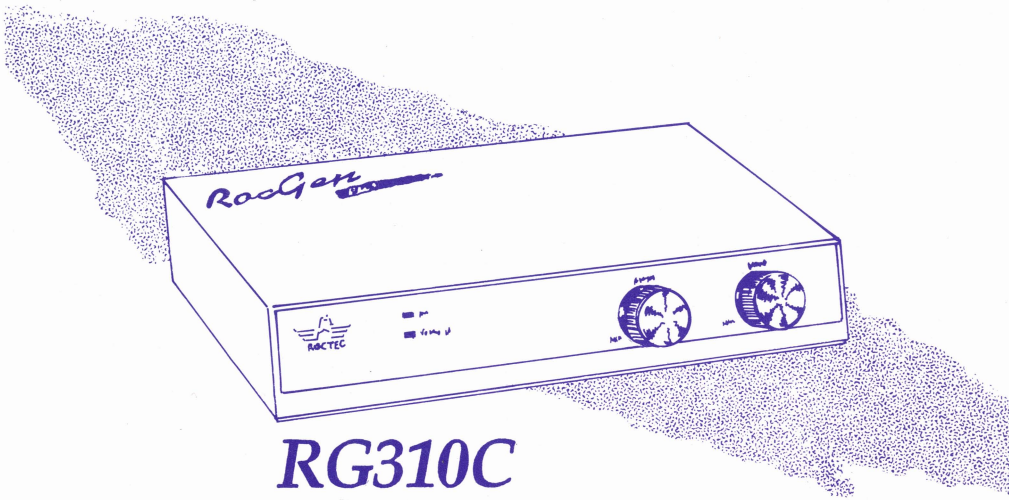
RocGen Plus



RG310C

USER'S MANUAL

CONTENTS

SPECIAL FEATURES

* Fully compatible with the complete line of Amiga Personal Computers Series: A500, A1000, A2000, A3000 and Commodore's CDTV.

* Fully accessible, user-friendly panel design and easy installation.

* Auto Video Pass-Thru: This allows the signal from the Amiga or external video source to pass through the RocGen Plus to the monitor or recorder, even if either the Amiga or the external video signal is off.

* AMIGA/VIDEO control: This feature provides for User-control of the varying degrees of "fade" and "dissolve" between the Amiga graphics and external video source simultaneously. The RocGen Plus is the most affordable Amiga genlock offering this feature.

* Extra Video-Thru Port: Provides separate "line" monitoring of the video signal only.

* Extra RGB-Thru Port: Enables separate line of RGB signals for real time editing of your Amiga graphics.

* Extra Key-In Port: Allows the RocGen Plus to engage external keying devices for the production of special video keying effects.

* Internal Sync Generator: The RocGen Plus generates its own internal timing signals if it does not sense synchronization from an external video source.

WHY AMIGA?

Any discussion of the functionality of Amiga genlock must begin with the Amiga itself. With custom processors that support up to 4096 colours and smooth, quick screen updating, the Amiga is an ideal tool for sophisticated graphic and animation projects. Another attractive function is its ability to output a full-overscan screen (a screen whose images display all the way to the edge of the monitor, leaving no visible border) as a standard feature, something no other personal computer does without elaborate and expensive add-ons. The build-in colour NTSC/PAL-compatible output is another powerful video-related feature of the Amiga . This combination of features made for compelling reasons to use the Amiga in a video production environment.

But, the most important Amiga/video advantage stems from the very foundation of the Amiga's architecture: the Amiga's processors were designed to easily match the timing of the industry-standard NTSC/PAL video signal. This single factor, more than any other, is the reason that powerful, video peripherals, like RocGen Plus, can be offered for the Amiga at a fraction of the price of comparable products on other PC platforms.

WHAT IS A GENLOCK?

The word "genlock" is somewhat misused by the Amiga community. In strict video terminology, genlock is used to describe the electronic synchronization of two separate video signals, a critical video function that must occur before any multi-signal processing can begin. An engineer in a TV studio might say, "let's genlock (synchronize) these two signals together." Two video signals are GENerated and then LOCKed, hence the term "genlock".

Amiga desktop videographers, on the other hand, use the term genlock to describe a device (an external device in the case of RocGen Plus) that actually performs many different video functions; the synchronization of two video signals being just one of its many capabilities.

This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide responsible protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio freguency 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 or television reception, which can be determined by turning the equipment off and on, the user is encourage to try to correct the interference by one or more 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 the dealer or an experienced radio/TV technician for help.

〔 Shielded interconnect cables 〕〔 Shielded power cords 〕 must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device.

Changes or modifications not expressly approved by Roctec Electronics Inc. could void the user's authority to operate the equipment.

WHAT DOES GENLOCKING DO?

As previously mentioned, your RocGen Plus is a sophisticated, multi-purpose genlock. RocGen Plus is responsible for three major video/graphic functions.

