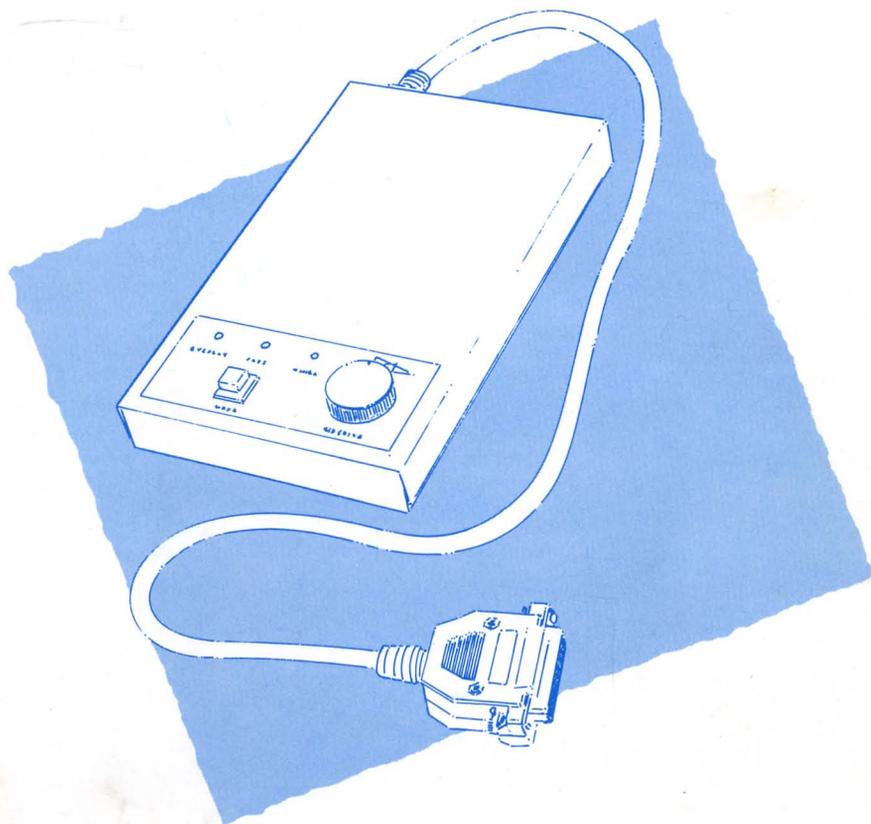

ROCGen



RG300C

USER'S MANUAL



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INTRODUCTION

Congratulations on your purchase of the RG300C genlock from ROCTEC ELECTRONICS LIMITED. The RG300C is unique in that it teams up with any member of the Commodore-Amiga line of personal computers and delivers high-powered sophistication at an affordable price.

With the RG300C and the Amiga you will be able to record your stunning Amiga graphics and animations onto standard video tape, via a video recorder; you will be able to overlay text and graphics on video; and, you will have the ability to create unique special effects by using the RG300C's powerful fade and dissolve functions. The RG300C is the tool you need to create the kind of slick video presentations you've always imagined.

This manual will explain the features of your RG300C genlock so that you may connect it properly, operate it knowledgeably and utilize its many sophisticated video/graphic functions. The manual is divided into two major sections.

Part One

Provides an overall look at the "hows" and "whys" of genlock operation, especially as they apply to the RG300C genlock. This section is recommended reading to anyone who is just beginning to explore the world of desktop video.

Part Two

Outlines the procedures for properly and safely connecting your genlock to Amiga Personal Computer and other video equipment. If you are a knowledgeable Amiga/Video user, you may want to skip Part One and jump directly to Part Two.

SPECIAL FEATURES OF THE RG300C GENLOCK

Fully compatible with the complete line of Amiga Personal Computers: Amiga 500,1000,1500,2000,2500, and Amiga 3000.

Fully accessible, user-friendly control panel.

Auto Video Pass-Thru: This allows the signal from the Amiga or external video source to pass thru the RG300C to the monitor or recorder, even if either the Amiga or external video source is powered down.

Internal Sync Generator: The RG300C generates its own internal timing signals if it does not sense synchronisation from an external video source.

