

This packet contains:

**GelDoc Installation Guide
GelDoc Troubleshooting Guide
Video Board Compatibility List**

**and
Molecular Analyst Software Release Notes**

For Version 1.4.1 Software

4100033 Rev E



Gel Doc 1000-PC Installation Notes

The Gel Doc 1000 (170-7520, 170-7521, & 170-7522) arrives as five (5) boxes, each with its own catalog number. Each of the five (5) components are easily setup and maintained. The five components are as follows:

<u>Catalog Numbers</u>	<u>Description</u>
170-7530, 170-7531, or 170-7532	UV-Mini Transilluminator/Darkroom, & EtBr Filter
170-7536 or 170-7537	CCD Camera, Zoom Lens, Bracket & #2 Diopter
170-7545	Windows® Digitizing Card & Ribbon Cable
170-7547	Integrating Cable/PC
170-7550	MA/PC: UV Gel Documentation Software

Section I. Setting up the Gel Doc 1000

The following are steps to setup the Gel Doc 1000 with your PC computer.

- Step 1:** Carefully unpack the mini-transilluminator / darkroom hood (attached) and position it on a flat, level surface.
- Step 2:** Attach the appropriate voltage power cords (supplied) to the back of the Gel Doc 1000 as shown in Figure 1. Plug the power cords to a surge protector. Note: Do not turn on any power until the Gel Doc and computer are completely setup.

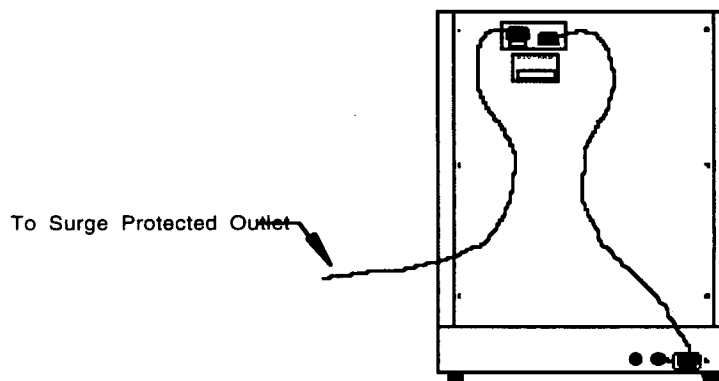


Figure 1. Attaching Power Cords to the Gel Doc 1000

- Step 3:** Gently remove the camera/bracket assembly from its packaging. Carefully remove the protective lens cap from the zoom lens.
- Step 4:** Remove the fluorescent bandpass filter from its packaging.
- Step 5:** Without removing the camera from the bracket, gently screw the fluorescent bandpass filter on to the #2 diopter which is already preattached to the lens.

Step 6: Locate the spacers, washers, and knobs that shipped with the camera. Place one spacer onto each stud on top of the darkroom hood. Next, place one washer on top on each spacer.

Step 7: Place the bracket / camera assembly on top of the darkroom hood as shown in Figure 2. The four metal studs with spacers on top of the hood should align with the holes in the bracket.

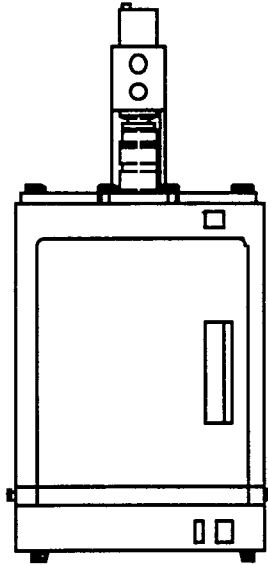


Figure 2. Placing the Bracket onto the Darkroom Hood.

Step 8: Place another washer onto each stud on top of the bracket. Screw a black knob on top of the washer (See Figure 3). Tighten all knobs securely.

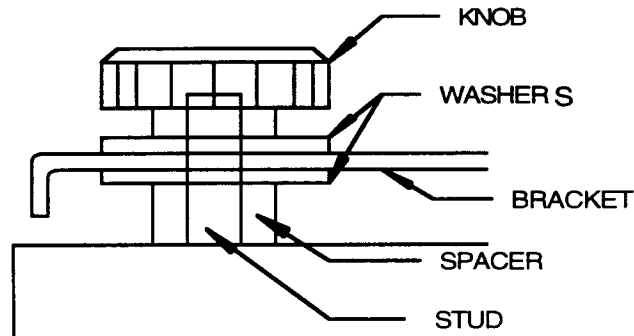


Figure 3. Attaching the Bracket to the Darkroom

Step 9: Attach the camera power supply to a surge protector.

Step 10: Go to Section II for installation of the frame grabber card.

Section II. Installing The Frame Grabber Card

Please refer to the following sections to install the frame grabber card into your specific computer configuration (A, B, and C).

A PC computer with either built-in video pass-through or a video card with video pass-through is required to run the Gel Doc 1000. Compatible video drivers with 800 x 600, 256 colors; or 1024 x 768, 256 colors are also required. **Please see Appendix A for a list of compatible computers and video cards.**

(Note: Please refer to your computer's instruction manual for information on video pass through capability.)

A. Installing the frame grabber board into PC computers that have built-in video pass through & support 800 x 600, 256 colors or 1024 x 768, 256 colors.

Step A1: Before installing the frame grabber board, change the Windows® video display to a driver which can support 800 x 600 or 1024 x 768 resolution and 256 colors. Video drivers are changed within Windows® Setup. You may need the Windows original installation diskettes. Also determine (refer to your computer instruction manual) the video vertical refresh frequency (Hz) and if there are any I/O address conflicts with your computer (the default I/O address on the frame grabber card (i.e. dip switches is set at 280). The I/O address is selected during software installation and must correspond to the setting on the board. If a conflict exists, please refer to Appendix G of the MA/PC software manual to change the address.

