GrafixStar 700 series

User Guide

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PRODUCT NOTICES

Refer to Appendix C for information about radio and TV interference, EMC, product service, warranty information, and details of the software license agreement.

CREDITS

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Introduction

Congratulations on choosing GrafixStar 700, VideoLogic's new video-graphics card which brings the exciting world of multimedia to your PC. In addition to improving the quality, performance and capabilities of your PC's graphics and video functions, GrafixStar 700 becomes the heart of your multimedia system, which you can expand by adding options for full motion video in a window, video capture and MPEG video playback.

This manual tells you how to install your GrafixStar 700 card and software and how to use the GrafixStar software to configure your PC monitor. It also includes a chapter on how to expand your GrafixStar 700 card.

GrafixStar 700 features

GrafixStar 700 provides you with the following features:

- High performance graphics. You can set display sizes up to 1280 x 1024 pixels with 16.7 million colors, or 1600 x 1200 pixels with 65,536 colors (4 MB variant).
- An optional VESA Media Channel (VMC) Controller. This daughter card allows you to connect GrafixStar 700 to VMC-enabled cards like Captivator Pro for full motion video in a window, and MPEG Player for MPEG playback.

  There are two VMC Controller variants available: with or without memory. The VMC Controller with memory provides you with an extra 2 MB of VRAM, giving your GrafixStar 700 a total memory of 4 MB. This extra memory improves the performance of your GrafixStar 700 card and increases the range of display modes that your monitor can use.

If your GrafixStar 700 does not have a VMC Controller fitted as standard, you can easily install one, as described in the chapter *Expanding your GrafixStar 700 card.*

- Built-in acceleration and smoothing of scaled up digital videos.
- A VESA standard feature connector. You can use this to connect GrafixStar 700 to other multimedia option cards, although it does not have the performance provided by the VMC Controller.
- The SmartTools applications for Windows 3.1 and Windows 95, which let you control the graphics and video display of your PC.
- An EnergyStar screen saver which switches DPMS compliant monitors to power saving modes.
- Variants for connection to computers with a PCI bus or a VL bus.
- 2 or 4 megabytes of memory. If you have a 2 MB version, you can upgrade to 4 MB by adding a VMC Controller with memory, as described above.

What you need

To run GrafixStar 700 you need an IBM or fully compatible 486 PC or above with a spare PCI bus slot or VL bus slot.

To use Microsoft® Windows you need Windows 3.1 or above running in enhanced mode. You can use MS DOS v3.3 or above, but Microsoft recommend MS DOS v5.0 or above if you are using Video for Windows.

You may find it helpful to have to hand the *Windows User's Guide*, the *Video for Windows User's Guide* and any other documentation supplied with your PC and computer monitor.

System compatibility

GrafixStar 700 is designed to work in PC's which comply fully with the VESA Local Bus (VL bus) standard or revision 2.0 of the PCI local bus specification, depending on the variant of the card you are using. GrafixStar 700 may not work if your PC does not comply fully with the VL bus or PCI standard.

GrafixStar 700 has been tested in a wide range of VL bus and PCI computers. However, because of the large variety of systems and configurations available, VideoLogic cannot be held responsible for any incompatibilities between your PC and the GrafixStar 700 card.

Before you start

Before you begin installing your GrafixStar 700 card, read the Readme file on the GrafixStar 700 CD or disk. You can read this file by opening it using the Microsoft Write application supplied with Windows 3.1 or with WordPad supplied with Windows 95.

Please complete and return the registration card as soon as possible so that we can provide you with up-to-date product information.

Conventions used in this guide

The following conventions are used throughout this document:

- Anything that you type appears in **bold** text.
- Text in *italic* is used for cross-references to other documents, chapter and section titles, or to identify a placeholder for information you need to supply.
- The names of keys appear in small capital letters. For example, ENTER, SHIFT, CTRL. A plus sign (+) between key names indicates that you should hold down the first key while you press the second key. A comma (,) between key names shows that you should press the first key, release it, then press the second key.

Handling GrafixStar 700

Like other adapter cards, GrafixStar 700 can be damaged by electrostatic charges during handling. To minimize the risk, follow these simple guidelines:

- Keep the card in its protective packaging until you are ready to install it.
- Just before handling the card, touch the metal frame of your computer to discharge any static electricity which may have built up on you or your clothes.
- Hold the card by the adapter bracket or by its edges; do not touch the printed circuit board.
- Do not place the card on top of your computer or on any other metal surface.
- Make sure that the card is not accidentally touched by anyone else.
- Handle the card with care to avoid damage to the fragile electronic components mounted on the circuit board.

Installing GrafixStar 700

If you are familiar with Microsoft Windows and with installing cards in your computer, follow one of the quick installation guides below for instructions on how to install GrafixStar 700 in your PC.

If you have never installed a card in your computer before, or if you are in any way unsure of how to do this, refer to the instructions on pages 13 to 26 in this chapter.

Note: throughout this document, we assume that you have drive A assigned to your 3.5" floppy disk drive and drive D assigned to your CD-ROM drive. Substitute the correct letters where

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Quick installation for Windows 95 (experienced users only)

1. Switch off your computer.
2. Remove your old display adapter card or disable your system's built-in display controller. Refer to the documentation supplied with your computer for instructions on how to disable a built-in display controller.
3. Install the GrafixStar 700 card in a spare PCI or VL bus expansion slot and connect it to your monitor. You do not need to set any jumpers.
4. Switch your computer back on and start Windows 95. Windows detects that you have a new graphics card and asks you if you want to restart Windows. Choose NO.
5. Open the Display Properties control panel (the quickest way to do this is to click on the Windows background with the right mouse button and select Properties).

6. Choose the Settings tab, choose Change Display Type, then Change Adapter Type.
7. Insert the Smart Tools for Windows 95 disk 1 or the GrafixStar CD into your computer and click Have Disk.
8. Choose GrafixStar 300 from the list and click OK (If you are using the CD, you will have to browse to the folder d:\gs700\win95\disk1).
9. Restart Windows when prompted.
10. You are now ready to install the SmartTools for Windows 95. To do this, choose Run from the Start menu. If you are using a floppy disk, insert the Smart Tools for Windows 95 disk 1 back into your computer and change to **a:**.
11. Type **setup** and press ENTER. Follow the instructions that appear on the screen.

Quick installation for Windows 3.1 (experienced users only)

1. Set up Windows (3.1 or later) for a VGA display using the Windows Setup program from Windows or DOS.
2. Switch off your computer.
3. Remove your old display adapter card or disable your system's built-in VGA. Refer to the documentation supplied with your computer for instructions on how to disable a built-in VGA.
4. Install the GrafixStar 700 card in a spare PCI or VL bus (**not** ISA) expansion slot and connect it to your monitor. You do not need to set any jumpers.
5. Switch your computer back on, and insert the GrafixStar 700 Setup for Windows disk into drive A of your computer. Start Windows and choose Run from the File menu in Program Manager. Type **d:\gs700\win3.x\disk1\setup** or **a:\setup** and choose OK. Follow the instructions given by the GrafixStar 300 Setup program.

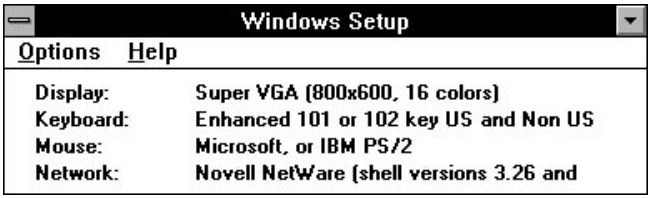
6. While the software is installing, take the opportunity to fill out the warranty registration card (if you haven't done so already). Filling in this card and returning it to us ensures that you get the best possible service from our help desk, and gives you the benefit of regular information on product enhancements and special promotions.

Before installing GrafixStar 700 for Windows 3.1

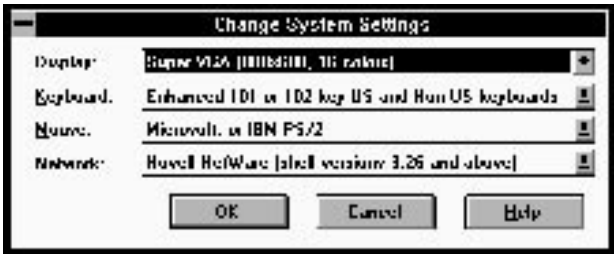
Make sure that Windows is set up for a standard VGA display before you install the card. You can do this using the Windows Setup program from DOS or Windows.

Use the following steps to change the display mode to VGA from within Windows. The *Windows User's Guide* explains how to do this from DOS.

1. Choose the Windows Setup icon in the Main program group. The Windows Setup window appears, listing your current hardware and software settings. Your settings are probably slightly different from the ones shown below.



2. If Display is already set to VGA, close this window and go to *Installing GrafixStar 700* on the next page. If not, choose Change System Settings from the Options menu. The Change System Settings dialog box appears.



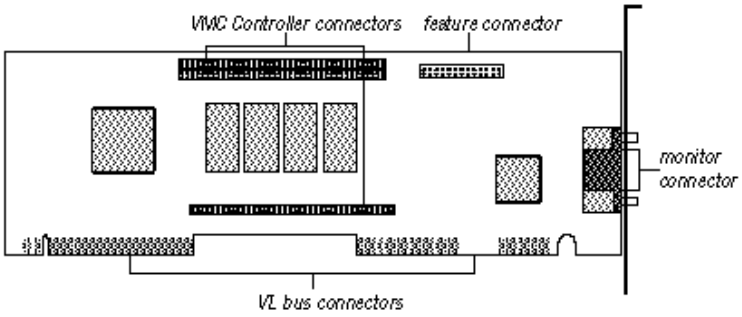
3. Select VGA from the Display list box. Choose the OK button.
4. If Setup finds the VGA driver on your system it asks if you want to use this driver or install a new one. Choose Current to use the currently installed driver. If Setup cannot find the VGA driver, it asks you for the Windows disk containing this driver.
5. Once the driver has been installed, Windows prompts you to restart so that the changes you have made can take effect. You are now ready to install GrafixStar 700.

Installing GrafixStar 700

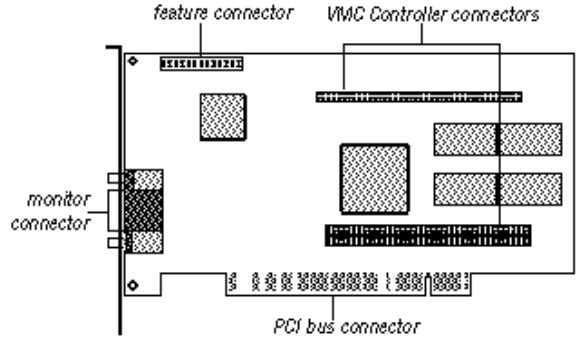
Installing GrafixStar 700 in your computer is a simple operation that should take no more than 15 minutes.

Warning: Always switch off your computer before removing the cover and observe the warnings specified in the manufacturer's documentation.

The following diagrams show the connectors on the card.



