VGA/Video Portable Pro

FEDERAL COMMUNICATIONS COMMISSION
AND
INDUSTRY CANADA
RADIO FREQUENCY INTERFERENCE STATEMENT

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. 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. If this equipment does cause harmful interference to radio or telephone reception,which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

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

- Consult an experienced radio/TV technician for help.

Caution:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

NORMAS OFICIALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

**System Hardware
Required —**   Computer of one of these types:
                     • IBM AT, PS/2, or compatible with VGA output, or
                     • Apple Macintosh or compatible supporting standard
                       Macintosh display mode (640 x 480, 31.5 or 35 KHz)
                       or SVGA-compatible 800 x 600 video (as described
                       below in **Resolutions Supported**);
                     TV set with one of these inputs: composite video,
                       S-Video, analog RGBS video, or (with modulator) RF

**System Software
Required —**   None

Compliance —   FCC Class B, IC Class/classe B

Standards —   Computer-video input/output:
                       VGA or Macintosh (user-selectable);
                     TV-video output:
                       AC331A: NTSC (60 Hz);
                       AC331AE: PAL (56 Hz)

Interfaces —   Input: VGA or Macintosh video;
                     Output: Composite video, S-Video, RGBS video,
                       and VGA or Macintosh video

Color —   Full color support, including 24-bit (true color) input

**Resolutions
Supported —**   VGA: 800 x 600 (at 35.2 KHz hsync/56 Hz vsync *only*)
                       or 640 x 480 (at up to 37.9 KHz hsync/72 Hz vsync);
                     Mac: 800 x 600 (at 35.2 KHz hsync/56 Hz vsync *only*)
                       or 640 x 480 (at 35 KHz hsync/66 Hz vsync or
                       31.5 KHz/60 Hz)

Horizontal Sync.
Supported —   24 to 38 KHz (autosensing)

Vertical Sync.
(Refresh Rates)
Supported —   56 to 72 Hz (autosensing)

Maximum
Distance —   50 ft. (15.2 m) to any input or output device

User Controls —   (2) Side-mounted slide switches: (1) for VGA or Mac
                         input/output, (1) for ZOOM/UNZOOM
                         (underscan);
                         (2) Side-mounted screwdials: (1) for brightness,
                         (1) for horizontal positioning

Indicator —   (1) Top-mounted Power LED

Connectors —   (6) Side-mounted:
                         (2) DE15 ("DB15HD," "HD15") female for
                         computer video: (1) input, (1) output;
                         (1) RCA jack for composite video output;
                         (1) 4-pin mini-DIN for S-Video output;
                         (1) DE9 ("DB9") female for RGBS video output;
                         (1) Barrel jack for power input;
                         (2) Macintosh adapter cables included:
                         (1) DE15 ("DB15HD," "HD15") male to DA15
                         ("DB15") male,
                         (1) DE15 male to DA15 female

Power —   AC331A: From wallmount power supply:
                         Input: 120-VAC, 60 Hz;
                         Output: 9 VDC at 650 mA;
                         AC331AE: From desktop power supply:
                         Input: 100 to 240-VAC, 50 to 60 Hz (autosensing);
                         Output: 9 VDC at 600 mA;
                         Consumption: 5.4 watts maximum

**Temperature
Tolerance —**   Operating: 0 to 95˚F (–17.8 to 35˚C)
                        Storage: 0 to 110˚F (–17.8 to 43.3˚C)

**Humidity
Tolerance —**   Up to 95% noncondensing

Size —   5.5"H x 4"W x 1"D (14 x 10.2 x 2.5 cm)

Weight —   1 lb. (0.5 kg)

2. Introduction

2.1 General Overview

The VGA/Video Portable Pro is a super-compact computer-to-TV video converter. It transfers graphic images from your computer for display on a TV or video projector of any size or for recording on a VCR. The Portable Pro is completely hardware-based—you don't have to run any computer software to make it work. It can support both IBM® PC based and Apple® Macintosh® based systems. In short, it's perfect for presentations, training, advertising, education, and a host of other applications.