FADER/DISSOLVE Controls: This feature allows the RG300C to control varying degrees of fade and dissolve between computer graphics and an external video source. The RG300C is the most affordable Amiga genlock to offer this feature.

PART ONE

I. 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 the RG300C genlock, can be offered for the Amiga at a fraction of the price of comparable products on other PC platforms.

II. 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 synchronisation 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 (synchronise) 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 the RG300C) that actually performs many different video functions; the synchronisation of two video signals being just one of its many capabilities.

III. WHAT DOES A GENLOCK DO?

As previously mentioned, your RG300C is a sophisticated, multi-purpose

genlock. The RG300C is responsible for three major video/graphic functions.

1. The RG300C is an encoder. It processes the Amiga's standard RGB colour signal, which is incompatible with standard video, into an 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 tapes, via a video recorder.

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 the RG300C, 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 synchronisation signals. Your RG300C, however, was designed to sidestep this limitation by generating its own internal synchronisation signals if no external "sync" is detected.

2. The second important function of your RG300C is the previously mentioned "signal synchronisation". 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 synchronisation is of critical importance and allows the two video signals to be processed and displayed together without the vertical and horizontal disturbances that mark unsynchronised signals.

Of the two synchronised 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 video players. The precise, electronic synchronisation of the Amiga's encoded signal with a second video signal paves the way for the most important of the RG300C's features.

3. Overlaying Amiga graphics on top of video is perhaps the primary reason that desktop videographers use genlocks. The RG300C provides this overlay capability. Graphic overlay begins by combining the Amiga's

graphic screen with a video picture. Once this has occurred, the RG300C 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 synchronised 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. Remember, the Amiga signal always has priority; it is always overlaid on top of the incoming video signal .

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 the RG300C; whatever colour occupies the "colour zero" position since it becomes transparent when the overlay mode is activated. The RG300C fader knob gives 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 synchronisation 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, artifacts. 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 the highest quality video signal you can afford.

PART TWO

CONNECTING THE RG300C

WARNING!!! Before attempting the connection of the RG300C 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 the RG300C.

Connecting the RG300C is really quite simple:

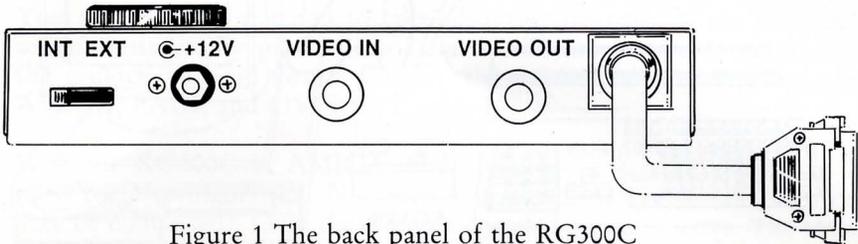


Figure 1 The back panel of the RG300C

1. Plug the D-sub 23-pin female connector at the end of the cable that connects to the rear of the RG300C genlock 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. Connect one end of a standard RCA-type video cable into the jack on the back side of the RG300C 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.

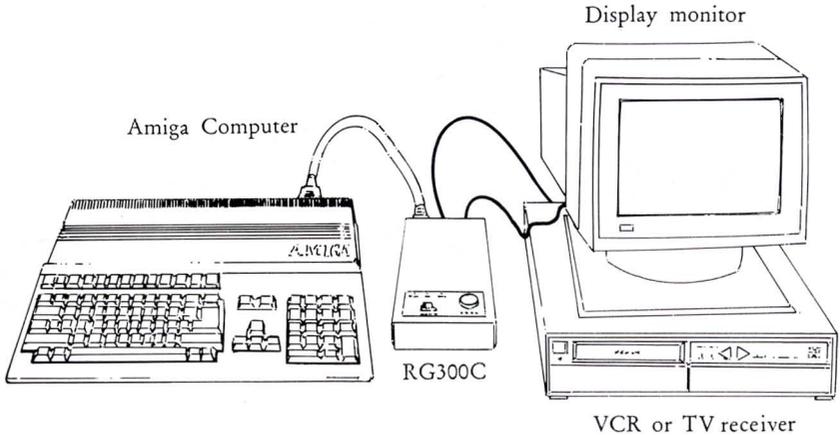


Figure 2 Connecting the RG300C with Amiga

3. This setup will allow the RG300C to act as an encoder and you should see the encoded Amiga signal on your composite monitor. At this point the RG300C is generating its own synchronisation 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. The next step is to connect a second video source to the RG300C. 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 the RG300C. With this connection made, the RG300C will take its "sync" from the incoming video source.