GrafixStar 700 - VL bus variant

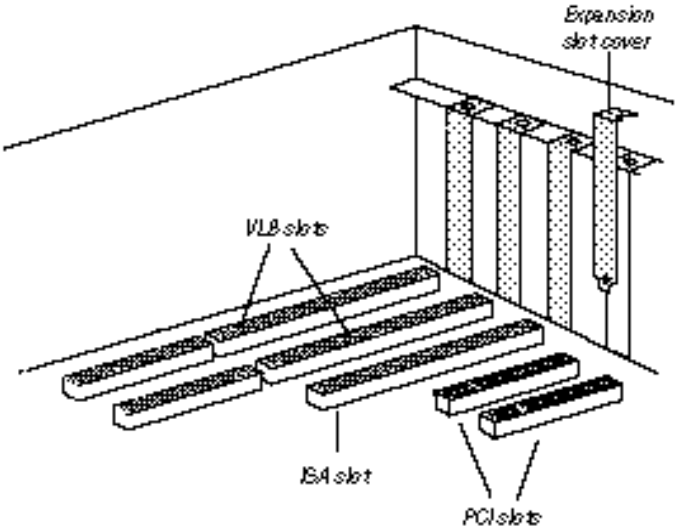


GrafixStar 700 - PCI variant

1. Switch off your computer, monitor, and any hardware devices such as printers connected to your computer. Leave the power cable connected to the power outlet so that your computer is grounded.
2. Disconnect your monitor cable from your computer.
3. Remove the computer's cover. You may need to refer to the documentation supplied with your computer for instructions on how to do this.
4. Remove your existing display card or disable your built-in graphics controller. Refer to the documentation supplied with your computer for instructions on how to disable a built-in graphics controller.

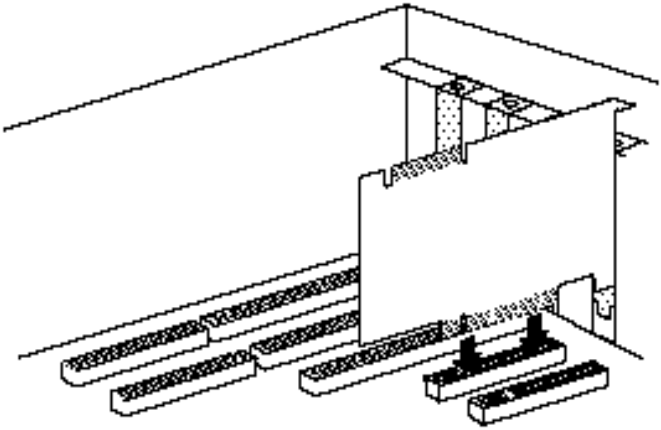
5. Locate an empty expansion slot for your type of GrafixStar 700 card (PCI or VL bus) and remove the slot cover. Keep the screw, you will need it later to secure the card.

Note: If you are installing a VL bus card, make sure you install your card in a VL bus slot and not in an ISA slot.



6. Touch the bare metal chassis of your computer to discharge any static that may have built up on you or your clothes.

7. Align GrafixStar 700 with the slot you have chosen. Firmly press the card into the slot. You will need to use some pressure to push the card into position, but do not use excessive force.



8. Secure GrafixStar 700 using the screw that you removed previously.
9. Replace the cover of your computer.
10. Connect your monitor cable to GrafixStar 700. All cables connected to GrafixStar 700 should be properly shielded and comply with radio frequency interference standards.
11. Switch on your computer and your computer monitor.

Installing the GrafixStar 700 Windows 95 software

Note: after you have installed your GrafixStar 700 card into your PC and then turned your computer on, Windows will ask you if you want to restart your PC using the default display drivers provided. However, these drivers will not work reliably with GrafixStar 700. You must install the GrafixStar software provided, following the instructions below.

The easiest way to install the GrafixStar Windows 95 software is using the Display Properties window:

1. Insert the CD or disk into your computer.
2. Open the Control Panel window. To do this, click Start, point to Settings and click Control Panel.
3. Double click on the Display icon to open the Display Properties Window.

   Note: You can go directly to the Display Properties window by clicking on the Windows 95 background with the right mouse button and choosing Properties from the menu.
4. Choose the Settings page by clicking on the Settings tab.
5. Choose the Change Display Type button.
6. Make sure that the Monitor Type line contains the name of your monitor. If not, click the Change button and select the name of your monitor from the list.
7. Click on the Change button for the Adapter Type.
8. Insert the GrafixStar CD or the SmartTools for Windows 95 disk 1 into your computer and choose Have Disk from the Select Device menu. (If you are using the CD, you will have to browse to the folder d:\gs700\win95\disk 1).
9. Select GrafixStar 700 from the list and choose OK.
10. When the GrafixStar files have been copied to your PC, the Change Display Type window is displayed again. Choose Close.
11. A message appears telling you that you will have to restart Windows 95 for the new display type to take effect. Choose OK.
12. Windows 95 restarts with the new GrafixStar Windows 95 drivers. You are now ready to install the Smart Tools for Windows 95.
13. Choose Run from the Start menu.

14. If you are using floppy disks, insert the SmartTools for Windows 95 disk 1 back into your computer, choose Browse and change to **a:**.
15. Type **setup** and choose OK.
16. Follow the instructions that appear on the screen.

Installing the GrafixStar 700 Windows 3.1 software

This section explains how to install the GrafixStar 700 software for Windows. Before installing the GrafixStar 700 software, make sure that you have installed the GrafixStar 700 card, connected it to your monitor, and configured Windows to run with a standard VGA display. If you haven't configured Windows for VGA yet, do this now using the Windows Setup program from DOS. See the *Windows User's Guide* for details on running Windows Setup from DOS.

The GrafixStar 700 software for Windows is supplied with a Setup program that installs the software.

Carefully follow the installation instructions given below. We assume you are using drive A as your default 3.5" floppy drive. Substitute the correct drive letter for your computer if necessary.

1. Insert the GrafixStar 700 Setup for Windows disk into drive A of your computer.
2. Start Windows and choose Run from the File menu in Program Manager. Type **d:\gs700\win3.x\disk1\setup** or **a:\setup** and choose OK.
3. The Setup program displays the GrafixStar 700 Welcome dialog box. Choose Continue.
4. Follow the instructions that appear on the screen. When you are asked to choose between Express and Custom installation, choose Express if you want to install all the GrafixStar 700 software or choose Custom if you want to select which software components to install.
5. While the software is installing, take the opportunity to fill out the warranty registration card (if you haven't done so already). Filling in this card and returning it to us ensures that

you get the best possible service from our help desk, and gives you the benefit of regular information on product enhancements and special promotions.

During installation, a new program group, called GrafixStar, is created. This program group contains the icons for all the programs provided with the GrafixStar 700 software.

When the GrafixStar 700 software has been installed successfully, Setup runs the GrafixStar Display application. See page 49 to find out more about using this application to set the display mode.

Installing the GrafixStar 700 OS/2 software

GrafixStar 700 includes display drivers for OS/2. For the modes available, see page 66.

Before you start

When installing the GrafixStar display driver over a non-S3 driver (e.g., SVGA), you must install the standard IBM VGA driver first. This is not necessary if an S3 driver is already installed.

Make sure you save all open data files, close all Windows applications, and close Win-OS/2 before installing the GrafixStar display driver.

Installation instructions

1. Open an OS/2 command prompt (in a window or full screen).
2. Insert diskette 1 into drive A of your computer.

   Note: In these instructions we assume that A is the diskette drive and C is the drive on which OS/2 is installed.
3. Change to drive D or A by typing **D:** or **A:** If you are using a CD, change to the directory d:\gs700\os2
4. Run the installation program by typing **S3INST D: C:** or **S3INST A: C:**
5. If prompted, insert diskette 2.

6. When prompted, exit the OS/2 command prompt, remove the disk, then shut down and reboot the system.
7. Once OS/2 is running, insert the CD or diskette 1.
8. Open OS/2 System, and then open System Setup.
9. Open Display Driver Install.
10. Select Primary Display in the Display Driver Install window, then select OK.
11. Select the 32 Bit S3 Display Drivers option from the Primary Display Adapter Type window, then select OK.
12. Select Install Using Defaults for Monitor Type from the Monitor Configuration/Selection Utility window, then select OK.

    The screen will flash and go blank. Please wait for the Source Directory window to appear.
13. Set the source directory to the location of the CD or diskette 1, then select Install.
14. If prompted, insert diskette 2 into drive A.
15. The Installation Program may pause and prompt you to confirm that it should overwrite some files. Answer YES for each file.
16. You are prompted to shut down and restart your system. Select OK.
17. Remove the GrafixStar driver diskette from drive A.
18. Shut down and reboot your system.

To change resolutions:

1. Open System in the System Setup folder.
2. Select the resolution you want to use.
3. Close the window.
4. Shut down and reboot your system.

Installing the GrafixStar 700 AutoCAD and 3D Studio software

GrafixStar 700 includes the Aquila combined display and rendering device drivers for AutoCAD Release 12 and 3D Studio 2.0.

Installation instructions

Carefully follow the installation instructions given below. We assume you are using drive A as your default 3.5" floppy drive and drive C as your hard disk. Substitute the correct drive letter for your computer if necessary.

1. Create a directory on your hard drive for the Aquila files by typing:

   md \aquila

2. Copy all files from the \adi42 subdirectory on the GrafixStar 700 Windows NT, AutoCAD and MicroStation Drivers disk to the Aquila subdirectory by typing:

   copy a:\adi42*.* c:\aquila

   OR

   copy d:\gs700\adi42*.* c:\aquila

Basic Configuration

If you have a GrafixStar 700 card with 2 MB memory, you must run the vls3mode TSR before running your application. For instructions on how to do this, see to the section *Using the vls3mode program* on page 23.

1. To obtain the best performance from your application, see your application's Installation and Performance Guide for information about other environment variables, configuring other non-display device drivers and general system configuration.

2. The Autodesk application being configured will be detected automatically, and the correct display driver defaults will be provided for your applications. If you accept the default values, your driver will be configured correctly. This will work with AutoCAD, AutoShade, or 3D Studio.

For further information on AutoCAD and 3D Studio drivers, refer to the readme in the subdirectory \adi42 on the GrafixStar 700 Windows NT, AutoCAD and MicroStation Drivers disk.

Installing the GrafixStar 700 Windows NT 3.5 software

GrafixStar 700 includes display drivers for Windows NT 3.5.

Saving the Microsoft supplied drivers

Before installing the S3 Generic Windows NT 3.5 driver, you can save the S3 video driver files supplied by Microsoft to a floppy disk or to a specified subdirectory. Assuming Windows NT 3.5 is installed in c:\winnt35 and you are in DOS, or have the VGA display driver as the active NT driver, type:

copy c:\winnt35\system32\drivers\s3.sys a:

copy c:\winnt35\system32\s3.dll a:

Installing the S3 Generic driver

Carefully follow the installation instructions given below. We assume you are using drive A as your default 3.5" floppy drive and drive C as your hard disk. Substitute the correct drive letter for your computer if necessary.