2.2 Features

- Latest-generation filter technology brings you 100% flicker-free video.

- Pure hardware design—no software necessary, just "plug-and-display."

- With "automatic mode detection," the Portable Pro supports horizontal synchronization rates from 24 KHz to 38 KHz and vertical synchronization (refresh) rates from 56 Hz to 72 Hz for all colors. This means that it is compatible with PC systems outputting VGA video at 800 x 600 resolution (at 35.2 KHz/56 Hz) or 640 x 480 resolution (at up to37.9 KHz/72 Hz). It is also compatible with computer systems outputting Mac® video at 800 x 600 resolution ("SVGA mode") at 35.2 KHz/56 Hz or 640 x 480 resolution (at either 35 KHz/66 Hz or 31.5 KHz/60 Hz).

- Supports NTSC (AC331A) or PAL (AC331AE) video for the TV output.

- You can select ZOOM (regular magnification) or UNZOOM (underscan—640 x 480 is 100% visible edge-to-edge) display; there is no flickering or reduced resolution in either mode.

- You can adjust the brightness and horizontal position of your images.

- Since it has a computer-video output port, images can be viewed on a monitor and a TV simultaneously.

- It has a variety of TV-video output ports, so it can be connected to almost any type of TV, even those with special high-quality video interfaces.

2.3 The VGA/Video Portable Pro Illustrated

Figure 2-1 below shows the top of the VGA/Video Portable Pro and the three sides of the unit that have connectors or controls on them. The numbers refer to the component descriptions on the next page.
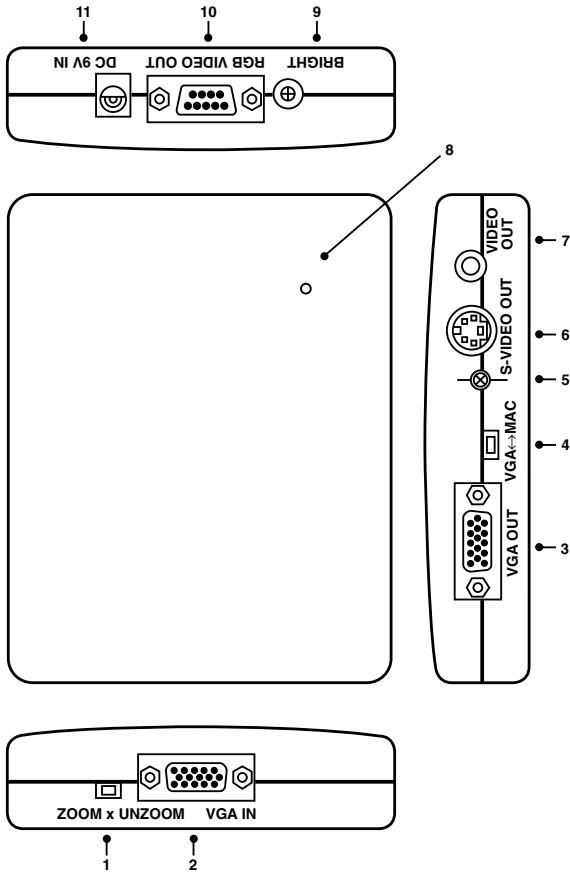

Figure 2-1. The VGA/Video Portable Pro's surface components.

1. **ZOOM/UNZOOM Switch:** A slide switch you can use to get your computer images to fit on the TV screen. See **Chapter 4** for more details.

2. **VGA IN Port:** You'll run cable from the computer's video-output port to this DE15 connector.

3. **VGA OUT Port:** You can run cable from this DE15 connector to a local monitor, or plug the included terminator into this port if you aren't using a monitor.

4. **VGA↔MAC Switch:** A slide switch you can use to tell the VGA/Video Portable Pro whether its input is coming from a VGA card or a Macintosh.

5. **Horizontal Positioning Dial:** A screw dial you can use to move your image right or left on the screen.

6. **S-VIDEO OUT Port:** You can run cable from this 8-pin mini-DIN connector to a TV or VCR that can accept S-Video input.

