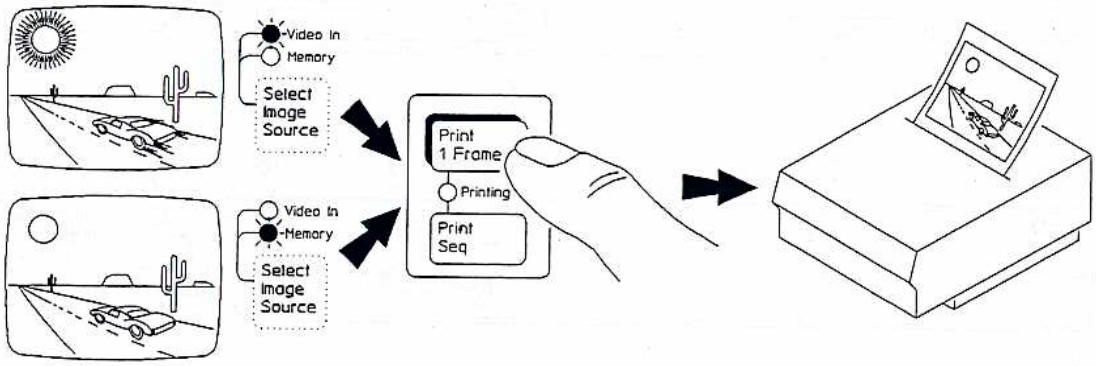
User's Guide

HP VidJet Pro Video Print Manager

The HP VidJet Pro Video Print Manager - What You See is What You Get

Video printing has never been simpler. With the HP VidJet Pro Video Print Manager (referred to throughout this manual as the "Print Manager"), you can print live or stored video images on an external printer with the push of one button. The printing system, which consists of the Print Manager and an external printer and optional video monitor, can be used to print images either directly from an external video source or images that have been stored in Print Manager memory. After the printing system has been correctly installed, the image displayed on the monitor at the instant the [Print 1 Frame] key is pushed will be printed.



The image on the video monitor - whether live or stored - is printed with the push of one button.

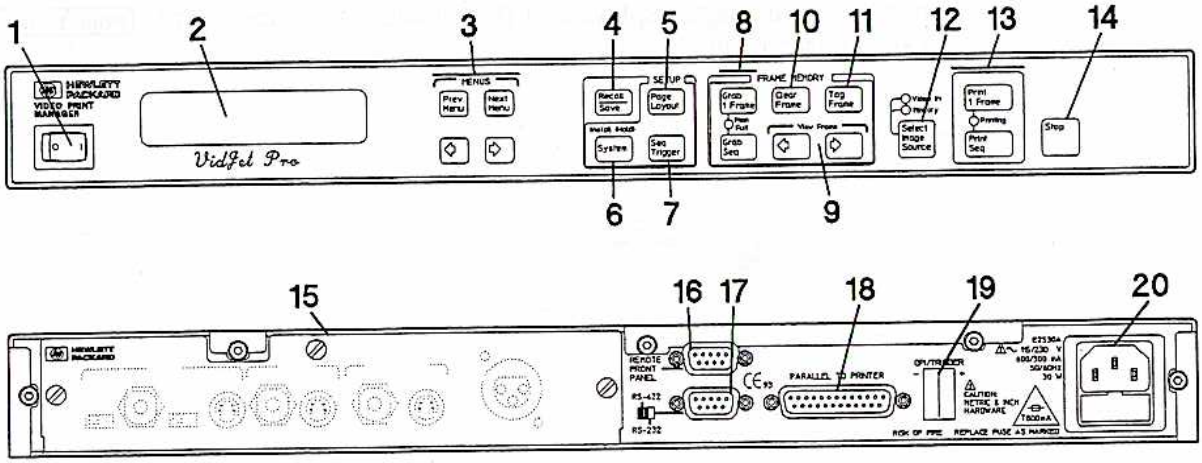
The Print Manager produces printed images in a variety of formats. The printing system can be used to print single or multiple images on a single page, as well as storyboards, video and graphics logsheets, and videotape logs.

Sequences of video frames can be captured and edited before being printed. The Print Manager offers flexible frame grabbing options including a mode in which a frame is grabbed automatically upon each scene change. Turn the page to learn more about the many features of the Print Manager.

Quick Reference Guide

Once you are comfortable using the Print Manager, the Quick Reference Guide supplied can be used to easily guide you through the various Print Manager menus and common tasks.

HP VidJet Pro Video Print Manager at a Glance



1. The line switch turns the Print Manager on (|) or off (○).

2. The display shows the status of frame memory as well as various informational and advisory messages. The display also shows the status of the various printer setup menus when they are being modified.

3. Use the (Prev Menu) and (Next Menu) keys to access the various menus that are structured under the front panel "SETUP" keys. Use the (⇐) and (⇒) keys to choose one of the parameter choices available for each menu.

4. Use the (Recall|Save) key to set the Print Manager to perform one of its pre-programmed tasks (creating a videotape log, for example). Custom print setups can be stored for use at a different time using this key.

5. Use the menus under the (Page Layout) key to control the format of the printed page, including the number of images on a page, printed image size, position of printed images, number of copies, etc.

6. Use the menus under the (System) key to set the functions that are typically not changed for a given application. These functions include choosing the video input, image resolution, etc. Holding this key down for two seconds invokes the installation menus. These menus include a print-device selection menu, menus for setting the time and date, etc.

7. Use the menus under the (Seq Trigger) key to set the automatic sequence grabbing/printing method.

8. Use the Grab keys to grab video frames and store them in frame memory. (Grab 1 Frame) grabs one frame per keypress and (Grab Seq) initiates automatic sequence grabbing mode.

9. Use the **View Frame** keys to review the video frames that have been stored in frame memory.

10. Use the (Clear Frame) key to clear the frame shown on the external video monitor display from frame memory.

11. Use the (Tag Frame) key to tag displayed video frames or untag frames that are tagged. Frame tagging is useful for printing in a specific order a subset of frames that are stored in frame memory.

12. Use the (Select Image Source) key to select the source of the video image that will print. When "Memory" is selected, video frames stored in frame memory will be displayed and will print. When "Video In" is selected, the video present at the rear panel video input will be displayed and will print.

13. Use the Print keys to produce a printed image. (Print 1 Frame) prints the video image currently shown on the external video monitor and (Print Seq) initiates the automatic sequence printing mode.

14. Use the (Stop) key to terminate the automatic printing and frame grabbing modes. The (Stop) key is also used to return to the main display from a menu display.

15. This area of the rear panel contains the video input and output connectors, the monitor output connectors, and the optional timecode input connector. The function and placement of these connectors varies depending on the video I/O card option installed. Refer to "Technical Information and Options" in Chapter 4 for more information on the video I/O card options.

16. The REMOTE FRONT PANEL connector is used to interface the Print Manager Remote Front Panel (referred to throughout the rest of this manual as "Remote Front Panel") with the Print Manager.

17. The RS-422/RS-232 connector is used to interface the Print Manager with an external computer/controller. This connector is configured for either RS-422 or RS-232 using the adjacent switch. Programming commands are shown for each function under "Programming Commands" in chapter 4.

18. The PARALLEL TO PRINTER connector is a 25-pin parallel Centronics port for the connection of an external printer.

19. Momentarily shorting the GPI/TRIGGER connector contacts causes the Print Manager to carry out the GPI activity specified in the "GPI Action" menu (in the (System) (Install) menus).

20. The line module is the connection point for the power cable. The power supply (mains) fuse is also located in the line module.

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Setting Up the Video Printer System

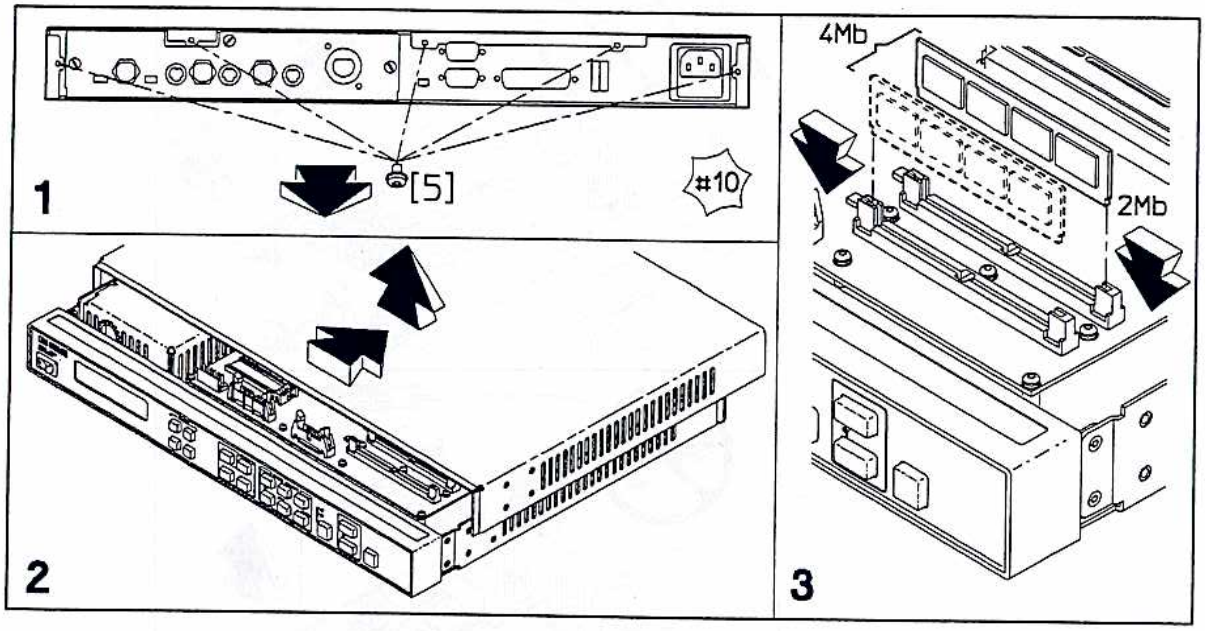
Setting Up the Video Printer System

To prepare the video printer system for use, first follow the steps under "Installing the Print Manager," then follow the steps under "Configuring the Print Manager." The section "Optional Print Manager Configuration" contains additional configuration information for functions that might not be used in all applications.

Installing the Print Manager

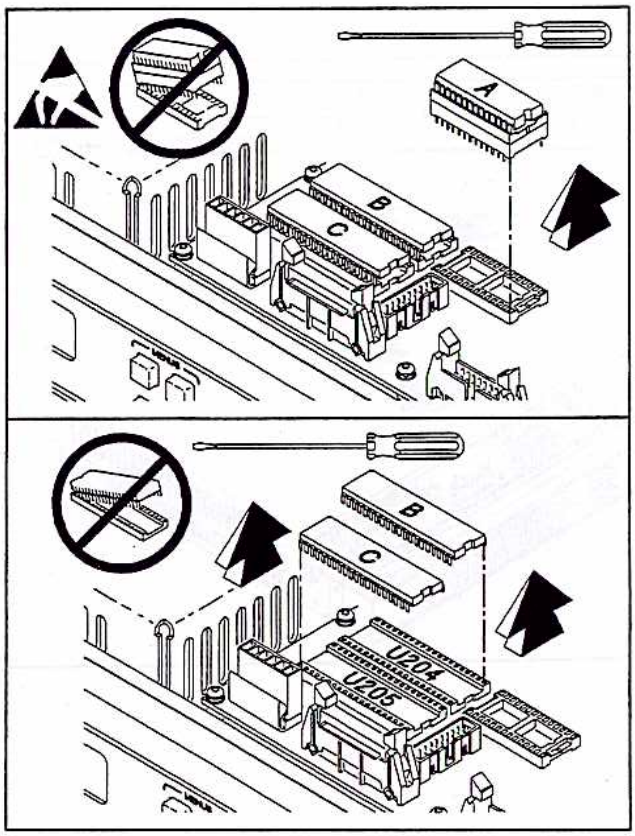
Perform the following steps to install and connect the components of the printer system.

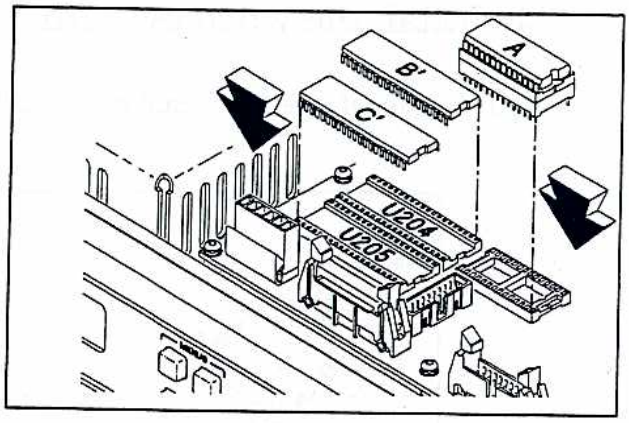
1. Install additional frame memory (optional).