1. Boot your system and enter MS-DOS from the Boot Manager.
2. Insert the GrafixStar 700 Windows NT, AutoCAD and MicroStation Drivers disk into drive A of your PC.
3. Type:

   copy a:\nt35\s3.sys c:\winnt35\system32\drivers

   copy a:\nt35\s3.dll c:\winnt35\system32

   OR

   copy d:\gs400\nt35\s3.sys c:\winnt35\system32\drivers

   copy d:\gs400\nt35\s3.dll c:\winnt35\system32
4. Reboot your system and enter Windows NT (VGA) from the Boot Manager.
5. Launch Windows NT.

6. Open Display from the Control Panels window in Program Manager.
7. Choose Change Display type.
8. In the Display Type window, select Change Adapter type. In Select Device, select S3 Compatible Graphics Adapter.
9. Select Install.
10. Select Yes.
11. When asked if you want to use current or new driver, choose Current.
12. Select Continue. Choose OK when the message 'The drivers were successfully installed' is displayed. Choose OK to exit.
13. Choose Restart Now to restart Windows NT 3.5 with the new driver.
14. When rebooting, select the Windows NT boot option, not the VGA option.
15. Launch NT and go to Video Display again. Choose Change display type and check that the S3 driver is active. Choose cancel to return to Display Settings window.
16. Choose List all modes, and select the resolution (Desktop Area), Color Palette and refresh (Refresh Frequency) you want.
17. Choose Test then choose OK. The test pattern shows the combination of resolution, colors, and refresh you have chosen. Watch the test pattern to check that color, flicker etc. are acceptable. The test pattern will disappear after a few seconds.
18. If the test pattern is not acceptable, choose No and repeat steps 15 and 16.
19. Once the test pattern is acceptable, choose Yes and then choose Restart to restart NT.

Repeat the above process as needed.

For furthur information on Windows NT 3.5 drivers, refer to the readme in the subdirectory \nt35 on the GrafixStar 700 Windows NT, AutoCAD and MicroStation Drivers disk.

Installing the GrafixStar 700 MicroStation software

If you have a 2 MB GrafixStar 700 you must run the vls3mode TSR before running MicroStation. See the section *Using the vls3mode program* on page 23.

MicroStation Driver Installation

1. Copy the relevant files from the \ustation subdirectory on the GrafixStar 700 Windows NT, AutoCAD and MicroStation Drivers disk or from the d:\gs700\ustation subdirectory on the CD to the \ustation\drivers subdirectory on your hard drive.

   For MicroStation 4, copy the files: mgl4s3.exp, mgl4s3.ma and mgl4s3.mgl

   For MicroStation 5 copy the files: mgl5s3.dlm, mgl5s3.ma and mgl5s3.mgl

2. Change the current directory to the subdirectory on your hard disk that contains the Microstation application, e.g. \ustation
3. Run the USCONFIG program to select the new device driver.
4. Select Display Adapters.
5. Select Vendor Supplied Driver.
6. Select mgl5s3 v1.30build2 for S3 Acceler for MicroStation 5.

   Select pmgl4s3 v2.1b2 for S3 accelerator for MicroStation 4.
7. Select second adapter options as needed.
8. Select Swap Screen status as needed.
9. Select Exit and Save.
10. Reboot system for installation to take effect.

Configuring the Driver

The first time this driver is used, you are prompted to choose from a list of display modes. The display mode you choose will be used for subsequent MicroStation sessions.

To re-configure the driver, delete the file \ustation\drivers\atcgrfx.cfg for MicroStation 5 or the file \ustation\drivers\mgl4s3.cfg for MicroStation 4 and then run MicroStation again.

Using the vls3mode program

vls3mode is a TSR (Terminate and Stay Resident program) which lets you use the MicroStation and ADI 4.2 drivers supplied with GrafixStar 700 if you have a 2 MB version of the GrafixStar 700 card.

Installing vls3mode

We assume you are using drive A as your default 3.5" floppy drive and drive C as your hard disk. Substitute the correct drive letter for your computer if necessary.

To install vls3mode, copy the vls3mode.com file from the \vls3mode subdirectory on the GrafixStar 700 Windows NT, AutoCAD and MicroStation Drivers disk to your hard disk in any directory listed in the DOS path. For example, you can copy vls3mode.com to the \aquila directory containing your ADI 4.2 drivers as follows:

copy a:\vls3mode\vls3mode.com c:\aquila

OR

copy d:\gs700\other\vls3mode\vls3mode.com c:\aquila

Running vlS3mode

Run vls3mode by typing **vls3mode** at the DOS prompt before you run Microstation, AutoCAD or 3DStudio. Once the TSR has been executed it will stay in memory until the machine has been switched off.

Note: The vls3mode program is not intended for use with Microsoft Windows. If you are running vls3mode on your machine and you wish to use Windows, reboot your PC before you start Windows.

The SmartTools for Windows 95

The SmartTools are a new set of applications which let you get the most out of the powerful capabilities of your graphics card, giving you more control over the appearance and behavior of your Windows desktop.

There are three Smart applications, each adding power to the way you use your Windows desktop:

SmartTools

SmartTools lets you create toolbars to give you more control and quicker access to your Windows applications and documents.

With SmartTools you can:

- Use toolbars for the other Smart applications, and customize these toolbars to suit your needs.
- Create toolbars for other applications, adding buttons for the programs, documents and files you use most.
- Assign hotkeys for commands that you use most often.

SmartDisplay

SmartDisplay makes it easier and quicker for you to set up the display properties for your monitor.

SmartDisplay gives you:

- A SmartDisplay Wizard, which guides you through a step by step procedure that helps you find the ideal display settings for the kind of work you are doing.
- A SmartDisplay set up procedure for advanced users, which lets you select the display size, color palette, refresh rate, desktop size, connectivity and monitor alignment for your display.

SmartDesktop

SmartDesktop is an application which controls the appearance and behavior of your desktop.

With SmartDesktop you can:

- Use a virtual desktop, where the desktop size is larger than the display size. SmartDesktop controls the way you move around the desktop and reach the off-screen portion of your desktop.
- Change the display size at the touch of a button, allowing you to zoom in and zoom out while you are working.

Using SmartTools

With SmartTools, you can customize the toolbars for the other Smart applications and create toolbars of your own.

Starting SmartTools

To start SmartTools, press the Start button, choose Programs, then GrafixStar, then SmartTools, or use the shortcut on the desktop.

The following screen appears:

Customizing toolbars

The Customize Toolbars page of the SmartTools window lets you create new toolbars and customize existing ones. When you press the Customize Toolbars tab, the following page appears:

Creating a new toolbar

You can create new toolbars and add them to the list of toolbars on the Toolbar Properties page.

To create a new toolbar:

1. Click on the Customize Toolbars tab of the SmartTools window.
2. Click on any button in the Commands list or on one of the items in the Applications list and drag it off the SmartTools window.

The new toolbar will contain the button that you dragged off the list, or all the buttons for the application that you dragged off the list.

Opening and closing toolbars

With SmartTools, you can use toolbars to perform functions and run applications quickly and easily. A toolbar contains a set of buttons which, when clicked, perform a Smart Application function or run another application.

To open a toolbar:

1. Click the Toolbar Properties tab in the SmartTools window.
2. In the toolbars list, check the box next to the name of the toolbar you want to open.

To close a toolbar:

1. Click the Toolbar Properties tab in the SmartTools window.
2. In the toolbars list, uncheck the box next to the name of the toolbar you want to close, or use the close button on the toolbar itself.

Adding buttons to a toolbar

You can add buttons for performing Smart Application functions or launching other applications to any toolbar.

You can also add a separator, which puts a space between buttons. This is useful if you want to group buttons into related tasks.

To add buttons to a toolbar:

1. Open the toolbar you want to modify by clicking the Toolbars tab and checking the toolbar.
2. Click the Customize Toolbar tab.
3. Select one of the Smart applications or another application from the Applications list.
4. Select the button you want to add to the toolbar from the commands list, and drag it onto the toolbar in the position that you want.

Moving and deleting buttons from a toolbar

You can move or delete buttons on any toolbar.

To move a button on a toolbar:

1. Open the toolbar you want to modify by clicking the Toolbars tab and checking the toolbar.
2 Hold down the SHIFT key and click on the button you want to move.
3. Drag the button to the position you want on the toolbar.

To delete a button, simply drag it off the toolbar.

Adding buttons to the Other Apps Commands list

You can add buttons to the list of other applications commands. You can then add these buttons to a toolbar to access a program or file that you use frequently.

To add buttons to the Other Apps Commands list:

1. Click the Customize Toolbars tab.
2. Select Other Apps from the Applications list.
3. Click the Add button. This opens a window which lets you browse through your system to select the application you want to create a button for.
4. Select the application or file and click on Open.

A new button for the application you have just chosen appears in the Commands list.

Deleting buttons from the Other Apps Commands list

You can delete buttons from the list of other applications commands.

To delete buttons from the Other Apps Commands list:

1. Click the Customize Toolbars tab.
2. Select Other Apps from the Applications list.
3. Select the button you want to delete from the Commands list.
4. Click the Delete button to remove the button from the list.

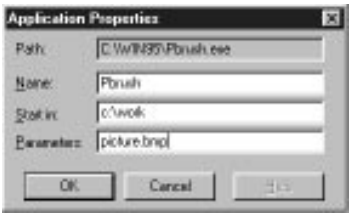
Setting properties for Other Apps buttons

SmartTools lets you set properties for the applications opened using toolbar buttons.

To set properties for Other Apps buttons:

1. Click the Customize Toolbars tab.
2. Select Other Apps from the Applications list.
3. Select the button you want to set the properties for from the Commands list.
4. Click on the properties button.

The following dialog box appears:



You can set the name of the button as it appears in the commands list, the default directory used by the application (optional) and any parameters that are passed when the application is run (optional).

Setting toolbar properties

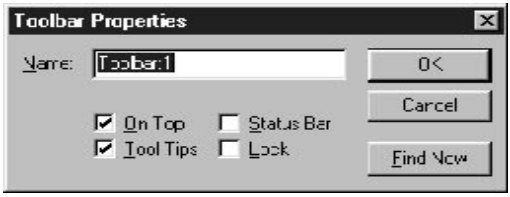
You can set properties for each toolbar. The properties define the way a toolbar looks and behaves.

To change the toolbar properties:

1. Click the Toolbar Properties tab in the SmartTools window.
2. Select the toolbar whose properties you want to change.
3. Press the Properties button.

Alternatively, you can right click on the toolbar and choose Properties.

The following dialog box appears:



The following properties are available:

Name

Lets you assign a name for your toolbar.

On Top

Keeps the toolbar on top of all other windows on the desktop.

Tool Tips

Displays tool tips when the pointer is placed over a button on the toolbar. The toolbar must be the active window for the tool tips to work.

Lock

Keeps the toolbar in the same position on the screen when you move around the desktop.

Status Bar

Displays the current display size and desktop size at the bottom of the toolbar.

Deleting toolbars

You can remove a toolbar from the list of those available.

To delete a toolbar:

1. Click the Toolbar Properties tab in the SmartTools window.
2. Highlight the toolbar in the Toolbar list.
3. Click on the Delete button on the Toolbar page or press the DEL key on the keyboard.

