

**FEDERAL COMMUNICATIONS COMMISSION and
CANADIAN DEPARTMENT OF COMMUNICATIONS
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 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 the Canadian Department of Communications.

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 radioélectriques publié par le ministère des Communications du Canada..

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1. Specifications**System Hardware Required -**

- Computer of one of these types:
- IBM AT, PS/2, or compatible with VGA output.
 - TV set with one of these inputs: composite video, S-video, or (with modulator) RF
 - Video source with composite or S-video output (required for video overlay)

Compliance - FCC Class B, DOC Class/MDC Classe B

Interfaces - Input: VGA, Composite video, S-video
Output: Composite video, S-video, VGA and RGB SCART

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

Resolutions Supported -

Up to 1600x1200 (60Hz), 1280x1024 (60Hz), 1280x960 (60Hz), 1152x864 (60, 70, 72, 75 Hz), 1024x768 (60, 70, 72, 75 Hz), 800x600 (56, 60, 70, 72, 75, 85, 100 Hz), 640x480 (60, 70, 72, 75, 85, 100, 120 Hz), 720x400 (70Hz)

User Controls - Top-mount and remote controls for: Menu, Zoom, Video Standard, Video Source, Genlock, Power (On/Off)

30 button remote control

Indicators - Top-mounted: NTSC/PAL LED, Zoom/Freeze LED, Power LED

Connectors - (7) Side-mounted:

- (1) DB15HD female for computer video (IN/OUT)
- (1) RCA jack for composite video output;
- (1) 4-pin mini-DIN for S-video output;
- (1) 9-pin mini-DIN female for RGBS video output;
- (1) RCA jack for composite video input;
- (1) 4-pin mini-DIN for S-video input;
- (1) barrel jack for power output

Power - 5V @400mA, 2 watts power consumption

2. Introduction

2.1 General Overview

The VGA-Video Ultimate Plus is a portable high-resolution computer-to-TV video converter with video overlay. It transfers images from your computer for display on a TV or video projector of any size or for recording on a VCR or any type (VHS, VHS-C, 8mm, or Beta), or overlays images from your computer onto existing video for display on a TV or video projector. The Ultimate Plus is completely hardware based – you don't have to run any computer software to make the converter work. Its portability, easy installation and use, features and high-resolution display make it perfect for presentations, training, kiosks, education, and a host of other applications.

2.2 Features

- Latest generation filter technology brings you clear, 100% flicker-free video.
- Pure hardware design.
- Composite and S-video inputs for video overlay.
- Supports NTSC, NTSC-EIAJ, PAL-M, PAL-N, PAL, and PAL Combination N (switch selectable) video for TV output.
- Area Zoom function allows areas of the computer screen to be enlarged for special emphasis.
- One touch freeze function.
- Brightness, Contrast, Color, and Hue control.
- Adjustable vertical and horizontal position and scaling controls.
- Three video output ports (Composite, S-video and RGBs (SCART))
- On-screen display

3. Installation

3.1 System Requirements

- IBM® PC Compatible 386, 486, Pentium or faster or Macintosh (including iMAC) with HD15 VGA standard display port.
- VGA Monitor (optional for simultaneous dual-display)
- TV, VCR, or large-screen display with composite or S-video input
- VCR, video camera, DVD, or other video source for video overlay

3.2 Package Contents

- 3-m (9.8 ft) S-video cable
- 3-m (9.8 ft) RCA Video cable
- VGA/Video Ultimate Plus converter
- VGA/Video Ultimate Plus remote
- AT style keyboard power cable
- PS/2 style keyboard power cable
- USB keyboard power cable
- VGA pass-through cable (3.5 ft)
- This User's Manual
- Two AAA batteries

3.3 Installation Procedures

Take these steps to install your Ultimate Plus:

1. Turn off your computer.
2. Plug the supplied VGA pass-through cable (the T-end labeled "PC") into your computer's VGA output and the end labeled "SCAN CNVTR" into the VGA IN/OUT port on the Ultimate Plus.
3. If using a local monitor, plug the monitor's VGA cable into the VGA pass-through cable port labeled "Monitor".
- 4A. If using the composite video output, plug one end of the included composite video cable into the Ultimate Plus's VIDEO OUT and the other end into the VIDEO IN on your TV, VCR, etc.
- 4B. If using the higher quality F-video output, plug one end of the included S-video cable into the Ultimate Plus's S-VIDEO OUT and the other end into the S-VIDEO IN on your TV, VCR, etc.
- 4C. If using the RGBs video output, plug the DB9 end of an RGBs cable (not included) into the Ultimate Plus's RGB VIDEO OUT. If the other end of this cable is a SCART connector, plug it into the SCART connector of your TV, VCR, etc. If, however, the other end of this cable has four BNC connectors, plug them into the RED, GREEN, BLUE and SYNC connectors of the RGBs VIDEO IN port of your TV, VCR, etc. On the Ultimate Plus, toggle the RGB-Video switch to RGB to enable the RGBs output.
5. Choose one of the power cables (AT style, PS/2 style or USB) and connect it into either the corresponding keyboard port or USB port and into the DC IN port of the Ultimate Plus.