Step A2: Carefully remove the frame grabber board from its packaging. Attach one end of the VGA pass through ribbon cable to the J18 feature connector located on the board (See Figure 4). When connecting the cable, make certain that the red stripe (Pin 1) of the ribbon cable corresponds to Pin 1 on the feature connector of the board.

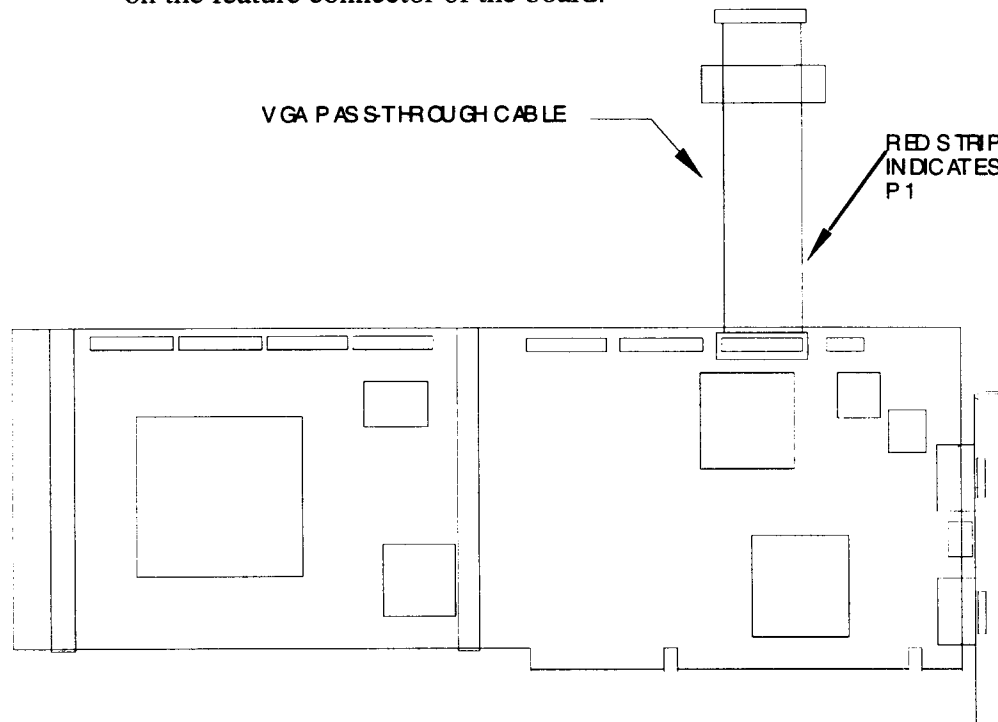


Figure 4. Frame Grabber Board and VGA Pass Through Cable

- Step A3:** Locate the video pass-through VGA connector on the computer's mother board (see your computer's instruction manual.)
- Step A4:** Install the frame grabber board into an available 16-bit slot in the PC which is near to the video pass-through VGA connector.
- Step A6:** Connect the other end of the VGA pass-through ribbon cable (noting position of Pin 1) to the computer's built-in video pass-through feature connector. (See Figure 5).