7. **VIDEO OUT Port:** You can run cable from this RCA® jack to a TV or VCR that can accept standard composite video input.

8. **Power LED:** This indicator lights when the unit is receiving electric power.

9. **BRIGHT Dial:** A screw dial you can use to increase or decrease the brightness of the output image.

10. **RGB VIDEO OUT Port:** You can run cable from this DB9 connector to a TV or VCR that can accept RGBS video.

11. **DC 9V IN Port:** You'll plug the power supply's output cord into this barrel jack.

3. Installation

3.1 System Requirements

Before beginning to install the VGA/Video Portable Pro, please take a moment to make sure your equipment can support it. This is what you need:

- The computer must be either an IBM AT®, PS/2®, or compatible PC/notebook/laptop with a video-output port that supports standard VGA, or an Apple Macintosh or compatible PC/notebook/laptop with a video-output port that supports the standard Macintosh display mode (640x480 resolution, 35 or 31.5 KHz horizontal synchronization) or fully SVGA-compatible 800 x 600 mode (35.2 KHz horizontal sync, 56 Hz vertical sync).

- The TV or VCR must have one of these inputs: Standard composite/ baseband video (RCA jack), S-Video/Y-C (4-pin mini-DIN), analog RGBS (four BNC connectors or one SCART connector), or an RF (antenna) input (this would require an RF modulator, which is not included with your unit). If your Portable Pro is an AC331A, the TV or VCR must be able to accept NTSC video signals at 60 Hz; if the Portable Pro is an AC331AE, the TV or VCR must be able to accept PAL video signals at 56 Hz.

NOTE

The VGA/Video Portable Pro should in theory support any VGA or Macintosh computer that has a vertical display frequency between 56 Hz and 72 Hz and a horizontal display frequency between 24 KHz and 38 KHz. However, because video circuitry and connectors differ widely among manufacturers and devices, we cannot guarantee that the Portable Pro will function correctly in any nonstandard application.

3.2 Unpacking: The Complete VGA/Video Portable Pro Package

Before you assemble your system, please make sure you received all of the following items:

1. (1) VGA/Video Portable Pro unit

2. (1) Power supply

3. (1) Carry case

4. (1) Composite-video cable (has RCA connectors)

5. (1) S-Video cable (has 4-pin mini-DIN connectors)

6. (1) VGA passthrough cable (has DE15 ["DB15HD," "HD15"] connectors)

7. (1) Macintosh computer-adapter cable (long, DE15 male to DA15 ["DB15"] male, marked MAC)

8. (1) Macintosh monitor-adapter cable (short, DE15 male to DA15 female, marked MAC)

9. (1) Dummy terminator (DE15 male connector, emulates an Apple 14-inch monitor)

10. (1) Small screwdriver

11. (1) Copy of this manual

12. *AC331AE only:* (1) SCART (RGBS) cable (DE9 ["DB9"] male to SCART male)

3.3 Installation Procedures

3.3.1 VGA SYSTEMS

To install the VGA/Video Portable Pro in a VGA system, take these steps (referring to Fig. 2-1 on page 11 and Fig. 3-1 on page 16):

1. Make sure your computer (laptop, notebook, or desktop PC) is turned OFF.

2. Slide the VGA↔MAC switch (component 4 in Fig. 2-1) to the *left* side (marked "VGA").

3. Plug one end of the included VGA passthrough cable into your computer's video-output port. Plug the other end into the Portable Pro's VGA IN port (component 2 in Fig. 2-1).

4. If you are using a local monitor with the Portable Pro, plug one end of the monitor's video cable into the monitor's video-input port. Plug the other end into the Portable Pro's VGA OUT port (component 3 in Fig. 2-1).

5A. If you're going to use the Portable Pro's *composite-video output*, plug one end of the included composite-video cable into the Portable Pro's VIDEO OUT port (component 7 in Fig. 2-1). Plug the other end into the VIDEO IN port on your TV, VCR, or video projector.

