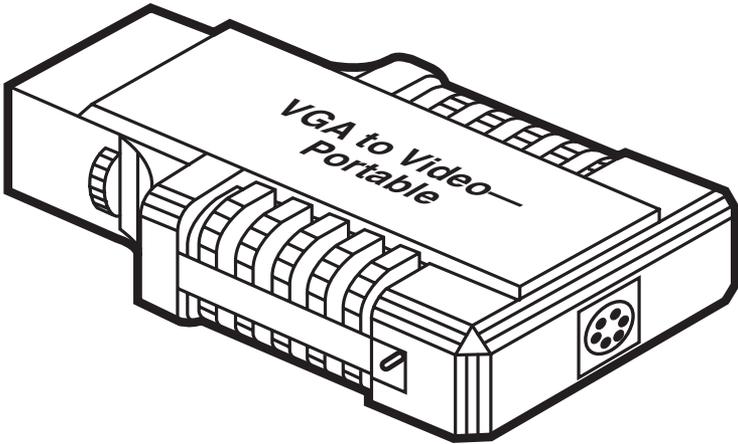




## VGA to Video—Portable



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# 1. Specifications

**System Requirements** — Notebook PC with external 15-pin VGA connector, MS-DOS<sup>®</sup> 3.0 or higher, 640K memory or larger

**Resolution** — 640 x 480

**Colors** — 256

**Input Signal** — Analog RGB signal from notebook PC's external VGA 15-pin connector, 0.7 volt peak to peak

**Outputs** — US Standard (NTSC), Composite color NTSC: 1 volt peak to peak (AV connector), S-VHS (Y/C) NTSC (4 pin DIN): Y= 0.1 volt peak to peak, C = 0.028 volt peak to peak

**Drivers** — Windows<sup>™</sup> 3.1

**Compatibility** — Compatible with windowing boards (IBM<sup>®</sup> M-Motion, etc.)

**Connectors** — (1) DB9, (1) RCA<sup>®</sup>

**Power** — AC adapter, power consumption: 6 to 9 volts DC, 120 mA

**Size** — 0.75"H x 2"W x 6.3"D  
(1.9 x 5.1 x 16 cm)

**Weight** — 1.5 lb. (0.7 kg) (not including power supply)

**Table 1-1. VGA Modes Supported.**

<b>MODE</b>	<b>TYPE</b>	<b>RESOLUTION</b>	<b>COLOR</b>	<b>TYPE</b>
0+, 1+	TEXT	40 cols x 25 rows, 9x16 cell	16	VGA
2+, 3+	TEXT	80 cols x 25 rows, 8x14 cell	16	VGA
11H	Graphic	640 horz. x 480 vert.	2	VGA
12H	Graphic	640 horz. x 480 vert.	16	VGA
13H	Graphic	320 horz. x 200 vert.	256	VGA

VGA = Video Graphics Array (Analog, 720 x 400 & 640 x 480, 31.5 KHz)

## 2. Introduction

Notebook users are generally aware of the disadvantages of the notebook PC's LCD display. The display is in black and white, it is small, and it can be hard to see from the side. You may be able to improve the display by attaching a full-size color monitor to the external VGA port, but it is difficult to carry an extra monitor with you wherever you go. Besides, a large VGA or Multisync Monitor adds cost.

Now, the VGA to Video—Portable provides an excellent solution to all these problems by converting the Notebook PC's display signal to NTSC standard video signal. This enables you to view your Notebook LCD display in full color on any TV monitor or TV projector. Or you can even record your computer presentation on a VCR for distribution or future viewing.

### 2.1 An Introduction to Video Standards

**Television:** Most video systems use AV composite signal or S-Video signal to carry image data. The standard in the U.S. is NTSC.

VGA, the primary display device supported by Notebook PCs is by far the best display media on the low-end PC graphics market. It has gray level capabilities and circuits for

displaying real-world images instead of artificial computer graphics. The standard VGA is compatible with CGA and EGA, and can be operated in 320 x 200 resolution, 256 colors/64 gray scale and 640 x 480 resolution, 256 colors.

The difference between VGA and TV signals are:

**VGA (Video Graphics Array):** A computer monitor display standard which provides for resolutions as high as 640 x 480 pixels and 256 colors out of a palette of 262.

**NTSC:** (National Television Standard Committee): The organization that specified the television standard used in North America and several other countries. 525 lines, 60 frames per second, 2 frames per field.