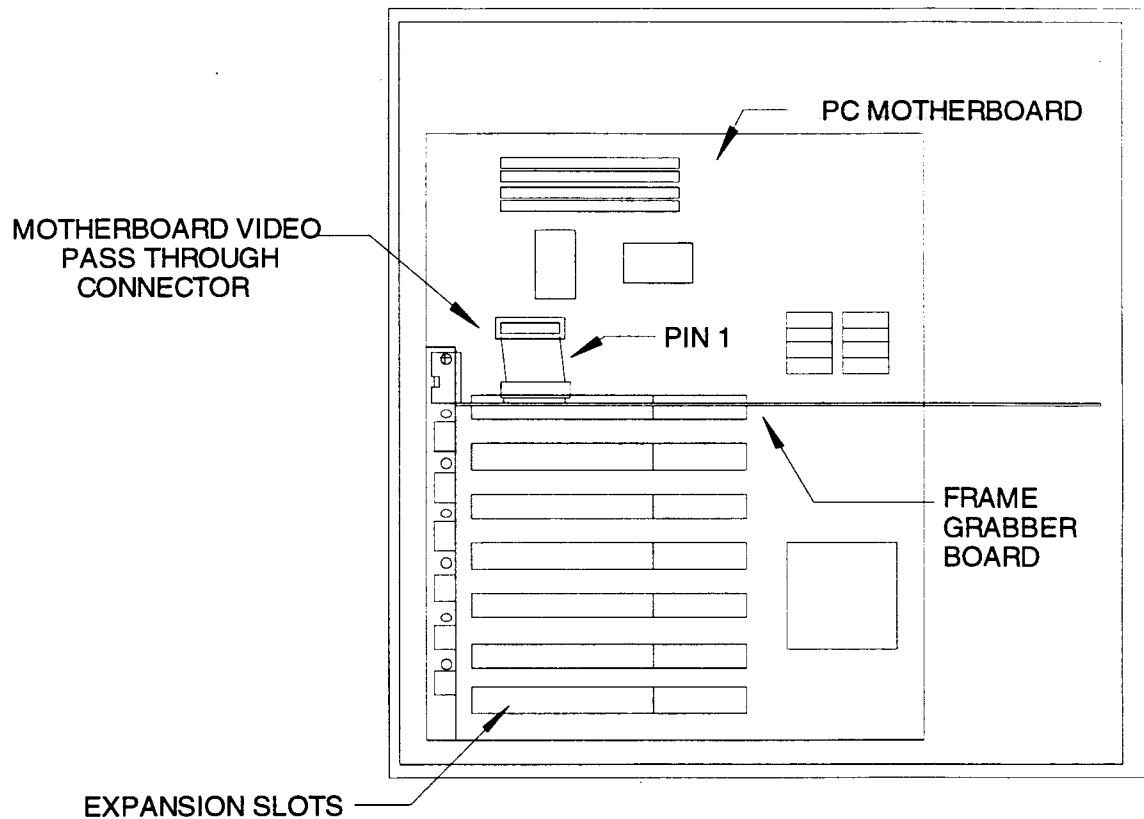


Figure 5. Installing the Frame Grabber Board Into a Computer with Built-In Video

- Step A7:** Next, connect the integration cable to the camera by first attaching the BNC and 8 pin mini DIN connectors of the integrating cable into the camera's "Video" and "AUX" ports respectively. (See Figure 6).
- Step A8:** Connect the integration cable to the frame grabber card by attaching the 9 pin DB video input connector and 8 pin mini DIN integration control connector of the integrating cable into the frame grabber board. (See Figure 6).

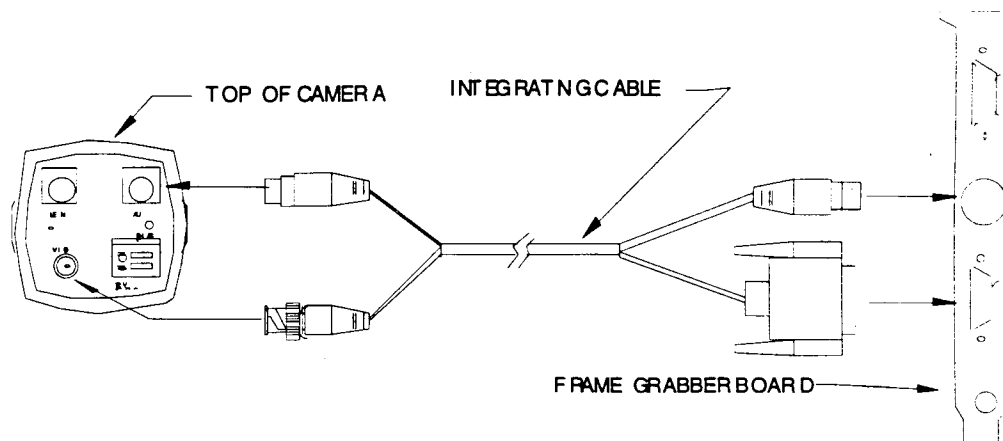


Figure 6. Attaching the Integrating Cable

Step A9: Start the computer and monitor with the PC's monitor cable attached to the PC computer's monitor port. **Do not attach the monitor to the frame grabber card yet.** Start Windows. Turn on the power to the Gel Doc 1000.

Step A10: Go to Section III to install the Molecular Analyst/PC software.

B. Installing the frame grabber board into PC computers that have built-in video but do not have video pass-through

If the computer has built-in video, but does not have pass-through capabilities, a video board with video pass-through and the proper drivers (800 x 600, 256 colors; or 1024 x 768, 256 colors) must be installed into the computer. **Please see Appendix A for a list of compatible computers and video cards.** (Bio-Rad recommends the ATI Mach 32 video board, Catalog # 170-7586) Please see the following steps:

Step B1: Refer to your computer's instruction manual to turn off the integrated video. This is normally done either through DIP SWITCH settings found on the computers mother board or by using the BIOS setup program.

Step B2: Install the video card and video drivers as per the directions that accompany the card. Confirm correct operation before proceeding.

Step B3: Locate the video pass-through VGA connector on the video board (see the video card instruction manual.)

Step B4: Install the frame grabber board into an available slot in the PC near to the video card.

Step B5: Attach one end of the VGA pass-through ribbon cable to the J18 feature connector on the frame grabber board. The red stripe on the ribbon cable should correspond to pin 1 on the feature connector. (Refer to Figure 4).

Step B6: Connect the other end of the VGA pass-through ribbon cable to the video card's pass-through feature connector. (The computer should look similar to Figure 7). Next follow steps A7 through A10 above.