1. RocGen Plus is an encoder. It processes the Amiga's standard RGB colour signal, which is incompatible with standard video, into a NTSC/PAL video signal. This allows the Amiga's sophisticated graphics and animations to be displayed on standard video monitors and recorded on standard video types, via video recorders.

   Unfortunately, the encoding of these distinct, pure signals into one "composite" signal usually results in a visible degradation in the quality of the resulting NTSC/PAL-compatible signal. This is not a flaw in the genlock, but rather an inherent deficiency in the NTSC/PAL video signal. High quality genlocks, like RocGen Plus, employ sophisticated signal processing algorithms to minimize the loss of signal integrity.

   Some Amiga genlocks will not operate exclusively as an encoder without a second video signal being applied to provide necessary synchronization signals. Your RocGen Plus, however, was designed to sidestep this limitation by generating its own internal synchronization signals if no external "sync" is detected.

2. The second important function of your RocGen Plus is the previously mentioned "signal synchronization". This feature allows the genlock to monitor two separate video signals and adjust the timing of these two signals until they are perfectly matched. This synchronization is of critical importance and allows the two video signals to be processed and displayed together without the vertical and horizontal disturbances that mark unsynchronized signals.

   Of the two synchronized video signals, one of them always belongs to the Amiga. This is, of course, after the RGB signal has been transformed (encoded) into a standard video signal. The second of these two signals can come from a variety of video sources including: video cameras, VCRs, camcorders and laser disk players. The precise, electronic synchronization of the Amiga's encoded signal with a second video signal paves the way for the most important of RocGen Plus's features.

3. Overlaying Amiga graphics on top of video is perhaps the primary reason that

desktop videographers use genlocks. RocGen Plus provides this overlay capability. Graphic overlay begins by combining the Amiga's graphic screen with a video picture. Once this has occurred, RocGen Plus electronically removes the Amiga's background colour, exposing the video picture and leaving the Amiga's foreground graphic overlaid on top of the now uncovered video.

If you were to picture the two synchronized video signals as two separate sheets of paper lying flat on a table, one on top of the other, the bottom piece of paper would represent the video signal and the top piece of paper would represent the encoded Amiga signal. If part of the top sheet (background colour of the Amiga signal) was removed, portions of the bottom piece (the video signal) would suddenly be exposed and become visible.

The electronically removed background colour is known as "colour zero" because it occupies the "zero" position in the Amiga's colour palette. On the default Amiga Workbench screen the background colour (colour zero) is blue and the foreground colour is white. On the default Deluxe Paint III screen the background colour is black. Because the Amiga's palette is modifiable, "colour zero" can be any one of the Amiga's 4096 possible colours. It makes no difference to RocGen Plus; whatever colour occupies the "colour zero" position becomes transparent when the overlay mode is activated. The fader knobs give you the added capability of controlling the degree of transparency in either the background or the foreground graphic. This feature can be used to create many sophisticated effects.

NOTE: The stability of the overlaid graphic image is highly dependent on the quality of the synchronization signal of the underlying video picture. Many consumer-quality video recorders that were never intended to be used in "sync" situations, produce a very poor "sync" signal. This can result in a visibly unstable overlay, characterised by shakiness, vibrations and other undesirable effects. This is not a flaw in the genlock, but simply the result of the genlock matching its timing with the sub par incoming video signal.

Using industrial or professional quality video equipment will minimize the impact of this condition. A high quality "sync" output is one of the major differences between consumer and higher end equipment. Always use the highest quality video signal you can afford.

CONNECTING THE ROCGEN PLUS

WARNING!!! Before attempting the connection of RocGen Plus you must turn off your Amiga. Never attempt to connect any peripheral device when the Amiga is powered up. Failure to heed this warning can result in serious damage to the Amiga and/or RocGen Plus.

Connecting RocGen Plus is really quite simple:

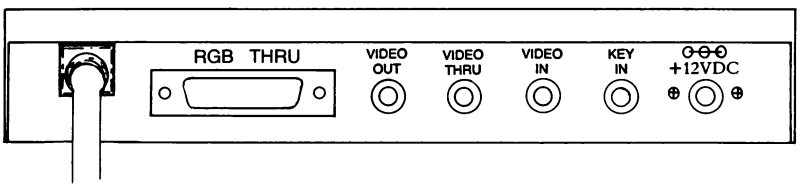


Figure 1 The back panel of RocGen Plus

1. RGB PORT

Plug the D-sub 23-pin female connector at the end of the cable that connects to the rear of RocGen Plus to the 23-pin male RGB/VIDEO port on the Amiga. If you are facing the computer, the RGB/VIDEO port is at the rear on the leftmost side of the Amiga 500/3000 and at the rear on the rightmost side of the Amiga 2000. Be careful to gently align the connector with the port. This connection is easily made when properly done. If you find yourself forcing the connection then STOP, because you are doing something wrong.