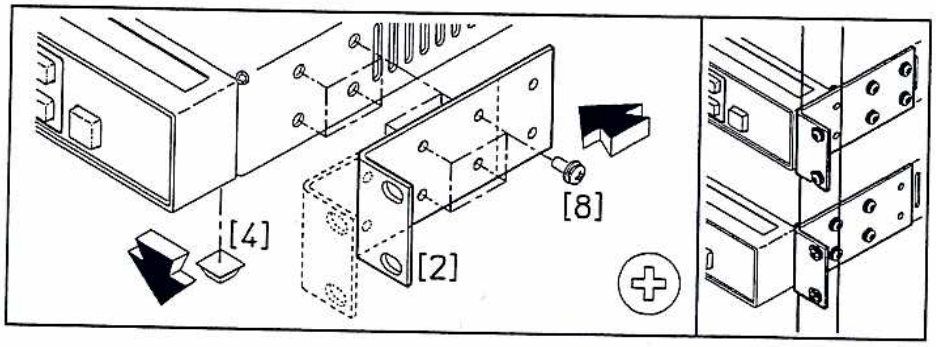
2. Replace firmware ROMs (if applicable).

If the revision number printed on your new firmware ROMs is greater than the revision number of the ROMs currently installed in the Print Manager, you need to replace the ROMs. The revision number of the new firmware ROMs is printed on them (for example, `VER 3.2 (U204)`). To determine the revision number of the ROMs currently installed in the Print Manager, hold down the [GRAB SEQ] and [STOP] keys, turn the Print Manager on, and hold the keys until the revision number displays. The replacement ROMs are shipped with the component video I/O cards.



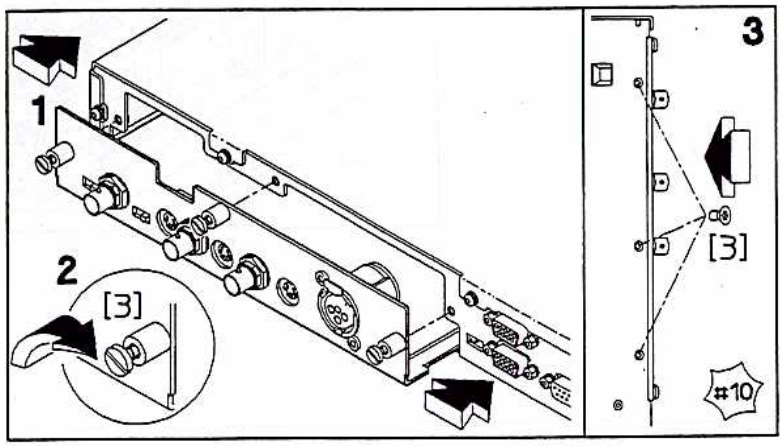


3. Rack-mount the print manager (Optional).



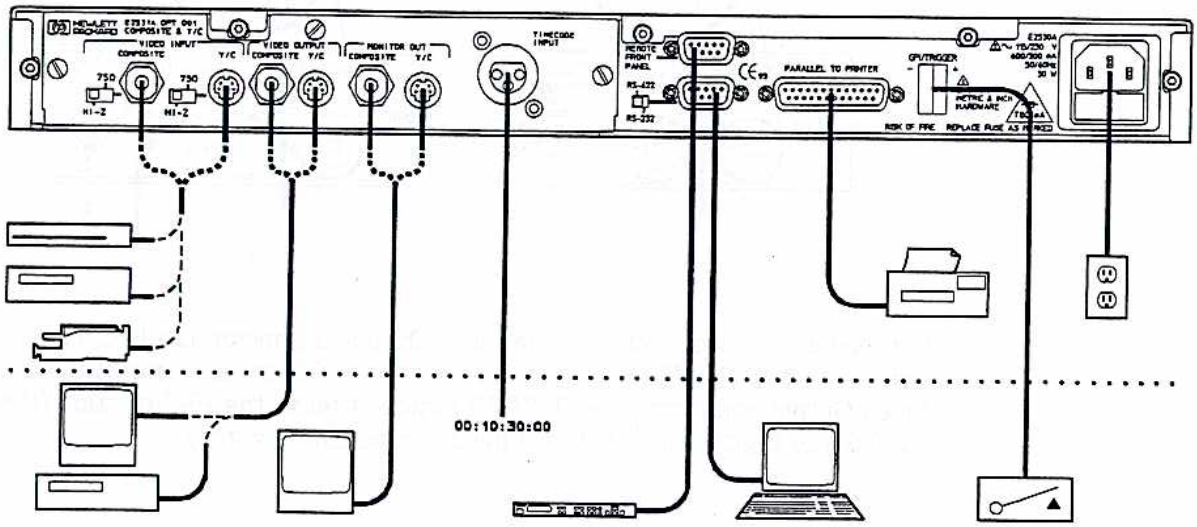
4. Install the video I/O card.

Skip this step if a video I/O card has already been installed.

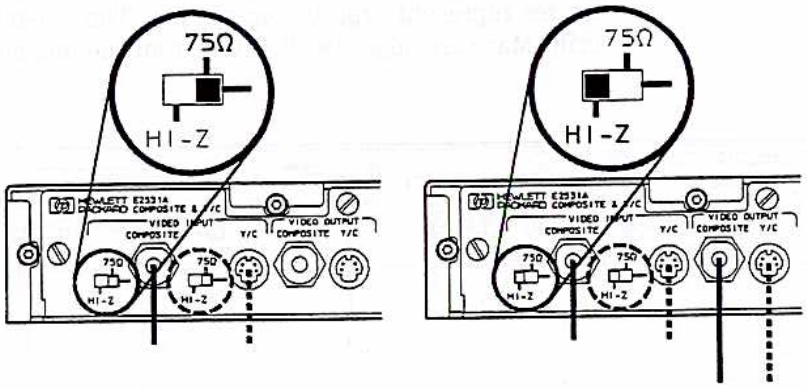


5. Connect printer system components.

Note that connections to the video I/O card as shown in the following two figures represent typical connections. The video I/O card installed in your Print Manager might be different from the one shown.



6. Choose the video input impedance.

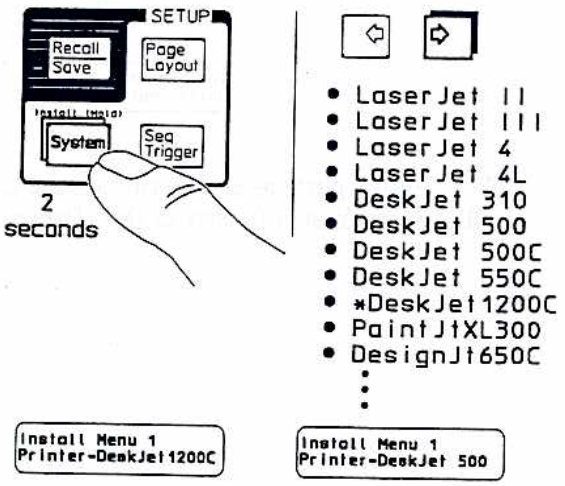


If no devices are connected to the Video Output connector, the Hi-Z/75Ω switch is set to the 75Ω position. If one or more devices are connected to the Video Output connector, the Hi-Z/75Ω switch is set to the Hi-Z position (the 4:2:2 Serial Digital Video I/O card has no impedance switch).

Configuring the Print Manager

The remainder of this chapter indicates the menus that have to be considered to install the printer system. The section entitled "Optional Print Manager Configuration" contains additional configuration information for functions that might not be used in all applications.

1. Choose the printer.

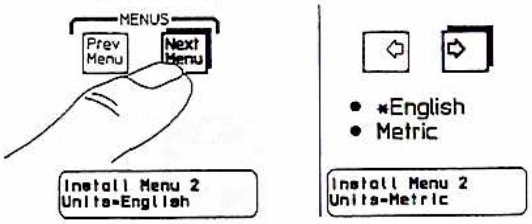


Printer

Four megabytes of printer page memory are required for proper operation of all laserjet printers, the DeskJet 1200C, and PaintJet XL300. Sixteen megabytes of memory are required for proper operation of the DesignJet 650C. If sufficient memory is not installed, your printer might go into "image-adapt" mode, which is a type of data compression mode. When in image-adapt mode, printed images will look grainy and resolution will be poor.

If you have a LaserJet 4P, you can choose "LaserJet 4" in the "Printer=" menu and if you have a DeskJet 1200CPS, you can choose "DeskJet 1200C." If you have a printer that is not listed in the "Printer=" menu, call 1-800-FOR-HPTV in the US or contact your HP-authorized dealer outside the US for assistance in selecting a printer driver for your printer.

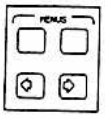
2. Select units of measure.



Units

The "Units" parameter determines the units of measure (inches (english) or millimeters (metric)) used in the "Paper Size=" and "Image Size=" menus.

3. Select paper size and type.



- Executive
- *Letter(A)
- Legal
- B Tabloid
- C
- D
- Arch D.
- E
- Arch E.

- *Plain
- HP Inkjet
- Glossy
- Transpar.

```
Install Menu 3
Paper Size=Arch D
```

```
Install Menu 4
Paper Type=HP Inkjet
```

Paper Size

The following table relates standard paper sizes to their dimensions:

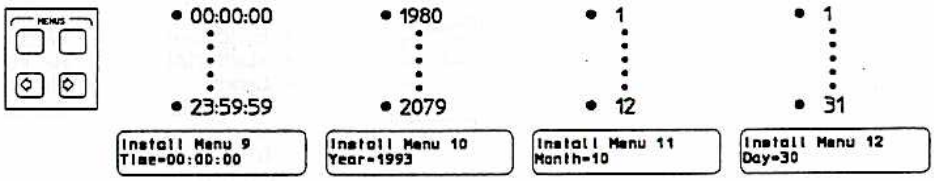
Paper Size	Dimension	Paper Size	Dimension
Executive	7.25×10.5 inches	Architectural E	36×48 inches
Letter	8.5×11 inches		
Legal	8.5×14 inches		
B Tabloid	11×17 inches		
C	17×22 inches		
D	22×34 inches		
Architectural D	24×36 inches		
E	34×44 inches		

Paper Size	Dimension	Paper Size	Dimension
A4 Letter	210×297 mm	B4	250×353 mm
A3	297×420 mm	B3	353×500 mm
A2	420×594 mm	B2	500×707 mm
A1	594×840 mm	B1	707×1000 mm
A1 Oversize	625×900 mm	B0	1000×1414 mm
A0	840×1188 mm		
A0 Oversize	900×1245 mm		
B5	176×250 mm		

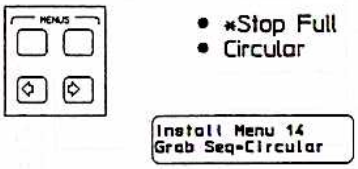
Paper Type

"HP InkJet" paper, also known as "HP Special" or "CX JetSeries Cut Sheet" paper, is a cost-effective, short-fiber, plain paper that ensures fast ink drying time, brilliant colors, crisp lines, and a smooth fill. It is the best choice for most applications (the HP order number for 200 sheet, A-size cut sheet paper is "HP 51630Y" and the HP order number for 200 sheet A4-size cut sheet paper is "HP 51630Z").

4. Set time and date.



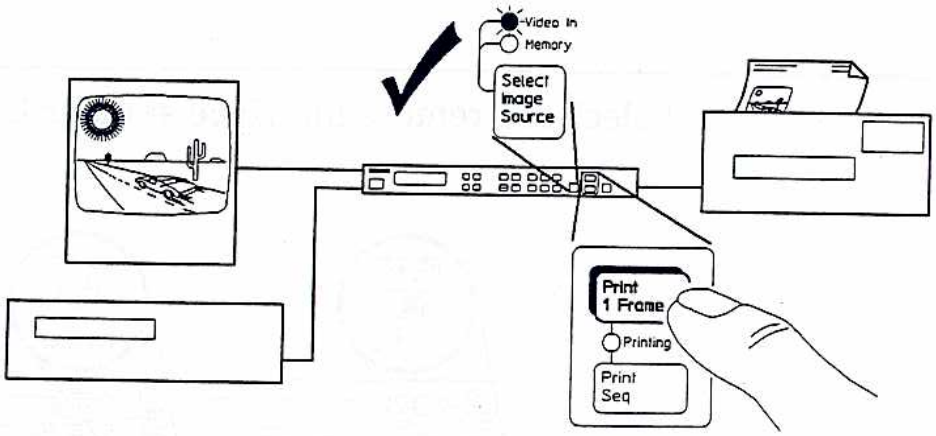
5. Select frame memory management mode.



Grab Seq

When "Circular" is chosen and additional frames are grabbed using the Grab Seq key when frame memory is full, the additional frames will be stored with the oldest frames being lost. This mode is useful when you need to capture a particular frame or subset of frames from a sequence of frames that is too large for frame memory to store. When "Stop Full" is chosen and you attempt to grab additional frames using the Grab Seq key when frame memory is full, the additional frames will not be accepted.