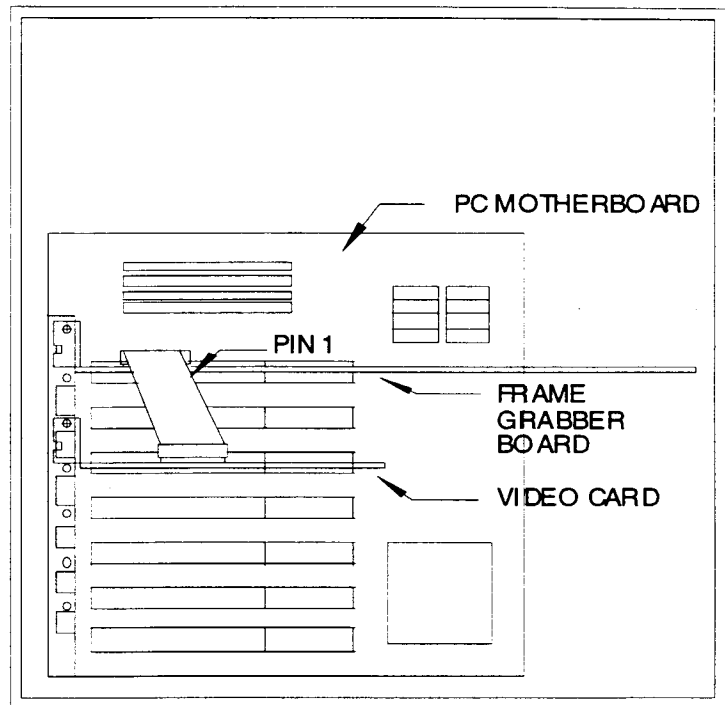


Figure 7. Installing the Frame Grabber Board Into a Computer with a Video Card

C. Installing the frame grabber board into PC computers that already have video cards.

If the computer already has a video card, you must first determine if it has pass-through capabilities and if it supports the proper drivers (800 x 600, 256 colors; or 1024 x 768, 256 colors) . **Please see Appendix A for a list of compatible computers and video cards.**

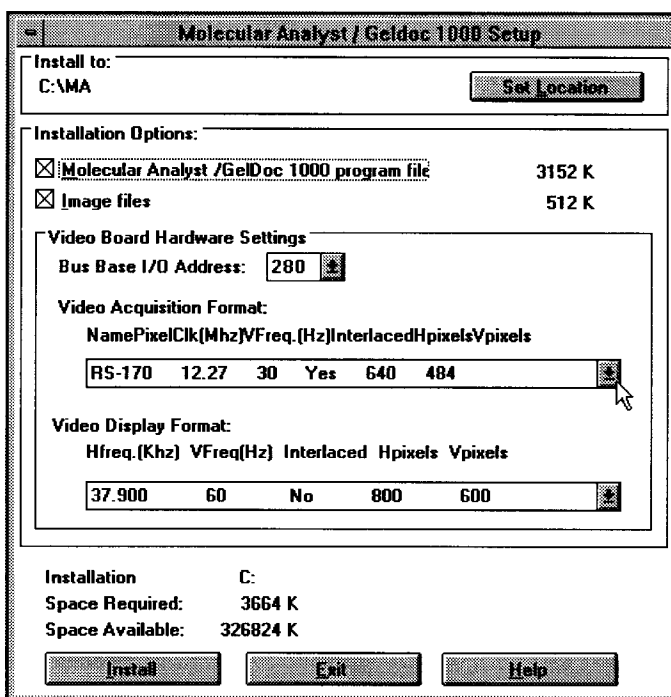
Step C1: If the video card has video pass-through capabilities, follow steps B3 through B6, and then steps A7 through A10 above.

Step C2: If the video card does not have video pass-through capabilities or the proper video drivers, refer to B above.

Section III. Installing Molecular Analyst/PC Software

- Step 1:** Insert the Molecular Analyst software 3.5" floppy disk labeled "Setup"
- Step 2:** Double click on the File Manager program icon found in the "Main" group of Program Manager.
- Step 3:** Click on the appropriate disk drive icon
- Step 4:** Double click on the file: SETUP.EXE
- Step 5:** At the message prompt, insert the floppy disk labeled "Program" and click <OK>

When installing Molecular Analyst, a dialog box will appear and you will be prompted to select the various options (Location, Base I/O address, Video Acquisition Format, and Video Display Format.)



- Step 6:** In most cases the location will not require any change

Install to:

Appoints the C:\ drive as the program destination. The Setup program also determines the necessary space required for installation of the Molecular Analyst/PC program file and image files; and the space available on Drive C. Make sure all options are set appropriately. To accept drive C for installation, use the mouse to select <Install>. To designate another location, select <Set Location> and choose an alternate path. For more information select <Help>.

- Step 7:** Install both program files and Image files

- Step 8:** If no address conflict, accept the default base address of 280. However, if there is a conflict, change the address to the setting which corresponds to the changes made on the board.

Base I/O Address:

The default base address of the board is **280** hex. This configuration should work in most cases. However, if a different address is required because of a conflict within your computer, select an alternative address which corresponds to the board settings during the software installation. (See Section 1.3 and Appendix G of the MA/PC software manual.)

- Step 9:** For 100/120V systems select RS-170. For 220/240V systems select CCIR.

- Step 10:** Select the appropriate video frequency (60Hz is used most commonly) and video drivers that match your Windows settings (800 x 600, 256 colors or 1024 x 768, 256 colors) for your computer

Video Display Format:

Video Display Format is the frequency (Hz) and video resolution (Hpixels x Vpixels) that is used. The Gel Doc 1000 functions optimally with a video frequency of 60Hz.

The video resolution is determined by which Windows driver is being used. A resolution of 800 x 600 is recommended in most cases. The Mitsubishi P68 video printers require a video display format of 800 x 600. It normally will not function with a video display format of 1024 x 768.

- Step 12:** Click Install to complete the installation. Upon successful installation, the application will ask you to restart the computer.

- Step 13:** Return to Windows Program Manager. Without turning off the computer, disconnect the monitor cable from the computer's monitor port and attach it to the frame grabber card's 9 pin DB video connector. Windows should still be clearly displayed. Start Molecular Analyst by double-clicking on the MA/PC icon.

Section IV. White Light Accessory Setup

For added versatility, the Gel Doc 1000 has an optional white light accessory (Catalog # 170-7554(100V), 170-7555(120V), 170-7556(220/240V)) which can be purchased with the system or at a later date when needed. This white light transilluminator is for the documentation of white light samples such as stained protein gels and autoradiograms. This option is not to replace densitometers which have a better linear dynamic range for the quantitation of white light samples.

The following steps describe how the hood is easily detached from the UV light source and then reattached onto the white light transilluminator.