NOTE: Never connect or disconnect the power cable while the computer is on.

6. Connect a composite video and/or an S-video source (from a DVD, VCR, Video camera, etc.) from the video out of the source to the corresponding video input on the Ultimate Plus. Toggle between the composite and the S-video sources via the VIDEO SOURCE button on the remote.
7. If using a local monitor with the Ultimate Plus, plug it into a working electrical outlet and turn it on.
8. Turn on the Ultimate Plus.
9. Turn on your computer.

NOTE

Some portable computers require that the VGA output be activated for the external VGA port to function. If the Ultimate Plus is connected correctly and you have no picture receiving on the TV or projector, this may be the cause. Consult the User's Guide that came with your computer if you're unsure how this is accomplished. The portable computer's LCD display may need to be de-activated with this procedure.

10. Insert (2) AAA batteries into the remote control.
11. Turn on your TV, VCR, etc. If necessary, select VIDEO IN (or S-VIDEO IN or RGBs VIDEO IN) as the receiving device's video input source. If you're unsure how this is done, consult the Owner's Manual for the receiving device.

4. Operation

While plugged in and securely connected with the power on, the Ultimate Plus performs signal conversion more or less automatically. For this reason, operating Ultimate Plus consists primarily of using its controls to fine-tune your application. The controls are detailed below:

- **HORIZONTAL / VERTICAL position adjustments**
Indicated by arrows on the converter and on the remote.
- **FREEZE button** (remote only)
Toggle between frozen and normal display.
- **ZOOM button**
Toggle between Zoom and Normal display. Available as AREA ZOOM on the remote.
- **H-SIZE / V-SIZE** (remote only)
Provides ability to expand and shrink TV display both vertically and horizontally.
- **GENLOCK**
Toggles between VGA display only, VGA and video mix, and VGA with video overlay.
- **VIDEO STANDARD**
Switches between video system standards.
- **PC/VIDEO**
Toggles between displaying PC only and video source only.
- **POWER BUTTON**
Toggle between power on & power off.

- **VIDEO SOURCE**
Toggles between the composite video and the S-video sources.
- **CONTRAST, COLOR, HUE, BRIGHTNESS, SHARPNESS**
These five buttons adjust the aspects of the video display. Similar adjustments are available in most TVs. Use the adjustments on the remote control when you only want the settings to apply when using the Ultimate Plus.
- **CHAR. DISPLAY** (remote only)
Toggles the on-screen displays on & off.
- **LUMI/COLOR KEY** (remote only)
Provides ability to customize and set the color that is removed during overlay to provide transparency. The default settings of zero are assigned to provide overlay using black as the chroma key. Use the Color Key in conjunction with the Mix Ratio to completely remove the desired color for overlay.
- **MIX RATIO**
Increase or decrease the mix ratio between the video and the VGA signals in overlay mode.

4.2 Video Overlay

For best results, it is highly recommended that you have presentation software that provides you the ability to have full-screen slides with solid black backgrounds. The default chroma key is black. In video overlay/genlock mode, everything on your VGA screen that is black will appear on the TV as transparent, thus allowing the video source to be seen.

Literally any element (text, graphics, etc.) that can be generated within your computer can be displayed over video.

5. Trouble-shooting

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

5.1 Common Issues

5.1.1 *Tips for connecting to a TV*

Note: Since virtually all TVs are different, please refer to your TV's User's Manual for specific instructions.

1. Connect either the RCA (yellow-tipped cable) or S-VHS cable (recommended) from the video out on the converter to the VIDEO IN on the TV. Some TVs have multiple inputs. Note which input you are using.
2. On the front panel of the TV or on the TV's remote, search for a video input selection toggle button. When using a video input other than the Cable/Antenna input, the TV must be set to display the alternate input. The video selection button will change the input selection from Cable/Antenna to the video input. The input setting should correspond with the input you connected to in Step 1.

5.1.2 Tweaking the TV Display

For best results set your computer to 640x480x256 colors. If using the composite (RCA) output, we recommend using at least 16 point fonts for text when converting to a TV. If using the S-video output, we recommend using at least 14 point fonts when converting to a TV. Optimal settings may differ slightly depending on the size and brand of TV used.

Note: Since virtually every television is different, please refer to your television user's manual for exact adjustments.

