard (if any).

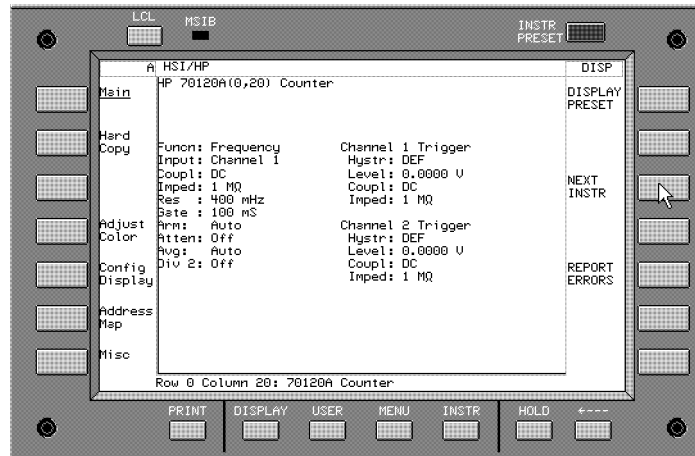
### Tip

**INSTR PRESET** is used to preset the settings of the instrument that the keyboard is currently assigned to, but does not preset the display.

For example, if four windows are configured and **INSTR PRESET** is pressed, the four windows and the instrument that owns the keyboard will remain, whereas **DISPLAY PRESET** will preset the display back to one window but does *not* preset the instrument that owns the keyboard.

**DISPLAY** Main



**NEXT INSTR**



Key Path: **DISPLAY** **NEXT INSTR**

Actions:

- Steps to the next instrument on ROW 0 of the address map, but skips MMS displays.

Pressing  or  causes a search up or down through the address map for the next instrument.

- Establishes initial contact (a link) between the display and a single instrument.

For example, if one instrument is being displayed on a single window and you want to display another instrument on that same window, **NEXT INSTR** may be used to step to the next window.

- Causes the display to show measurement results and control operation of the next instrument on ROW 0 of the address map. If none is found higher than the current one, the display will start at COLUMN 0 and

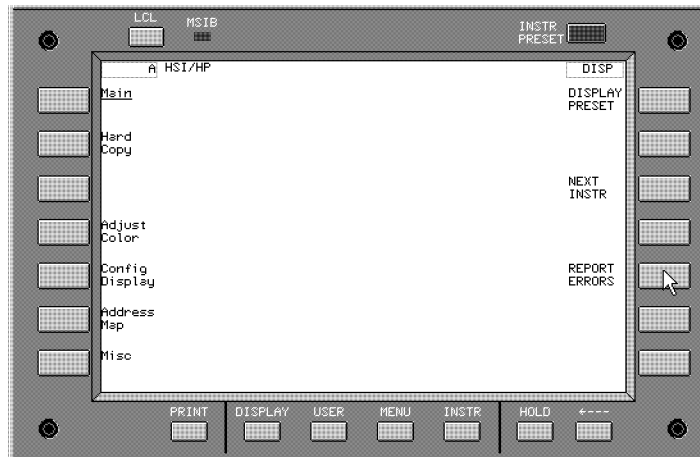
work its way up to the next address containing an instrument.

- At power-on, the display prompts the user to press NEXT INSTR. If during a previous session, NEXT INSTR had been pressed and the screen was assigned to an instrument, the display will automatically attempt to re-establish a link to that instrument. In that case, as soon as the link is established, the power-up prompt will go away. In most cases, this will happen so soon after the link is offered that the prompt will flash on the screen and be gone.
- If you press (MENU) or (USER) when the currently selected window is not assigned to an instrument, the menu key labels disappear. No key, other than (DISPLAY) or (PRINT) will give a response.

In such a case, (MENU) and (USER) do not call up any keys because an instrument is not currently linked to the display. All keys under (USER) and (MENU) are created by and responded to by an instrument (such as a spectrum analyzer), while all keys under (DISPLAY) are generated by the HP 70207B PC Display for MMS. For information on using softkeys that are accessed by (USER) or (MENU), refer to the user guide for the specific instrument that is selected.

**DISPLAY** Main

## REPORT ERRORS



Key Path:

**DISPLAY** REPORT ERRORS

Actions:

- When an instrument or module has an error, it informs every instrument that resides on ROW 0 of the address map. This will cause an E (the E is red on the HP 70207B PC Display for MMS) to appear in the status box of the display. When **REPORT ERRORS** is pressed, a pop-up window appears with a list of errors. A vertical scroll bar is available if there are more errors than can be shown on one screen.

This is a one-time transfer of information; there is no updating. Listing the description of an error will clear the error if the error no longer exists.

- Most errors reported on the MSIB system are transient errors. These errors, once reported via

**REPORT ERRORS**, are cleared from memory and cannot be reported or viewed a second time unless they are copied to the Microsoft Windows Clipboard.

- Transient errors can be cleared by pressing either **MENU** or **USER**, or by pressing the **DISPLAY** and **REPORT ERRORS** keys.
- Other errors reported can be hardware errors. These are caused by hardware problems such as unconnected back panel cables or the failure of an internal component. These problems can affect operation of the instrument, and cannot be cleared from memory until corrected.

**Tip**

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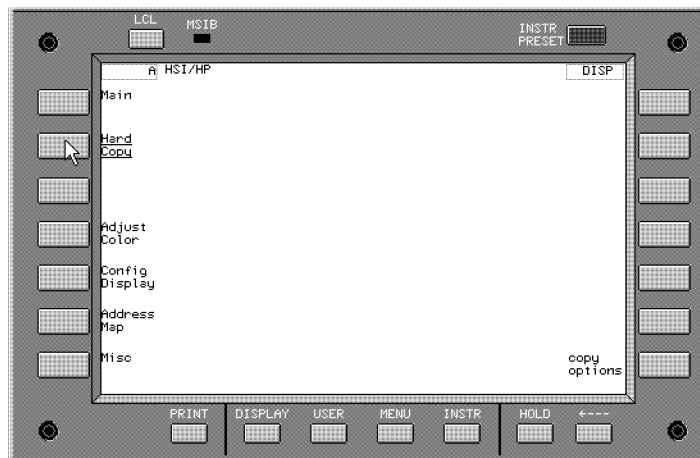
**To paste errors to the Microsoft Windows Clipboard**

1. Place the pointer over the pop-up error window.
  - If you only want to copy part of the display, highlight the errors of interest to be pasted to the Microsoft Windows Clipboard.
  - If you only want to copy all of the display, right-click the mouse and from the displayed menu, click Select-All.
2. Right-click the mouse and from the displayed menu, click Copy.
3. Open a Microsoft Windows application, and from the Edit menu, click Paste.

Once the information has been pasted from the Microsoft Windows Clipboard to the application, you can save the information to a file or make a copy on your printer.