Assigning hotkeys

You can assign hotkey combinations to the toolbar commands you use most often. Pressing a hotkey combination has the same effect as clicking on the toolbar button.

To assign a hotkey to a toolbar button:

1. Click the Customize Hotkeys tab in the SmartTools window.

The following page appears:

2. Select the application for which you want to assign a hotkey from the Applications list.
3. Select the button that you want to assign a hotkey to from the Commands list.
4. Place the cursor in the Press New Shortcut Key list and press the hotkey combination that you want for your function. You can use any combination of SHIFT, CTRL and ALT, plus the other keys on the keyboard.
5. Click Assign.

Note: The hotkey combination you assign here will override any shortcuts used by other applications. If you try to enter a key combination that is commonly used by other applications, a warning message will appear asking you if you really want to use this hotkey combination.

Removing hotkeys

You can easily remove any hotkey combination that you previously assigned or that were there by default.

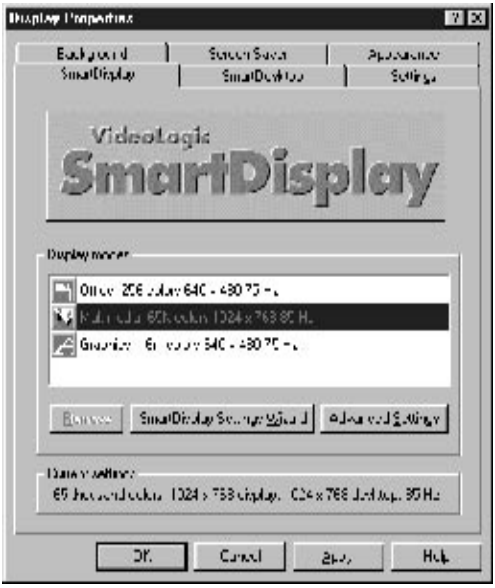
To remove a hotkey from a toolbar button:

1. Click the Customize Hotkeys tab in the SmartTools window.
2. Select the application from which you want to remove a hotkey from the Applications list.
3. Select the button from which you want to remove a hotkey from the Commands list.
4. Click Remove.

Using SmartDisplay

SmartDisplay is an application that lets you select, customize and create display modes for your monitor. To use SmartDisplay:

1. Select the Display Properties Control Panel either by right-clicking on the Windows background and choosing Properties from the menu or by pressing the Start button, choosing Settings, then Control Panels, then Display.
2. Click the SmartDisplay tab. The following dialog appears:



Setting a display mode

The SmartDisplay page contains a list of display modes. You can use this list to switch between preset display modes.

To apply a display mode.

1. Select the display mode you want to use from the Display Mode list.
2. Choose Apply or OK.

Customizing display modes

You can customize a display mode to give it the properties that you want. There are two ways of doing this, depending on how familiar you are with setting display modes.

If you have never set a display mode before, or if you need help in choosing your settings, you should use the SmartDisplay Settings Wizard. This takes you through a step-by-step procedure for setting up your display mode.

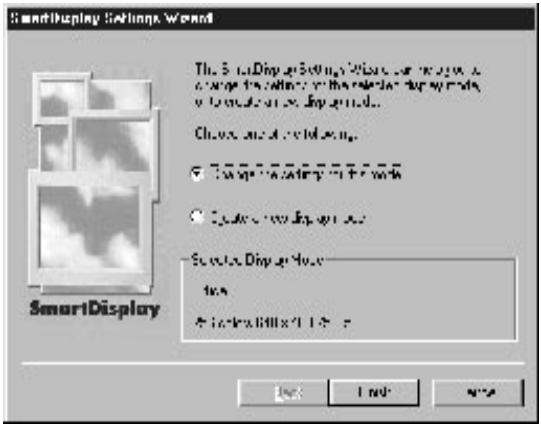
If you are familiar with setting display modes, you should use the Settings button. This lets you choose your display mode settings quickly and easily.

Setting Display Modes using the Wizard

The Wizard takes you through a step by step procedure for setting up a display mode.

To use the Wizard:

1. Choose the SmartDisplay page on the Display Properties window.
2. Select the display mode you want to modify from the Display Modes list.
3. Click on the SmartDisplay Settings Wizard button. The following Wizard dialog appears:



4. Follow the instructions given by the Wizard.

Setting Display Modes using the Settings button

This procedure lets you choose the settings for your display mode. You should only use it if you are familiar with setting display modes.

To set a display mode:

1. Choose the SmartDisplay page on the Display Properties window.
2. Select the display mode you want to modify from the Display Modes list.
3. Click on the Settings button.

This takes you to the SmartDisplay Advanced Settings window. This window has five pages: Display, Desktop, Connectivity, Center Display and Properties.

Settings - Display

The Display page lets you choose the Display Area, Refresh Rate and Color Palette for your display.

To set up your display mode:

1. Click the Display tab on the SmartDisplay Expert Configuration window.

2. Use the Display area slider to choose the display size, from 640 x 480 (Standard VGA) to the largest size supported by your monitor.

3. Use the Color palette slider to choose the number of colors you want to use in your display. Note that the larger your display size is, the fewer colors you can use. If you try to choose a number of colors that your display size cannot support, the display size is reduced to compensate.
4. Select the refresh rate you want for your display from the Refresh Rate list box. The higher the refresh rate, the more stable and flicker-free your display.
5. Confirm by clicking OK or Apply.

Settings - Desktop

With SmartDisplay, you can select a desktop size which is larger than your display size (sometimes known as a 'virtual desktop'). You can then use SmartDesktop to control the way your desktop is used.

To set the desktop size:

1. Click the Desktop tab on the SmartDisplay Advanced Settings window.

2. Drag the edges or corners of the display diagram to fit one of the preset sizes, or select a desktop size from the list box.
3. Confirm by clicking OK or Apply.

Settings - Connectivity

If you have a multimedia option card connected to your display card, you will be limited in the types of display mode you can use. You should check the appropriate box for the kind of connection you are using.

To set your type of connector:

1. Click the Connectivity tab on the SmartDisplay Advanced Settings window.

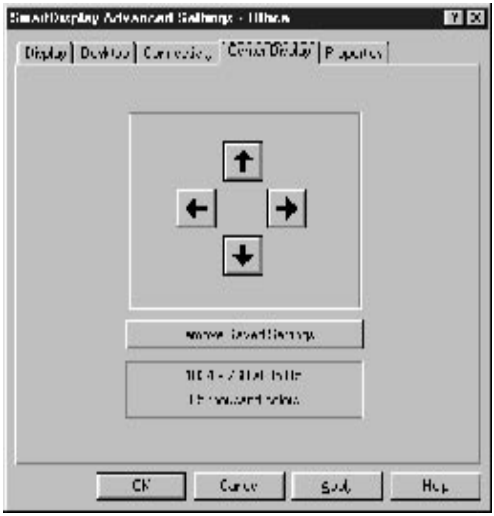
2. Check the type of connector you are using.
3. Confirm by clicking OK or Apply.

Settings - Center Display

After you have changed display mode, the display often appears off-center on the screen. You can use SmartDisplay to adjust the position of the display on your screen, without using your monitor controls. SmartDisplay stores the position of the display for the particular display mode, and uses it whenever you access the same display mode again.

To center your display on the screen:

1. Click the Center Display tab on the SmartDisplay Advanced Settings window.



2. Click on the arrows to move the display in the required direction.
3. Confirm by clicking OK or Apply.

If you want, you can return all display modes to their original alignment by clicking Remove Saved Settings. You should only use this if you are about to connect a different monitor to your PC.

Settings - Properties

The Properties page of the SmartDisplay Advanced Settings window lets you identify your display mode by selecting an icon and name for your display mode as it appears in the Display Modes list on the SmartDisplay tab of the Display Properties window. It also provides a place for a brief description of the display mode.

To set the properties for your display mode:

1. Click the Properties tab on the SmartDisplay Advanced Settings window.

2. Change the icon, name or description of your display mode.
3. Choose OK or Apply.

Creating a new display mode

You can add your own display modes to those already in the Display Modes list. You can do this either using the Display Mode Wizard, or by following the procedure below.

To create a new display mode:

1. Choose the Smart Display tab in the display properties window.

2. Select one of the existing display modes from the Display Modes list.
3. Press the settings button.
4. Select the Properties tab.
5. Select the Save changes as a new display mode button.
6. Enter a new name in the Name box and click OK or Apply.

You can now modify the settings for this new mode using the Display, Desktop, Connectivity and Center Display tabs.

Using SmartDesktop

SmartDesktop is an application which controls the appearance and behavior of your desktop. You can use Smart Desktop to set a virtual desktop, where the desktop size is larger than the display size, and you can change the display size at the touch of a button, allowing you to zoom in and zoom out while you are working.

To use the SmartDesktop functions, you use the toolbar for Smart Desktop, created using SmartTools.

You can use the SmartDesktop Properties page to set properties which control the way SmartDesktop works.

The SmartDesktop toolbar

Using SmartTools, you can create a toolbar for running SmartDesktop.

To create a SmartDesktop Toolbar:

1. Start SmartTools.
2. Click on the Customize Toolbars tab.
3. Click on SmartDesktop in the applications list and drag it off the desktop.

The SmartDesktop toolbar appears as follows:

Smart Zoom

When you have SmartZoom selected, you can use all the 'Virtual Desktop' functions: when you zoom in or zoom out with Smart Zoom selected, only the display size changes; the desktop size stays the same. You can also use the functions such as Scroll Lock, Auto Pan Maximize on Zoom and Maximize on Display to control the way your desktop behaves.

SmartDesktop lets you zoom in and zoom out your display using the Zoom In and Zoom Out buttons. You can keep pressing the zoom in button until the display size reaches the smallest size available (640 x 480). You can keep pressing the zoom out button until the display size reaches the largest size available (this is set using SmartDisplay).

You can also use the Zoom Display Fully In and Zoom Display Fully Out functions to zoom directly to the smallest and largest display sizes for your monitor. These functions are available as hot keys and SmartTools menu items.

If SmartZoom is not selected, the only two SmartDesktop functions you can use are zoom in and zoom out. When you zoom in or zoom out (or use Zoom Display Fully In or Zoom Display Fully Out), the desktop size becomes the same as the display size.

Moving around the desktop

If you are using a desktop size which is larger than your current display size, there are several ways that you can move to the parts of the desktop which are currently off-screen:

By moving the mouse. As you move the mouse to the edge of the screen, the display automatically scrolls to the parts of the screen which you are moving towards.

By pressing the Move Up, Move Down, Move Left and Move Right buttons on the toolbar, or by pressing the hotkey combinations assigned to these buttons.

Note: If you have Auto Pan enabled, and you switch to a window which is currently off-screen (using ALT-TAB, or using the taskbar), the screen scrolls automatically to the window you selected.

You can disable scrolling functions by selecting Scroll Lock. This is useful if you want to work on a particular area of the desktop without accidentally moving to other areas.

Maximized Windows

SmartDesktop has functions which let you select the way that maximized windows behave:

Maximize on Zoom

When this is selected, all maximized windows fit the new display size when you zoom in or zoom out.