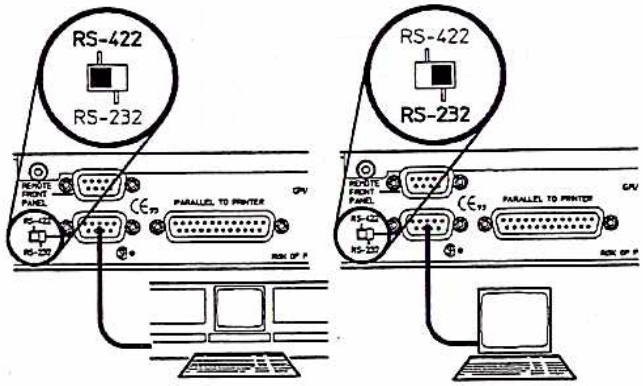
6. Obtain a test print.



Optional Print Manager Configuration

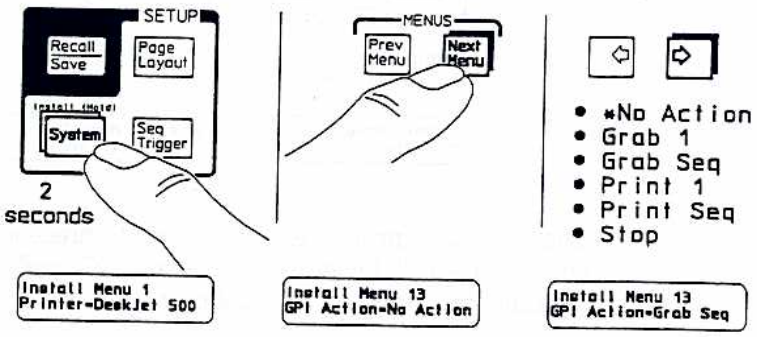
This section contains additional configuration information for functions that might not be used in all applications.

Select the remote interface standard.

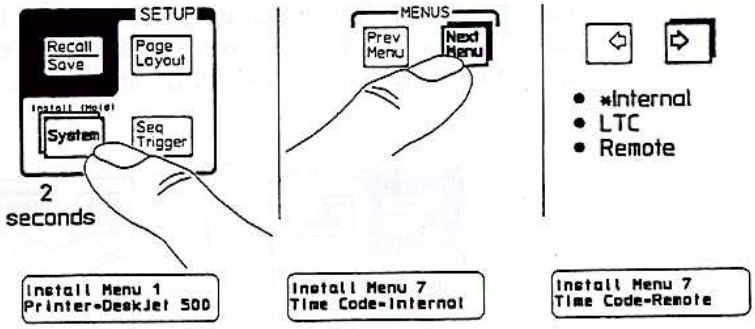


Select the GPI action.

The choice you make in this menu determines the function that the Print Manager will perform when it receives a valid GPI trigger signal at the rear panel GPI/TRIGGER connector (refer to "GPI Trigger Timing" in Chapter 4 for more information about the GPI trigger signal).



Select the time code source.



Time Code

The time code prints below each image preceded by a letter denoting the time code source ("i" for internal, "L" for LTC, and "r" for remote). The choices for time code source are as follows:

Choice	Description
Internal	The Print Manager uses a time code based on counting frames and internally generating a time code starting at 00:00:00:00.
LTC	The Print Manager uses LTC time code sent to it over the XLR Time Code Input connector. Note that the Time Code Input is an option and might not be available on all video I/O cards. The LTC time code must conform to SMPTE/EBU standards.
Remote	The Print Manager uses the time code sent to it over the RS-422/232 interface as the time code for the next grabbed frame. Refer to the "MEMory:FRAMe:GRAB:TCODe" command under "Programming Commands" in Chapter 4 of this manual for command syntax information.

If You Encounter a Problem

If you have a problem installing or setting up the video printer system, this section provides solutions that will help you get back to work quickly. If you have a problem printing, grabbing, or editing video images, refer to the section, "If You Encounter a Problem," at the end of chapter 2. If you have a problem customizing and formatting prints, refer to the section, "If You Encounter a Problem," at the end of chapter 3.

If your problem is associated with the procedures in this chapter, but is not listed here, refer to the troubleshooting section of the *HP VidJet Pro Video Print Manager Service Guide.*

If the Print Manager does not respond to remote programming commands.

- Check that the Print Manager baud rate matches the baud rate of the controller.

  The Print Manager baud rate is set to 9600 when it is powered up. Baud rates of 1200, 2400, 4800, and 19200 can also be selected via a remote programming command or you can select 9600 as the baud rate of the controller. Refer to "SYSTem:COMMunicate:SERial:BAUD" in the "Programming Commands" section of Chapter 4 of this manual for more information.

If the monitor display is blank.

- Check if the image source selected using the [Select Image Source] key is "Video In."
- Check that the proper video input selection is made in the "`Video=`" menu (under the [System] key).
- Check if the source of the video signal is active and that the video cable is connected and not damaged.

If the video on the monitor is unintelligible.

- If the active video inputs are the component inputs, ensure that the video sync signal source is not set to external if external sync is not being used. The "`Sync =`" menu is under the [System] key.
- If the active video input is the composite or serial digital input and the video input format is SECAM, change the "`Line Format =`" menu under the [System] key to SECAM.

The Print Manager automatically detects the video input format, but it interprets SECAM as 625 PAL format, resulting in a garbled monitor display.

If the monitor always displays a color video input signal in monochrome.

- ☐ Check that the monitor being used is not a monochrome-only monitor.
- ☐ If the active video input is the composite or serial digital input, check if the video input standard is SECAM. When the video input standard is SECAM, it is normal for the monitor to always display the video input signal in monochrome. Images, however, will print in color.

If the printer will not produce a print.

- ☐ Check that power is getting to the Print Manager and external printer, the printer fuse is not open, and the line switch is turned on.
- ☐ Check that the printer is not out of paper, and that the paper is not jammed.
- ☐ Check that the proper printer selection is made in the "Printer =" menu.
- ☐ Check that the Centronics cable is correctly connected between the Print Manager and external printer and that the cable is not damaged.

If the image will not print in color.

- ☐ Check that the proper printer selection is made in the "Printer =" menu.
- ☐ Check that the external printer being used supports color printing.
- ☐ Check that any applicable switches or menus on the external printer are set correctly.

  Some color printers might have a color/monochrome setting to improve, for example, their print resolution.
- ☐ Check if the ink jet cartridges in the printer need priming, cleaning, or replacement (refer to the manual for the printer).

If black bars appear at one or more edges of printed images.

- ☐ Change the "Print Under Scan =" menu (in the System (Install) menus) to off.

If the edges of an ink jet print look uneven or ragged or visual bands occur in the whole image.

- Change the "Printer Mode =" menu (in the (System) (Install) menus) to a different setting.

  The "Normal" choice is the recommended setting for most applications. The "Fast" choice can be used if you desire faster print output, but banding is likely to occur. Refer to the manual for your ink jet printer for more information on this function

- Check if the ink jet cartridges in the printer need priming, cleaning, or replacement (refer to the manual for the printer).

2

Printing, Grabbing, and Sequencing Video Images

Printing, Grabbing, and Sequencing Video Images

Obtaining hard copy prints using the Print Manager is as simple as pushing one button. You can obtain prints of single or multiple images on a single page, as well as storyboards, video and graphics logsheets, and videotape logs.

A powerful feature of the Print Manager is the ability to grab a sequence of video frames, then edit the sequence of frames before printing them. There are several modes available in which frames can be grabbed or printed automatically upon a pre-determined event, such as when a scene change occurs or after a time interval has elapsed.

There are three sections in this chapter. The first section, entitled "Printing," shows you how to obtain prints of single images, multiple images, storyboards, video and graphics logsheets, and videotape logs. The second section, entitled "Grabbing and Sequencing," shows you how to grab and edit sequences of video images before printing them.

The section entitled "If You Encounter a Problem" contains solutions to common problems you might encounter when performing the tasks. Go to this section when you are having trouble performing any of the tasks in this chapter.

Printing

Obtaining hard copy prints using the Print Manager is easy. Even for complex tasks, such as creating a storyboard, the number of steps required to obtain the print is minimal. The following pages explain how to obtain different types of prints. In some cases, you might want to alter the appearance of a print. The information in Chapter 3, "Customizing Printed Images," explains what to do to accomplish this.

Remember, What You See is What You Get

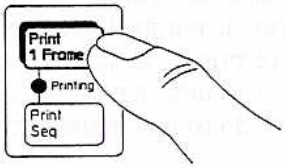
One button printing is a powerful feature of the Print Manager. When the [Print 1 Frame] or [Print Seq] key is pushed, the images printed will come from the image source selected with the [Select Image Source] key. For example, when printing multiple images, the images that print will come from either the frame memory if [Select Image Source] is set to "Memory" or the video present at the rear panel video input if [Select Image Source] is set to "Video In." This is an important concept to remember for all printing tasks.

The Tasks

The following pages detail these tasks:

- To Print a Single Image on a Page
- To Print a Sequence of Images
- To Create a Storyboard, Video Logsheet, or Graphics Logsheet
- To Create a Videotape Log

To Print a Single Image on a Page

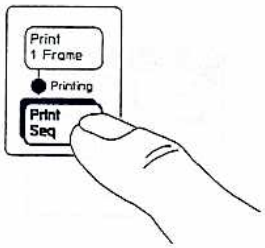


You might want to customize the printed page as detailed in Chapter 3.

When the image source is set to "Video In" such that full motion video is being monitored, the frame being displayed on the monitor at the instant (Print 1 Frame) is pressed will print. Pressing this key always prints only one image on a page in the format selected in the "`Format=`" menu (under the (Page Layout) key).

You can print multiple copies of the same page using the "`Copies =`" menu under the (Page Layout) key.

To Print a Sequence of Images



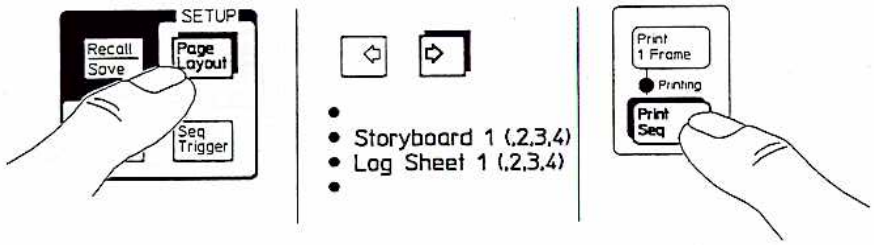
You might want to grab and edit a sequence of images as detailed later in this chapter and customize the printed page as detailed in Chapter 3.

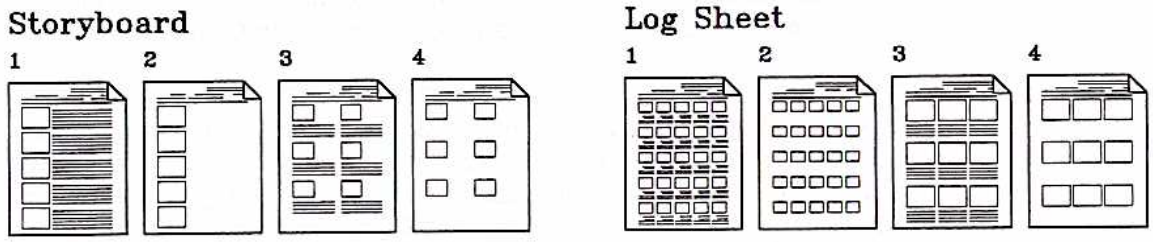
If the image source that is selected is "Memory," the Print Manager will print the images stored in frame memory in the order they are tagged (or the order in which they were grabbed if no images are tagged). If the image source that is selected is "Video In," the Print Manager will print images as determined by the sequence trigger setting until the (Stop) key is pressed. Refer to "To Automatically Grab a Sequence of Video Images" in this chapter for information on sequence trigger settings.

Note that when printing a sequence of images, sequence triggering can be set such that frames are grabbed faster than they are processed and sent to the printer, causing some frames not to be grabbed. This is not a problem until frame memory is full.

You can print multiple copies of the same page using the "`Copies =`" menu under the (Page Layout) key.