5.

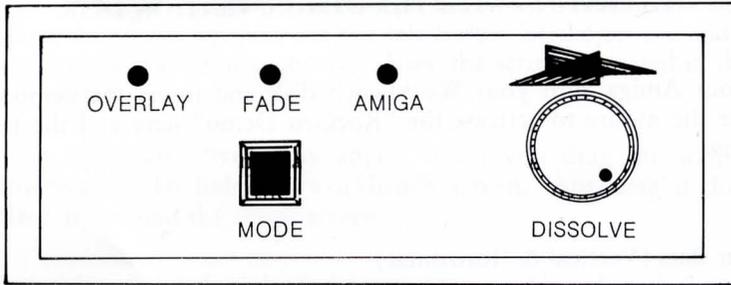


Figure 3 The front panel of the RG300C

You are now in a position to take advantage of many of the RG300C's unique features. By pressing the large red button located at the front of the genlock you can switch between the RG300C's three major modes: AMIGA, FADE and OVERLAY.

6. With the RG300C in AMIGA mode, you are using the genlock in its most basic configuration. No video source will be visible (although one may be connected). Only the Amiga's encoded signal is active. The round DISSOLVE knob has no functionality in this mode.
7. With the RG300C in FADE mode, the DISSOLVE knob can be turned in both directions to fade from solely a computer graphic screen to solely a video image. Turning the DISSOLVE knob to the half-way point will result in a combined image that allows the computer's encoded screen semi-transparent, with the video signal partially visible behind it. Adjusting the DISSOLVE in either direction from the half-way point will result in varying degrees of transparency.
8. The OVERLAY mode is the workhorse of the RG300C .In this mode a video signal is always visible. The DISSOLVE knob affects the varying degree of visibility of the overlaid computer graphic. In the OVERLAY mode the computer background (colour zero) is never visible. When the DISSOLVE knob is turned completely to the left, the computer graphic will be solidly overlaid over the incoming video signal. Turning the knob to the half-way point will result in a semi-transparent graphic overlaid on the video image. With the DISSOLVE knob turned completely to the right, the computer graphic will be completely dissolved and no longer visible.

OPERATING WITH THE DEMONSTRATION DISK

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

I. Colour Bars (Vertical & Horizontal)

It is a self-run demonstration program. When you start the program, 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. In the RG300C's Overlay mode, the background (grey colour) of the Amiga will be replaced by the input video source of the RG300C.

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. You could exit the program by moving the mouse to the left top corner of the screen and click the left mouse button.

II. Script

It is a program to write script for video display when you use Overlay mode of the RG300C.

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. Switching the RG300C to the overlay mode 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,
at CLI to add buffers. X=1 external floppy drive)

Few keys for your convenience:

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

COMMON QUESTIONS & ANSWERS

- Q. What's the difference between a Genlock and a Digitiser?
I thought they were the same thing.
- A. A Genlock unit enable you to synchronise the Amiga with a video source, a digitiser is a unit that enable you to produce a computer version of a video image.
- Q. I am using the RG300C but I am 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 cables, make sure that the 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 the RG300C genlock, how can I do this?
- A. The RG300C 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 the RG300C as the manual instructed and I can't get it to work, who can I contact?
- A. Your dealer should be able to help you with any problems you may experience.

SPECIFICATIONS

Computer Compatibility	: Amiga computer 500,1000,1500,2000,2500,3000
Video Input/Output Compatibility	: PAL or NTSC composite video signal(*)
Encoder	: NTSC (RG300CN) PAL (RG300CP)
Luminance Bandwidth	: (3dB) 5MHz
Interface	: D-sub 23-pin RGB
Input/Output	: RCA jack
Video signal	: 1 Vp-p
Power supply	: Optional + 12VDC 800mA external power supply
Display modes	: Overlay, Fade and Amiga. Overlay and Fade modes are adjustable via a dissolve dial.
Dimensions	: 120mm × 202mm × 25mm

* Depends on model