Maximize in Display

When this is selected, maximized windows fit the display size. When this is not selected, maximized windows fit the desktop size.

Property Sheet

You can use this button to access the SmartDesktop Display Properties page. This is described on the next page.

The SmartDesktop Display Properties page

The SmartDesktop Properties page provides you with an alterative way of setting SmartDisplay's characteristics.

To open the SmartDesktop Display Properties page:

1. Select the Display Properties Control Panel either by right-clicking on the Windows background and choosing Properties from the menu or by pressing the Start button, choosing Settings, then Control Panels, then Display, or by using the Property Sheet button to on the toolbar.

2. Click the SmartDesktop tab. The following page appears:

Schemes

Schemes are a useful way of saving combinations of SmartDesktop functions. Each scheme that you create saves a different combination of SmartDesktop settings that you can access again at any time.

Using Schemes

To use a scheme:

1. Access the SmartDesktop page of the Display Properties window.
2. Select a scheme from the Scheme list box.

Creating Schemes

To create a new scheme:

1. Access the SmartDesktop page of the Display Properties window.
2. Check the options that you want for your scheme.
3. Click Save As.
4. Type a name for your scheme and click OK.

Deleting Schemes

To delete a scheme:

1. Access the SmartDesktop page of the Display Properties window.
2. Select the scheme that you want to remove in the Schemes list box.
3. Click Delete.

Using GrafixStar Display for Windows 3.1

What is a display mode?

The GrafixStar Display application lets you choose the display mode for your monitor. The display mode describes the five main characteristics of your graphics display: display size, number of colors, refresh rate, font size, and desktop size. Each of these is explained below.

Display size

The display on your monitor is made up of pixels. The display size describes the number of pixels used in the display, expressed as the number of pixels in each horizontal line and the total number of lines. For example, a display size of 800 x 600 has 800 pixels per line and 600 lines.

Colors

The number of colors in the display mode indicates the number of colors available for each pixel. For example, if you have a display mode with 16.7 million colors, each pixel can be one of 16.7 million possible colors.

Refresh

The refresh rate is the number of times per second that the screen image is redrawn on your monitor—at 72 Hz the screen is redrawn 72 times per second.

Font Size

The font size determines the size of the text characters that are used in your Windows display.

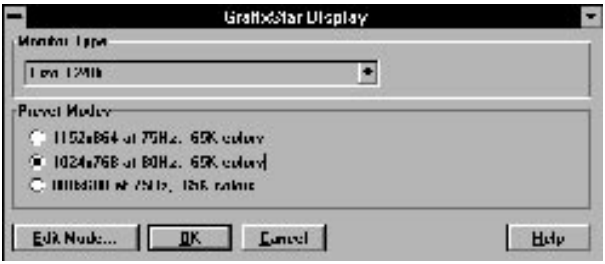
Desktop size

The desktop size describes the area of the desktop, which can be the same size as or larger than the display. If your desktop size is larger than your display size, the desktop area extends beyond the edges of your screen, and the 'off-screen' portions of your desktop can be reached by moving the mouse towards them. As you do this, the screen scrolls automatically, giving you access to the whole desktop. If you have a desktop size larger than your display size, you can improve the performance of your display using the SmartDesktop, as described on pages 5 7-59.

Setting the display mode using GrafixStar Display

You can use the GrafixStar Display application to choose one of the many display modes available for your monitor.

This application is run automatically at the end of the GrafixStar 700 Setup program. However, you can access the GrafixStar Display window at any time by double-clicking on the GrafixStar Display icon in the GrafixStar program group.



To set the Windows display mode, select a monitor type and a preset mode as follows:

1. Select the name of your monitor from the Monitor Type list box. If your monitor's name does not appear in the list box, follow the steps in the section *What to do if your monitor is not in the list box*.

   The first time you select a monitor type, the application displays three preset modes: the most popular combinations of display size and colors. However, if you want a display

mode that is different from the three selected by GrafixStar 700, you can change one of the Preset Modes using the Edit Mode button, as described in the section *Editing the preset display modes*.

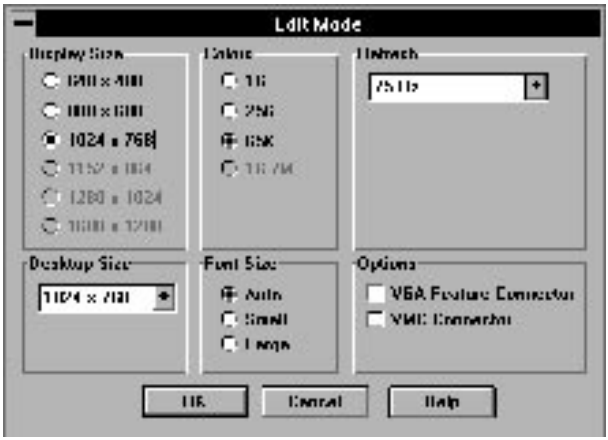
2. Select the button for the mode that you want.
3. Choose OK.

Editing the preset display modes

You can change the settings for any of the three preset modes using the Edit Mode button in the GrafixStar Display window.

To change the settings for a preset mode:

1. From the GrafixStar Display window, select the preset mode that you wish to modify.
2. Choose Edit Mode. The following dialog box appears:



3. Select the display size, number of colors, refresh rate, font size and desktop size that you want for your preset mode. The GrafixStar 700 software only lets you choose the options that are possible with the monitor type you selected—you cannot select options that are displayed with gray text.
4. Choose OK to return to the GrafixStar Display window.

Options

The Edit Mode dialog box has two check boxes which let you enable or disable the VGA feature connector and the VMC Controller. You should only check these options if you are using the feature connector or the VMC Controller to connect your GrafixStar 700 card to other multimedia cards. If you are not using these options, you should leave these boxes unchecked, as the number of available display modes is reduced when the feature connector or VMC Controller is enabled.

What to do if your monitor is not in the list box

If the name of your monitor does not appear in the Monitor Type list box, follow the steps below to choose the correct monitor type.

If, when looking for a suitable display mode, you choose a screen display that your monitor does not support, you can switch back to VGA display mode as follows: Try using ALT+F4, RETURN to exit Windows. If after several attempts ALT+F4, RETURN does not work, exit Windows using CTRL+ALT+DEL. Restart Windows, holding down the CTRL key until Program Manager appears.

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1. Refer to the documentation provided with your monitor to find out its horizontal (**not** vertical) scan frequency range. From the list box, select the highest 'other' option that falls inside your monitor's horizontal scan frequency range. For example, if your monitor has a scan frequency range of 30 kHz-64 kHz, you should select 'Other 64 kHz horizontal scan rate' from the list box.

Caution: Choosing a horizontal scan rate greater than that of your monitor causes your screen display to disappear and may even damage your monitor. Check the documentation for your monitor to find out which display modes it can use.

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2. If you do not know the scan frequency range for your monitor, select the 'Other SuperVGA' option which corresponds to the size of your screen, measured diagonally from corner to corner.
3. If your monitor's screen size is not included in the 'SuperVGA' options, select 'Fail Safe'. However, you should only select this option as a last resort as it restricts you to a display size of 640 x 480.

Tips on choosing display modes

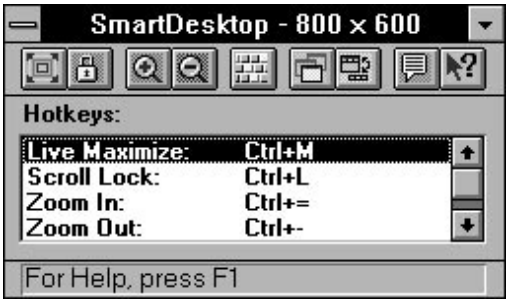
Follow the tips below to choose the best display mode for your application.

- High display sizes are particularly useful if you want to display a large amount of information on your screen. For example, if you are using a spreadsheet and you want to see a large number of columns at the same time, you should choose a high display size for your monitor.
- You should choose the number of colors appropriate to the application you are using: choose 16.7 million colors for applications where fine color definition is important, such as photo editing and graphic arts; choose 65 thousand colors for multimedia and general applications; choose 256 colors if you need a large desktop size, and 256 colors is the only option available at this size.
- There is a trade-off between the desktop size and the number of colors you can use. The larger the desktop, the fewer colors are available. Decide which is more important for your application—having a large desktop area or using the maximum number of colors.
- Choosing a high refresh rate for your monitor makes the screen image sharper and reduces flicker, so as a general rule it's best to choose the highest refresh rate available for your monitor.

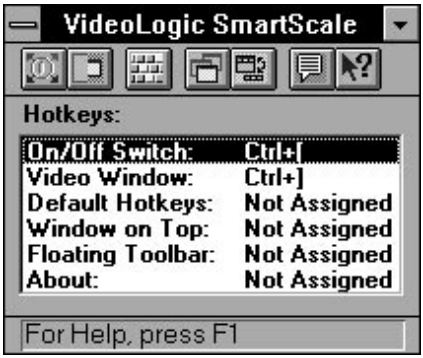
- If you choose Auto Font Size, GrafixStar 700 automatically selects the best font size for your particular screen display size. You can change the setting if you like, but you will probably find it difficult to read small fonts at high display sizes on a small monitor. Use large fonts at display sizes of 1024 x 768 or more if you are using a monitor with a 14 inch screen or less.

The GrafixStar 700 software includes special ‘Smart’ tools which help you control the appearance and behavior of the graphics and video functions of your PC. GrafixStar 700 has the following two Smart tools:

SmartDesktop



SmartScale



Buttons used by all the Smart tools

Some buttons are common to all the Smart tools. These buttons are listed below.

Default Hotkeys

When you press this key, all the Hotkeys revert to their original, default settings. If you want to set your own hotkey combinations, see *Using hotkeys* on page 60.

Window On Top

If you press this button, the SmartDesktop or SmartScale window will always stay on top of other windows, even when it is not the active window.

To switch off this function, press the Window On Top button again.

Floating Toolbar

If you press this button, the SmartDesktop or SmartScale application window changes to a floating toolbar, as shown below.

To return the window to its normal size, press the Floating Toolbar button again.

About

Pressing this button gives you information about the version of SmartDesktop or SmartScale you are using.

Help

When you press this button, the pointer changes to an arrow with a question mark. For information on a particular SmartDesktop or SmartScale function, click on the relevant area of the SmartDesktop window.

Using SmartDesktop

The SmartDesktop program lets you zoom in and out, changing the screen size of your screen to display all or part of the desktop without having to restart Windows.

While SmartDesktop is running, and you have selected a desktop size larger that the display size in GrafixStar Display, certain operations will take place in the area bounded by the display size and not the desktop size. These operations include:

- Tiling and cascading windows. When you choose Tile or Cascade from the Task List window, the tiled or cascaded windows fit into the display size and not the desktop size. In addition, if you have five or more open windows at the time when you choose Tile or Cascade, a dialog box appears asking you to select which windows you want to tile and cascade; other unselected windows are minimized.
- Centering dialog boxes. When SmartDesktop is running, most dialog boxes which appear on the screen are centred in the display size and not the desktop size.
- When SmartDesktop is reduced to a floating toolbar, it stays in the same position in the display when you scroll around the desktop.