(Please turn off all power to the UV transilluminator and disconnect the power cord.)

- Step 1:** Carefully unpack the white light transilluminator and position it on a flat, level surface next to the Gel Doc 1000.

- Step 2:** Turn the four (4) knobs at the base side of the Gel Doc 1000 hood until loose.
- Step 3:** Carefully lift the darkroom from the UV transilluminator and gently place it on the white light transilluminator (See Figure 8).

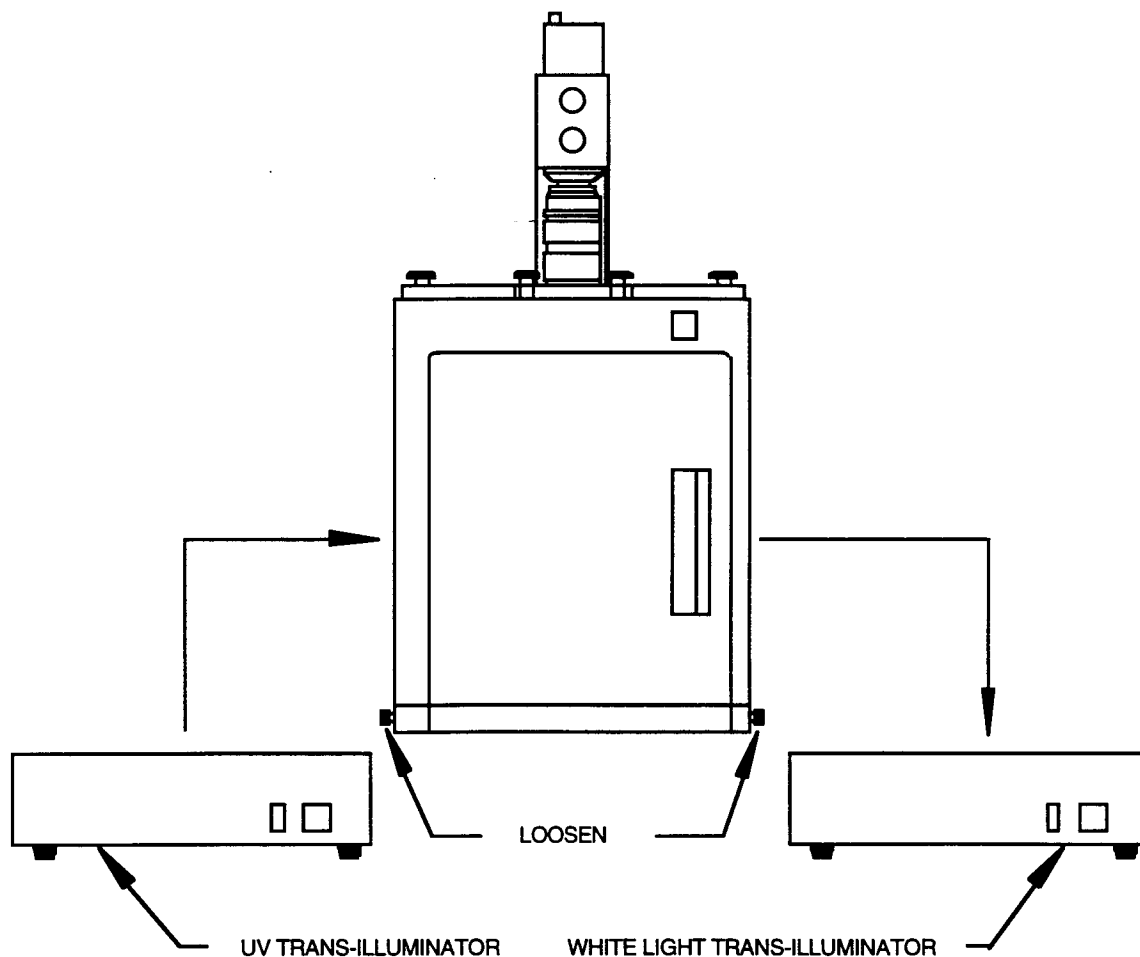


Figure 8. Attaching the White Light Accessory

- Step 4:** Turn the four (4) knobs at the base side of the Gel Doc 1000 hood until tight.
- Step 5:** Attach the appropriate voltage power cords (supplied) to the back of the Gel Doc 1000 as shown in Figure 1.. Plug the power cords to a surge protector. Note: Do not turn on any power until the Gel Doc and computer are completely setup.
- Step 6:** Configure the software to be used with the white light option by first selecting *New* from the FILE menu; and then clicking on the White Light radio button under the *Video Board Configuration* command in the OPTIONS menu.

Release Notes

Molecular Analyst / PC Gel Documentation Version 1.4.1

INSTALLATION INSTRUCTIONS FOR THE MOLECULAR ANALYST VERSION 1.4.1

In Windows 3.1 or Windows 95:

1. Install the Coreco framegrabber board in the PC. If you install the card after installing the Molecular Analyst/PC software you will have to manually set some options.
2. Turn on your computer and start Microsoft Windows.
3. Insert the "Molecular Analyst Setup" diskette in the A: drive.
4. In Windows 3.1, select "Run" from the "File" menu in Windows' Program Manager.
In Windows 95, select "Run" from the Start menu.
5. Type a:setup and press the OK button. The Molecular Analyst Setup program will display its window.

The setup program is self explanatory. It will examine your video system software driver to be sure that it is set to 256 color mode and will then determine whether there is enough free space (about 4 Mbytes) on the hard disk.

The setup program will, by default, install the software in the C:\MA directory. Any other directory may be specified instead. If it does not exist, it will be created.