5B. If you're going to use the Portable Pro's higher-quality *S-Video output*, plug one end of the included S-Video cable into the Portable Pro's S-VIDEO OUT port (component 6 in Fig. 2-1). Plug the other end into the S-VIDEO IN port on your TV, VCR, or video projector.

5C. If you're going to use the Portable Pro's highest-quality *RGBS video output*, plug the DB9 end of an RGBS cable (included with the AC331AE only) into the Portable Pro's RGB VIDEO OUT port (component 10 in Fig. 2-1). If this cable is the one included with the AC331AE, plug its male SCART connector into the female SCART connector on your TV, VCR, or video projector. If this cable is a BNC-type RGBS cable with four male BNC connectors (not included), plug them into the RED, GREEN, BLUE, and SYNC connectors of the RGBS VIDEO IN port on your TV, VCR, or video projector. (The ends of the cable should be color-coded— red, green, blue, and black, for example—to help you determine which connectors should go together.) If you need an RGBS cable, call Black Box for a special quote.
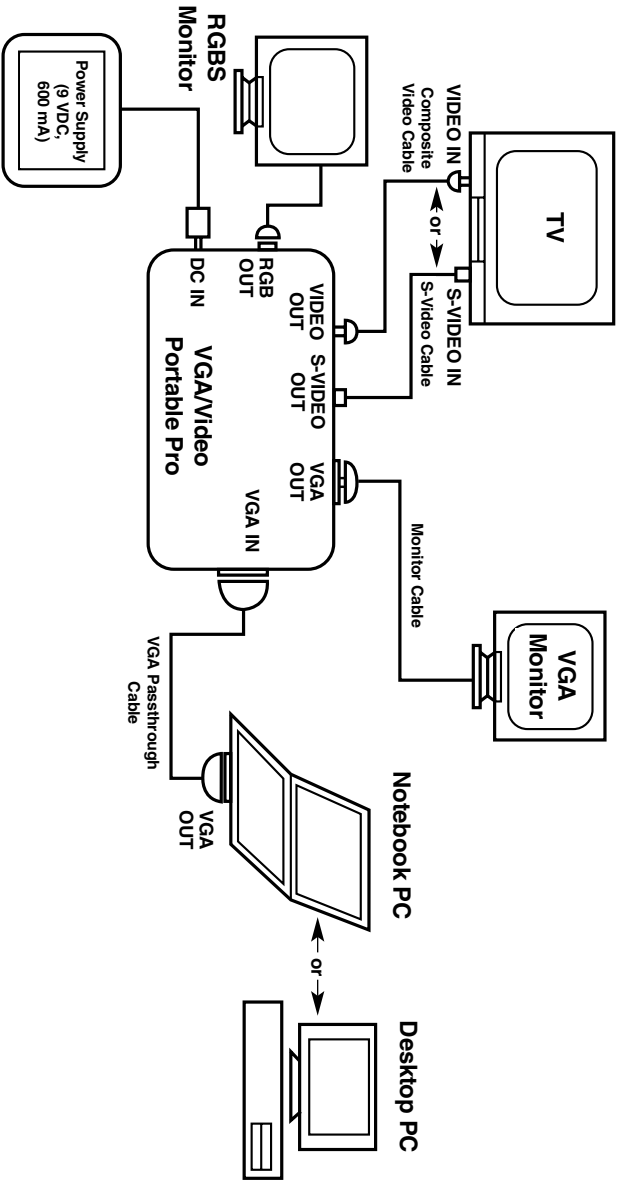
Figure 3-1. A VGA/Video Portable Pro system (VGA environment).

6. Plug the output cord of the Portable Pro's power supply into the DC 9V IN jack on the Portable Pro (component 11 in Fig. 2-1). Plug the power supply into a working electrical outlet. The Portable Pro should power up automatically (it has no ON/OFF switch); the red LED on its top panel should be lit.