VGA compared to TV:

- Horizontal Frequency  
VGA: 31.5 KHz  
TV : 15.7 KHz
- Vertical Frequency  
VGA: 70.0 KHz  
TV : 60.0 KHz
- VGA: Non-Interlaced Scan  
TV : Interlace

You can see from the information above that the image quality of VGA is superior to TV Quality.

### 2.2 Hotkeys and TSR Programs

Programs such as SideKick® or DOS graphic execution files are executed and kept in a PC's RAM—Random Access Memory. This means once they are activated they are stored in memory for instant use when needed. This type of program is called a TSR (Terminated, and Stay

Resident) Program. A TSR allows you to activate the program with a hotkey. A hotkey is a sequence of keystrokes or combination of keystrokes that when touched activate the program.

The VGA to Video—Portable provides a TSR program. Once the program is installed, you can bring up the display-switch function by pressing the pre-defined hotkey (described later).

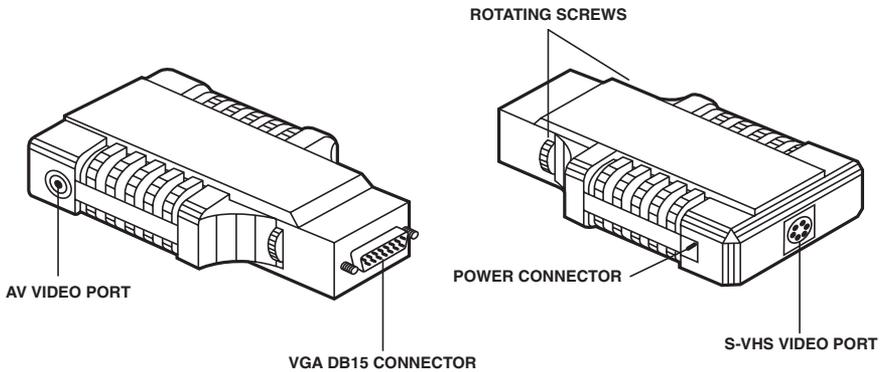


Fig. 2-1. VGA to Video—Portable.

## 2.3 VGA to Video—Portable

The VGA to Video—Portable works as an interface between the VGA signals of your PC and the video signals that your TV accepts. It converts the VGA signal to a standard TV (NTSC) signal. The VGA to Video consists of two parts: (1) VGA to Video unit and (2) VGA to Video software.

### 2.3.1 VGA TO VIDEO UNIT

VGA to Video has been specifically designed to be used with notebook computers. You can securely attach it by using the rotating screws, just as you would connect your color VGA monitor. The unit receives the signal from the external VGA connector of your notebook. Output to the TV can be connected to the AV connector port or the S-VHS port.

### 2.3.2 VGA TO VIDEO SOFTWARE

Once the TSR program is installed, it stays in the system's memory until the PC is turned off. You can use the VGA to Video software to toggle between displaying the computer image on the TV and your Notebook.

*How VGA to Video Software works with Your Notebook*

Before activating the VGA to Video software with a hotkey, learn how the software drivers work.

The hotkey allows you to flip between showing the display on your Notebook or the TV display. You can use the software driver supplied by the VGA BIOS manufacturer. This is the hotkey you would normally use to switch to an external VGA Monitor. This hotekey is

defined by your notebook manufacturer. With some notebooks you must first use the notebook hotkey to switch from LCD to VGA and then use the VIDEOKEY hotkey to switch from VGA to TV. In other cases you can just use the hotkey as defined by the VIDEOKEY software. While you're using VIDEOKEY, the TV takes the place of the VGA monitor.

Check with the owner's manual your notebook for the LCD-to-VGA hotkey on your system.

### 2.4 Getting Started

Your complete VGA to Video—Portable comes with the following items:

- VGA to Video—Portable Unit
- A/C Power Adapter
- AV Shielded Cable
- S-VHS Cable
- VGA to Video—Portable Software Disk

## 3. Installation

### 3.1 Using the Software

#### 3.1.1 BACKUP

As with any software that you purchase, you should make a backup copy of the VGA to Video software and store in a safe place.

1. Copy your VGA to Video software onto your notebook PC.

- A. Make a directory—type

```
C:> MD VGATOVVIDEO
```

- B. Copy all the files to the newly created directory.

```
C:> COPY A:\*.* C:\VGATO  
VIDEO
```

2. Plug the VGA to Video unit into the notebook's external DB15 VGA connector
3. Tighten the rotating screws of the VGA to Video for a secure connection.
4. Connect the A/C Power Adapter to the VGA to Video, and the plug adapter into an A/C power source.
5. Connect the AV cable or S-VHS cable to your TV's Video input port and to the VGA to Video's AV or S-VHS output port.