If a previous version of the Molecular Analyst software is already installed in the same "C:\MA" directory, it will be overwritten. User created data will not be disturbed. Sample images included with the software will be updated.

In Windows 3.1, when the installation is done, activate the Windows Program Manager application. In Windows 95, when installation is done, the Molecular Analyst program in the Start Menu will be open on the desktop.

You will see a new program group called the Molecular Analyst. Within this group are three icons: Molecular Analyst, Read Me Gel Doc 1000 and Read Me Copy Protection.

Double click on the "Read Me Gel Doc 1000" icon to review the document you are reading. Double click on the "Read Me Copy Protection" icon for information on the Copy Protection key installation.

GENERAL INFORMATION

RECOMMENDED 'autoexec.bat' FILE ENTRIES for Windows 3.1 (this is before installation of Gel Documentation)

```
REM DOS Version
VER
REM Set DOS prompt to <DRIVE:DIR>
PROMPT $P$G
REM Load disk cache for drive C with a size of 4096k bytes.
C:\WINDOWS\smartdrv.exe C+ 4096 4096
REM Set path variable to DOS and Windows directories.
PATH=C:\WINDOWS;C:\DOS
REM Set TEMP variable to the correct directory for temporary file.
REM Make sure directory exists.
SET TEMP=C:\TEMP
REM Check the integrity of your hard disk
CHKDSK /F
REM Launch Windows
WIN
```

RECOMMENDED "config.sys" FILE ENTRIES for Windows 3.1

```
REM Load High memory manager device driver
DEVICE=C:\WINDOWS\himem.sys
REM Load DOS in high memory.
DOS=HIGH
REM Set maximum files to 30
FILES=30
REM Set maximum file buffers to 20
BUFFERS=20
REM Set system stacks to 9,256
STACKS=9,256
```

RECOMMENDED 'autoexec.bat' FILE ENTRIES for Windows 95

```
REM Set TEMP variable to the correct directory for temporary file.
REM Make sure directory exists.
SET TEMP=C:\TEMP
```

IMPORTANT REQUIREMENTS

The environment variable 'TEMP' should be set as is recommended. The application relies on it to create temporary files.

Unpredictable Display Colors with a PCI Video Card

If you are using a PCI video card and your monitor displays unpredictable display colors you will need to install F64TRAP.EXE to correct the problem.

1. Unplug the connection to the framegrabber board and connect it to your video card. (This will give you correct display colors and make it easier to install F64TRAP.EXE)

2. Install F64TRAP.EXE - read F64TRAP.ME file for a detail description and installation procedure
The F64TRAP.ME file can be found in the F64 directory under your MA directory. ie.) <path where ma was installed>\MAN\F64\F64TRAP.ME.

It is also recommended that you add W64TRAP.EXE to your windows start up group. This will correct display color problems when you run a dos shell under windows.

Molecular Analyst / Molecular Imager Version 1.4.1

Support for Windows 95 Operating System

Molecular Analyst now runs under Windows 95.

Known Printing Problem:

Images printed from Molecular Analyst, running under Windows 95, to Hewlett-Packard Laser Jet printers may show incorrect gray-scale rendering. This appears to be a widespread problem connected with the Hewlett-Packard drivers shipped with Windows 95. Microsoft has recommended a work-around which is possible only with PostScript capable printers. Use PostScript printer driver instead of the PCL version. These drivers are available from Hewlett-Packard for most Laser Jet models which have been upgraded to be PostScript capable.

Version History

Version 1.4 Revisions

Saving TIFF Images

Images can now be saved in 3 different TIFF formats.

1. Raw - saves raw data only
2. View - saves 8-bit display data with a table of palette indices
3. Calibrate - saves raw data with calibration table

Reading TIFF Images

TIFF images can now be read using the IMPORT function in the FILE Menu. Support is available for reading 8-bit and 16-bit raw data TIFF files, 8-bit display data with a table of palette colors, and 8-bit and 12-bit data with a calibration table. RGB data import is *not* supported.

This TIFF import/export is compatible with most popular third-party packages.

Version 1.3 Revisions

Possible Video Driver Configuration Problem with AST Premia 4/66d On-board Video

If your Windows video colors become corrupted after installing the Gel Documentation frame grabber board and cables, there may be a video driver configuration problem. Using NOTEPAD or SYSEDIT to open the "WIN.INI" file in your windows directory (the directory is usually C:\WINDOWS). Once the "WIN.INI" file is open, look for the section name [Mach]. If the [Mach] section is found, look for the key field VGADAC. If the VGADAC key field is found, set the field equal to on. Otherwise add the VGADAC key field to the [Mach] section. The key field entry should look as follows:

VGADAC=on

EXAMPLE:

```
[Mach]
VGADAC=on
:
:
:
:
```

If your problems persist, call your local technical service representative for assistance.

// GEL DOCUMENTATION

Saturation (off-scale)

The ability to highlight saturated areas in an image in real-time has been implemented. If the user selects the *Show Saturation* checkbox in the Scan Window, all saturated values will be displayed in red. This feature is useful when quantitating bands on a gel.

.IMG and .SCN Association

.IMG and .SCN files are automatically associated with Molecular Analyst/PC during the setup process. When files with these extensions are double clicked, Molecular Analyst/PC is executed and opens the associated file.

Table Report Heading

The printed Table Report now has a heading that displays the file name and page number.

Object Table Save and Export

The table save and user interface has changed. The table is now saved with the image. The table may be saved in the old manner to a text file via the *File/Export* menu item.