- If you place the floating toolbar close to the right hand edge or the bottom of the display, it will stay in this position when you zoom in or zoom out.

In addition to the buttons common to all Smart tools, SmartDesktop uses the following:

Live Maximize

When Live Maximize is selected, pressing the maximize button on a window expands it to fill the display and not the desktop. Also, maximized windows stay maximized when you change the screen size of your display by zooming in or out.

Scroll Lock

This option stops you being able to use the mouse to scroll around the desktop. This function is particularly useful if you want to concentrate on a specific portion of the desktop without accidentally scrolling by moving the mouse off the edge of the screen.

To switch off Scroll Lock, press the Scroll Lock button again.

Zoom In

The Zoom In key is used to decrease the display size area. Each time you press the Zoom In key, your display size changes to the next lowest size available for your monitor. When the display size reaches its smallest possible value (640 x 480), pressing the Zoom In key has no further effect. The current display size is shown in the SmartDesktop title bar.

Zoom Out

The Zoom Out key is used to increase the display size area. Each time you press the Zoom Out key, the size of your display changes to the next highest size available for your monitor. When the display size reaches the highest possible value, pressing the Zoom Out key has no further effect. The display size is shown in the SmartDesktop title bar.

Using SmartScale

The VideoLogic SmartScale application lets you scale up digital video clips which normally play back at a fixed size only.

In addition to the buttons common to all Smart tools, SmartScale uses the following:

On/Off Switch

You can use this button to switch SmartScale on and off. SmartScale gives you full screen video or a video window which you can scale up and move around on the desktop. The system records the size and position of your video window, so that the next time you use SmartScale, your video window will have the same size and be in the same position as the last time it was used.

Video Window

This button switches between the window size that you set and full screen video. While you are running full screen video, all other windows are hidden, except the SmartScale window if you have selected Window on Top. To return the video window to its original size, just click on the video clip.

Using hotkeys

When you use SmartDesktop or SmartScale, you can use special hotkey combinations to perform the various functions quickly and easily.

When you install the GrafixStar software, some of the functions will already have hotkeys assigned to them, while others are unassigned. You can customize any of these settings to have key combinations of your choice.

To change the hotkey settings:

1. Select the function that you want to change by double-clicking on its name in the list box in the centre of the SmartDesktop or SmartScale window, or by scrolling through the list box and pressing ENTER.
2. In the dialog provided, enter the new hotkey combination that you want and choose OK.

Note that you cannot have the same hotkey combination assigned for both SmartDesktop and SmartScale.

Some keystrokes, such as ENTER, are reserved for your system. You cannot select these as hotkeys.

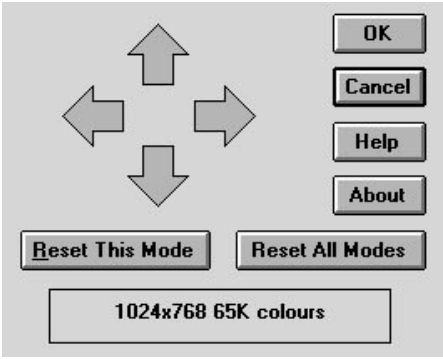
Some shortcut key combinations are commonly used in other applications, for example CTRL+O for Open. If you try to assign one of these combinations as a SmartDesktop hotkey, SmartDesktop asks you to confirm your choice. If you go ahead and confirm your selection, you will not be able to use this key combination as a shortcut in your applications.

Using GrafixStar Display Alignment for Windows 3.1

Sometimes when you change between display modes, the desktop appears off-center on the screen, and you have to use your monitor's alignment controls to readjust your display. The GrafixStar Display Alignment application lets you make this adjustment using software. It also remembers the setting you make, so that whenever you choose the display mode again, the desktop is centered automatically.

To center the desktop on your monitor:

1. Start GrafixStar Display Alignment from the GrafixStar program group. The following display appears:



2. Click on the arrows in the dialog box or use the arrow keys on the keyboard to adjust the position of the desktop on your monitor screen. If you over-adjust in any direction, the screen display may disappear. To recover the screen, either press ESC to return to the default setting or press the arrow key in the opposite direction.
3. Choose OK to save the settings you have made and exit the application.

Choose Cancel to exit the application and ignore any changes you made.

Choose Reset This Mode to revert to the preset setting for the display you are currently using. Pressing the ESC key on the keyboard has the same effect.

Choose Reset All Modes to reset all display modes to their original settings. You should use this if you are connecting a different monitor to your PC.

Using the VideoLogic EnergyStar screen saver for Windows 3.1

During installation the GrafixStar 700 Setup program copies the VideoLogic EnergyStar screen saver to your hard disk. You can use this screen saver to switch DPMS compliant monitors into power saving modes. There are three power saving modes: Standby, Suspend, and Off. The better the power saving the longer the recovery time (the time it takes for your monitor to show its picture again). Standby has the shortest recovery time, and Off the longest.

Caution: Check that your monitor is DPMS compliant before using the VideoLogic EnergyStar screen saver. You can damage non-compliant monitors by using them with this screen saver.

To set up the EnergyStar screen saver:

1. Choose Control Panel from the Main program group.
2. Choose Desktop from the Control Panel program group.
2. Select VideoLogic EnergyStar Screen Saver from the Name list box in the Screen Saver section.
3. Use the Delay box to set the time you want to elapse before your monitor is switched to Standby.
4. Choose the Setup button to display the EnergyStar Screen Saver dialog.

5. Set the time you want to elapse between your display being switched to Standby and being switched to Suspended.
6. Set the time you want to elapse between your display being switched to Suspended and being switched to Off.

   Note that the times for Standby, Suspended and Off are cumulative; for example, if you have set Standby to 5 minutes, Suspended to 10 minutes and Off to 20 minutes, your PC will wait 5 minutes before the monitor is switched to Standby. 10 minutes later, it will go from Standby to Suspended, and 20 minutes after that, the screen will be set to Off. The entire process takes 35 minutes from the moment you last moved your mouse or used your keyboard.

   If your monitor is in Standby or Suspended mode, you can return to the normal screen display simply by moving the mouse.

   If your monitor is in Off mode, the way that you return to the normal screen display depends on your monitor: with some monitors, you can go back to normal display using the mouse, with others, you may have to switch your monitor power off then on again.

Display modes

The display modes supported by GrafixStar 700 depend on the amount of memory installed on your card, as shown in the tables below. If you have the feature connector or VMC Controller enabled, the number of display modes available is reduced.

DISPLAY MODES AVAILABLE WITH ALL CARDS			
Display Size	**Colors**	**Vertical Refresh Rate**	**VESA mode**
640 x 480	256	60*,72*,75*,90,100,120,200	101
640 x 480	65,536	60,72,75,90,100,120,200	111
640 x 480	16.7 million	60,72,75,90,100,120,200	112
800 x 600	256	56*,60*,72*,75*,90,100,120,200	103
800 x 600	65,536	56,60,72,75,90,100,120,200	114
800 x 600	16.7 million	56,60,72,75,90,100,120	112
1024 x 768	256	43i*,60*,70*,72,75,80,100	105
1024 x 768	65,536	43i,60,70,72,75,80,100	117
1152 x 864	256	60,70,72,75,90,100,120	207
1152 x 864	65,536	60,70,75,90,120	206
1280 x 1024	256	43i,60,70,75,90,120	107
1600 x 1280	256	60,80	120

i = interlaced
* = modes available with feature connector
‡ = non-Windows modes

ADDITIONAL DISPLAY MODES AVAILABLE WITH 4 MB MEMORY			
Display Size	**Colors**	**Vertical Refresh Rate**	**VESA mode**
1024 x 768	16.7 million	43i,60,70,72,75,80,100	118
1152 x 864	16.7 million	60,70,75	—
1280 x 1024	65,536	43i,60,72,75,90	11A
1280 x 1024	16.7 million	43i,60	—
1600 x 1280	65,536	60	—

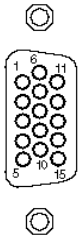
i = interlaced

DISPLAY MODES AVAILABLE FOR OS/2		
Display Size	**Colors**	**Memory Required**
640 x 480	256	2 MB
640 x 480	65,536	2 MB
640 x 480	16.7 million	2 MB
800 x 600	256	2 MB
800 x 600	65,536	2 MB
800 x 600	16.7 million	4 MB
1024 x 768	256	2 MB
1024 x 768	65,536	2 MB
1024 x 768	16.7 million	4 MB
1152 x 864	256	2 MB
1280 x 1024	256	2 MB
1280 x 1024	65,536	4 MB
1600 x 1200	256	4 MB

Monitor connector

GrafixStar 700 uses a standard 15-way high density ‘D’ socket. If your monitor uses a different connector your monitor dealer will be able to supply an adapter.

The pin-outs for this connector are as follows:



Pin	Signal name	Pin	Signal name	Pin	Signal name
1	Red video	6	Red return	11	Unused
2	Green video	7	Green return	12	Unused
3	Blue video	8	Blue return	13	Horizontal
4	Reserved	9	Reserved	14	Vertical
5	Ground	10	Sync return	15	Unused

Power requirements

+5 volts Nominal: 7 Watts Maximum: 8.5 Watts

Operating temperature

GrafixStar 700 operates between 10°C (50°F) and 50°C (122°F).

Expanding your GrafixStar 700 card

You can upgrade your GrafixStar 700 card by installing a VMC Controller. This option comes in two variants: the VMC Controller and the VMC Controller with memory. Both these options are available from us at the addresses given at the bottom of page 83 (USA, Canada and South America) or page 84 (elsewhere).

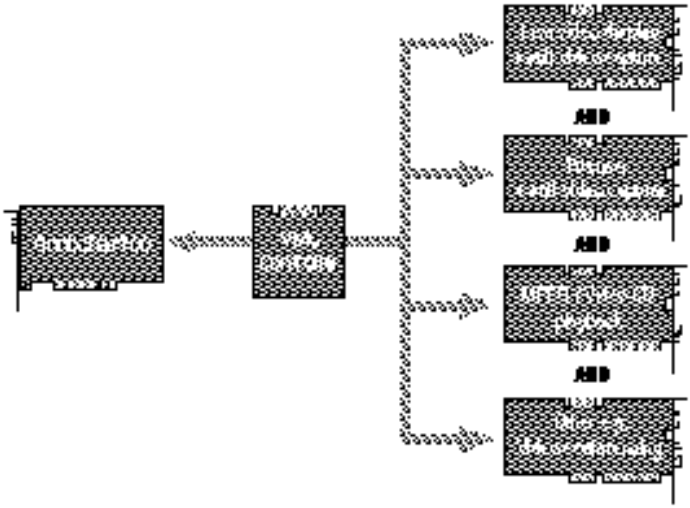
VMC Controller

The VMC (VESA Media Channel) Controller is used to connect your GrafixStar 700 card to additional cards for video in a window, video capture, MPEG playback, and other multimedia functions. The VESA Media Channel is a dedicated channel for real-time video and is independent of the system bus and its limitations. VMC option cards, like those overleaf, are connected to the VMC Controller using a simple ribbon connector.