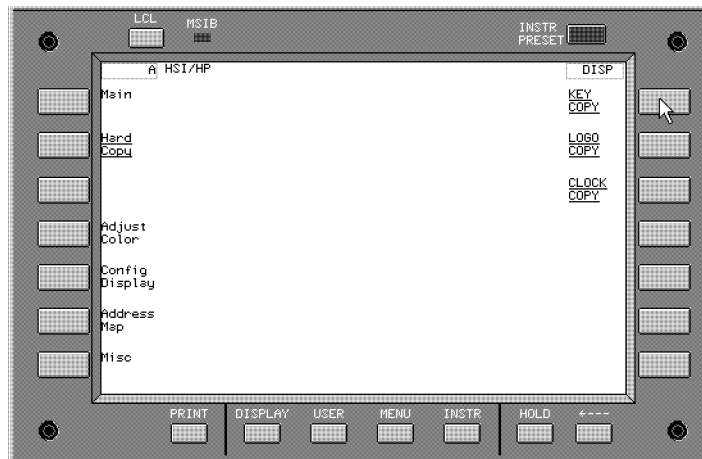
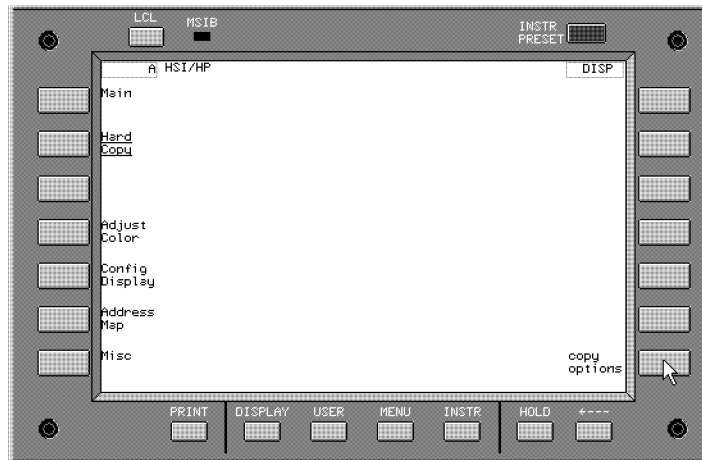
---

## DISPLAY Hard Copy



Hard Copy allows access to softkeys that affect the hard-copy printouts that are produced when using **PRINT** and also affects the Copy Screen function available from the pull down Edit menu.

copy options





**DISPLAY** Hard Copy

Key Path: **DISPLAY** Hard Copy copy options

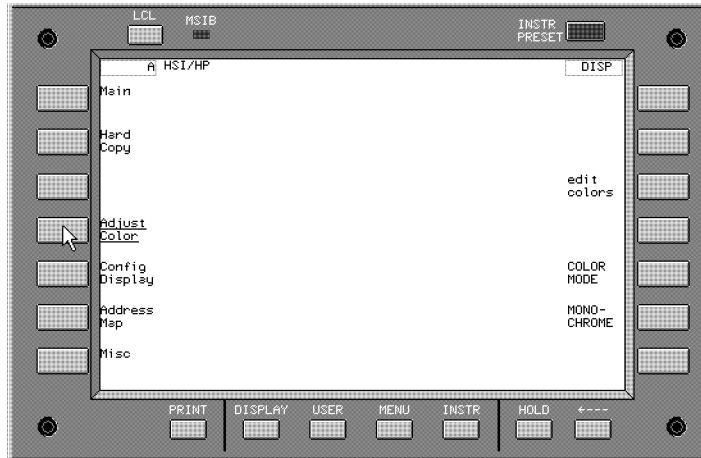
Actions: ■ Allows access to options that affect the hard-copy printouts that are produced when using **PRINT**.

- All copy options (**KEY COPY**, **LOGO COPY**, and **CLOCK COPY**) are linked so that when any one of the copy options is turned on or off, all of the copy options are set to the same state of either on or off.

If the copy options are off, only the graphics region is printed or copied. If the copy options are on, the whole display screen is printed or copied.

- To include HSI/HP logos when making hard-copy printouts or copying images to the Microsoft Windows Clipboard, both **HSI/HP LOGOS** and copy options must be on. The HSI/HP logos are only included in the whole display screen output if **HSI/HP LOGOS** is on.
- To include real-time clock annotation when making hard-copy printouts or copying images to the Microsoft Windows Clipboard, both **CLOCK DISPLAY** and copy options must be on. The real-time clock annotation is only included in the whole display screen output if **CLOCK COPY** is on.

DISPLAY Adjust Color



Adjust Color allows access to softkeys that can toggle the display between color and monochrome, and allows editing colors.

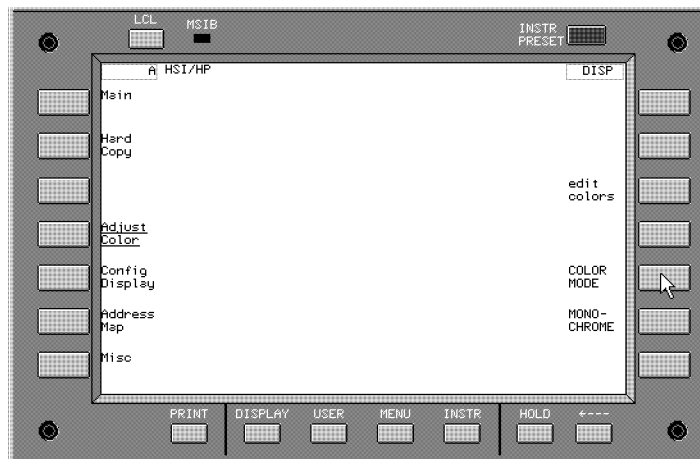
**Tip**

You can change between monochrome or color by clicking on the color selection icon.



**DISPLAY** Adjust Color

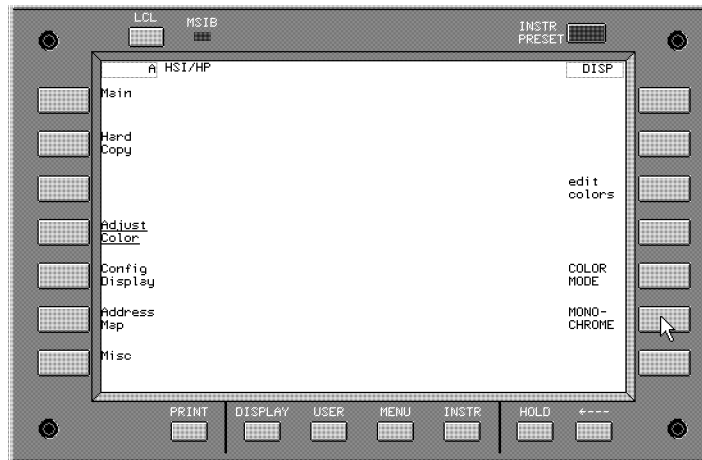
**COLOR MODE**



Key Path: **DISPLAY** Adjust Color **COLOR MODE**

- Actions:
- Sets the display screen to the color mode and uses the color attributes that are controlled by the HP 70207B PC Display for MMS software; these colors can not be altered through the Microsoft Windows Control Panel.

## MONOCHROME



Key Path: **DISPLAY** Adjust Color **MONOCHROME**

Actions: 

- Sets the display screen to black on white.

Colors can not be altered through the Microsoft Windows Control Panel.