Multiple installations of Gel Documentation

If Molecular Analyst/PC for the Gel Documentation system is installed more than once on the same PC, the setup process now transparently removes all lines in the autoexec.bat file that contain "f64f64firm.bat" and "odxpath."

Section IV

Troubleshooting the Gel Doc 1000 Installation

OBSERVATION

No Video Signal on the Monitor

RESOLUTION

• **First confirm that the video output looks normal when the monitor is plugged into the resident video board.**

• **Be sure that you are using a compatible VGA video card. Many of the high-performance cards will not work with Gel Doc because they turn off output to the VGA passthrough. See list of compatible video cards at the end of this guide.**

• **Framegrabber Board doesn't match with software settings.**

Remove the monitor cable from the Framegrabber board. Remove the terminator from the video port. Place the monitor cable in the video port and run Molecular Analyst. Note the Bus Base I/O address in the Setup Window. Turn off the computer and verify that the address in the software corresponds to the correct dip switch settings as described in the back of the software manual. If they do not agree, adjust the dip switches or change the settings in the software so that they do agree.

• **The cable from the framegrabber card to the resident video on the system has been flipped.**

The cable from the framegrabber card to the resident video on the system is not "keyed" It can be connected in either of two ways, only one of which will work. There is a red stripe on the side of the cable where pin 1 will be. Ensure that the red stripe is near pin 1 on both the framegrabber card and pin 1 on the resident video card. The cable should, in general, not be twisted in making the connection. A reversed connection often results in no video signal at the video signal output.

No Video Signal on the Monitor

•**Framegrabber Board is attempting to use an already occupied I/O address.**

Turn off the computer and remove the framegrabber card. Remove the terminator from the video port. Restart the computer with the monitor plugged into the video port and go to the DOS prompt. You can do this by choosing DOS prompt from the Main Window in Windows or you can exit Windows. At the prompt that looks like C:>, type debug and return. You will now have a prompt like this -. Type i280 and hit return. You want to see FF. This indicates that nothing is in this address. Once you have verified one address, that is sufficient. If you like you can verify each of the six possible base addresses in the same manner, i(name of address 280, 290, 2A0, 2B0, 2C0, 2D0) At the - prompt type q to quit. Once you know the port is unoccupied you can install the board again using that I/O address. At this time you should completely reinstall the software so that your changes take effect.

Colors Incorrect when booting up in DOS and Windows

•**VGA video cards using a PCI or local bus slot and some other video systems will not work with Gel Doc unless F64TRAP.EXE is loaded.**

A good example of this is Hewlet Packard's Q-vision built-in video. The F64TRAP.EXE file is available from Technical Services. This is a normal installation option in version 1.3 of the Molecular Analyst Software. An additional file, WF64TRAP.EXE, is required if you want to run DOS from within a Windows session. This is also available via Technical Services and will be an installation option in version 1.3.

No Picture in Video Capture Window Window is Black

•**Refresh rate is not set properly.**

Change the refresh rate in the Options window of the Setup Menu. You will need to reopen the acquisition window for the changes to take effect.

You may have to change the refresh rate of the resident video card. If changing refresh rates in the Options menu isn't successful, you may want to check the rate on the resident video. If the video is part of the motherboard of the computer, the refresh rate will be set in the BIOS. If the video is on a separate card, you will have to determine the refresh rate using some utility software supplied by the video card manufacturer.

•**Lens cap is still on camera**

Ensure that the lens cap has been removed from the camera.

- **Camera is without power**

Verify that the Camera is on. There is a green LED behind the cables on the camera that is illuminated when camera power is on. Verify that the cables to the video board are intact and connected.

- **Cable connecting the Video to the framegrabber card has been flipped.**

See explanation described in "No Video Signal on Monitor"

- **Aperature is closed**

Be sure that the aperature on the camera lens is open. The aperature is the topmost adjustment on the camera lens.

- **No light on in hood or on transilluminator.**

Verify that there is light on in the hood by opening the door. Try moving your hand back and forth underneath the camera, you should see this in the video acquisition screen if you are in "live" mode. If this works, try placing something fluorescent, i.e. the ruler, on the transilluminator and closing the hood door. Verify that the power switch is in the on position on the transilluminator and that the transilluminator is plugged in.

- **Cable between camera and framegrabber is bad.**

The cable assembly can be tested by either trying another cable assembly or by disconnecting the mini DIN connector from the framegrabber card. If this disconnection changes the capture window, then the cable needs to be replaced.

No Picture in Video Capture Window Window is Green or Blue (black is also possible)

- **Video monitor is not plugged into the framegrabber card.**

The monitor must be plugged in to the framegrabber card not the video card or monitor port.

Window colors are all black and white and gray

- **Video terminator is not connected to empty video port.**

The video terminator that comes with the framegrabber card must be connected to the now empty video card or port. If Windows colors are OK without the terminator in the port, then the terminator is unnecessary

Flickering Image in Video Capture Window

- **Refresh rate is not optimized.**

Change the refresh rate in the Options window of the Setup Menu. You will need to reopen the acquisition window for the changes to take effect.

Grainy Image / Image is cropped at the bottom

- **Software is not set for correct camera.**

Verify that the camera is the appropriate one for your country. This is designated on the power supply for the camera (the part that plugs into the wall.) The 100/120V camera should correspond to the RS-170 designation in the Setup Menu. The 220/240 V camera will correspond to the CCIR designation in the Setup Menu. Verify that the specified camera in the setup window corresponds to the one you have.

Changing from Live to Integrate during image collection doesn't increase the light intensity
Horizontal stripes appear in the image

- **Verify that the mini din cable between the camera and the frame grabber is connected.**

Try to exchange this with another mini din connector to verify cable failure.