AV CABLE (composite Video Signal) contains the basic intensity, color, and timing information necessary for video.

S-VHS is a new standard for video in which the luminance and chrominance elements of a video signal are isolated from each other, resulting in a clear image with significantly higher resolution. Most newer high-quality TV's and VCR's offer S-VHS input.

6. Turn on your TV set. Select the AV channel or select "VIDEO" input.
7. Turn on your notebook.

### 3.1.2 SOFTWARE

Before continuing, check the LCD display on your notebook. Some systems will sense the presence of an external VGA connection and others will not. If your system does not sense external VGA, then follow the instructions below.

1. A message will be displayed on the LCD screen of the notebook. Use the notebook's hotkey to Switch to VGA display. This hotkey is defined by the notebook manufacturer as mentioned above.

A. Change to the VGATOVIDEO directory:

```
c:> CD VGATOVIDEO <ENTER>
```

B.) Type the VIDEOKEY Command:

```
c:> VIDEOKEY <ENTER>
```

Now use the hotkey to switch from VGA to TV:

C.) Press the VIDEOKEY hotkey, [Alt] + [Left Shift] + [Enter].

You should now see the screen display for VIDEOKEY driver on the TV as shown in Fig. 3-1.

### 3.1.3 AUTOMATIC EXTERNAL VGA SENSING

Most newer notebook computers can sense if the external VGA is in use. If your notebook has this capability, then follow the instructions below.

1. Follow instructions A through C, above. Once your notebook is fully booted, your notebook screen will be blank and the TV will be blank.

2. Type the following to change to the VGATOVIDEO directory:

```
c:>CDVGATOVIDEO <ENTER>
```

3. Type the VIDEOKEY command:

```
c:>VIDEOKEY <ENTER>
```

4. Press the VIDEOKEY hotkey, [Alt] + [Left Shift] + [Enter].

## VIDEOKEY DRIVER (VERSION 1.01)

\*\*\*VIDEOKEY Driver Transfer VGA Frequency to NTSC Frequency  
 \*\*\*HOTKEY Functions:

[Alt]+[left Shift]+[Enter]	: Toggle between VGA and TV
[Alt]+[Left Shift]+[TAB]	:Change screen size and interlace/ noninterlace on TV
[Alt]+[Left Shift]+[UP]	: Scroll picture UP on TV screen
[Alt]+[Left Shift]+[DOWN]	: Scroll picture DOWN on TV
[Alt]+[Left Shift]+[LEFT]	:Scroll picture LEFT on TV screen
[Alt]+[Left Shift]+[RIGHT]	:Scroll picture RIGHT on TV

**Fig. 3-1. TV Screen Display.**

Now you can work on any software and you will see it displayed on the TV. For switching back to LCD display use the VIDEOKEY hotkey, [Alt] + [Left Shift] + [Enter], for switching from VIDEOKEY to VGA. Then press the notebook's hotkey to switch from VGA to LCD.

You can create a batch file or add the VGA to Video driver commands to your AUTOEXEC.BAT file for easier execution. See **Section 3.2** for these tips.

If neither of the above methods worked on your notebook, then follow the instructions below.

1. Remove the VGA to Video from the external VGA port.
2. Reboot your notebook. The LCD display should come up as normal.
3. Attach the VGA to Video to your external VGA port.

4. Initiate Software:

A. Change to the VGATOVIDEO directory.

c:> CD VGATOVIDEO <ENTER>

B. Type the VIDEOKEY Command.

c:> VIDEOKEY <ENTER>

The driver screen will appear on your LCD Display.

5. Use the notebook's hotkey to Switch to VGA display. This hotkey is defined by the notebook manufacturer as mentioned above.

Now use the VIDEOKEY hotkey to switch from VGA to TV.

6. Press the VIDEOKEY hotkey, [Alt] + [Left Shift] + [Enter].

You should now see the screen display for VIDEOKEY driver as shown above in Fig. 3-1, on the TV.

## 3.2 VGA to Video Advanced Functions

Once you have installed the VGA to Video hardware and software, you can now view any software in color on the TV.

Additional VGA to Video functions are described in the next two sections, **Sections 3.2.1** and **3.2.2**.

### 3.2.1 DISPLAY OPTIONS

#### *Display Mode Toggle*

The VGA to Video offers the capability to switch between the TV display and the display on your notebook.