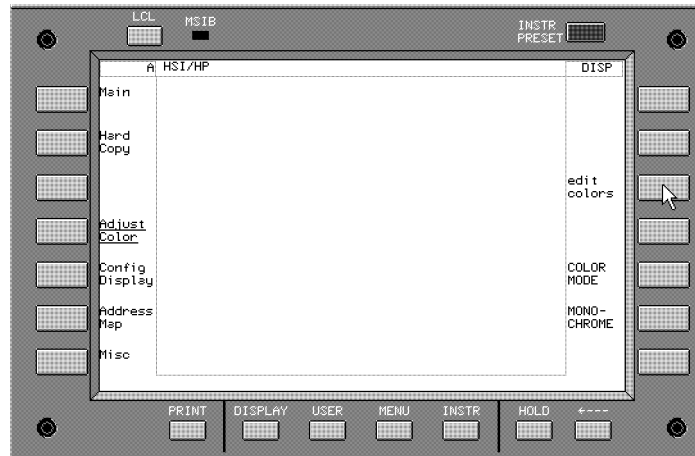
### Tip

You may prefer the **MONOCHROME** setting for copying images to the Clipboard and making hard-copy printouts.



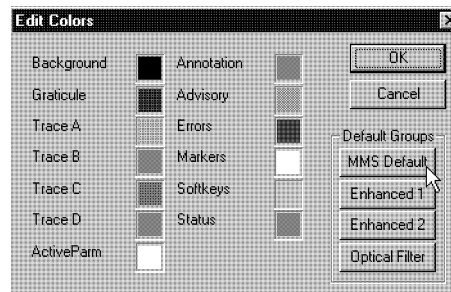
**DISPLAY** Adjust Color

edit colors



Key Path: **DISPLAY** Adjust Color edit colors

Actions: ■ Displays the currently selected color group (scheme) that is used to produce the HP 70207B PC Display for MMS interface. There are four default color groups to choose from, and each color group can be customized.



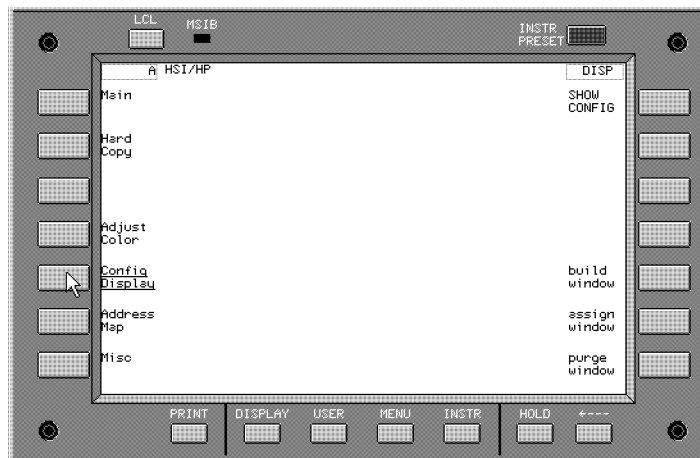
The following items can be changed within each color group. For examples, refer to the procedure, "To change and edit the display colors" in Chapter 4.

Background	Changes the color used in an instrument's window.
Graticule	Changes the color of the graticule lines in an instrument's window.
Trace A	Changes the color used to display trace A.
Trace B	Changes the color used to display trace B.
Trace C	Changes the color used to display trace C.
Trace D	Changes the color used to display trace D which are limit lines.
ActiveParm	Changes the color of the HP 70900B local oscillator source active parameter display. For example, CENTER FREQUENCY, SPAN, MARKER, etc.
Annotation	Changes the color used to display the instrument settings along the top or bottom of the display.
Advisory	Changes the color used to display warning messages produced by the HP 70900B local oscillator source.
Errors	Changes the color used to display error messages.
Markers	Changes the color used to display trace markers.
Softkeys	Changes the color used when displaying softkey menu labels.  Changes the color used to display information that is displayed in the status information region.  The display uses the status information region to present system status information, such as the real-time clock and the HSI/HP logo annotation.

**DISPLAY** Adjust Color

---

**DISPLAY** Config Display



**Config Display** allows access to softkeys that can be used to configure up to four windows on the display screen so that the traces, annotation, graticule, and measurement results of four different instruments can be displayed simultaneously.

Although multiple instruments can be displayed, only one instrument at a time can be controlled using the keyboard.

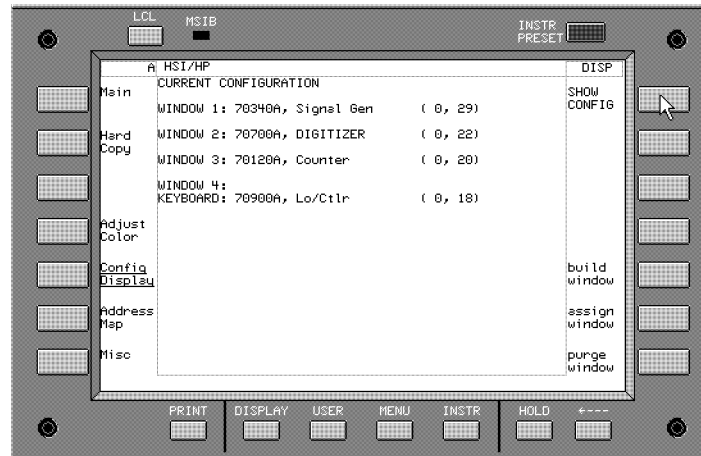
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**Note**

Due to the amount of information that some instruments and functions display at one time, not all instruments and functions are supported in a multiple window configuration.

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SHOW CONFIG



Key Path: DISPLAY Config Display

SHOW CONFIG

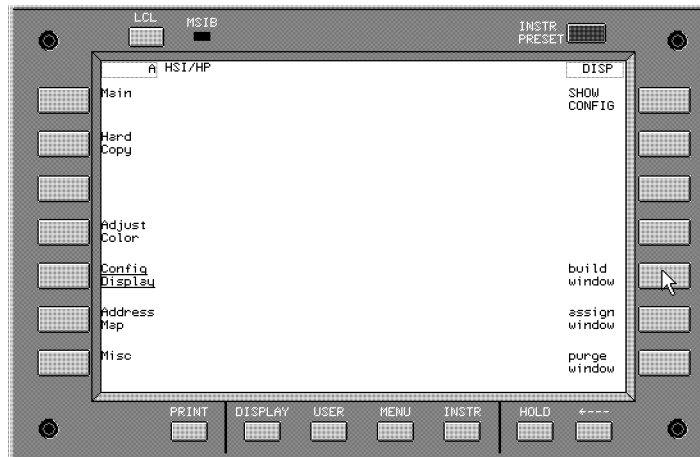
Actions:

- Displays a summary of the current display screen configuration.
- The following information is displayed:
  - each window number (windows 1 through 4)
  - if a window is not defined in the configuration being viewed, it will display the word: undefined
  - if a window is defined, then the following is also displayed:
    - the instrument that the keyboard is assigned to
    - the abbreviated name of the instrument that is assigned to each window; the abbreviated name refers to the instrument that can write to a given window.
    - following the abbreviated name is the MSIB ROW and COLUMN address



**DISPLAY** Config Display

build window



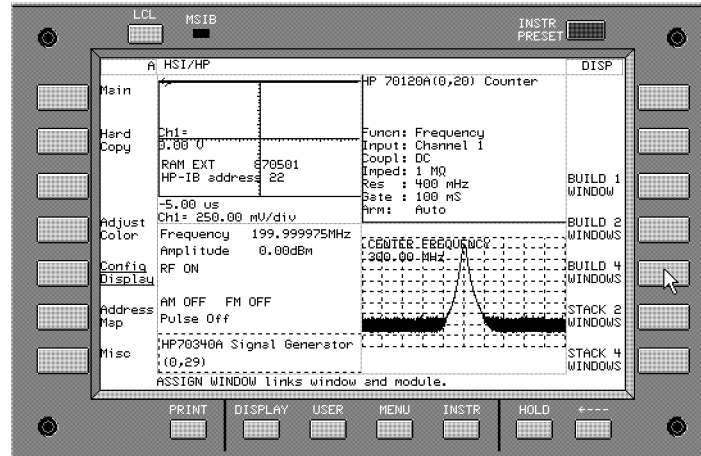
Key Path: **DISPLAY** Config Display  
build window

Actions:

- Allows up to four windows to be configured so that the traces, annotation, graticule, and measurement results of four different instruments can be displayed simultaneously.