7. If you are using a local monitor with the Portable Pro, plug it into a working electrical outlet and turn it on.

8. Turn on your computer.

9. Turn on your TV, VCR, or video projector. If necessary, select VIDEO IN (or S-VIDEO IN or RGBS VIDEO IN) as the device's video-input source (consult the device's manual if you don't know how to do this).

Your installation is now complete. Your VGA/Video Portable Pro system should be ready for continuous operation.

3.3.2 MACINTOSH SYSTEMS

To install the VGA/Video Portable Pro in a Macintosh system, take these steps (referring to Fig. 2-1 on page 10, Fig. 3-1 on page 16, and Fig. 3-2 on page 18):

1. Make sure your computer (laptop, notebook, or desktop PC) is turned OFF.

2. Slide the VGA↔MAC switch (component 4 in Fig. 2-1) to the *right* side (marked "MAC"), unless you are actually using a VGA monitor with your Mac, in which case you should slide this switch to the *left* side.

3. Plug the DA15 ("DB15") male end of the included Macintosh computer-adapter cable (the *long* cable marked "MAC") into your computer's DA15 female video-output port. Plug the DE15 ("DB15HD," "HD15") male end into the Portable Pro's VGA IN port (component 2 in Fig. 2-1).
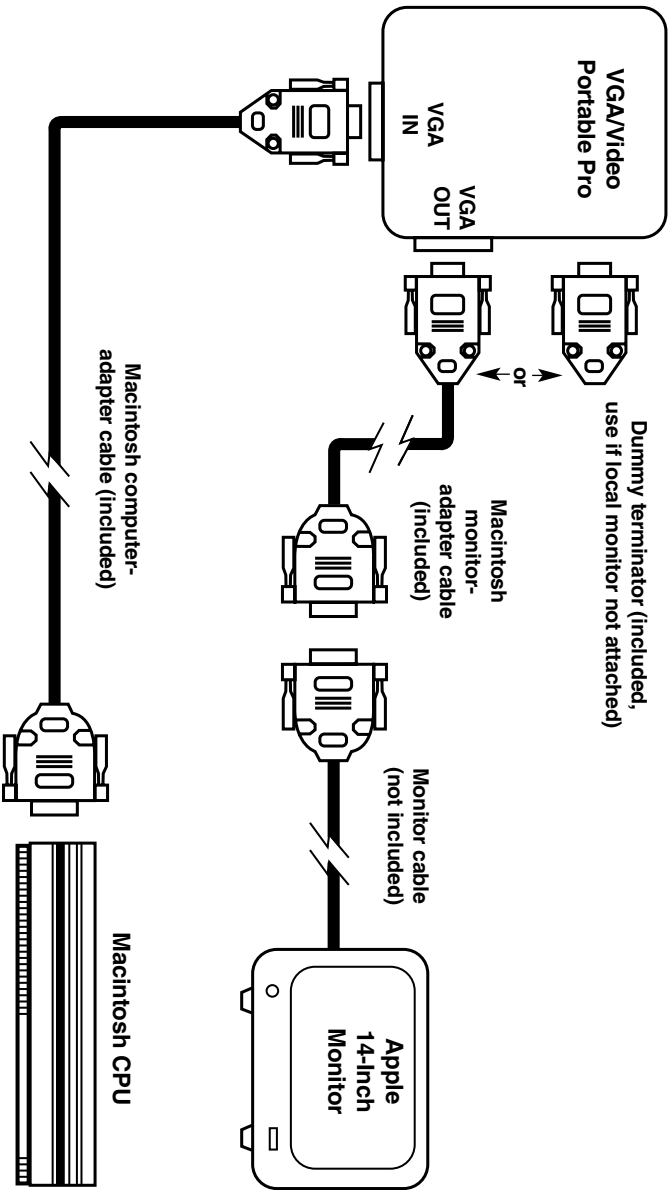
Figure 3-2. Special cabling for VGA/Video Portable Pro system (Mac environment).

4A. If you are using a *local Macintosh monitor* with the Portable Pro, plug one end of the monitor's video cable into the monitor's video-input port. Plug the other end into the DA15 female end of the included Macintosh monitor-adapter cable (the *short* cable marked "MAC"). Plug the DE15 male end of the monitor-adapter cable into the Portable Pro's VGA OUT port (component 3 in Fig. 2-1).