To Create a Storyboard, Video Logsheet, or Graphics Logsheet





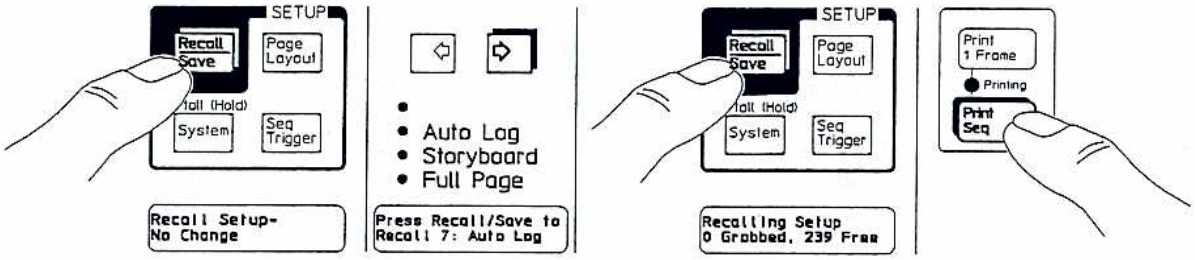
Storyboard 1–4, Log Sheet 1–4

When any of these menu choices are selected, the image size is fixed. Log Sheet 1 and 2 are video logsheets and Log Sheet 3 and 4 are graphics logsheets. Note that ink jet printers that do not have page memory will not produce multiple column prints. If one of those printers are used, Storyboard 3 and 4 and Log Sheets will not print as shown above.

After the Print Manager is set up to produce the desired form, you choose the grabbing/printing method. Images can either be manually grabbed and edited before they are printed, or the Print Manager can be set to automatically grab or print images based on some pre-determined criteria (referred to as sequence triggering), such as after every scene change (refer to "To Automatically Grab a Sequence of Video Images" in this chapter). Note that when producing these prints, a scenario might occur that can cause some frames not to be grabbed (refer to the next page).

You can print multiple copies of the same page using the "`Copies =`" menu under the (Page Layout) key.

To Create a Videotape Log



Performing the above keypress sequence sets up the Print Manager to optimally produce a videotape log (Auto Log). Once the keypress sequence is complete, you can modify any of the "SETUP" key menus to further customize the printout, such as when you might want a different sequence trigger time interval. You can use a similar keypress sequence to optimally set the Print Manager to produce a storyboard or full-page image. The following table shows the menus that are set when one of these setups are recalled (blank entries or all other menus not in the table are unchanged).

Note that when logging a videotape, sequence triggering can be set such that frames are grabbed faster than they are processed and sent to the printer, causing some frames not to be grabbed. This is not a problem until frame memory is full.

		Recalled Settings	
Menu	**Auto Log**	**Storyboard**	**Full Page**
Resolution	Low	Medium	High
Print Fields			Both
Format	Log Sheet 1	Storyboard 1	1 Per Page
Image Size			9.5 × 7.1 in 241 × 181 mm
Position			Center
Header Text	On[1]	On[1]	
Page Numbers	On	On	
Time/Date Stamp	On	On	
Print Time Code	On	On	
Copies	1	1	1
Trigger	Scene|Time	Scene|Time	Manual
Time Interval	00m10s	00m10s	

1 If set to "off," header text is set to "standard." If set to either "standard" or "custom", header text remains at its current setting.

You can obtain a print that shows what is currently chosen for all the menus using the "Print the Setup=" menu under the (Recall|Save) key. You can print multiple copies of the same page using the "Copies =" menu under the (Page Layout) key.

Grabbing and Sequencing

Video frame sequence editing is another powerful feature of the Print Manager. Before printing a sequence of video frames, you can grab the sequence into frame memory, delete any frames that you don't need with the [Clear Frame] key, and assign an order to the frames you want to print with the [Tag Frame] key.

Frame Memory is Not Limitless

Standard (no optional additional) frame memory will store one full-resolution color video frame. The amount of memory installed, the setting of the capture resolution (`Resolution =`) and grab mode (`Grab In =`) menus under the [System] key, and the format of the video input signal determine the actual number of frames that can be stored. Refer to "Technical Information and Options" for more information on frame memory capacity. The status of frame memory is shown in the second line of the Print Manager display whenever frames are being grabbed or edited. For example, if frame memory has space for 28 frames and is currently holding 5 frames, the second line of the Print Manager display will read:

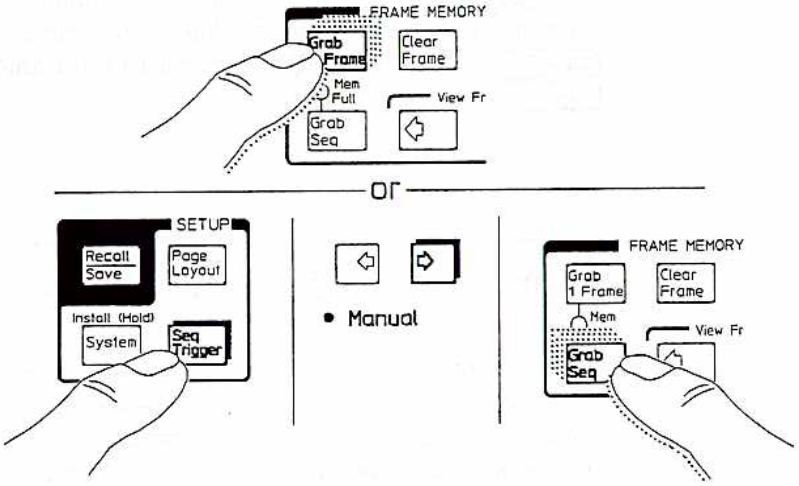
```
5 Grabbed, 23 Free
```

The Tasks

The following pages detail these tasks:

- To Manually Grab a Sequence of Video Images
- To Automatically Grab a Sequence of Video Images
- To Edit a Sequence of Video Images Before Printing

To Manually Grab a Sequence of Video Images

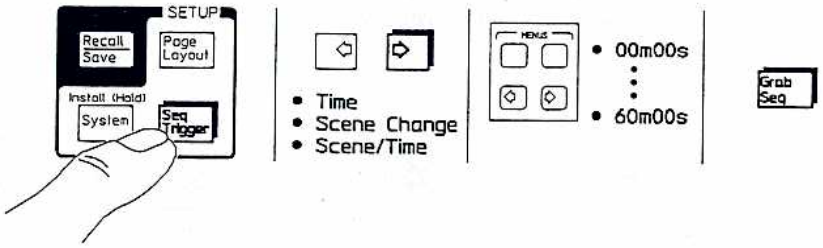


Once in the triggered manual sequence grabbing mode, press (Stop) to exit it.

If the "Freeze Frame=" menu (under the (System) (Install) key) is set to On, full-motion video on the monitor display will momentarily pause as each frame is grabbed.

When a sequence of frames is grabbed using manual sequence triggering, the Print Manager display prompts you to continue grabbing frames once you begin. It also indicates the number of frames that you have grabbed.

To Automatically Grab a Sequence of Video Images



Once in the automatic sequence grabbing mode, press [Stop] to exit it.

The choice of sequence triggering determines the method by which video images are automatically grabbed and stored in frame memory. The automatic sequence grabbing choices are as follows:

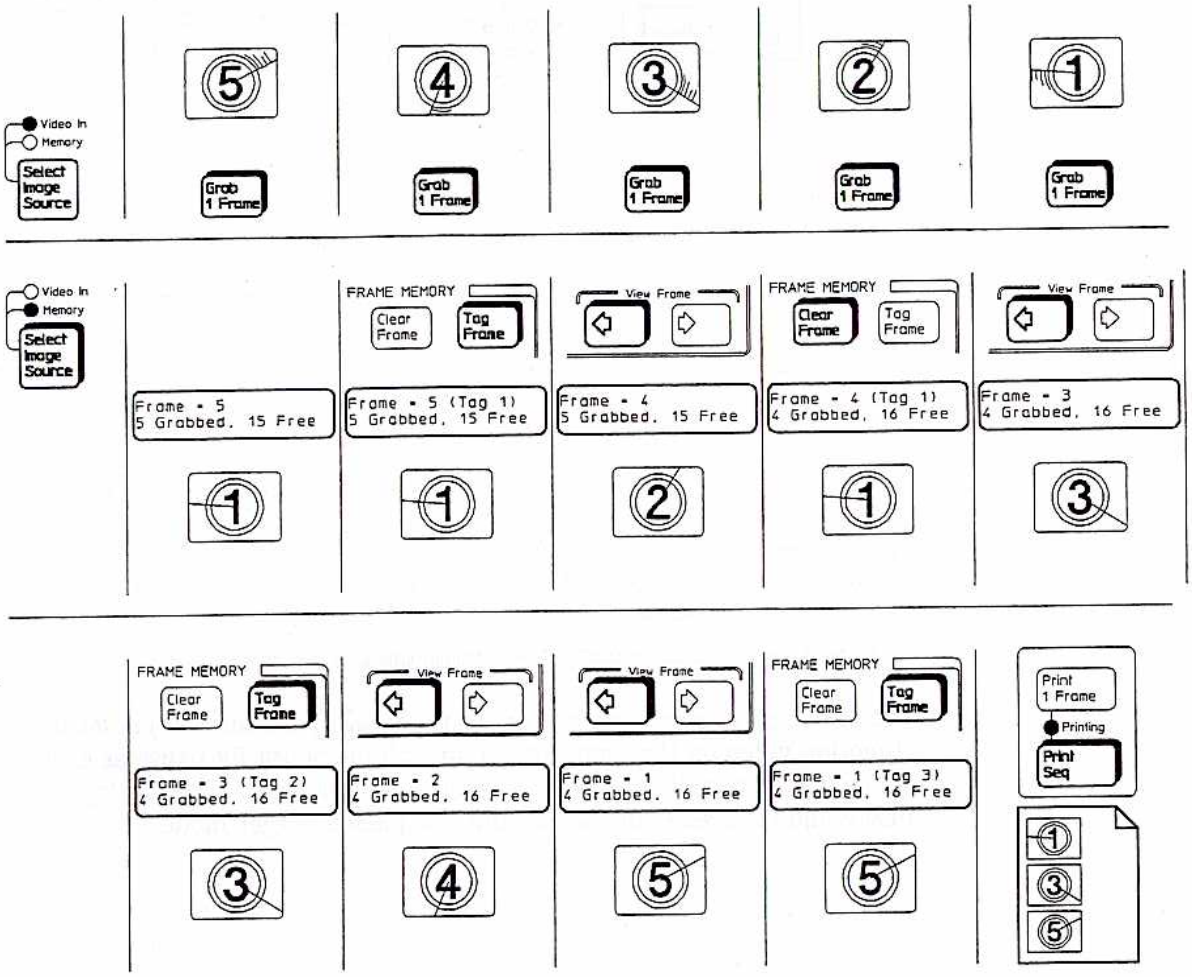
Menu Choice	Description
Time[1]	A video frame is grabbed immediately upon pressing [Grab Seq] and then automatically at a rate determined by the setting of this parameter.
Scene Change	A video frame is grabbed automatically after every scene change.
Scene/Time[1]	A video frame is grabbed upon either a scene change or the set time interval, whichever occurs first.

1 When the time interval is set to 00m00s, the Print Manager grabs every other frame.

If the "Freeze Frame=" menu (under the [System] (Install) key) is set to On, full-motion video on the monitor display will momentarily pause as each frame is grabbed while in "time" sequence trigger mode. The display will not pause while in "scene" or "scene/time" sequence trigger mode.

To Edit a Sequence of Video Images Before Printing

In the following example, five countdown frames are grabbed manually, the frame containing number two is deleted, and only the odd-numbered frames are printed in reverse order using tagging.



Tag Frame

If a frame is currently tagged, pressing Tag Frame will untag it. To untag all images, press and hold the Tag Frame key for two seconds.

Frames that are tagged will print in the order that they are tagged. If no frames are tagged, all frames that are in frame memory will print in the order they were grabbed.

Clear Frame

Note that pressing the Clear Frame key will clear an image from frame memory even when the image source is set to "Video In." When a frame is cleared, the sequence in frame memory is renumbered. Holding down the Clear Frame key accelerates the rate at which images are cleared.

If You Encounter a Problem

If you have a problem while trying to print or grab and edit video images, this section provides solutions that will help you get back to work quickly. If you have a problem installing or setting up the Print Manager, refer to the section, "If You Encounter a Problem," at the end of chapter 1. If you have a problem customizing and formatting prints, refer to the section, "If You Encounter a Problem," at the end of chapter 3.

If your problem is associated with the procedures in this chapter, but is not listed here, refer to the troubleshooting section of the *HP VidJet Pro Video Print Manager Service Guide*.

If the monitor display is blank.

- Check if the image source selected using the (Select Image Source) key is "Video In."
- Check that the proper video input selection is made in the "Video=" menu (under the (System) key).
- Check if the source of the video signal is active and that the video cable is connected and not damaged.

If the monitor always displays a color video input signal in monochrome.

- Check that the monitor being used is not a monochrome-only monitor.
- If the active video input is the composite or serial digital input, check if the video input standard is SECAM. When the video input standard is SECAM, it is normal for the monitor to always display the video input signal in monochrome. Images, however, will print in color.

If the monitor displays color images stored to frame memory in monochrome.

- Check if the "Grab In=" menu (under the (System) key) is set to monochrome.
- If the active video input is the composite or serial digital input, check if the video input standard is 625-line PAL. When the video input standard is 625-line PAL and no signal is present, it is normal for the monitor to display in monochrome, even if the frame was grabbed in color. The image, however, will print in color if the "Grab In=" menu is set to color.