[Alt] + [Left Shift] + [Enter]

### **CAUTION**

**Do not use the hotkey while loading any application software—it may cause unexpected results.**

#### *Display Options*

This hotkey offers you four different display options.

[Alt] + [Left Shift] + [Tab]

1. Original non-interlaced display screen.
2. Original interlaced display screen.

3. Enlarged non-interlaced display screen.
4. Enlarged interlaced display screen.

### **NOTE**

**While using interlaced display, if you see screen display in reverse order, press the hotkey [Alt] + [Left Shift]+[I] to correct the display.**

#### *Screen Movement*

The VGA to Video software can adjust the position of the screen display on the TV. Use the following hotkeys to position your presentation the way you want it.

1. SCROLL UP: [Alt] + [Left Shift] + [Up] Use this control to move the TV display area up.
2. SCROLL DOWN: [Alt] + [Left Shift] + [Down]
3. SCROLL LEFT: [Alt] + [Left Shift] + [Left] Use this control to move the TV display area left.
4. SCROLL RIGHT: [Alt] + [Left Shift] + [Right]

Use this control to move the TV display area right.

**3.2.2 COMMAND FUNCTIONS**

When you are at the C:\VGATOVVIDEO> prompt, you can enter the following commands:

VIDEOKEY: Installs VGA to Video Driver

VIDEOKEY /D: Releases driver

VIDEOKEY /A: Auto switch function

VIDEOKEY ?: Displays help message

1. VIDEOKEY: This command will load the VIDEOKEY drivers and TSR program. After loading drivers you may toggle between VGA display and TV display modes.

2. VIDEOKEY /D : This command will release the VIDEOKEY drivers and TSR program from your system memory.

You should see the following message displayed.

VIDEOKEY DRIVER (Version 1.01)  
\*\*\* Thanks for using Videokey Driver.\*\*\*

If you have not yet installed the VIDEOKEY driver and use the Videokey /D command, you will see a message that VIDEOKEY driver is not installed.

### CAUTION

**Before releasing VIDEOKEY driver be sure to change back to your LCD display. Otherwise you will release the driver and you will have nothing displayed on the TV. or your LCD display. If this happens, don't panic. Use the VGA hotkey from the VGA Manufacturer to switch back from VGA to LCD display.**

3. VIDEOKEY /A This command will allow you to display the TV screen without entering the hotkey [Alt] + [Left Shift] + [Enter].

Some notebooks allow you to switch display between LCD and external VGA without the use of an additional hotkey to switch from LCD to External VGA port. See **Section 3.3** for more about using this function..

4. VIDEOKEY /?: Displays VIDEOKEY driver hotkey menu

### 3.3 Installation Tips

If the VIDEOKEY /A command works for your Notebook, you can add the VIDEOKEY /A command to your AUTOEXEC.BAT file, or you can create a batch file to initiate the VIDEOKEY Drivers.

#### 3.3.1 CREATE A BATCH FILE

While at the DOS prompt, change to the root directory.

```
c:> CD\ <ENTER>
```

Then create your batch file by typing the following:

```
c:> COPY CON VK.BAT <ENTER>
CD C:\VIDEOKEY <ENTER>
VIDEOKEY /A <ENTER>
CD C:\ <ENTER>
```

Press <F6> followed by <enter>.

You now have a batch file which will automatically load the VGA to Video software drivers and switch you to the TV mode, simply by typing "VK" at the DOS prompt.

### 3.3.2 EDIT YOUR AUTOEXEC.BAT FILE:

#### NOTE

If you are unfamiliar with this type of procedure, we recommend that you contact your dealer before trying by yourself.

1. Copy your existing AUTOEXEC.BAT file to "AUTOEXEC.BAK"

TYPE:

```
c:>COPY AUTOEXEC.BAT
AUTOEXEC.BAK <ENTER>
```

If you are using DOS 5.0 or above:  
 c:> CD DOS <ENTER>  
 c:\dos> EDIT C:\AUTOEXEC.BAT  
 <ENTER>

Add the following lines to your Autoexec.bat file:  
 CD C:\VIDEOKEY <ENTER>  
 VIDEOKEY /A <ENTER>  
 CD C:\ <ENTER>

Save as AUTOEXEC.BAT.

#### NOTE

Change your AUTOEXEC.BAT file only if you want your system to automatically use the VGA to Video everytime you turn your computer on.