NOTE

For a local Macintosh monitor, the Portable Pro supports *Apple 14-inch monitors only*. It does *not* support Apple 12-inch or 16-inch monitors.

4B. If you are using a *local VGA monitor* with the Portable Pro, do not use the monitor-adapter cable mentioned in step 4A; plug the monitor's video cable directly into the Portable Pro's VGA OUT port. (As stated in Step 2, the VGA↔MAC switch must be in the VGA position.)

4C. If you *aren't using a local monitor* with the Portable Pro, you must plug the included DE15 male dummy terminator into the Portable Pro's VGA OUT connector. This terminator emulates an Apple 14-inch monitor and enables the computer to operate properly.

The rest of the installation procedure (steps 5 through 9) is the same as that for VGA systems; see pages 15 and 17.

4. Operation

As long as it is plugged in and is securely connected to the proper equipment, the VGA/Video Portable Pro performs signal conversion more or less automatically. Because of this, operating the unit mainly consists of using its controls to fine-tune your presentation.

4.1 The VGA↔MAC Switch

You should have moved this switch to the setting appropriate for your environment during installation. If you didn't, do so now (see Step 2 in **Section 3.3.1** or **3.3.2**).

4.2 The BRIGHT (Brightness) Dial

The brightness of the Portable Pro's TV image has been adjusted to the setting that is best for most TVs at the factory. If the image you get on your TV is too bright or too dark, or has vertical strips or horizontal interference in it, use the included screwdriver to turn this dial until the brightness is correct and the noise disappears.

4.3 The Horizontal Positioning Dial

If the image on your TV screen isn't centered correctly (if it's too far to the left or right), reposition it with this unlabeled dial, located between the VGA↔MAC switch and the S-VIDEO OUT port. Use the included screwdriver to move the image to the center by turning the dial. This problem happens with TVs that have atypical voltage levels.

4.4 The ZOOM x UNZOOM Switch

When this switch is in the ZOOM position, the Portable Pro converts your computer graphics directly to TV-video format without compressing them in size. The centers of the images will appear in the center of the TV screen, but because of the normal tendency of TVs to "overscan" (display the picture in such a way that parts of it are lost beyond the boundaries of the screen), the edges of the images might not be visible.

If you find that parts of your images cannot be seen, you can move this switch to the UNZOOM ("underscan") position. When the switch is in this position, the Portable Pro compresses images as it converts them, so that as much of the images as possible appears on the TV screen:

- In *720 x 400* resolution, images are compressed in the *horizontal* dimension only.

- In *640 x 480* resolution, images are compressed both *horizontally and vertically.*

- In *800 x 600* resolution, images are compressed both *horizontally and vertically,* but the vertical component of the image will probably still be too large to fit entirely on the TV screen.

The portions of the TV screen that are outside any image will contain a dark border.

5. Troubleshooting

This chapter tries to answer questions and concerns that can arise when you install and use the VGA/Video Portable Pro. It also describes what to do when you have problems with the unit that you can't solve yourself.

5.1 Common Questions and Concerns

5.1.1 INSTALLATION-RELATED

Q: My TV doesn't have an RCA jack (composite-video connector). How can I connect the Portable Pro to the TV?
A1: Check the TV—if it has a 4-pin mini-DIN connector for S-Video input or a SCART connector or 4 BNC connectors for RGBS input, use one of these types of video instead (the quality of the picture will be better anyway).

A2: If your TV is hooked to a VCR, connect through the VCR as follows:

1. Install and interconnect the Portable Pro as shown in Fig. 3-1 and (if applicable) Fig. 3-2, but connect the composite-video cable to the VCR's VIDEO IN jack instead of to the TV.

2. Turn on the VCR and the TV. Switch the TV to the channel that takes VCR input. Play a tape for a moment on the VCR to make sure that you can see the program on the TV screen, then remove the tape from the VCR.