If the printer will not produce a print.

- Check that power is getting to the Print Manager and external printer, the fuses are not open, and the line switches are turned on.
- Check that the printer is not out of paper, and that the paper is not jammed.
- Check that the proper printer selection is made in the "Printer =" menu under the (System) (Install) key.
- Check that the Centronics cable is correctly connected between the Print Manager and external printer and that the cable is not damaged.

If there is a long time delay between copies of the same printed page.

- Check if the printer connected to the Print Manager supports multiple-copy printing.

  If the printer does not support multiple-copy printing and you request multiple copies, the Print Manager reprocesses and sends the image data to the printer for each copy requested, significantly slowing down the printing process.

If the displayed or printed image is blurred or striping occurs in part of the image.

If striping or visual bands occur in the whole image, refer to the following problem statement.

- Check that the appropriate resolution is set in the "Resolution=" menu under the (System) key. Resolution of a frame is determined as it is grabbed; once the frame has been grabbed, you must re-grab it to change the resolution. Note that changing the resolution *will totally clear frame memory*, so do not change resolution if frame memory contains other images you do not want cleared.
- If the "Resolution=" menu choice is set to "High," change the "Print Fields =" parameter under the (System) key to select only one of the fields.

  If motion occurred between the fields in the frame, the two fields might contain slightly offset images, resulting in blurring or horizontal striping in the offset portion of the image. If only one of the fields is selected, the Print Manager will interpolate the missing pixels of the other field.

If the edges of an ink jet print look uneven or ragged or visual bands occur in the whole image.

- Change the "Printer Mode =" menu (in the [System] (Install) menus) to a different setting.

  The "Normal" choice is the recommended setting for most applications. The "Fast" choice can be used if you desire faster print output, but banding is likely to occur. Refer to the manual for your ink jet printer for more information on this function

- Check if the ink jet cartridges in the printer need priming, cleaning, or replacement (refer to the manual for the printer).

If the color or contrast of the printed image is incorrect.

- Check that the proper printer selection is made in the "Printer =" menu under the [System] (Install) key.
- Check that the setting of the "Paper Type=" menu (under the [System] (Install) key) matches the type of print media you are using.
- If the active video inputs are the component inputs, check that the component video format chosen in the "Video =" menu matches the component video format you are using. The "Video =" menu is under the [System] key.
- Check that the printer is printing on the correct side of the print media.

  Most print media has an indicator on either itself or on its package to indicate the proper side to print on.

- Alter the applicable color or contrast parameters under the [System] key. Refer to the tasks "To Adjust the Quality and Color of a Composite Video Image Being Grabbed" or "To Adjust the Quality and Color of a Component Video Image Being Grabbed" in Chapter 3. Note that these parameters affect the frame only as it is grabbed; once the frame has been grabbed, you must re-grab it to effect a change in color or contrast.

If black bars appear at one or more edges of printed images.

- Change the "Print Under Scan =" menu (in the [System] (Install) menus) to off.

If the image will not print in color.

- ☐ Check that "Grab In =" under the (System) key is set to "Color." Note that a frame is grabbed in either color or monochrome, so the frame must be re-grabbed in order to change it.
- ☐ Check that "Print Out =" under the (System) key is set to "Color."
- ☐ Check that the proper printer selection is made in the "Printer =" menu under the (System) (Install) key.
- ☐ Check that the external printer being used supports color printing.
- ☐ Check that any applicable switches or menus on the external printer are set correctly.

  Some color printers might have a color/monochrome setting to improve, for example, their print resolution.
- ☐ Check if the ink jet cartridges in the printer need priming, cleaning, or replacement (refer to the manual for the printer).

If the image size will not change.

- ☐ Check if one of the pre-defined page layouts (storyboards or logsheets) are chosen.

  If one of the pre-defined page layouts are chosen ("Format=" menu under the (Page Layout) key), the image size will be fixed (the "Image Size=" menu will show "--------").

If the printed page contains only one column of a multiple-column page format.

- ☐ Check if the printer being used is *not* a laserjet printer, or a DeskJet 1200C, PaintJet XL300, or DesignJet 650C.

  Multiple-column printing is not supported on printers other than the above-mentioned printers. If one of the above printers is *not* being used, the images that normally would appear in subsequent columns are not lost; they appear on the following printed pages.

If images that have been grabbed are lost.

- ☐ Ensure that the "Resolution =" or "Grab In =" menu choices are not changed.

When these menus are changed and you press an action key (such as a "grab" or "print" key), frame memory is totally purged in order to ensure memory space for subsequent frame grabs.

- ☐ Ensure that the video input signal format has not changed.

  When the video input signal format changes and you press an action key, frame memory is purged if the "Line Format=" menu is set to "Auto." If you are working primarily with one video signal format, it is recommended that you select the actual format in the "Line Format=" menu (under the [System] key).

- ☐ Ensure that the Print Manager has not lost power.

  Images in frame memory will be lost if the Print Manager loses power.

- ☐ Ensure that the [Clear Frame] key is not held down for more than two seconds.

- ☐ If optional frame memory has been installed, check that it has been installed correctly. Refer to "Installing the Print Manager" in Chapter 1.

- ☐ Ensure that the desired number of frames to be grabbed is not more than the number of frames that can be stored in frame memory. Depending on how the "Grab Seq=" menu (under the [System] (Install) menus) is set, additional frames grabbed using the [Grab Seq] key will either be stored with the oldest frames being lost (Circular), or no additional frames will be accepted (Stop Full).

If the desired number of frames cannot be grabbed.

- ☐ Change the image resolution (Resolution = under the [System] key) to a lower setting if lower resolution is acceptable.

- ☐ Change the grab mode (Grab In = under the [System] key) to monochrome if color images are not necessary.

- ☐ Install additional frame memory. Refer to "Technical Information and Options" in Chapter 4 for information about additional frame memory.

3

Customizing Printed Images

Customizing Printed Images

Flexibility in formatting your printed images is another one of the key outstanding features of the Print Manager.

Flexible Formatting to Meet a Variety of Needs

Adding headers to your print, selecting from a variety of image sizes, selecting the number of images on a page, varying the position of an image on the page, and choosing from several time code options are among the print customization choices you have. You can even fine tune the appearance of the image through adjustment of the hue, saturation, brightness, and contrast. You can format a print as detailed in this chapter, or you can use one of the pre-configured print setups presented in Chapter 2. Note that some of the pre-configured print setups can be customized using the tasks presented in this chapter. Once you have customized your print, you can save the setup in the Print Manager task memory. Once saved, the setup can be recalled from task memory at any time and used again.

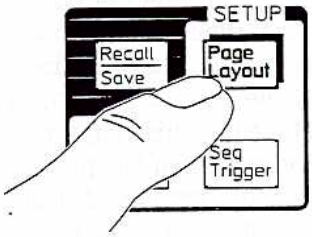
The section at the end of this chapter entitled "If You Encounter a Problem" contains solutions to common problems you might encounter when performing the tasks. Go to this section when you are having trouble performing any of the tasks in this chapter.

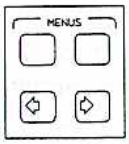
The Tasks

The following pages detail these tasks:

- To Format the Printed Page
- To Adjust the Quality and Color of the Image Being Grabbed
- To Save your Customized Print Setup

To Format the Printed Page





- Format
- Image Size
- Position
- Header Text
- Page Numbers
- Time/Date Stamp
- Print Time Code
- Copies

Format

When "Tile" is chosen, the Print Manager places as many images on a page as is practical given a certain image size. When one of the other choices are used (*n* per Page), the Print Manager resizes the image if the chosen image size is too large for the chosen format. When a "Storyboard" or "Log Sheet" option is chosen, you can not change the image size.

Ink jet printers that do not have page memory will not produce printed pages containing images in multiple columns. If one of those printers are used, the images that normally print in subsequent columns are not lost; they print on following pages.

Position

You can choose the position of images only if the format is 1 per page.

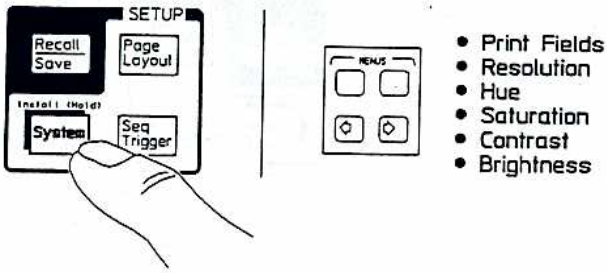
Header Text

Labels for reel or stack number, project/title, etc. are printed at the top of the page. Programming commands exist that allow you to type in the label information if the "Custom" header text menu choice is made (see "Programming Commands" in Chapter 4).

Print Time Code

When this menu is set to "On," the time code prints below each image preceded by a letter denoting the time code source ("i =" for internal, "L =" for LTC, and "r =" for remote).

To Adjust the Quality and Color of a Composite Video Image Being Grabbed



Print Fields

Printing only one field of a frame using the Print Fields menu is useful if printing both fields renders a blurred image, such as when motion of the subject occurred between the two fields. This menu appears only if resolution is set to "high." When set to "Low" or "Medium," only field 1 will print.

Resolution

The resolution setting affects the maximum number of frames that can be grabbed. Refer to "Technical Information and Options" in Chapter 4 for more information. It also affects the image quality. In general, a low or medium setting used with smaller image sizes will cause less image quality degradation than with larger image sizes (>4-by-3 inches).

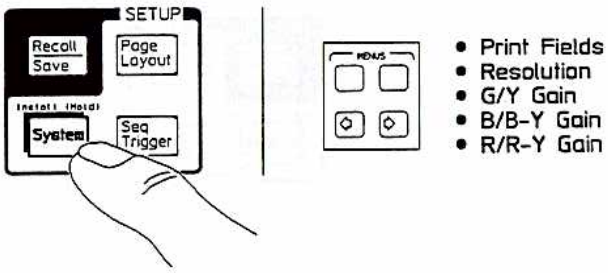
Hue, Saturation, Contrast, Brightness

Changing the hue, saturation, brightness, and contrast affects the image only as it is grabbed. No adjustment can be made to an image after it is grabbed.

Menu	Choice	Effect
Hue	−180 ⟷ +180	varies the hue[1]
Saturation	0 ⟷ 200	less color saturation ⟷ more color saturation
Brightness	0 ⟷ 200	less brightness ⟷ more brightness
Contrast	0 ⟷ 200	less contrast ⟷ more contrast

1 For example, the effect on flesh tone is "more green ⟷ more red."

To Adjust the Quality and Color of a Component Video Image Being Grabbed



Print Fields

Printing only one field of a frame using the Print Fields menu is useful when printing both fields renders a blurred image, such as when motion of the subject occurred between the two fields. This menu appears only if resolution is set to "high." When resolution is set to "Low" or "Medium," only field 1 will print.

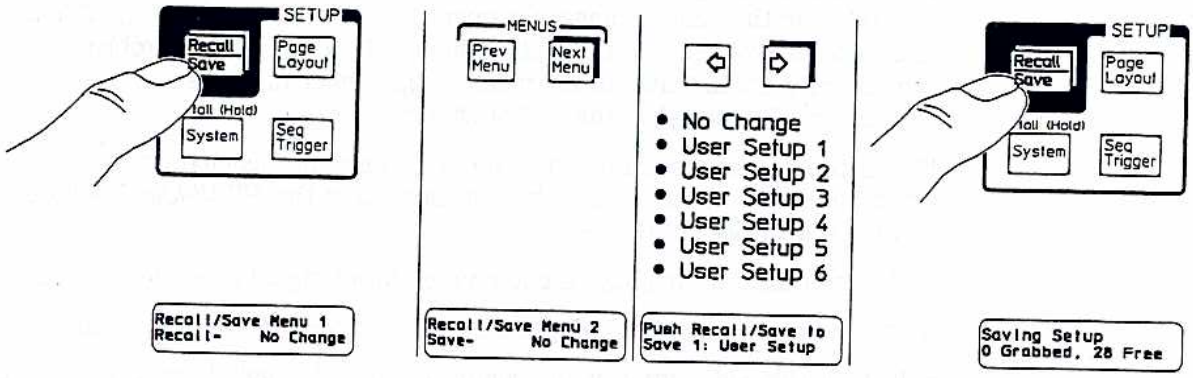
Resolution

The resolution setting affects the maximum number of frames that can be grabbed and stored. Refer to "Technical Information and Options" in Chapter 4 for more information. It also affects the image quality. In general, a low or medium setting used with smaller image sizes will cause less image quality degradation than with larger image sizes (>4-by-3 inches).

G/Y Gain, B/B—Y Gain, R/R—Y Gain

Changing the component video channel gain affects the image only as it is grabbed. No adjustment can be made to an image after it is grabbed. These adjustments are uncalibrated relative adjustments to the gain of each channel. The effect of changing the gain on the printed image must be determined empirically. The range of each gain adjustment is −25 to +25.