**DISPLAY** Config Display

**BUILD 1, 2, or 4 WINDOWS**



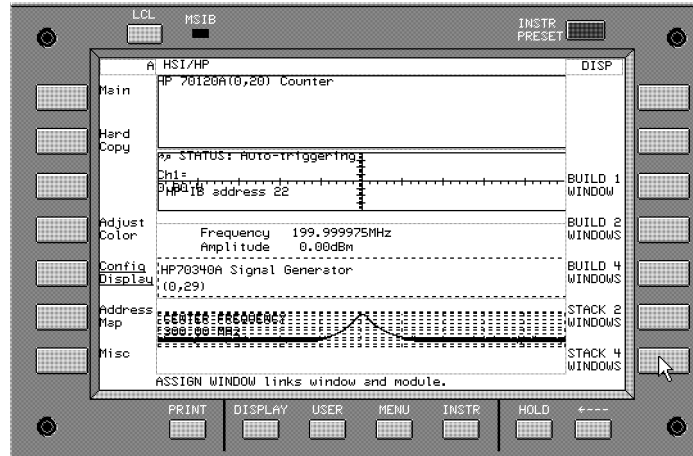
Key Path: **DISPLAY** Config Display  
build window followed by either  
**BUILD 1 WINDOW**, **BUILD 2 WINDOWS**,  
or **BUILD 4 WINDOWS**

Actions: 

- Creates one, two, or four predefined windows and assigns instruments to them (if available).

**DISPLAY** Config Display

**STACK 2 or 4 WINDOWS**



Key Path:

**DISPLAY** Config Display

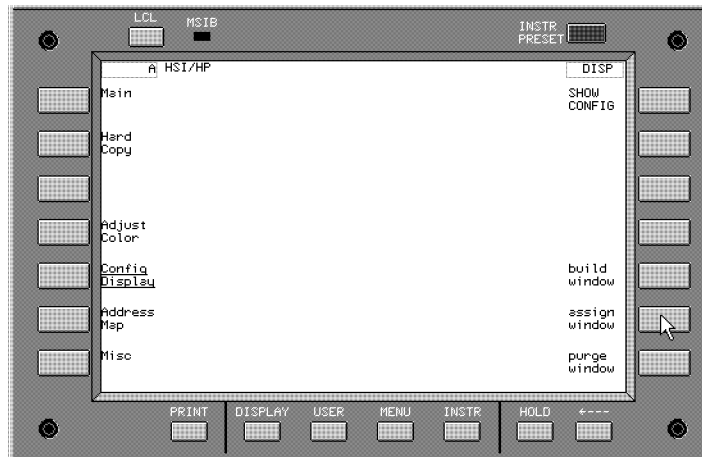
build window followed by either

**STACK 2 WINDOWS** or **STACK 4 WINDOWS**

Actions:

- Creates two or four predefined horizontal windows and assigns instruments to them (if available).

assign window

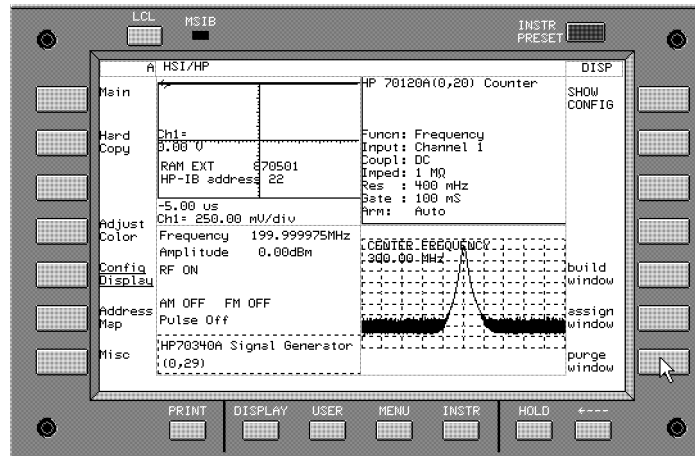


Key Path: **DISPLAY** Config Display  
assign window

- Actions:
- **assign window** selects the instrument that will be assigned to a chosen window.
  - Select a module on MSIB by using **MSIB ROW** , **MSIB COLUMN** , and **EXECUTE** . Use **←** to move from a lower level of menu keys to the previous level or to backspace the cursor while entering text.
  - Any instrument on ROW 0 of the address map can be assigned or re-assigned a window on the screen.
  - A window on the screen can be written to by any MSIB master module assigned to that window (for example, the HP 70900B local oscillator source).

**DISPLAY** Config Display

purge window



Key Path: **DISPLAY** Config Display  
purge window PURGE ALL

Actions: 

- **purge window** followed by **PURGE ALL** removes all windows from the display.

If you wish to abort the purge, before pressing **PURGE ALL**, click **←** to return to the previous menu.

After clicking on **PURGE ALL**, all windows are removed from the display, all trace information being displayed disappears, all keyboard and display links with instruments are broken, and the HP 70207B PC Display for MMS is placed in an initialized state

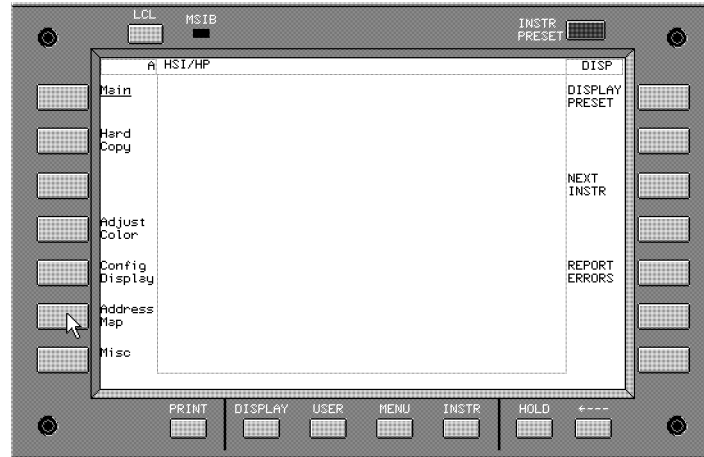
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**Tip**

To clear or purge a single window and still retain other windows that have been built, refer to the procedure, “To purge a single window” in Chapter 4.