3. Consult your VCR's manual to find out how to set its "input source" mode. (VCRs generally have two or three input sources: one called TV, CABLE, or TUNER; one called VIDEO IN or AUX; and occasionally one called TAPE.) Set the input source to VIDEO IN or AUX. Your TV should now display the images from the Portable Pro.

A3: Another option is the RF-modulator method: You can use an RF modulator (not included) to convert the Portable Pro's composite-video signal to an RF signal and send that signal into the TV's antenna (VHF/UHF) input.

5.1.2 OPERATION-RELATED

I'm not getting a picture on my TV.
Take these steps:

1. Check all the cable connections again, as shown in Figure 3-1
   and (where applicable) Figure 3-2.

2. Make sure the POWER and CHANNEL settings of your TV are correct.
   If the TV has a remote control, make sure it is not being triggered
   accidentally.

3. Make sure that the correct type of input (VIDEO, S-VIDEO, or RGBS
   VIDEO) is selected on your TV. If possible, connect a VCR, a camcorder,
   or other output device to the TV's video input and make sure that the
   TV is accepting input through the selected connector.

4. If you are using a notebook PC, you might have to enable "External
   VGA" or "CRT Output." Consult your notebook's manual.

5. If you are using the Portable Pro with a Macintosh computer, but
   without a local Macintosh monitor, you must either connect either a
   monitor or the included dummy terminator to the Portable Pro's VGA
   OUT port.

6. A few VGA systems require a local monitor to be connected through
   the Portable Pro when the system is powered up. Consult your system
   manual to find out whether this is the case for your system. If it is, and
   attaching a local monitor is not convenient, try connecting the included
   dummy terminator to the Portable Pro's VGA OUT port. If this doesn't
   help, we might be able to provide a dummy terminator that will emulate
   your monitor as a special quote; call Black Box for technical support.

**I have a notebook PC connected to the Portable Pro, but I'm not getting any
output displayed on my TV.**
Try Step 4 above. If this is not the problem, try the other steps listed above.

When I connect my TV to the Portable Pro through a VCR, I get no picture on the TV.
Take these steps:

1. Make sure your TV is tuned to the channel that the VCR is using for output. (In North America, this is most often channel 3, but might be channel 2, 4, or 6 instead.) You might need to change the VCR's output channel rather than the TV channel; consult the VCR's manual if necessary.

2. Make sure that the VCR is set to receive input from the VIDEO IN or AUX source.

The picture on my TV is really messed up.
Take these steps:

1. Make sure the VGA↔MAC switch is set to the right position.

2. If you're using a VGA system, make sure you aren't trying to use a higher resolution than the Portable Pro can support (800 x 600 max.).

3. If you're using a Macintosh system, make sure you are using an Apple 14-inch monitor or (if you have set your Mac for this) a VGA monitor. Other monitors, such as Apple 12-inch or 16-inch models, are not supported by the Portable Pro.

4. If you are using the VGA/Video Portable Pro in a foreign country, make sure the TV can accept the Portable Pro's TV-video output. The AC331A outputs NTSC (the video standard for North America and Japan) only; the AC331AE outputs PAL (the video standard for most of Europe and Asia) only.

Q: Why is the TV not displaying portions of my images?
A: Your images might be running afoul of the TV's "overscanning" (placing parts of the picture beyond the boundaries of the screen). This typically occurs because VGA graphics have more display lines than the TV can handle. In general, a TV can display only 420 lines, whereas VGA in 640 x 480 resolution has 480 lines. You might get the complete picture if you slide the ZOOM x UNZOOM switch to the UNZOOM position. For more information, see **Section 4.4**.

NOTE

If you are using 800 x 600 resolution, there is probably no way to fit an entire image on the TV screen—you might have to reposition or redesign your graphics so that their information content is away from the edges that are geting clipped.

Q: There are noise lines on the TV picture. How do I get rid of them?
A: Adjust the Portable Pro's BRIGHT (brightness) dial to eliminate them. See **Section 4.2**.