To Save your Customized Print Setup



You can save the printed page layout information as well as all other Print Manager menu choices you have made to one of six task memory locations, labeled "User Setup 1" through "User Setup 6." Note that if you save to a task memory location, all information previously stored in that memory location is lost. If you decide not to save to a memory location, you can choose either the "No Change" option before pressing (Recall|Save) a second time or press any other key.

You can assign a 13-character name to the memory location via the RS-422/232 interface. This name will appear in the display in place of "User Setup 1," etc. to remind other users that the memory location already contains your task setup. Refer to "Programming Commands" in Chapter 4 for information on the "`MEMory:STATe:NAME`" command.

If You Encounter a Problem

If you have a problem customizing prints, this section provides solutions that will help you get back to work quickly. If you have a problem installing or setting up the Print Manager for operation, refer to the section, "If You Encounter a Problem," at the end of chapter 1. If you have a problem printing or grabbing and editing video images, refer to the section, "If You Encounter a Problem," at the end of chapter 2.

If your problem is associated with the procedures in this chapter, but is not listed here, refer to the troubleshooting section of the *HP VidJet Pro Video Print Manager Service Guide*.

If the monitor only displays a color video input signal in monochrome.

- Check that the monitor being used is not a monochrome-only monitor.
- If the active video input is the composite or serial digital input, check if the video input standard is SECAM. When the video input standard is SECAM, it is normal for the monitor to always display the video input signal in monochrome. Images, however, will print in color.

If the image size will not change.

- Check if one of the pre-defined page layouts (storyboards or logsheets) are chosen.

  If one of the pre-defined page layouts are chosen ("Format=" menu under the [Page Layout] key), the image size will be fixed (the "Image Size=" menu will show "--------").

If the printed page contains only one column of a multiple-column page format.

- Check if the printer being used is *not* a laserjet printer, or a DeskJet 1200C, PaintJet XL300, or DesignJet 650C.

  Multiple-column printing is not supported on printers other than the above-mentioned printers. If one of the above printers is *not* being used, the images that normally would appear in subsequent columns are not lost; they appear on the following printed pages.

If there is a long time delay between copies of the same printed page.

- ☐ Check if the printer connected to the Print Manager supports multiple-copy printing.

  If the printer does not support multiple-copy printing and you request multiple copies, the Print Manager reprocesses and sends the image data to the printer for each copy requested, significantly slowing down the printing process.

If task settings you have saved are lost.

- ☐ Ensure that no one has saved over your task settings. When someone saves task settings to a task memory location, the previous settings in that memory location are lost. You can assign a name to the memory location that will appear in the display to remind other users that it already contains task information. Refer to "Programming Commands" in Chapter 4 for information on the "`MEMory:STATe:NAME`" command.
- ☐ Check that the battery that backs up task memory is not expended. Refer to the *HP VidJet Pro Video Print Manager Service Guide* for the procedure on checking and replacing the battery.

If black bars appear at one or more edges of printed images.

- ☐ Change the "`Print Under Scan =`" menu (in the [System] (Install) menus) to off.

If the edges of an ink jet print look uneven or ragged or visual bands occur in the whole image.

- ☐ Change the "`Printer Mode =`" menu (in the [System] (Install) menus) to a different setting.

  The "Normal" choice is the recommended setting for most applications. The "Fast" choice can be used if you desire faster print output, but banding is likely to occur. Refer to the manual for your ink jet printer for more information on this function

- ☐ Check if the ink jet cartridges in the printer need priming, cleaning, or replacement (refer to the manual for the printer).

4

Reference

Reference

This chapter provides more detailed information about some of the features of the Print Manager. The entries for the features are arranged in alphabetical order.

Connectors

The following presents information necessary to interface the Print Manager to external devices via the REMOTE FRONT PANEL, RS-422, RS-232, and Timecode Input connectors (pin numbers are printed on the connectors).

REMOTE FRONT PANEL

This connector is used to interface the HP Remote Front Panel with the Print Manager.

REMOTE FRONT PANEL Connector Pin Information

Pin Number	Signal	Input or Output?
1	Ground	
2	Receive –	I
3	Transmit +	O
4	Transmit Common	
5	NC[1]	
6	Receive Common	
7	Receive +	I
8	Transmit –	O
9	Ground	

1 NC - Not Connected

RS-422

This connector is used to interface an external system controller to the Print Manager when controlling it remotely. The connections are specified as a tributary port in the SMPTE 207M proposed standard. The following pin information is valid when the adjacent switch is set to RS-422. The control interface should be set to: 9600 baud rate, 8 bit ASCII (0 parity), 1 stop bit, no flow control.

RS-422 Connector Pin Information

Pin Number	Signal	Input or Output?
1	Ground	
2	Transmit –	O
3	Receive +	I
4	Transmit Common	
5	NC[1]	
6	Receive Common	
7	Transmit +	O
8	Receive –	I
9	Ground	

1 NC - Not Connected

RS-232

This connector is used to interface the Print Manager with an external computer. The following pin information is valid when the adjacent switch is set to RS-232. The control interface should be set to: 9600 baud rate, 8 bit ASCII (0 parity), 1 stop bit, no flow control.

RS-232 Connector Pin Information

Pin Number	Signal	Input or Output?
1	Ground	
2	Transmit	O
3	Receive	I
4	DTR (unused)	O
5	Ground	
6	NC[1]	
7	NC	
8	Input (unused)	I
9	NC	

1 NC - Not Connected

TIMECODE INPUT

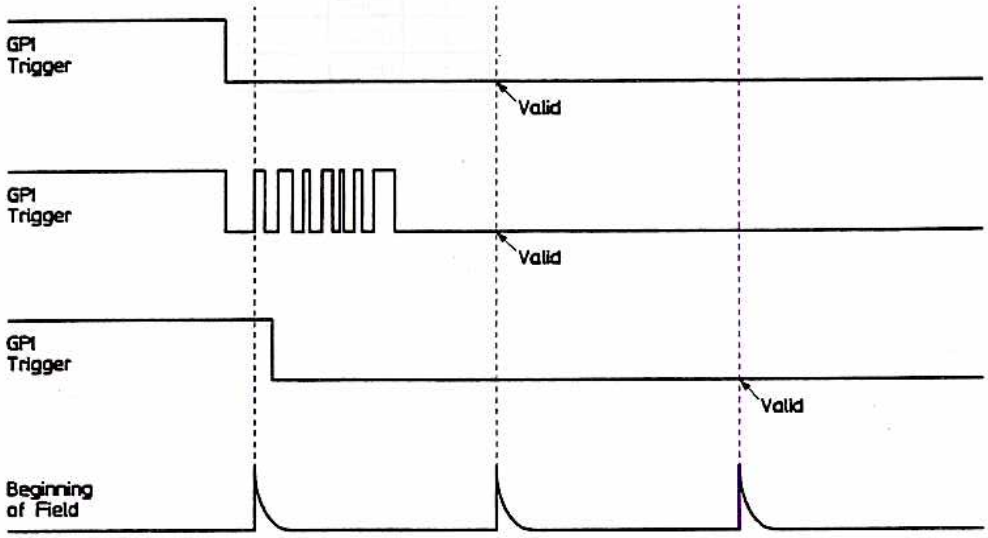
This connector allows the inclusion of source-synchronized LTC time code with printed images.

TIMECODE INPUT Connector Pin Information

Pin Number	Signal	Input or Output?
1	Ground	
2	LTC –	I
3	LTC +	I

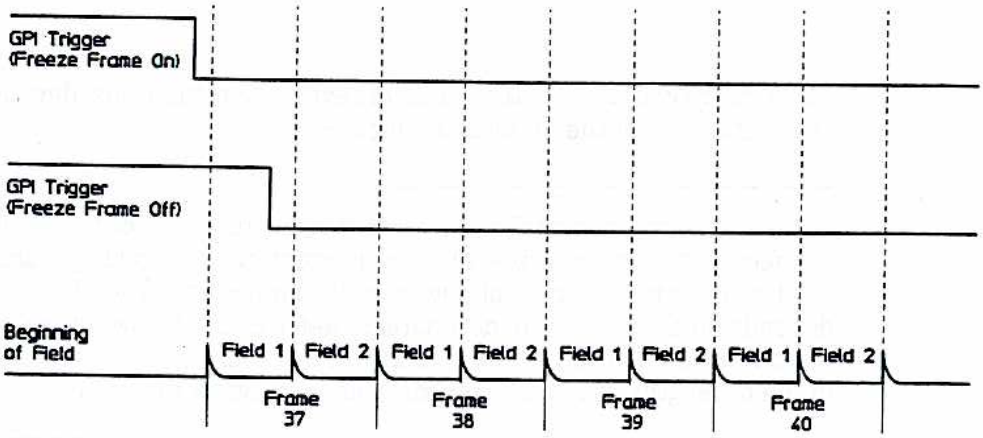
GPI Trigger Timing

A GPI trigger signal is considered valid if it is at an active low level at the beginning of the second video field that occurs after the negative transition of the GPI trigger signal.



Examples of a Valid GPI Trigger Signal

The negative transition of a valid GPI trigger signal must occur two-and-a-half to three full frames prior to the frame occurrence you are concerned with, depending on the status of the "Freeze Frame=" menu (under the System (Install) key). The following example shows the field where the negative transition of a valid GPI trigger must occur to capture frame 40.



The Print Manager will ignore subsequent GPI trigger events until the current operation is complete. Current operations might include grabbing a frame, grabbing a sequence, printing a frame, freezing the image on the monitor, etc.

Power Cables

The power cable is supplied in one of several configurations, depending on the destination of the original shipment.

The Print Manager is equipped with a three-wire power cable. When connected to an appropriate AC power receptacle, this cable grounds the product chassis. The type of power cable shipped with each Print Manager depends on the country of destination. Refer to the following table for the option numbers of these power cables. In addition, cables are available in different lengths and some with right-angle plugs to the product.

Option Number	Country of Destination	Compliance Standard
900	United Kingdom	BS 1363A PLUG
901	Australia, New Zealand	NZSS 198/AS 3112 PLUG
902	Continental Europe	CEE 7 STD SHT VII, DIN 49441, VDE 0620
903	U. S., Canada	NEMA 5-15P
905	All[1]	IEC 320-C14
906	Switzerland	SEV 1011.1959-24507 TYPE 12 PLUG
912	Denmark	DHCR 107 PLUG
917	Republic of South Africa, India	IEC 83, STD B1 (SABS 164)
918	Japan	MITI 41-9692 PLUG

1 For interconnecting system components and peripherals.

WARNING

This is a safety Class 1 product (that is, it is provided with a protective earth terminal). An uninterruptible safety earth ground must be provided through the power cable. If the product is rack-mounted, an uninterruptible safety earth ground must be also provided through the rack power distribution circuit. If a power strip is used, an uninterruptible safety earth ground must be also provided through the power strip. Whenever it is likely that the ground is impaired, the product must be made inoperative.

Programming Commands

The Print Manager can be remotely controlled using an external controller through the use of programming commands.

Syntax

Commands for setting parameters require an argument be sent as part of the command. The arguments for the commands listed in the following table are indicated by *italics*. The choices for the argument or the numeric parameter range are shown in the second column of the table. Additional conventions used in the syntax statements are defined as follows:

- Upper-Case Lettering (`SYSTem:TIME`) indicates that the upper-case portion of the command is the minimum required for the command. Note that this portion of the command does not have to be entered in upper-case lettering. It can be entered in upper or lower case lettering, or a combination of both.
- Lower-Case Lettering (`SYSTem:TIME`) indicates that the lower-case portion of the command is optional; it can either be included with the upper-case portion of the command or omitted.

Commands that end in a question mark (?) are called queries. When a query is sent to the Print Manager, it will return data in response. For example, if the query "INPut:VIDeo:FORMat?" is sent to the Print Manager, it will return the currently selected video input (either COMP, YC, GBR, GBR2, WS, WOS, BETA, EBU, MII, or D422). Query responses are always returned in upper-case lettering.

Notes

1. Print Manager commands are not executed until they are followed by the line feed character.
2. The RS-232/422 remote interface does not acknowledge receipt of commands sent to it by the controller. Therefore, data passed between the Print Manager and the controller can possibly be lost under the following conditions:
   a. The controller is performing a processor-intensive task (such as math calculations).
   b. The controller issues another command or query before the Print Manager has correctly received and executed the previous command or query.
   c. The controller receives and responds to an interrupt from another device before the Print Manager has finished sourcing data to it (such as frame data).
3. Commands with the same root can be chained together by eliminating the redundant root portion and separating the unique command segments with a semicolon followed immediately by a colon (;:). For example, sending the chained commands "`:MEM:FRAM:TAG ON;:GRAB:STOP CIRC;:GRAB:IMM ONCE`" is equivalent to sending the commands "`:MEM:FRAM:TAG ON`", "`:MEM:FRAM:GRAB:STOP CIRC`", and "`:MEM:FRAM:GRAB:IMM ONCE`" on separate lines.