---

DISPLAY Address Map

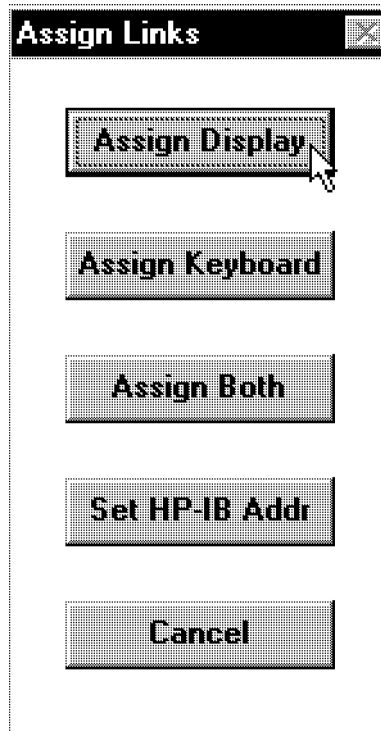


Address Map allows access to softkeys that access the MSIB address map. The address map is a graphical representation of HP 70000 Series modular measurement system elements and displays that are on the MSIB.

Address Map								
	Column 0	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Row 0			70207B PC Display HP-IBNO	70700A DIGITIZER HP-IB 3	70004A DISPLAY HP-IB 4	70120A Counter HP-IB 5	70340A Signal Gen HP-IB 6	

**DISPLAY** Address Map

Assign Display



Key Path: **DISPLAY** Address Map  
Assign Display

Actions:

- Assigns the whole screen of the display to a particular instrument, even though the keyboard may be assigned elsewhere. This allows the user to view the trace output from one instrument on the display, while controlling a different instrument with the keyboard.

**Tip**

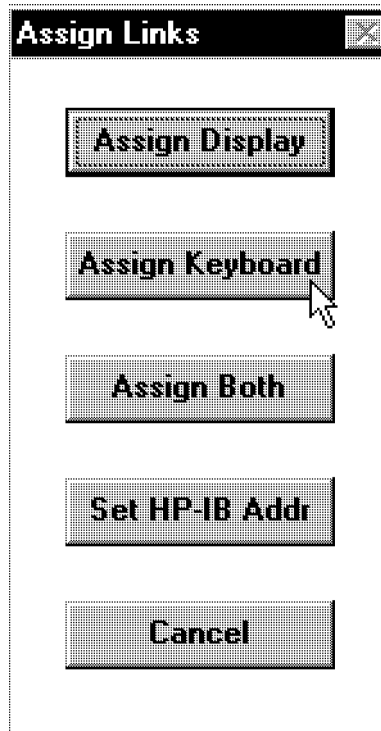
The two display resources, the display screen and the display keyboard, can be allocated separately to different instruments using **Assign Display** and **Assign Keyboard**; this allows one instrument to accept input from a keyboard while a second instrument sends its trace output to the display screen.

---



**DISPLAY** Address Map

Assign Keyboard



Key Path: **DISPLAY** Address Map  
Assign Keyboard

Actions:

- Allocates the keyboard to a specific instrument. The keyboard can then be used to control that instrument's settings even if the display screen is assigned to another instrument.
- Allows the user to link the keyboard with any master module by way of the address map.
- Only a master module such as the HP 70900B local oscillator source can receive the keyboard. Attempts to allocate the keyboard to slave modules will result in an error.

- The keyboard and the display screen can be allocated separately. `Assign Keyboard` links the keyboard with an instrument, but does not necessarily display any trace data from that instrument and the menu keys may not correspond to the instrument display shown.

**Tip**

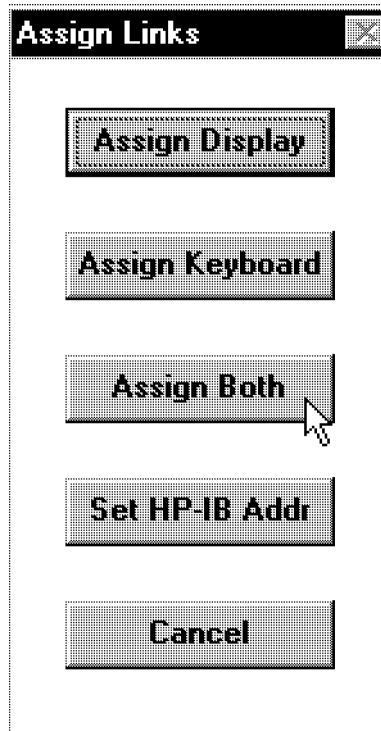
---

Use `INSTR` as the primary way of transferring the keyboard between instruments once they are assigned to windows. When the `INSTR` key is pressed, the display assigns colored borders to the currently defined windows. Near each window, a softkey containing the first seven characters in the module's model number and MSIB address (row and column) are displayed in the same color as the border. If a labeled softkey is pressed, the keyboard is offered to that window's instrument. If the instrument accepts the keyboard it will put up its menu keys, as though the `MENU` key had been pressed. For more information about address rows and columns, refer to "Understanding the MSIB Addressing Scheme" in Chapter 6.

---

**DISPLAY** Address Map

Assign Both



Key Path: **DISPLAY** Address Map Assign Both

- Actions:
- Establishes contact between the display and a specific instrument. It then allocates the screen and keys to the module currently highlighted by the box in the address map.
  - **Assign Both** differs from **NEXT INSTR** :  
**Assign Both** requires that a particular instrument (element) be specified while **NEXT INSTR** selects the next instrument in the address map that is higher in address from the

current instrument. Both, however, disconnect any links between the display and any other instruments, and both destroy any existing windows in the display.

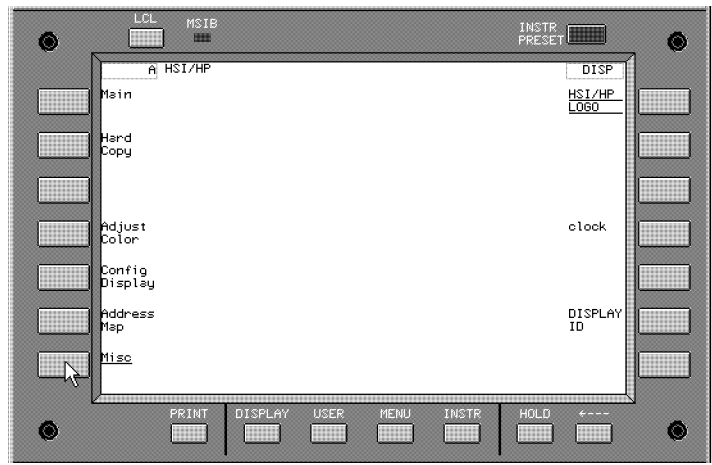
**Tip**

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Use **INSTR** as the primary way of transferring the keyboard between instruments once they are assigned to windows. When the **INSTR** key is pressed, the display assigns colored borders to the currently defined windows. Near each window, a softkey containing the first seven characters in the module's model number and MSIB address (row and column) are displayed in the same color as the border. If a labeled softkey is pressed, the keyboard is offered to that window's instrument. If the instrument accepts the keyboard it will put up its menu keys, as though the **MENU** key had been pressed. For more information about address rows and columns, refer to "Understanding the MSIB Addressing Scheme" in Chapter 6.