Q: How can I enhance the quality of the TV's display?
A1: If the TV has S-Video or RGBS video-input connectors, the best improvement you can make is to use one of these inputs (preferably RGBS) instead of the composite-video input.

A2: You can usually get a better picture by using the controls on the TV to lower the contrast and sharpness (consult your TV's manual if necessary). In particular, lowering the contrast will help reduce flickering.

5.2 Contacting Black Box

If you determine that your VGA/Video Portable Pro is malfunctioning, *do not attempt to alter or repair it*. It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500. The problem might be solvable over the phone.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- The nature and duration of the problem.

- When the problem occurs.

- The components involved in the problem.

- Any particular application that, when used, appears to create the problem or make it worse.

5.3 Shipping and Packaging

If you need to transport or ship your VGA/Video Portable Pro:

- Package it carefully. We recommend that you use the original container.

- Before you ship a unit for repair or return, contact Black Box to get a Return Materials Authorization (RMA) number, and make sure you include everything you received with the unit when you ship it.

Appendix: Port Pinouts

A.1 VGA IN Port

This port is a DE15 (often called "DB15HD" or "HD15") female connector. On this port, the VGA/Video Portable Pro receives analog RGB signals from the computer's DE15 (VGA) or DA15 (Macintosh, often called "DB15") female video-output port.

Pin No.	Signal Description
1	Red, 0.7 V_{pp}, 75 ohms
2	Green, 0.7 V_{pp}, 75 ohms
3	Blue, 0.7 V_{pp}, 75 ohms
4	Monitor ID2, TTL level
5	(Passed through)
6	Ground
7	Ground
8	Ground
9	(Passed through)
10	Ground
11	Ground
12	Monitor ID1, TTL level
13	Horizontal Sync (HSYNC), TTL level
14	Vertical Sync (VSYNC), TTL level
15	(Passed through)

A.2 VGA OUT Port

This port is a DE15 female connector. From this port, the Portable Pro sends analog RGB signals to a local monitor's DE15 (VGA) or DA15 (Macintosh) female video-input port. The pinout of this port is the same as that of the VGA IN port (see above).

A.3 VIDEO OUT Port

This port is an RCA jack (female connector). From this port, the Portable Pro sends composite-video signals (1.0 ±0.2 V_{pp}, 75 ohms, negative sync) to the composite-video input port (RCA jack) of a TV, VCR, or video projector.

A.4 S-VIDEO OUT Port

This port is a 4-pin mini-DIN female connector. From this port, the Portable Pro sends S-Video signals to the 4-pin mini-DIN female S-Video input port of a TV, VCR, or video projector.

Pin No.   **Signal Description**
  1   Ground
  2   Ground
  3   Y (Luminance), 0.7 ±0.2 V_{pp},
          75 ohms, negative sync
  4   C (Chrominance), 0.3 ±0.1 V_{pp}
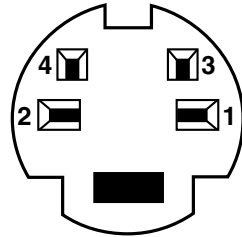
A.5 RGB OUT Port

This port is a DB9 female connector. From this port, the Portable Pro sends analog RGBS signals to the (1) SCART or (4) BNC RGBS-input port(s) of a TV, VCR, or video projector.

Pin No.   Signal Description

Pin No.	Signal Description
1	Ground
2	VCC
3	Red, 0.7 ± 0.2 V_{pp}, 75 ohms, negative sync
4	Green, 0.7 ± 0.2 V_{pp}, 75 ohms, negative sync
5	Blue, 0.7 ± 0.2 V_{pp}, 75 ohms, negative sync
6	(No connection)
7	Video Output, 1 V, 75 ohms
8	TV Composite Sync (CSYNC), TTL level, negative sync
9	(No connection)
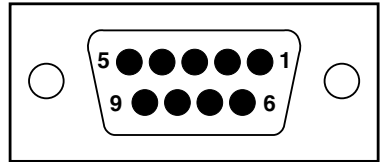
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