2. VIDEO OUT JACK

Connect one end of a standard RCA-type video cable into the jack on the back side of RocGen Plus labeled "Video Out". The other end of this cable should be connected to the composite "Video In" on your monitor.

NOTE: Amiga 1080 and 1084 monitors can be used as composite monitors by hitting a switch/button on the front control panel of the monitor. Don't use RCA-type AUDIO cables, even though they look the same as the one produced for video use. They are not designed to carry the higher frequencies that are found in the NTSC/PAL video signal.

Some video monitors, especially those designed for industrial and professional use, have connectors that are quite different from the RCA-type usually found on consumer equipment. The BNC connector is the most commonly found alternative. RCA to BNC cable are readily available, as well as RCA to BNC

adapters, to assist in making the proper connections.

3. This setup will allow RocGen Plus to act as an encoder and you should see the encoded Amiga signal on your composite monitor. At this point the RocGen Plus is generating its own synchronization signal. You may want to connect the cable to the "Video In" on a VCR and then pass the signal thru to the composite monitor. This will allow you to both record and monitor the Amiga's encoded signal.

4. ***VIDEO IN JACK***

The next step is to connect a second video source to RocGen Plus. You can do this by using another video cable and connecting it from the "Video Out" of your video source (VCR, camcorder, laser disk player, etc.) to the "Video In" on the back of RocGen Plus. With this connection made, RocGen Plus will take its "sync" from the incoming video source.

5. ***VIDEO THRU AND RGB THRU PORTS***

To further enhance the effectiveness of the RocGen Plus in your production process, there is an Video Thru port and a RGB Thru port each providing a separate connection to your video and RGB monitor, respectively.

This will enable you to monitor signals from the two separate sources and is most useful when there is a need to view the video signals or the RGB signals that are not genlocked.

6. ***KEY IN JACK***

The "key-in" jack is used to engage an external keying device for the production of special keying effects.

The RocGen Plus will switch to use external "Key in" signal while an external keying device is connected and in the "active" mode.

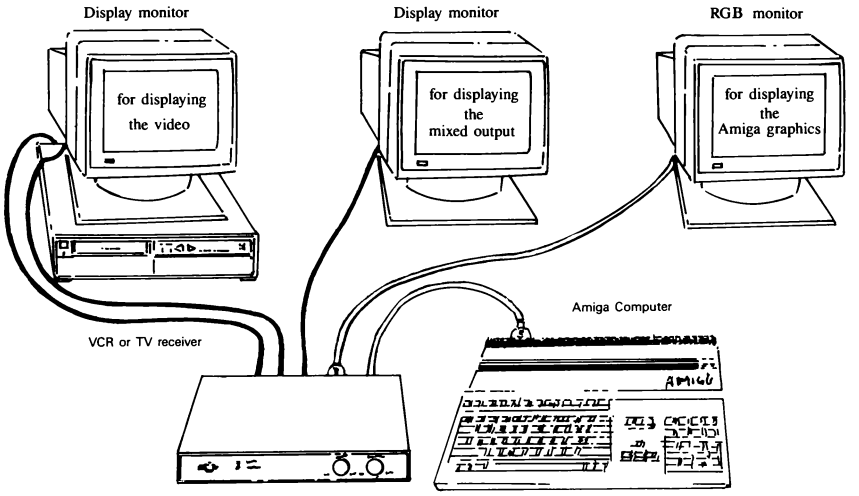


Figure 2 Connecting RocGen Plus with the Amiga

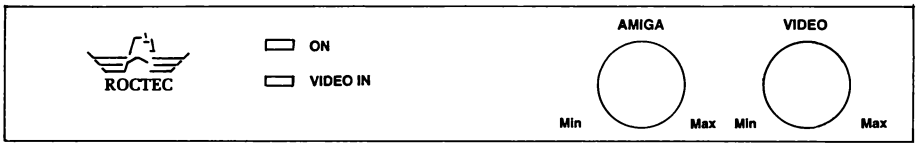


Figure 3 The front panel of RocGen Plus

7. *DISSOLVE KNOBS*

The dissolve knobs allows you to control the range of dissolve and overlay of the signals.

For instance, Turn "VIDEO" to "MAX" and "AMIGA" to "MAX", the output displays Amiga graphics which is overlay onto video source.

Turn "VIDEO" to "MIN" and "AMIGA" to "MIN", the output displays Amiga graphics' outline and fills with video source. ("inverse" effect)

Turn "VIDEO" to "MAX" and "AMIGA" to "MIN", the output displays video source only.

Turn "VIDEO" to "MIN" and "AMIGA" to "MAX", the output displays Amiga graphics only.