---

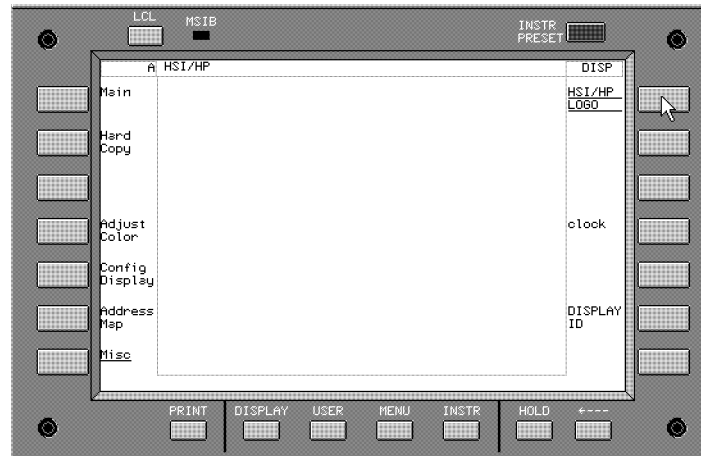
**DISPLAY** Misc



**Misc** allows access to softkeys that can disable/enable the HSI/HP logo annotation or the real-time clock annotation that is displayed in the system state region (at the top of the display screen).

## HSI/HP LOGOS

**DISPLAY** Misc



Key Path:

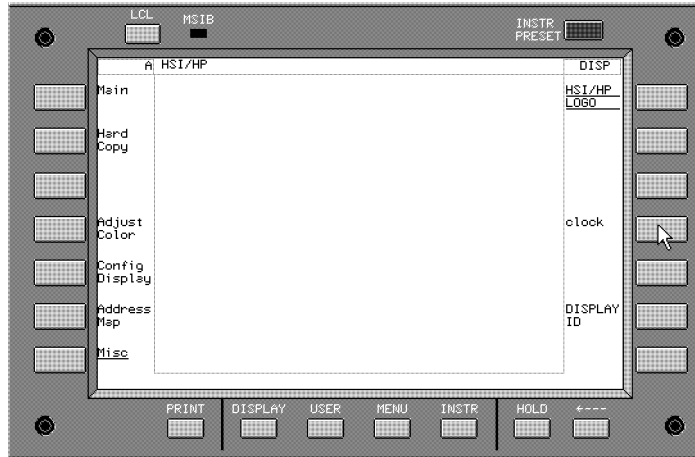
**DISPLAY** Misc HSI/HP LOGOS

Actions:

- Switches on or off the HSI/HP logos. (On is indicated by the underlined key label.)
- When on (default), the HSI/HP logos, in the system state region, appear on the display.

**DISPLAY** Misc

**clock**



Key Path: **DISPLAY** Misc **clock** **CLOCK** **DISPLAY**

Actions: ■ Switches the real-time clock annotation on and off.

When in the default state, on (indicated by the underlined key label), the real-time clock annotation appears in the display's status information region in the form of a time stamp.

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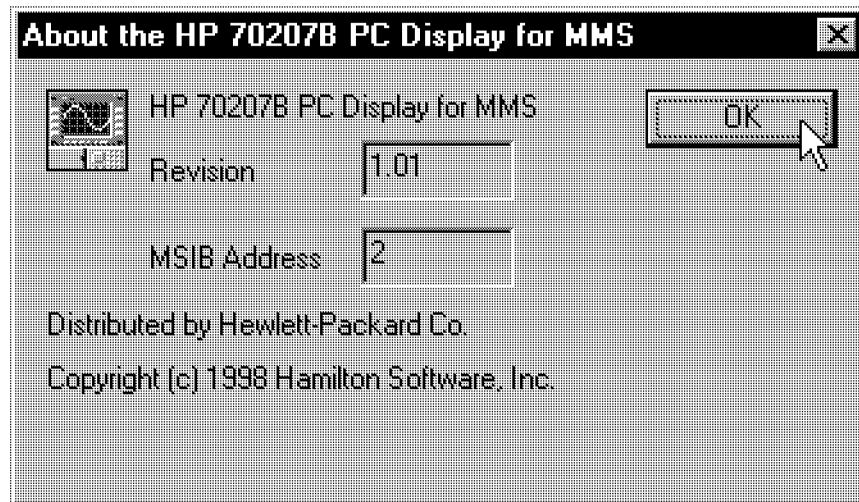
**Tip**

It is a good idea to set the system clock to correspond to your local time so that any information that you store or print is given a correct time stamp (a time stamp shows: hours, minutes, seconds, month, day, and year).

The HP 70207B PC Display for MMS obtains its time stamp from the Microsoft Windows clock which can be altered using the Control Panel.

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DISPLAY ID



Key Path: **DISPLAY** Misc DISPLAY ID

Actions: 

- Displays an information screen about the HP 70207B PC Display for MMS.

Information displayed is the software revision and the currently selected MSIB column address for the MSIB interface card.

The revision that is displayed for your HP 70207B PC Display for MMS may vary and depends on the revision of software you have installed.



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## Concepts

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### Overview

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#### In this chapter you will learn about:

- Concepts related to the MSIB addressing scheme that is used in the MMS system.
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This chapter provides information that is related to the use of the HP 70207B PC Display for MMS.

Understanding the MSIB Addressing Scheme . . . . . 6-2

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## Understanding the MSIB Addressing Scheme

The MSIB has a two-dimensional addressing scheme. Each system element such as the HP 70900A/B local oscillator source or the HP 70207B PC Display for MMS has a two-part bus address. The address consists of a row number and a column number; for example, 0, 18 (row, column). This unique address serves as an identifier so that any element can talk with any other element on MSIB, regardless of physical proximity or other bus traffic.

The address map is designed so that each element can be located by its unique address. The row address (first number) specifies the horizontal row of the grid where the element is located, and the column address specifies the vertical column. Rows have numbers 0 through 7 (0 is at the bottom of the screen) and columns are numbered 0 through 31 (0 at the left edge of the map). MSIB address ROW 0, COLUMN 31 is reserved for self test of the MSIB interface card and is therefore not available. Because MSIB address 0, 31 is not available for use, there are 255 available addresses.

Each modular measuring instrument (composed of one or more modules) occupies all or part of a single column. (The exception to this is multi-column instruments. See the installation and verification manual for your instrument. Note that the display elements (HP 70205A graphics display, HP 70206A system graphics display, HP 70004A color display and HP 70207B PC Display for MMS) are not explicitly part of any measuring instrument. Each display serves as a general-purpose human-machine interface, providing a screen for the instruments and keys that enables the user to control the system. Since the displays are not part of any particular instrument, each will occupy its own column in the address map.

### Note

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A more detailed description of MSIB addressing conventions is given in the installation and verification manual for your instrument's system-master module.

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## Understanding the MSIB Addressing Scheme

MSIB addresses are set only by switches located on each module or display. All elements, modules and displays, have selectable column addresses. All elements *except* the displays have selectable row addresses. (The displays are confined to ROW 0.)

An appropriate element, when located in ROW 0, acts as a master to all modules above and to the right of it; this master has control as far as the column of the next master. The master module is able to control another module by ordering it to perform tasks and by controlling the flow of information to and from that module. For example, an error detected in a slaved IF section will be reported to the master module, which will in turn report it to the user via the display. In HP 70000 Series modular measurement systems configured as spectrum analyzers, the master module is the HP 70900A/B local oscillator source. Displays are not masters; they do not control modules, although they allow users to control master modules.