Programming Commands

Command	Argument Choice/ Parameter Range	Description
ABORt		Stops current print or grab activity.
*CLS		Clears all errors from the error queue.
*DDT *"cmnd"*	*cmnd* = HCOP:FRAM:IMM ONCE, HCOP:FRAM:IMM SEQ, MEM:FRAM:GRAB:IMM ONCE, MEM:FRAM:GRAB:IMM SEQ, ABOR, NONE	Sets the remote command that will be executed when a GPI trigger occurs.
*DDT?		Returns the command that will be executed when a GPI trigger occurs.
HCOPy:COLor:TYPE *type*	*type* = COLor, MONOchrome	Sets whether the Print Manager prints in color or monochrome.
HCOPy:COLor:TYPE?		Returns whether the Print Manager currently prints images in color or monochrome.
HCOPy:COPies *copies*	*copies* = 1 to 99	Sets the number of copies to print.
HCOPy:COPies?		Returns current number of copies that will print.
HCOPy:DESTination:NAME *printer*	*printer* = HP_DJ310, HP_DJ500, HP_DJ500C, HP_DJ550C, HP_DJ650C, HP_DJ1200C, HP_LJ2, HP_LJ3, HP_LJ4, HP_LJ4L, HP_PJXL300	Sets the type of printer that is being used.
HCOPy:DESTination:NAME?		Returns the current printer selection.
HCOPy:FRAMe:IMMediate *print*	*print* = ONCE, SEQuence	Prints one frame (ONCE) or a sequence of frames (SEQuence).
HCOPy:FRAMe:USCAn *state*	*state* = 0 (or OFF), 1 (or ON)	Turns printer under scan on or off.
HCOPy:FRAMe:USCAn?		Returns the on/off status of the printer under scan function (1 if on, 0 if off).
HCOPy:HEADer:PAGE:NUMBer:STATe *state*	*state* = 0 (or OFF), 1 (or ON)	Turns automatic page numbering on or off.
HCOPy:HEADer:PAGE:NUMBer:STATe?		Returns the on/off status of automatic page numbering (1 if on, 0 if off).
HCOPy:HEADer:TDSTamp:STATe *state*	*state* = 0 (or OFF), 1 (or ON)	Turns the time/date stamp (printed at the top of each page) on or off.
HCOPy:HEADer:TDSTamp:STATe?		Returns the on/off status of the time/date stamp (1 if on, 0 if off).
HCOPy:HEADer:TEXT:DATA*line* *"string"*	*line* = 1, 2 *string* = 70 characters on line 1 and 20 characters on line 2.	Loads custom header text. *Line* is the line of the custom header that is being loaded with text and "string" is the actual header text, including the label (Client:, Reel #:, etc.).
HCOPy:HEADer:TEXT:DATA*line*?		Returns the custom header text that will be printed on the header line represented by *line*.
HCOPy:HEADer:TEXT:TYPE *type*	*type* = OFF, STANdard, CUSTom	Sets the type of header text to be printed.

Programming Commands (continued)

Command	Argument Choice/ Parameter Range	Description
HCOPy:HEADer:TEXT:TYPE?		Returns the type of header text that will be printed.
HCOPy:IMAGe:POSition *postn*	*postn* = URIGht, ULEFt, CENTer, LLEFt, LRIGht	Sets the position of a single image on the printed page.
HCOPy:IMAGe:POSition?		Returns the single image print position.
HCOPy:IMAGe:SIZE:FIXed *isize*	*isize* = MM_20_0, MM_25_0, MM_38_0, MM_51_0, MM_76_0, MM_102_0, MM_127_0, MM_152_0, MM_178_0, MM_241_0, MM_330_0, MM_508_0, MM_762_0, MM_1067_0, IN_0_8, IN_1_0, IN_1_5, IN_2_0, IN_3_0, IN_4_0, IN_5_0, IN_6_0, IN_7_0, IN_9_0, IN_13_0, IN_20_0, IN_30_0, IN_42_0	Sets the printed image size.
HCOPy:IMAGe:SIZE:FIXed?		Returns the current printed image size.
HCOPy:IMAGe:TCODe:STATe *state*	*state* = 0 (or OFF), 1 (or ON)	Turns the printing of the time code below each image on or off.
HCOPy:IMAGe:TCODe:STATe?		Returns the on/off status of time code printing (1 if on, 0 if off).
HCOPy:PAGE:FORMat *format*	*format* = TILE, ONE, FOUR, SIX, STOR1 (through 4), LOGS1 (through 4)	Sets the formatting of the printed page.
HCOPy:PAGE:FORMat?		Returns the current printed page format.
HCOPy:PAGE:SIZE *psize*	*psize* = EXECutive, LETTer, LEGal, B, C, D, DARChitect, E, EARChitect, ENV10, ENVMonarch, A4, A3, A2, A1, A10Versize, A0, A00Versize, B5, B4, B3, B2, B1, B0, DL, C5	Sets the printer paper size that is being used.
HCOPy:PAGE:SIZE?		Returns the current printer paper size setting.
HCOPy:PAGE:TYPE *paper*	*paper* = PLAin, HPSPecial, GLOSsy, TRANsparency	Sets the type of printer paper being used.
HCOPy:PAGE:TYPE?		Returns the current printer paper type.
HCOPy:QUALity:SHINgling *pqual*	*pqual* = FAST, NORMal, HIQuality	Sets the print quality used in ink jet printing.
HCOPy:QUALity:SHINgling?		Returns the current print quality used in ink jet printing.
HCOPy:SOURce:FEED *isource*	*isource* = VIDeo, MEMory	Sets the printed image source.

Programming Commands (continued)

Command	Argument Choice/ Parameter Range	Description
HCOPy:SOURce:FEED?		Returns the current printed image source.
HCOPy:STATe:IMMediate ONCE		Prints a listing of the current Setup menu settings.
HCOPy:VIDeo:FIELd *field*	*field* = FLD1, FLD2, BOTH	Sets the field of the video frame to be printed.
HCOPy:VIDeo:FIELd?		Returns the current field of the video frame that will print.
*IDN?		Returns a device identification string in the form "Hewlett-Packard, E2530A VidJet Pro, *device ID, serial number, software version number, virtual machine type.*"
INPut:GRAB:BRIGhtness *bright*	*bright* = 0 to 200	Sets the brightness of the grabbed image.
INPut:GRAB:BRIGhtness?		Returns the current grabbed image brightness.
INPut:GRAB:COLor:TYPE *type*	*type* = COLor, MONOchrome	Sets whether the Print Manager grabs in color or monochrome.
INPut:GRAB:COLor:TYPE?		Returns whether the Print Manager currently grabs in color or monochrome.
INPut:GRAB:CONTrast *contr*	*contr* = 0 to 200	Sets the contrast of the grabbed image.
INPut:GRAB:CONTrast?		Returns the current grabbed image contrast.
INPut:GRAB:FREEze *state*	*state* = 0 (or OFF), 1 (or ON)	Turns frame pause when grabbing on or off.
INPut:GRAB:FREEze?		Returns the on/off status of frame pause when grabbing (1 if on, 0 if off).
INPut:GRAB:GAIN:B_BY *bgain*	*bgain* = −10 to +10	Sets the gain of the B/B−Y component signal input.
INPut:GRAB:GAIN:B_BY?		Returns the currently selected gain of the B/B−Y component signal input.
INPut:GRAB:GAIN:GY *ggain*	*ggain* = −10 to +10	Sets the gain of the G/Y component signal input.
INPut:GRAB:GAIN:GY?		Returns the currently selected gain of the G/Y component signal input.
INPut:GRAB:GAIN:R_RY *rgain*	*rgain* = −10 to +10	Sets the gain of the R/R−Y component signal input.
INPut:GRAB:GAIN:R_RY?		Returns the currently selected gain of the R/R−Y component signal input.
INPut:GRAB:HUE *hue*	*hue* = −180 to 180	Sets the hue rotation of the grabbed image.
INPut:GRAB:HUE?		Returns the hue rotation of the grabbed image.
INPut:GRAB:RESolution *res*	*res* = LOW, MEDium, HIGH	Sets the resolution in which video images are grabbed.
INPut:GRAB:RESolution?		Returns the current grabbed image resolution.
INPut:GRAB:SATuration *satu*	*satu* = 0 to 200	Sets the saturation of the grabbed image.
INPut:GRAB:SATuration?		Returns the current grabbed image saturation.
INPut:GRAB:SYNC *sync*	*sync* = EXTernal, GY	Sets the component video synchronizing signal input.

Programming Commands (continued)

Command	Argument Choice/ Parameter Range	Description
INPut:GRAB:SYNC?		Returns the currently selected component video synchronizing signal input.
INPut:TCODe:SOURce *source*	*source* = INTernal, LTC, REMote	Sets the source that the time code is read from.
INPut:TCODe:SOURce?		Returns the current source that the time code is read from.
INPut:VIDeo:FORMat *format*	*format* = COMPosite, YC, GBR, GBR2, WS, WOS, BETA, EBU, MII, D422	Sets the video format in which images are grabbed.
INPut:VIDeo:FORMat?		Returns the current video format in which images are grabbed.
INPut:VIDeo:LINes *lines*	*lines* = AUTO, NTSC, PAL, SECAM	Sets the video standard expected at the video input. AUTO sets the Print Manager to automatically adapt to the incoming video.
INPut:VIDeo:LINes?		Returns the video standard set with the "INPut:VIDeo:LINes" command.
MEMory:CATalog:FRAMe?		Returns the number of frames grabbed, the number of free frames in frame memory, and the current frame. The response is in the form X,Y,Z where X is the number of grabbed frames, Y is the number of free frames, and Z is the current frame.[1]
MEMory:FRAME:DELete *frm*	*frm* = ALL, SINGle	Clears all frames (ALL) or the current frame (SINGle) from frame memory.[1]
MEMory:FRAMe:GRAB:DATA *fdat*	*fdat* = #DCCCBBBB ... B	Sends a field of 4:2:2 data to the Print Manager in the format #DCCCBBBB ... B. D is a non-zero digit that indicates the number of count digits (CCC) immediately following it. CCC are the count digits that indicate the total number of data bytes that follow. BBBB ... B are the data bytes. The field is placed in the next available space in frame memory. If the current-selected field is "Both," the data will be assumed to be field 1 data.
MEMory:FRAMe:GRAB:DATA?		Returns 4:2:2 data for the current-selected field of the current frame in the format #DCCCBBBB ... B.[1] D is a non-zero digit that indicates the number of count digits (CCC) immediately following it. CCC are the count digits that indicate the total number of data bytes that follow. BBBB ... B are the data bytes. If the current-selected field is "Both," field 1 will be returned.
MEMory:FRAMe:GRAB:IMMediate *grab*	*grab* = ONCE, SEQuence	Grabs one frame (ONCE) or a sequence of frames (SEQuence) and stores them in frame memory.
MEMory:FRAMe:GRAB:STOP *stp*	*stp* = CIRCular, FULL	Sets how frame memory responds to sequence grabbing when full.

1 The current frame is the frame that is displayed on the monitor when (Select Image Source) is set to Memory.

Programming Commands (continued)

Command	Argument Choice/ Parameter Range	Description
MEMory:FRAMe:GRAB:STOP?		Returns how frame memory currently responds to sequence grabbing when full.
MEMory:FRAMe:GRAB:TCODe 0,*tcode*	*tcode* = time code in format hour,minute,second,frame	When the Print Manager time code source is Remote, sets the time code for the next grabbed frame.
MEMory:FRAMe:GRAB:TCODe?		Returns the time code for the last frame that was grabbed into frame memory, regardless of the time code source setting.
MEMory:FRAMe:TAG *status*	*status* = ON, OFF	Tags (ON) or untags (OFF) the current frame.[1]
MEMory:FRAMe:TAG?		Returns the current tagged (ON) or untagged (OFF) status of the current frame.[1]
MEMory:STATe:NAME *regno,"name"*	*regno* = 1 to 6 *name* = 13 character alphanumeric string	Assigns a name (*name*) to a given user task memory register (*regno*).
MEMory:STATe:NAME? *regno*	*regno* = 1 to 6	Returns the current name (in quotes) of the task memory register indicated by *regno*.
*OPC?		Returns +1 when all programming commands that have been sent to the Print Manager have completed execution.
*RCL *regno*	*regno* = 1 to 10	Recalls a setup from the task memory register indicated by *regno*.
*RST		Resets the Print Manager parameters to system default settings.
*SAV *regno*	*regno* = 1 to 6	Saves the current setup to the task memory register indicated by *regno*.
*STATUS?		Returns current activity status of the Print Manager. Some responses might be "Grabbing," "Printing," "Waiting for Trigger," etc.
SYSTem:COMMunicate:SERial:BAUD *brate*	*brate* = 1200, 2400, 4800, 9600, 19200	Sets the baud rate of the remote control port.
SYSTem:COMMunicate:SERial:BAUD?		Returns the current remote control port baud rate.
SYSTem:DAY:NUMBer *day*	*day* = 1 to 31	Sets the day of the month.
SYSTem:DAY:NUMBer?		Returns the current day of the month.
SYSTem:KEY *kcode*	*kcode* = See following table.	Simulates pressing the front panel key represented by *kcode*.
SYSTem:MONTh *month*	*month* = 1 to 12	Sets the month of the year.
SYSTem:MONTh?		Returns the current month of the year.