There are four settings in most televisions that affect the clarity of the display. The same adjustments can be used to improve the clarity of the display whether you use a converter or not. The settings are:

Brightness: Typically, the brightness setting is by default too high. A high brightness settings often causes the display to flicker.

Sharpness: If the sharpness is set too high, often the result is what is termed "dot-crawl", where the edges of the image appear to move. Lower the sharpness to soften the edges.

Color: If the color is set too high, often the result is colors that bleed or appear to sparkle. The high (purple) and low (red) frequency colors are most affected. Adjust the color setting down to soften the colors.

Contrast: If the contrast is set too high, often the result is exaggerated colors. Adjust the contrast down to complement the Sharpness setting.

5.1.3 Recording to a VCR

The VCR used for recording must have either an RCA or and S-video INPUT. TV/VCR combination units do not always support inputs from external video sources, such as Grand Vision converters.

Note: Since virtually every VCR is different, please refer to your VCR User's Manual for exact instructions for recording an external video source.

To connect a VGA to Video converter to a VCR for recording, follow these steps:

1. Using either the RCA or the S-video (recommended) cable, connect from the video out on the VGA to Video converter to the Video IN on the VCR
2. Using either an RCA or a 75 Ohm coaxial cable connect from the Video OUT on the VCR to the Video IN on the TV
3. Set the TV/VCR switch on the VCR to "VCR"
4. Set the TV to display the video input signal (Refer to TV's User's manual for instruction on displaying an external video source)
5. You should be able to see the converted computer display on the TV
6. Insert a blank tape into the VCR and press "RECORD". Stop the tape after a few moments to test whether it is recording or not.

5.1.5 Using a VGA a Video Converter with Laptops

1. To get a converted image on the TV, you must configure the laptop computer to display an external VGA signal. Typically, this is done by toggling the "Fn" key + "F1", "F2", etc. The actual function key varies with each computer. Please refer to your computer's User's Manual for specific instructions for displaying an external VGA signal.

The "Fn" + "Fx" toggles between three settings. By default, the LCD panel is on. The first toggle attempts to power both the LCD panel and the external signal. In some cases, laptops do not have enough power to the LCD and an external signal, so only a scrambled signal is viewable on the TV. The third toggle turns off the LCD panel and shows only the external display (the TV, in this case).

2. If you continue to get a scrambled signal with the LCD panel turned off, toggle the LCD panel back on and check that the resolution is set to an option supported by your PC to TV converter. If you are uncertain, begin by using 640x480.

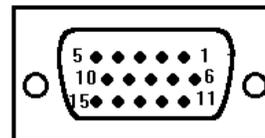
Appendix: Port Pinouts

VGA IN/OUT connector

This port is a DB15HD female connector and it supports only the included VGA pass-through cable.

Pin No.	Signal Description
1	RED IN, 0.7Vpp ± 0.1Vpp, 75 ohms, from PC
2	GREEN IN, 0.7Vpp ± 0.1Vpp, 75 ohms, from PC
3	BLUE IN, 0.7Vpp ± 0.1Vpp, 75 ohms, from PC
4	No connection
5	Monitor Sense, TTL level, active low
6	Ground
7	Ground
8	Ground
9	No connection
10	Ground
11	HSYNC OUT, TTL level, buffered HSYNC IN, to monitor
12	VSYNC OUT, TTL level, buffered VSYNC IN, to monitor
13	HSYNC IN, TTL level
14	VSYNC IN, TTL level
15	No connection

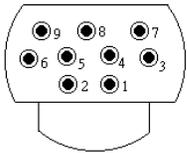
Remark: Case is connected to ground



RGB/SCART OUT

RGB OUT connector is 9-pin mini-DIN type female connector.

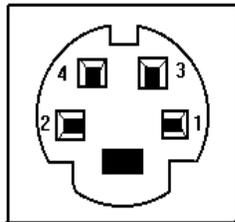
Pin No.	Signal Description
1	Blue output, 0.7Vpp, 75 ohms
2	No connection
3	Green output, 0.7Vpp, 75 ohms
4	Composite VIDEO, negative sync, 1Vpp
5	No connection
6	+5V
7	Red output, 0.7Vpp, 75 ohms
8	No connection
9	No connection



S-VIDEO OUT

S-Video connector is a 4-pin mini-DIN connector.

Pin No.	Signal Description
1	GND
2	GND
3	Y (Luminance), 0.7 Vpp ± 0.2 Vpp, 75 Ω, negative sync
4	C (Chrominance), 0.3 Vpp ± 0.1 Vpp



VIDEO OUT and VIDEO IN Port

Composite video out, 1.0 Vpp±0.2Vpp 75 Ohms, negative sync.

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