"Hands-on" experience is the best way to explore all of the special effects possible with the wide spectrum of knob combinations.

OPERATING THE DEMO DISK

Load your Amiga with your Workbench disk and insert the demonstration disk, use the mouse to activate the "RocGen Plus Demo Disk" icon and the following programmes.

I. Colour Bars (Vertical & Horizontal)

This is a self-running demonstration programme. When you start the programme, eight colour bars will appear on the screen. Colour of the bars from left to right/top to bottom are grey (background colour), white, yellow, green, pink, red, blue and black respectively. When both "VIDEO" and "AMIGA" are turned to "MAX", the background (grey colour) of the Amiga will be replaced by the input video source of RocGen Plus. The colour bars could be scrolled by moving the mouse to the right side of the screen. The nearer of the mouse to the right, the faster the scrolling effect. Exit the programme by moving the mouse to the left top corner of the screen and click the left mouse button.

II. Script

This is a programme to write script for video display when you turn both "VIDEO" and "AMIGA" to "MAX" .

A self-explanatory instruction is shown on the screen. You could choose colour, style and size for your script by moving the mouse to the desired item and press the left button of the mouse. When you press <Enter> (or <Return>), the chosen colour, style and size of the script would be shown. All alphabets, numbers, ... or nearly all characters on the keyboard can be used for your script.

To remove the instructions, press the right button of the mouse, and only the script would be displayed. Turning both "VIDEO" and "AMIGA" to "MAX" at this moment, the script will appear at the bottom of the video and the whole screen will be replaced by the video source.

To adjust the vertical position of the script, move the mouse to the top of the screen, drag the screen by pressing the left button of the mouse and moving the mouse downward simultaneously. Now the script is located in the lower part of the screen.

Note: the workbench screen may appear when you drag the script screen downward. To hide the workbench screen, just drag it down and place it behind the script screen.

"Script" requires fonts downloaded from your workbench disk (or any disk where the directory FONTS located). In order to increase the speed of access, however, by adding buffers to the drive where the directory FONTS located would reduce accessing time a lot.

Key in:	Addbuffers dfx: 25	(x = 0 internal floppy drive, x = 1 external floppy drive)
	at CLI to add buffers.	

Few keys for your convenience:

<ESC>	to clear script line;
<BACKSPACE>(<——)	to erase one character backward;
<ENTER> (or Return)	to make choice effective immediately.

III. CROSSHAIRS

This is a shooting effect demonstration programme. When you start the programme in the INVERSE mode of RocGen Plus, a crosshair will appear on the screen. The crosshair is controlled by the mouse. Click the left mouse button to trigger the shooting effect. Exit the programme by moving the mouse to the left top corner of the screen and click the left mouse button or by pressing "ESC" key.

FREQUENTLY ASKED QUESTIONS

Q. What's the difference between a Genlock and a Digitizer? I thought they were the same thing.

A. A Genlock unit enable you to synchronize the Amiga with a video source, a digitizer is a unit that enables you to produce a computer version of a video image.

Q. I am using RocGen Plus and getting a bad picture from the video output, what can I do to enhance it?

A. The most common causes of bad video output are:
   i. the use of audio cable as video cable you are using are designed to be used with video equipment.
   ii. the genlock unit being placed near strong electrical current i.e. Amiga power supply, video power supply.

Q. I want to use my S-VHS camera with RocGen Plus, how can I do this?

A. RocGen Plus accepts CVBS (composite video) inputs, S-VHS is a different signal type. You would need to use the CVBS output of your camera, if available.

Q. I have setup RocGen Plus as the manual instructed and I can't get it to work, what can I do?

A. Your dealer should be able to help you with any problems you may experience.

However, before contacting your dealer, it is advisable to check whether you have installed many devices (e.g. external drive, memory expansion, etc.) on the Amiga system. If yes, then it may be the root of the problems since your Amiga's power supply can't support so many add-on devices. This could be solved easily by plugging an +12VDC adaptor into the RocGen Plus.

SPECIFICATIONS

Computer Compatibility	Amiga computer series and Commodore CDTV
Video Input/Output Compatibility	PAL or NTSC composite video signal (*)
Encoder	NTSC (RG310CN), PAL (RG310CP)
Luminance Bandwidth	(3dB) 5MHz
Interface	D-sub 23-pin Amiga Video Port Connector
Input/Output	RCA jack for composite video input RCA jack for external keying input RCA jack for composite video output RCA jack for video-thru output DB-23 Amiga RGB-thru output
Video Signal	1 Vp-p
Keying Signal	TTL compatible
Power Supply	Optional +12VDC 800mA external power supply
Display Control	Overlay and fading effects are adjustable via the dual dissolve dials.
Panel Indication	Red LED for Amiga on. Green LED for video active.
Dimensions	220mm x 141mm x 38 mm

* Depends on model