The modules controlled by a master are referred to as slaves. Slave modules are addressed above the master; that is, slaves have higher row addresses than their master. A measuring instrument such as a spectrum analyzer will typically consist of one master (local oscillator module) and several slaves (IF sections, RF front-end sections, tracking generators, and so on). While a master module must be located in ROW 0, slave modules can be addressed in any of several rows, but not ROW 0.

MSIB addresses must be unique. Setting two HP 70000 Series modular measurement system elements to the same address will create an error and make the system bus (MSIB) inoperative.

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# Index

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- 1** 16 colors instead of 256, 2-9
  
- A** accessing an instrument's menu keys, 4-57  
accessories, 1-48  
address map
  - COLUMN 31 is reserved, 4-15, 4-18, 6-2
  - COLUMN range, 0-30, 6-2
  - default MSIB, 4-20
  - MSIB interface card is ROW 0, COLUMN 2 by default, 4-19
  - ROW range, 0-7, 6-2
  - updating, 4-17
  - variable height, 4-18
  - variable width, 4-18administrative access required, 1-3, 4-29  
arrow
  - backspace, 3-12
  - down, 3-12
  - up, 3-12
  
- B** backspace key, 3-12  
blinking E, 3-8  
break links, 4-41, 4-68, 4-72
  
- C** Carbon Copy usage, 1-3  
changing default folder, Storage, 4-60, 4-64, 4-69, 4-74  
checking
  - the MSIB interface card, 2-27clearing instrument memory, 4-87  
clearing transient errors, 5-9  
color, non-changeable, 3-11

- colors, editing, 5-13
- configure display, 5-18
- confirming driver and software installation, 1-17
- contact HSI, remote operation, xi
- conventions
  - notation, xii
  - softkey, xii

**D**

- data logging, 4-67
- Data Recording, dialog box, 4-71
- default
  - folder destination, 4-60, 4-64, 4-69, 4-74
  - MSIB address map, 4-20
  - MSIB interface card is ROW 0, COLUMN 2, 4-19
- definition
  - default MSIB address map, 4-20
  - hard key, 5-2
  - softkey, 5-2
- device driver
  - hs1ui.dll and h\_msib1.vxd, 1-37, 2-2
  - msibnt.sys, 1-14, 2-2
- dialog box
  - Copy DLP, 4-81
  - Data Recording, 4-71
  - LIF\_VOL file browser, 4-81
  - Macro Recording, 4-62
- digital knob
  - front panel, ix, 3-11
- disappearing, menu key labels, 5-7
- display
  - character text region, 3-8
  - configure, 5-18
  - graphics region, 3-8
  - key, ix, 3-11
  - menu status region, 3-8
  - softkey menus region, 3-8
  - status information region, 3-8, 4-45, 5-17
  - system state region, 3-8
- DISPLAY Address Map
  - Assign Both, 5-30

- Assign Display , 5-26
- Assign Keyboard , 5-28
- DISPLAY Adjust Color
  - COLOR MODE , 5-14
  - edit colors , 5-16
  - MONOCHROME , 5-15
- DISPLAY Config Display
  - assign window , 5-23
  - build window , 5-20
  - build window BUILD 1, 2, or 4 WINDOWS , 5-21
  - build window STACK 2 or 4 WINDOWS , 5-22
  - purge window , 5-24
  - SHOW CONFIG , 5-19
- DISPLAY Hard Copy
  - copy options , 5-11
- DISPLAY Main
  - DISPLAY PRESET , 5-5
  - NEXT INSTR , 5-6
  - REPORT ERRORS , 5-8
- DISPLAY Misc
  - clock , 5-34
  - DISPLAY ID , 5-35
  - HSI/HP LOGOS , 5-33
- DISPLAY PRESET vs. INSTR PRESET , ix, 3-9
- DLP, down loadable program, 4-77, 4-78

**E** editing colors, 5-13  
error, blinking E, 3-8



- F** fault on the MSIB at power-up, ix, 3-8
- features
  - colors, adjustable, 3-4
  - copy to Clipboard, 3-5
  - data capture/playback, 3-5
  - down loadable programs (DLPs), 3-6
  - file storage, 3-5
  - F-key shortcuts, softkeys, 3-4
  - hard-labeled keys, 3-3
  - key sequence capture/playback, 3-5
  - main interface, 3-3
  - menu keys, 3-4
  - MSIB, 3-4
  - plug and play installation, 3-3
  - selectable instrument keypads, 3-4
  - softkeys, 3-4
  - software integration, 3-5
- features, unavailable
  - no B/W color mode with HP 70843A, 3-6
  - no HP-IB remote control, 3-6
  - no persistence mode, 3-6
  - no PLOT key, 3-6
- F-key shortcuts, softkeys, 4-46
- front panel
  - 0–9, 3-12
  - △, ▽, 3-12
  - DISPLAY, 3-10
  - hard-labeled keys, 3-8
  - HOLD, 3-12
  - INSTR, 3-11
  - INSTR PRESET, 3-9
  - knob, 3-11
  - LCL, 3-10
  - ←, 3-12
  - MENU, 3-11
  - MSIB fault indicator, 3-9, 4-76
  - PRINT, 3-10
  - regions, 3-8
  - softkeys, 5-1
  - USER, 3-10

- H** hard key, definition, 5-2
- hardware required, 1-2
- Hewlett-Packard Interface Bus (HP-IB), 3-6
- hold key, ix, 3-12
- How to
  - access an instrument's menu keys, 4-57
  - access the HP 70004A color display's RAM and ROM cards, 4-103
  - access the Readme.txt file, 1-11, 1-27, 1-31, 1-43
  - access your computer's ISA slots, 1-7
  - add a DLP to the LIF\_VOL file, 4-81
  - assign both the display and keyboard to an instrument, 4-25
  - assign the display (only) to an instrument, 4-21
  - assign the keyboard (only) to an instrument, 4-23
  - attach disposable grounding wrist strap, 1-8
  - build 1, 2, or 4 windows on the display, 4-4
  - capture and play back data from a work session, 4-67
  - change or edit the display colors, 4-43
  - check operation, 2-27
  - check operation of cables, 2-28
  - check operation of mainframes, 2-28
  - connect the MSIB Y-Cable, 1-47
  - copy displays into Microsoft Windows applications, 4-53
  - copy to the Clipboard, 4-53
  - create a shortcut icon, 1-29, 1-45
  - create multiple LIF\_VOL files, 4-100
  - establish a link to a single instrument, 4-15
  - extend MSIB cable length, 1-48
  - format the LIF\_VOL file, 4-97
  - include or remove the clock annotation, 4-49
  - include or remove the F-key shortcut annotation, 4-46
  - include or remove the HSI/HP logos annotation, 4-47
  - install the MSIB interface card, 1-9
  - list the contents of the LIF\_VOL file, 4-84
  - load and run a DLP from the LIF\_VOL file, 4-85
  - make a print of the display, 4-52
  - move an instrument to a different window, 4-8, 4-25
  - move the taskbar, 1-28, 1-44
  - paste from the Clipboard, 4-53