- **There is no UV filter on the camera.**

You are seeing the UV bulbs. You should see the stripes go away when you open the door as the UV cutoff is engaged or you can place an opaque object on the transilluminator. Place the UV filter on the camera to remedy this.

Image is very blurry and cannot be focused.

- **Diopter has been removed from the camera.**

The "diopter" is a close up lens, it sets the focal length of the camera to fit the Gel Doc. Verify that the diopter is on the camera. If not, determine if the diopter is in the camera packaging material. The diopter looks like a clear lens that screws down onto the camera just like the UV filter will.

- **Back Focus is improperly set.**

This is set at the factory but can be changed according to the instructions in the back of the software manual. You will need an allen wrench, a trimpot adjustment tool and a target to reset.

- **Framegrabber card is not fully seated or grounded.**

Ensure that the card sit firmly in the expansion slot, that the slot is free of grime or dust, and that the card is screwed down in place. Also, you may want to try another slot.

Image is clear but edges seem cut off

- **Wrong camera setting has been chosen in the Setup window.**
Verify that the camera setting is correct for the camera that you have see above-"Grainy Image"

- **Image must be aligned**

Choose the alignment window and position the white box in the center of the screen

- **Edges seem to be rounded**

The diopter has been placed on the camera after the UV filter. Remove the diopter and UV filter and place the diopter on first, then the UV filter.

Hood door opened and the UV light appears to be on.

- **Internal short in the transilluminator.**

You will see the transillumniator glowing blue and perhaps you will see specifically the individual bulbs. **CLOSE THE DOOR IMMEDIATELY.**The unit must be repaired.

Some light seems to be coming in from around the edges of the hood.

- **Knobs on hood are too tight.**

The knobs securing the hood to the transilluminator must be finger tight. Overtightening will bow the hood and allow light to leak in.

The DOS or Windows platforms are discolored.

- **The color Look Up Tables are not properly supplied by the video source in the video pass through mode.**

A file called F64TRAP.EXE is supplied with the software and a line reading C:\MA\F64\F64TRAP.EXE should be added to the Autoexec.bat file after the line reading Call C:\MA\F64\F64FIRM.BAT.

- **The Video card in use does not supply the correct Windows color map.**

Some cards, including our recommended Mach 64 DRAM ISA card cause the Windows color map to appear in obviously skewed colors. In the case of this card, you must add a line to the System .ini file, found in the Windows subdirectory, to read VGADAC=ON. This should be added under the heading [Macx].

- **The Video Card, the Video Pass through cable or the video source is not set properly or is damaged.**

Ensure that all the software has been installed for any video card used as a video source. Load software drivers to support at least 800 x 600 resolution. If you have added a video board to the system, verify that the on board video is disabled, remember that in some cases this may include changing some parameter in the BIOS as well as hardware changes. Test each step of the video path. Contact Bio-Rad if the problem is traced to the video pass through cable or the framegrabber card. Contact the video card manufacturer for assistance in setting the card configurations. Contact the computer vendor if host configuration appears to be the source of difficulty.

Section V

Appendix A

Gel Doc 1000 Computer Compatability List

The Gel Doc 1000 is compatible with most computers having an ISA bus, built in video pass-through or a video card with video pass-through, and video drivers which can support 800 X 600 in 256 colors or 1024 X 768 in 256 colors. The following list of computers have been tested with the Gel Doc 1000 (either with built in video or a video card with video pass-through).

Computer Manufacturer	Model Number / Name	Comments
Gateway 2000	486DX2-66V	VESA Local Bus
Gateway 2000	486DX2-66P	PCI Bus
ALR	Business EISA 486DX2-33	EISA
Hewlett Packard	Vectra XM2 486/66	ISA
Micron	486DX2-66	ISA
ZEOS	486 HP-200 PPFN	PCI Bus
Dell	486DX2-50D	ISA
Comtum	386DX-33	ISA
Panasonic	CF1000 AH17	Laptop
AST	Power Premium	EISA
AST	Premium II	ISA
DEC	486D2-MTE H7 889-A-A	ISA

The Gel Doc 1000 digitizing card will work with most VGA cards that have video pass-through and a feature connector. The following list represents the VGA cards which have been tested. F64TRAP.EXE is a TSR (Terminate and Stay Resident) utility which compensates for certain VGA cards with alternate look up table I/O mapping in order to produce proper display colors. The F64TRAP.EXE utility is available through Bio-Rad Laboratories Technical Service.

VGA Card Manufacturer	Model Number / Name	Comments
ATI	Mach 32	ISA Bus Version
ATI	Mach 32	PCI Bus Version
ATI	Mach 32	Vesa Local Bus (VLB)
ATI	Mach 64	DRAM Vesa Local Bus (VLB)
ATI	Mach 64	DRAM PCI Bus Version (Requires F64TRAP.EXE)
ATI	VGA 1024	ISA
Diamond	Speedstar	PCI Bus Version (Requires F64TRAP.EXE)
Diamond	Speedstar Pro	Vesa Local Bus (VLB)
Orchid	Kelvin 64	Vesa Local Bus (VLB)
Hercules	Dynamite D701	Vesa Local Bus (VLB)

The following list is a list of video cards which DO NOT work with the Gel Doc System. These boards all turn off their video pass-through connectors at resolutions above 640 X 480.

VGA Card Manufacturer	Model Number / Name	Comments
ATI	Mach 64	VRAM Version
Number Nine	GXE64 Pro	All Versions
Diamond	Stealth 64	All Versions
Diamond	Viper	All Versions