If your notebook requires the use of the VGA hotkey, you can include this command in your batch file or AUTOEXEC.BAT file as well. For example, for notebooks using a Cirrus VGA Chip should have the VGA Hotkey Driver "EAGLE.COM." You can add the command line to your file.

```
*****
*****
EAGLE CRT
VIDEOKEY /A
```

### 3.3.3 ERROR MESSAGES

There are two cases that will cause the VIDEOKEY driver to not be installed.

1. Your DOS version is lower than DOS 2.0.
2. Your VGA chip is not a standard VGA chip.

Both of these situations are very rare. If you have one of these problems, contact your dealer.

## 4. Troubleshooting

**Problem:** Nothing is displayed on TV.

**Solution:**

- A. Make sure the Power Adapter is connected to the VGA to Video unit.
- B. Make sure you have selected “VIDEO” input on your TV, or that you have selected the proper channel for video display.
- C. Make sure that the VGA to Video unit is plugged firmly in your notebook’s external VGA connector.
- D. Make sure the video cable is firmly connected to the VGA to Video unit and the TV set.
- E. Check to see which display mode you are in. There are 3 possible display modes you could be in: LCD, VGA, and TV.
- F.) You may have released the VIDEOKEY driver without changing back to the LCD display. Use the hotkey supplied by the VGA BIOS manufacturer and switch to the LCD display.

**Problem:** The system shuts down while using the VGA to Video—Portable.

**Solution:**

- A. Avoid using any VIDEOKEY hotkey while you are loading application software. Wait until the selected software is finished loading before using the hotkey functions.
- B. There might be a conflict with your mouse driver. Be sure to install the mouse driver before installing the VIDEOKEY driver.
- C. There might be a conflict with another TSR program. Release other TSR programs while using VGA to Video.
- D. There might be a conflict with application software. Try running the software without using VGA to Video.

**Problem:** Some characters change color while switching to TV mode.

**Solution:** Switch to TV mode before activating the application software.

**Problem:** The vertical is out of lock (TV screen jumping up and down) or the TV changes from color to monochrome.

**Solution:** Check to make sure you are using the same video system (NTSC or PAL) in the VIDEOKEY Driver. (PAL is used in Asia and Europe.)

**Problem:** The hotkey doesn't work.

**Solution:**

- A. Check whether the VIDEOKEY driver is installed or not.
- B. You cannot use a hotkey in some applications, such as Windows. In this case switch to TV mode first, then run the application software.
- C. Make sure your display is in VGA mode or TV mode. If you are in LCD mode, the hotkey will appear to malfunction. Switch to TV mode.
- D. Reactivate the VIDEOKEY driver with hotkey.

**Problem:** The top and bottom of display is clipped for 640 x 480 NTSC mode.

**Solution:** The TV's NTSC mode cannot display widely enough for the VGA mode with 480 horizontal lines. The TV can only display 470 lines. You can use the VIDEOKEY advanced functions to position the display up, down, left or right on the TV for the best view.

**Problem:** The TV flickers or blinks.

**Solution:**

- A. Your hard drive might be processing data. When the drive is finished, flickers and blinking will disappear.
- B. The VGA to Video driver may conflict with another TSR program such as HIMEM.SYS installed with DOS Config.sys. Remove other TSR programs.
- C. The problem might be caused by different interlaced fields. VGA mode is a noninterlaced type with refresh rate 60 Hz to 70 Hz per seconds. NTSC however, is an interlaced field, one field, its refresh rate is 60 Hz (60 fields) per second, or 30 Hz (30 frames) per second. So everything in VGA monitor will be slowed down while transferred to TV. This is the reason why a contrasting horizontal color line may flick more intensely than a dot or a table of changing color.

**Problem:** Ghost or crosstalk in text and color border.

**Solution:** Because the computer displays faster than the TV does, the ghosting may appear while the VIDEOKEY transfers signals from higher speed VGA signal. You may wish to use the S-VHS port instead of the AV port, if the TV supports S-VHS.

## Appendix: Enhancing Your Presentation

1. When switching between the LCD panel and TV, always use the HOTKEYS as follow:

LCD panel → VGA → TV

or

TV → VGA → LCD panel

2. While presenting your demonstration with the VGA to Video—Portable, it is best to have horizontal lines that are doubled or tripled rather than a single horizontal line. This is because the TV's scan is always interlaced, so your presentation will look better if it is designed with many different colors and multiple horizontal lines instead of just a single white line.

3. Adjust the TV color as dark a possible, because a brighter picture may show TV scan lines.

4. Check with your dealer for the latest in presentation software. The use of presentation software programs coupled with the VGA to Video—Portable can enhance the quality and professionalism of your presentation or demonstration.

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