VMC Controller with memory

As well as providing you with the VMC connector described for the basic VMC Controller, this card carries an extra 2 MB of memory, giving your GrafixStar 700 card a total memory size of 4 MB. This extra memory improves the performance of your card and increases the number of display modes available.

The diagram below shows some of the configurations you can have with a GrafixStar 700, a VMC Controller and VMC option cards.



Two of the VMC option cards that can be used with GrafixStar 700 are described below.

Captivator Pro/Captivator Pro TV

With VideoLogic's Captitivator Pro connected via VMC to your GrafixStar 700, you can link your PC to video input devices such as camcorders and VCRs, so that you can play live video on your PC. You can also convert your videos into digital video AVI files, or capture single frames. The Captivator Pro TV option also allows you to play live TV broadcasts on your PC.

MPEG Player

By adding a VideoLogic MPEG Player card to your VMC multimedia system, you can play back high quality MPEG video on your PC, from sources such as CD-ROM drives or your PC's hard disk.

Installing the VMC Controller hardware

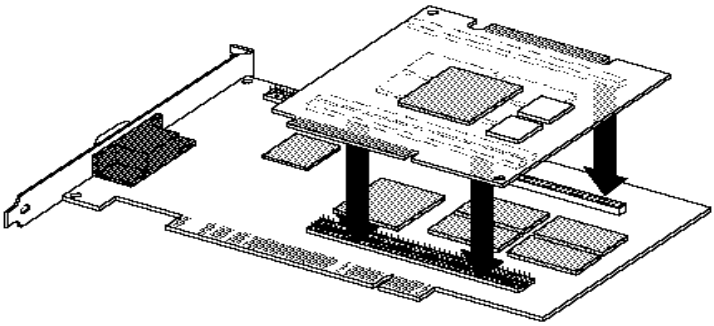
1. Switch off your computer, monitor, and any hardware devices such as printers connected to your computer. Leave the power cable connected to the power outlet so that your computer is grounded.
2. Disconnect the monitor cable from your GrafixStar 700 card.

Warning: Always switch off your computer before removing the cover and observe the warnings specified in the manufacturer's documentation.

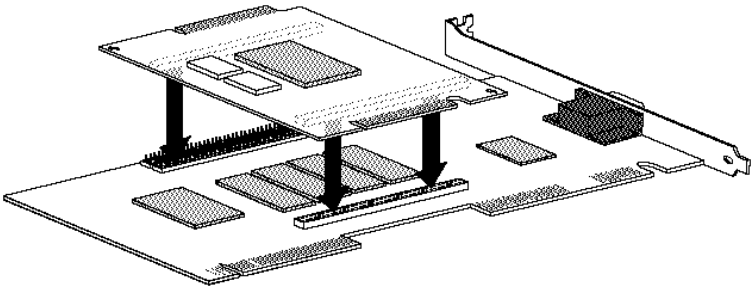
---

3. Remove the computer's cover. You may need to refer to the documentation supplied with your computer for instructions on how to do this.
4. Carefully remove the GrafixStar 700 card and place it on an anti-static, non-metallic surface, with the components and connectors facing upwards. Keep the screw, you will need it later to secure the GrafixStar 700-VMC Controller assembly.
5. Touch the bare metal chassis of your computer to discharge any static electricity that may have built up on you or your clothes.
6. Carefully remove VMC Controller from its anti-static bag.
7. Line up the connectors on the VMC Controller card with the connectors on the GrafixStar 700 card as shown in the diagrams on the next page—the connector pins on the VMC Controller card should be aligned with the connector holes on the GrafixStar 700 card, and vice versa. Make sure that all the pins are correctly aligned and not offset to one side.

Note: the GrafixStar 700 card has two connectors along one side (the bottom of the PCI card or the top of the VL bus card). The outer connector is used only with the VMC Controller with memory; if you are installing a VMC Controller without memory, make sure you line up the holes of the VMC Controller connector with the pins on the inner connector of the GrafixStar 700 card.



Installing VMC Controller with memory on GrafixStar 700 - PCI variant



Installing VMC Controller on GrafixStar 700 - VL bus variant

8. Press on the VMC Controller card so that the pins are fully embedded in their holes. You should press firmly, but do not use excessive force.

9. Install the GrafixStar 700-VMC Controller assembly back into your PC. Follow steps 7-11 of the GrafixStar 700 installation procedure on page 17 of this manual.

Installing the VMC Controller software

Once you have fitted the VMC Controller to your GrafixStar 700 card, you are ready to install the VMC Controller software.

To install the software, carefully follow the installation instructions given below. We assume you are using drive A as your default 3.5" floppy drive. Substitute the correct drive letter for your computer if necessary.

1. Insert the VMC Controller Setup for Windows disk into drive A of your computer.
2. Start Windows and choose Run from the File menu in Program Manager. Type **a:\setup** and choose OK.
3. Follow the instructions that appear on the screen.

Once the software has been installed successfully, your GrafixStar 700 card will start to operate with all the extra functions provided by the VMC Controller.

Appendix A - Troubleshooting

This table provides solutions to the most common problems that happen when installing and using GrafixStar 700.

Problem	Condition	Solution
PC does not start	Old VGA card or graphics controller still active	Remove or disable old VGA card or built-in graphics controller
	GrafixStar 700 not seated correctly in your computer	Check that the connectors on the bottom of GrafixStar 700 are properly inserted in the correct bus slot If you have a VL bus card, make sure it is inserted in a VL bus slot and not an ISA slot (refer to the illustrations on pages 16–17) If you have a PCI card, you may need to move it to another PCI slot
	GrafixStar 700 inserted into a PCI slot reserved for a master hard disk controller, or in a slot on a secondary bus via a PCI to PCI bridge.	Move your GrafixStar 700 card to another PCI slot
	System BIOS out of date	See your PC manufacturer to obtain a BIOS upgrade

Problem	Condition	Solution
Windows does not start	Windows not set up for VGA or GrafixStar 700	Run Windows Setup from DOS in the Windows directory. Change display to VGA. Run GrafixStar 700 Setup from Windows
	There is a conflict between GrafixStar 700 and another card in your PC	Remove the other card. If the problem disappears, contact the manufacturer of the other card
	There is a conflict between GrafixStar 700 and a memory manager such as QEMM, 386MAX or EMM386	See *Appendix B - Memory Management*
Screen not synchronized. Monitor may be blank, flickering, or corrupted	Wrong monitor type chosen in the GrafixStar Display application—monitor cannot support the chosen refresh rate	Exit Windows with ALT+F4, RETURN (or CTRL+ALT+DEL). Restart Windows holding down the CTRL key until Program Manager appears. Run GrafixStar Display and select a lower refresh rate or a smaller display size
	Corruption appears when Borland Turbo C++ version 3.1 debugger is used	Select the Windows VGA driver using the Windows Setup application.
Picture offset to the left of your monitor	This is normal for high refresh rates	Use the GrafixStar Display Alignment application to compensate

Problem	Condition	Solution
Message 'Extremely low on memory' when starting Windows Message 'Group file error' when adding an icon to a group Black, square icons in a program group	Program Manager only allows 16 icons in one program group when using 16.7 million colors, or 32 icons when using 65 thousand colors	Move icons to other groups
Display starts in 640 x 480, 65 thousand colors and GrafixStar Display shows the wrong modes	Display driver was installed using Windows Setup	Install the display driver using the GrafixStar 700 Setup program. Alternatively, you can try the following shortcut: Open the GrafixStar Display application (ignore the display sizes shown), choose OK, and then choose Restart Windows
Cannot increase the size of a Video for Windows window	Some applications (developed before GrafixStar 700) use videos that can only be shown at a fixed size	Use VideoLogic's SmartScale application to enable scaling

Problem	Condition	Solution
AVI files not accelerated	GrafixStar 700 needs Video for Windows v1.1e, but Video for Windows version 1.0 is installed	Run GrafixStar 700 Setup and select the Install Video for Windows option
	GrafixStar 700 supports most AVI compression formats including Indeo, Cinepak, Video 1 and VideoLogic YUV	GrafixStar 700 does not support the video format you are using (e.g. QuickTime 1.x). For more information on the video formats we support, please see our bulletin board (details on page 83–84)
Only some videos are accelerated when they are scaled up (e.g. Microsoft Video 1 8-bit compressed videos are accelerated, but 16-bit Video 1 videos, Indeo videos and CinePak videos are not)	Your GrafixStar 700 card is configured for 256 colors	When your GrafixStar 700 card is configured for 256 colors, only videos recorded using 256 colors (8-bit mode) are accelerated. Use the GrafixStar Display application to choose a display mode which uses more than 256 colors
Video plays slowly or drops frames on playback Videos play worse when zoomed to exactly twice their normal size	Zoom by 2 selected in Media Player or video is exactly twice its default size. Some Video for Windows formats (e.g. Microsoft Video 1) provide special support for Zoom by 2 from within Media Player. Videos in these formats bypass the acceleration provided by GrafixStar 700	Make the window slightly smaller or larger than exactly twice the default size

Problem	Condition	Solution
Media Player plays Full Screen videos at 320 x 240 using 256 colors, and even at such a small display size the performance is poor Application crashes or acts strangely when video is run full screen	The PowerPlay Full Screen Driver (PPDRAW.DRV) is not installed (its name is not listed in the Drivers Control Panel option)	Install the PowerPlay Full Screen driver by reinstalling the GrafixStar 700 software. The PowerPlay Full Screen Driver enables Media Player to take advantage of the scaling and acceleration of GrafixStar 700, providing larger display sizes and more colors
Windows does not restart after installing GrafixStar 700	Windows swap file is corrupt	Set Windows to VGA driver using Windows Setup from DOS. Delete SPART.PAR in \WINDOWS directory. Restart Windows and use the Virtual Memory button in the 386Enhanced Control Panel option to set a new swap file
Screen returns to DOS prompt when Restart Windows is selected	System memory is running low	Return to Windows by typing **win** at the DOS prompt
Message ‘256 color VGA not available’ when running DIB 16/24 AVI files full screen	256 color mode selected	Choose a display mode with 65,536 colors using GrafixStar display

Appendix B - Memory management

Memory managers such as QEMM from Quarterdeck, 386MAX from Qualitas or DOS EMM386 sometimes try to use the same areas of memory as your GrafixStar card. This can cause memory conflicts resulting in problems of the following sort:

- When you try to start Windows using the GrafixStar display driver, Windows does not start and you are returned to the DOS promt.
- Windows behaves strangely or locks up.

If you do experience any of these problems, you should try the following solutions.