1 The current frame is the frame that is displayed on the monitor when (Select Image Source) is set to Memory.

Programming Commands (continued)

Command	Argument Choice/ Parameter Range	Description
SYSTem:TIME *hour,minute,second*	*hour* = 0 to 23 *minute* = 0 to 59 *second* = 0 to 59	Sets the Print Manager's internal clock.
SYSTem:TIME?		Returns the current setting of the internal clock.
SYSTem:VERSion?		Returns the current firmware revision number.
SYSTem:YEAR *year*	*year* = 1980 to 2079	Sets the year.
SYSTem:YEAR?		Returns the current year.
*TRG		Simulates a GPI trigger.
TRIGger:SOURce *srce*	*srce* = MANual, TIMer, SCENe, SORTimer	Sets the sequence trigger.
TRIGger:SOURce?		Returns the current sequence trigger setting.
TRIGger:TIMer *tinv*	*tinv* = 0 (minimum) to 3600	Sets the time interval for sequence triggering in seconds. Fractions of a second are rounded to the nearest second.
TRIGger:TIMer?		Returns the current sequence trigger time interval.
UNIT:LENGth *len*	*len* = ENGLish, METRic	Sets the units used when setting image size and printer paper size.
UNIT:LENGth?		Returns the units used when setting image size and printer paper size.

SYSTem:KEY Command Key Codes (kcode)

Front Panel Key	Key Code	Front Panel Key	Key Code
Prev Menu	80	Grab Seq	70
⇐ (Menu area)	68	Clear Frame	67
Next Menu	78	⇐ (Frame Memory area)	76
⇒ (Menu area)	85	Tag Frame	71
Recall|Save	65	⇒ (Frame Memory area)	82
System	83	Select Image Source	73
System (Install)	72	Print 1 Frame	50
Page Layout	89	Print Seq	77
Seq Trigger	84	Stop	69
Grab 1 Frame	49		

Short Synonym Commands

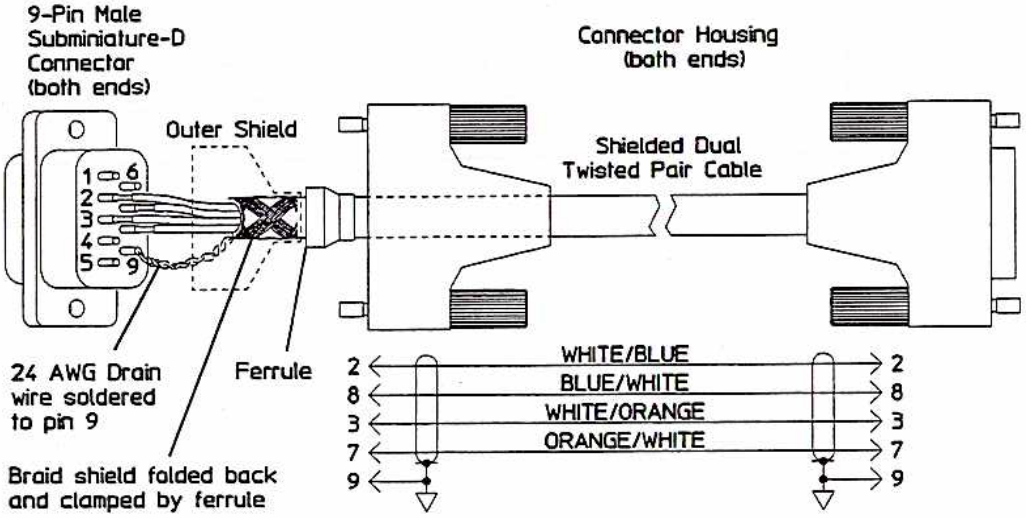
Full Programming Command	Short Synonym
HCOPy:SOURce:FEED VIDeo	ISV
HCOPy:SOURce:FEED MEMory	ISM
HCOPy:FRAMe:IMMediate ONCE	PF1
HCOPy:FRAMe:IMMediate SEQuence	PFS
MEMory:FRAMe:GRAB:IMMediate ONCE	GF1
MEMory:FRAMe:GRAB:IMMediate SEQuence	GFS

NOTE

A command (*ATN) exists that is issued by the Print Manager to the controller via the remote interface. The Print Manager will issue this command if it needs the attention of the controller.

Remote Front Panel Cable

The Remote Front Panel requires a cable with male 9-pin subminiature-D connections to the Print Manager. This cable is not shipped with the Remote Front Panel. Non-HP cables are available, or the cable can be fabricated. If fabricated, cables must comply with the limits of FCC rules (refer to "Environmental" under "Technical Information and Options" for more information). The specifications of the cable are shown in the following figure. Note this cable configuration is used also for RS-422 interfacing.



Remote Front Panel Cable Specifications

Part	Recommended Manufacturer's Part Number
9-pin connector/housing ass'y	AMP 748046
Ferrule	AMP 1-747579-0
Shielded cable	Belden 8102
Assembly instructions	AMP IS-9218

Technical Information and Options

Technical information is useful for estimating the product's capability in your application by describing typical performance. Performance is warranted over the 0° to 40°C temperature range unless otherwise noted. If the Print Manager is rack-mounted, performance is warranted over a 0° to 40°C ambient rack temperature range.

There are several electrical, documentation, and warranty options available for the Print Manager. The paragraphs following the specifications explain the different options that are available.

Technical Information

Recommended Printers

HP LaserJet 4 series, 600 DPI monochrome printer with 4 MBytes minimum printer memory
HP DeskJet 1200C series, 300 DPI color inkjet printer with 4 MBytes minimum printer memory
HP DeskJet 550C, 300 DPI color inkjet printer (tiling modes not supported)
HP DesignJet 650C, 300 DPI color inkjet plotter (consult HP for plotter memory configuration)

The Print Manager also supports most HP LaserJet II series, LaserJet III series, DeskJet 300/500 series, and DeskJet portable printers equipped with a parallel interface.

Printer Interface

Parallel Centronics, 25-pin "D" connector

Media Size

English sizes A through E depending on connected printer. Metric sizes A4 through A0 and B5 through B0 depending on connected printer.

Image Size

Variable from 0.8"-by-0.6" (20 mm-by-15 mm) through 9.5"-by-7.1" (241 mm-by-181 mm). Larger image sizes available depending on connected printer/plotter.

Page Formatting

1 per page, 4 per page, 6 per page, tile, storyboard, and log sheet; auto page numbering, timecode printout, custom headers, time and date stamp.

Sequence Triggering Modes

Manual, Time Interval, Scene Change, Scene Change/Time Interval.

GPI Trigger

Rear-panel terminal strip (2) on mainframe. Active low (shunt to ground), contact closure, or 0 to 5 volt TTL input triggers selected GPI function (Grab 1 Frame, Print 1 Frame, Grab Sequence, Print Sequence, Stop)

Selectable Image Resolution

High (2 fields or odd/even field), Medium (full frame/4), Low (full frame/16)

Number of Video Frames Stored versus Resolution and VRAM

Frames Grabbed in Monochrome

	1 Megabyte	3 MegaByte	5 Megabyte
High Resolution			
525 (NTSC)	2	8	14
625 (PAL) or SECAM	2	5	9
Medium Resolution			
525 (NTSC)	11	36	61
625 (PAL) or SECAM	8	25	42
Low Resolution			
525 (NTSC)	44	140	239
625 (PAL) or SECAM	31	99	169

Frames Grabbed in Color

	1 Megabyte	3 MegaByte	5 Megabyte
High Resolution			
525 (NTSC)	1	4	7
625 (PAL) or SECAM	1	2	4
Medium Resolution			
525 (NTSC)	5	17	28
625 (PAL) or SECAM	4	11	19
Low Resolution			
525 (NTSC)	23	72	123
625 (PAL) or SECAM	16	50	85

Standard mainframe configuration is with 1 MB VRAM. 5 MB VRAM is recommended for best flexibility.

Time Code Input

Optional rear-panel XLR connector on the video I/O card accepts LTC conforming to SMPTE/EBU standards

Color Processing

24-bit 4:4:4 YUV to CMYK, color matched for target printers; 16.8 million dithered colors

Save/Recall Registers

Six user-defined save/recall registers
Four factory preset recall registers

Remote Front Panel

RS-422 Private Bus, 9-pin "D" connector

Remote Control

RS-422/232, 9-pin "D" connector

Composite Video Output

Return Loss: typically >30 dB

Environmental

Verified to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules.

Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference.

Dimensions and Weight

Height: 1RU, 1.75" (44 mm); Width: 16.75" (425.5 mm) to fit standard 19" rack; Depth: 14.35" (364.6 mm); Weight: 7.1 lbs (3.2 Kg).

Power Requirements

115/230 Vac, 600/300 mA, 50/60 Hz, <30 watts; integral power supply

Options

Electrical Options

E2530B - HP VidJet Pro Video Print Manager Remote Front Panel:
The Video Print Manager Remote Front Panel connects to the Print Manager via an RS-422 cable and allows control of it from a remote location.

E2531A - Analog Composite and Y/C Video I/O Card:
Composite and Y/C (S-video) input with 75Ω/High-impedance termination switch for each input.
Composite and Y/C (S-video) loop through outputs.
Composite and Y/C (S-video) monitor outputs.
with Time Code Input (Option 001):
Female XLR connector for LTC time code input.

E2532A - 2 MB Video RAM:
Option HP E2532A consists of 2 additional Megabytes of video frame memory.

E2533A - Analog Component and Composite Video I/O Card:
Analog component (GBR SMPTE/EBU, GBR with setup, YPbPr SMPTE/EBU, YPbPr Betacam, YPbPr MII) and composite video inputs with 75Ω/High-impedance termination switch.
Component and composite loop through outputs.
Composite monitor output.
Female XLR connector for LTC time code input.

E2534A - 4:2:2 Serial Digital Component Video I/O Card:
4:2:2 Serial digital component video input (525/625).
Reclocked and buffered 4:2:2 serial digital component loop-through output.
Composite monitor output.
Female XLR connector for LTC time code input.

Documentation Options

0B2 - Extra User Documentation:
Option 0B2 consists of the following extra set of user documentation:
HP VidJet Pro Video Print Manager User's Guide
HP VidJet Pro Video Print Manager Quick Reference Guide

0BW - Extra Service Documentation
Option 0BW consists of the following extra service documentation:
HP VidJet Pro Video Print Manager Service Guide

Warranty Options

W50 - Two Additional Years Return-to-HP Service
The standard warranty can be extended two years with this option.

Reference

Technical Information and Options

A

Legal and Safety

Legal and Safety

Legal Information

NOTICE

The information contained in this document is subject to change without notice.

HEWLETT-PACKARD MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS MANUAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Hewlett-Packard shall not be liable for errors contained herein or direct, indirect, special, incidental or consequential damages in connection with the furnishing, performance, or use of this material.

WARRANTY

A copy of the specific warranty terms applicable to your Hewlett-Packard product and replacement parts can be obtained from your HP authorized dealer or local Sales and Service Office.

Safety Considerations

Warnings and Cautions	Pay attention to WARNINGS and CAUTIONS presented throughout this manual. They must be followed for your protection and to avoid damage to the equipment.
Warning	Always use power cables with properly grounded outlets to avoid electrical shock. (Refer to "Power Cables" in Chapter 4 to verify that your power cable meets your local electrical code.)
Warning	Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent battery type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions. Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rébut les batteries usagées conformément aux instructions du fabricant.
Caution	To equalize static electricity, place circuit board assemblies on anti-static material when they are removed from the Print Manager.

DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Hewlett-Packard Co.

Manufacturer's Address: Video Communications Division
5301 Stevens Creek Boulevard
Santa Clara, California 95052-8059
U. S. A.

declares that the product

Product Name: VidJet Pro Video Print Manager
Model Number(s): E2530A
Product Option(s): E2531A, E2532A, E2533A, E2534A

conforms to the following Product Specifications:

Safety: IEC 950: 1986+ A1,A2 / EN 60950 (1988)+A1,A2

EMC: CISPR 22:1985 / EN 55022 (1988) Class A[1)]
EN 50082-1: 1992
IEC 801-2:1991 / prEN 55024-2:1992 - 4 kV CD, 8 kV AD
IEC 801-3:1984 / prEN 55024-3:1991 - 3 V/m
IEC 801-4:1988 / prEN 55024-4:1992 - 0.5kV Sig. Lines, 1kV Power Lines

Supplementary Information:

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

[1)] The product was tested with all combinations of the listed options installed.

Santa Clara, May 1994

Randy White/Reliability Engineering Manager

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