- playback a recorded macro key sequence file, 4-63
- playback a recorded work session data file, 4-72
- purge a single window, 4-39
- purge a window configuration, 4-37
- purge the LIF\_VOL file, 4-97
- reassign the keyboard, 4-57
- record a macro key sequence and save it to a file, 4-59
- record a work session in a data file, 4-67
- reset the MSIB, 4-76
- save or recall an instrument's memory using the LIF\_VOL file, 4-92
- save or recall an instrument's state using the LIF\_VOL file, 4-88
- select an instrument specific keypad, 4-55
- set the display color to monochrome, 4-42
- set the HP-IB address of a master module, 4-27
- set the MSIB address of the MSIB interface card, Microsoft Windows 95, 4-32
- set the MSIB address of the MSIB interface card, Microsoft Windows NT 4.0, 4-29
- setting the IRQ address or I/O port address of the MSIB interface card, 1-23
- show system configurations, 4-35
- stack 2 or 4 windows on the display, 4-6
- view the address map or assign links, 4-17
- zoom the display in and out, 4-54

HP-IB, 3-6

**I** INSTR (instrument) key, ix, 3-11

- INSTR PRESET vs. DISPLAY PRESET, ix, 3-9
- instrument keypads, selectable, 3-13
- instrument memory, clearing, 4-87
- instrument menu keys, 4-57
- instrument specific keypad, 4-55
- internal user memory, clearing, 4-87
- I/O port address
  - viewing, 1-20
- IRQ address
  - viewing, 1-20

- K** key
  - backspace, 3-12
  - display, ix, 3-11
  - display preset, 3-9
  - down, 3-12
  - hold, ix, 3-12
  - INSTR, ix, 3-11
  - INSTR PRESET, 3-9
  - instrument preset, 3-9
  - menu, ix, 3-11
  - print, ix, 3-10
  - step, 3-12
  - up, 3-12
  - user, ix, 3-11
- keyboard, reassigning, 4-57
- keypad
  - instrument, ix, 3-13, 4-55
  - numeric, ix, 3-12
  
- L** LIF\_VOL file, contents of, 4-84
  
- M** macro key sequence playback requirements, 4-61
- macro key sequence recording, 4-59
- Macro Recording, dialog box, 4-62
- manual organization, x
- mass storage is, 4-79
- memory, clearing, 4-87
- memory files, 4-77, 4-78
- menu key, ix, 3-11
  - labels disappear, 5-7
- menu keys, of an instrument, 4-57
- menu keys, softkeys, 3-4
- Modular System Interface Bus (MSIB), 3-4
- MSIB, 3-4
  - cables and adapters, 1-48
  - fault light, ix
  - internal and external control loops, 2-2
  - reset line, 4-17
- MSIB interface card
  - MSIB ROW 0, COLUMN 2, 4-19

- when not needed, 4-70, 4-74
- msibnt.sys device driver, 1-14
- MSIB Y-cable
  - connecting to an MMS mainframe, 1-47
- multiple LIF\_VOL files, 4-100

**N** No Module Present, 4-39  
notation, xii  
number entry, ix, 3-12

**P** Plug and Play compliant, 1-17  
Plug and Play, not supported, 1-34  
power-up, fault on the MSIB, 3-8  
print key, ix, 3-10  
programming/remote operation, contact HSI, xi  
pull down menu

- Break Links, 4-38
- Copy to Clipboard, 4-53
- data work session recording, 4-67
- instrument keypad selection, 3-13
- macro key sequence playback, 4-63
- macro key sequence recording, 4-59
- MSIB Reset, 3-9, 4-76
- Printing, 3-10, 4-52
- Reset, 4-17
- work session (data) recording, 4-67
- work session playback, 4-72
- Zoom In/Out, 4-54

**R** Readme.txt, accessing, 1-11, 1-27, 1-31, 1-43  
rearranging instruments, 4-10  
reasonable startup time, 1-19, 2-7  
reassign the keyboard, 4-57  
recovering storage space, 4-69  
reinstate front panel operation, 3-10  
remote operation, contact HSI, xi  
removing DLL files, 1-13, 1-33  
resource conflict at startup, 1-19  
returning to last menu, ←, 3-12

- S**
  - saving/recalling
    - an instrument's memory, 4-92
    - instrument state, 4-88
  - security concerns, 1-13, 1-16, 1-33, 1-41, 4-71, 4-102
  - shortcuts
    - creating an icon, 1-29, 1-45
    - removing the icon, 1-29, 1-45
  - size of LIF\_VOL file, 4-79
  - snap shot, of address map, 4-17
  - softkey
    - definition, 5-2
  - softkeys
    - conventions, xii
    - menu keys, 3-4
    - order they are described, 5-1
  - softkey vs. text label, 4-61
  - software product license agreement, vii
  - software revision, 5-35
  - special access required, 1-3, 4-29
  - startup
    - reasonable time, 1-19, 2-7
    - resource conflict, 1-19
  - state files, 4-77, 4-78
  - step key, ix, 3-12
  - Storage folder retention, 1-13
  
- T**
  - taskbar, moving, 1-28, 1-44
  - text label vs. softkey, 4-61
  - time stamp, 4-50
  - Tips
    - accessing an instrument's menu keys, 4-58
    - accessing print, 3-10, 4-52
    - accessing the address map, 4-19
    - altering the display image size, 4-54
    - alternate way to stop script recording, 4-62, 4-66
    - assigning the keyboard and display to different instruments, 5-27
    - breaking all links, 4-38
    - changing the LIF\_VOL file's MSIB column address, 4-86, 4-89, 4-93, 4-99
    - clearing a single window, 5-24

- copying error messages to the Clipboard, 5-9
- copying images to the Clipboard, 5-13, 5-15
- creating/removing shortcut icons, 1-29, 1-45
- establishing instrument links, 4-16
- making hard-copy printouts, 5-9, 5-13, 5-15
- presetting an instrument, 5-5
- printing the display, 4-52
- purging a single window, 4-38, 4-39
- recalling an instrument's memory, 4-96
- recalling an instrument's state, 4-91
- reestablishing a display link, 4-38
- removing keypads that do not apply, 4-56
- resetting the MSIB, 3-9
- running data files with different step counts, 4-75
- running scripts with different time intervals, 4-65
- saving an instrument's memory, 4-94
- saving an instrument's state, 4-90
- saving multiple macro key sequence files, 4-62
- saving multiple work session files, 4-71
- setting the time stamp, 4-50, 5-34
- specifying destination files for scripts, 4-60, 4-64
- specifying destination files for work sessions, 4-69, 4-74
- switching between color and monochrome, 4-42
- transferring keyboard between instruments, 4-24, 5-29, 5-31
- viewing a larger address map image, 4-18

**Toolbar Icons**

- address map, 4-19
- monochrome/color display, 4-42, 5-13, 5-15
- next/previous instrument, 4-16
- printing, 3-10, 4-52

**troubleshooting**

- communication on the MSIB I/O, 2-24
- dialog box messages, 2-19
- duplicate MSIB addresses, 2-29
- error messages or error indications, 2-13
- installation problems, 2-6
- power-up problems, 2-4
- resolving resource conflicts, 2-9
- technical overview, 2-2

- U** updates to your software, 1-13, 1-33
  - updating the address map, 4-17
  - user key, ix, 3-11
  
- V** viewing the IRQ address, 1-20
  
- W** warranty, vi-7
  - working with the LIF\_VOL file, 4-77



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