QEMM386 Memory Manager

QEMM may cause problems with certain applications, depending on how it was installed. The memory manager may map devices into the area of memory reserved for video, in particular on the A000 or B000 page. To remedy this, exclude this area or memory by having the following line in your CONFIG.SYS file:

DEVICE=C:\QEMM\QEMM386.SYS RAM X=A000-C7FF

If you are using the QEMM Stealth option, you may be returned to the DOS prompt when you try to start windows. If this happens add the statement ‘ST:M XST=C000’ to the QEMM line in your CONFIG.SYS file:

DEVICE=C:\QEMM\QEMM386.SYS RAM X=A000-C7FF
ST:M XST=C000

If you are using the MONOUMB command in the Windows SYSTEM.INI file to let the memory manager use the B000 RAM page monochrome area, and Windows does not work when you try to run it, edit your Windows SYSTEM.INI file as follows:

In the [386ENH] section, either remove the line DEVICE=MONOUMB2, or disable it by placing a semicolon (;) in front of it.

386MAX Memory Manager

If any problems occur, there are several ways in which you can fix them. First, exclude the video memory area by having the following line in your CONFIG.SYS file:

DEVICE=C:\386MAX\386MAX.PRO EXCLUDE=A000-C7FF

You can also edit the 386MAX.PRO file as follows:

Disable the VGASWAP command by placing a semicolon (;) in front of it. Also disable any comands which map memory areas that conflict with video memory (A000 to C7FF).

If none of these work, reinstall 386MAX, choosing “No” to the following options:

ROMSEARCH
MDA AREA
VGASWAP

DOS EMM386 Memory Manager

Normally the DOS memory manager should not cause any problems, as it does not usually map devices in to the video memory area. As precaution, however, you can add an EXCLUDE statement to the CONFIG.SYS or SYSTEM.INI file.

Have the following line in your CONFIG.SYS file:

DEVICE=C:\DOS\EMM386.EXE X=A000-C7FF

Add the following line to the [386ENH] section of your SYSTEM.INI file:

EMMExclude=A000-C7FF

Appendix C - Technical support

If you have a problem with your GrafixStar 300 card, go though the steps below to get your system running again as quickly as possible. There are two sequences, depending on whether you are in USA, Canada and South America or elsewhere in the world.

USA, Canada and South America

1. Check the Troubleshooting section starting on page 75. It contains a list of likely problems and solutions.
2. Dial 800 203 8587 for our FaxBack service where you will find a constantly updated list of common questions and answers, as well as a list of the latest software versions available.
3. Contact us online using one of the following services.
   - Internet web site: http://www.videologic.com
   - Internet FTP site: ftp://ftp.videologic.com
   - Microsoft Network: Go to VideoLogic
   - CompuServe: GO VIDEOLOGIC
   - Bulletin board: 415 875 7748 (to 28800 baud, 8-N-1)
4. Contact your original supplier for technical help.
5. Call our customer support group at 415 875 0606. To help us help you quickly and efficiently, please fill out as much of page 85 as you can.

For further information on VideoLogic products and services, or to order your extra memory, contact us at the following address:

VideoLogic Inc., 1001 Bayhill Drive, Suite 310, San Bruno, CA 94066, USA. Telephone: 800 578 5644.
Fax: 415 875 4167. E-mail: sales_usa@videologic.com

Outside USA, Canada and South America

1. Check the Troubleshooting section starting on page 75. It contains a list of likely problems and solutions.
2. Dial +1 800 203 8587 for our FaxBack service where you will find a constantly updated list of common questions and answers, as well as a list of the latest software versions available.
3. Contact us online using one of the following services.
   - Internet web site: http://www.videologic.com
   - Internet FTP site: ftp://ftp.videologic.com
   - Microsoft Network: Go to VideoLogic
   - CompuServe: GO VIDEOLOGIC
   - Bulletin board: +44 1923 271301 (to 28800 baud, 8-N-1)
4. Contact your original supplier for technical help.
5. Call our customer support group at +44 1923 271300. To help us help you quickly and efficiently, please fill out as much of page 85 as you can.

For further information on VideoLogic products and services, or to order your extra memory, contact us at one of the following addresses:

VideoLogic Limited, Home Park Estate, Kings Langley, Hertfordshire, WD4 8LZ, UK.
Telephone: +44 1923 260511
Fax: +44 1923 268969
E-mail: sales@videologic.com

VideoLogic GmbH, Max Planck Str. 25, D-63303 Dreieich, Germany.
Telephone: +49 61 03 93470.
Fax: +49 61 03 311022
E-mail: sales_gmbh@videologic.com

GrafixStar 700 checklist

GrafixStar 700 serial number _____

VL bus or PCI bus _____

With or without VMC Controller _____

VMC Controller

with or without memory _____

Computer make and model _____

_____

Monitor make and model _____

_____

Display size used _____

Number of colors _____

Maximum monitor refresh rate _____

Hard disk capacity _____

RAM capacity _____

Windows version number _____

DOS version number _____

Other cards installed _____

_____

_____

GrafixStar 700 purchased from _____

_____

_____

Appendix D - Notices

RADIO AND TELEVISION INTERFERENCE

This equipment has been tested and found to comply with the limits for a Class B digital device, in accordance with Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Unauthorized modification of this equipment may make it illegal.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio and television reception (determined by turning the equipment off and on) you can try to correct this interference by one or more of the following measures:

Adjust the angle and/or position of the receiving antenna.

Increase the distance between the equipment and the receiver.

Connect the equipment to an outlet on a different power circuit from that to which the receiver is connected.

Consult your VideoLogic dealer or an experienced radio/TV technician for help.

ELECTROMAGNETIC COMPATIBILITY (EUROPE)

This equipment has been tested, as a component part of a system, to verify its capability to comply with the European new approach directive on EMC (Directive 89/336/EEC). VideoLogic has demonstrated that the unit can comply with EN55022 when installed.

It is the responsibility of the user or system integrator to make sure that the system in which this product is installed complies with the national requirements.

PRODUCT SERVICE

All VideoLogic products carry a 12 month warranty. If you have a problem with a VideoLogic product, contact your Reseller or place of purchase first. Authorized VideoLogic Resellers will be able to identify faults for you. Products returned under warranty with relevant proof of purchase are serviced or replaced free of charge.

LIMITED WARRANTY

VideoLogic warrants the Product to be in good working order for a period of five (5) years from the date of purchase (the "Warranty Period"), as indicated on the sales receipt. Should the product not be in good working order VideoLogic will, at its option, repair or replace the Product free of charge. This Warranty does not cover damage that occurs as a result of negligence in shipment or that results from alteration, accident, misuse or neglect. Repair parts and replacement Products will be furnished on an exchange basis and will either be new, equivalent to new or reconditioned. All replaced parts and Products will become the property of VideoLogic.

Warranty service may be obtained by delivering or shipping the Product, postage prepaid, prior to the expiration of the Warranty Period to a VideoLogic Authorized Reseller for the Product, together with proof of purchase and a description of the problem. VideoLogic requests (but does not require) that you complete and return the Warranty Registration Card enclosed, in order to verify warranty status in the event of a dispute.

THIS IS A LIMITED WARRANTY; VIDEOLOGIC MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL VIDEOLOGIC BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES EVEN IF IT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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VideoLogic Ltd. ("VideoLogic") agrees to grant and Licensee to accept a non-exclusive non-transferable license to use the software and any part of it ("Software") contained in this product on the terms below.

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2. to modify the Software or merge it in machine readable form into another program, any merged program to be subject to this License
3. to copy the Software for back-up purposes provided no more than 3 copies are in existence at any one time to store the Software on the system or other storage unit on disk
4. to store the Software on the system or other storage unit on disk

PROHIBITED USE

The Licensee shall not

1. use copy or modify the Software save as provided herein and having reproduced on all copies any copyright notice of VideoLogic or its suppliers
2. provide or otherwise make available Software in any form to any person other than in confidence to Licensee's employees
3. remove or obscure any trademark or copyright notices
4. decompile disassemble or reverse engineer the Software
5. copy the Software operating manuals additional copies of which can be obtained from VideoLogic or its distributors

WARRANTY

Software is not warranted to be error free and existence of errors will not breach this License. Subject thereto and provided that non-compliance is not caused by modification or addition to Software not performed by VideoLogic nor by incorrect use abuse or corruption nor by use with or on incompatible software or hardware VideoLogic warrants Software will for 90 days from delivery to Licensee comply with VideoLogic's then standard specification and in event of breach will at its sole option either refund license fee or endeavor to correct Software. Save as otherwise provided all implied warranties conditions or terms are excluded to the fullest extent permitted by law. Except in respect of death or personal injury caused by VideoLogic's negligence VideoLogic shall not be liable to the Licensee for consequential or indirect loss (whether loss of profit or otherwise) costs or expenses whatsoever arising in connection with the supply of the Software its use or loss or interruption of use.

INTELLECTUAL PROPERTY

The trademarks names copyright and other intellectual property rights whatsoever subsisting in the Software and operating manuals (including but not limited to all programs compilation of command words other syntax contained therein) are and shall remain the sole property of VideoLogic and its suppliers.

CONFIDENTIALITY

All information data drawings specifications software listings source and object codes are proprietary and confidential and shall not be disclosed to any third party without VideoLogic's written consent.

TERMINATION

This License shall remain in force until terminated (without prejudice to any other right or remedy of VideoLogic) by written notice by VideoLogic to Licensee if Licensee is in breach of any provision of this License makes any voluntary agreement with its creditors becomes subject to petition for an administration order or (being an individual or a firm) becomes bankrupt or (being a company) goes into liquidation (otherwise than for the purposes of amalgamation or reconstruction) or if an encumbrancer takes possession or a receiver is appointed of any property or assets of Licensee. On termination Licensee shall forthwith return or destroy (as VideoLogic directs) Software all copies and modifications thereof and operating manuals and certify same has been done.

GENERAL

This License which shall be construed in accordance with laws of England shall not affect statutory rights of customers. If any provision of this License is invalid or unenforceable in whole or in part the validity of other provisions of this License and remainder of the relevant provision shall not be affected. Headings are for convenience only and shall not affect construction.

Appendix E - More about CODECs

This appendix is intended as a guide for those of you who have a video capture card for recording your own digital videos, or for those of you who are choosing digital videos to play back on your PC. It provides an overview of the main CODECs (COmpressors DECompressors) that can be used with Media Player, and describes their suitability for use with GrafixStar 700.

RLE (Run Length Encoding)

This technique recognizes sequences of the same pattern of data and replaces them with the pattern and the number (count) of consecutive occurrences of the pattern. This CODEC works best in videos where there are large expanses of identical color information, so it is well suited to computer generated graphics or animated drawings, but less suited to live video.

Microsoft Video 1

This CODEC aims at producing the highest quality video playback for a given bandwidth. It can work with 16-bit or 8-bit color; with 8-bit color, it produces a 256 color palette for the entire video sequence, which works well where there is little variation in color information throughout the clip. However Video 1 is not ideally suited for the scaling features provided by the VMC Controller.

SuperMac Cinepak

Like Video 1, Cinepak attempts to provide the best quality for a given bandwidth. It uses compression techniques which give good results with videos that have a lot of motion or action, although with less animated ‘talking head’ type videos, there tends to be a lot of ‘noise’ in the background. Cinepak’s decompressor works quickly, and is well suited to slower PCs.

Intel Indeo

This technique aims at producing consistent quality for each frame, and so the data rate may vary over the sequence, depending on the complexity of the image. It is particularly effective on fast PCs.

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