G-Lock Product Information

www.gvp-m.com

Description

The G-Lock genlock is a highly versatile, professional quality genlocking board for the AMIGA platform. In any multimedia computing environment, the need to manage multiple video and audio sources is critical, whether you view them on your computer screen or through an external monitor or tape source. In order to have different video sources appear together on the screen with professional results (without tears or jitters) they must share the same exact timing of their sync signals. When this occurs, the signals from various sources are said to be sync'ed or genlocked.

FEATURE	BENEFIT
Switchable dual composite input	G-Lock allows software switching between two separate composite input sources for fast cuts between video.
Y/C (Hi8 or S-VHS) input	The two composite inputs can be switched to a single Y/C (Hi8 or S-VHS) input source for high-quality input from any Y/C source.
Composite - Y/C Transcoder	High quality transcoder provides simultaneous composite, Y/C, and RGB outputs.
RGB/YUV output	The RGB output can be switched to provide YUV output for professional recording equipment.
Real-time ProcAmp controls	Allows adjustment of hue, saturation, brightness, contrast, sharpness, filtering, gain, and more, all from software.
SECAM to PAL conversion	G-Lock can convert most SECAM video sources to VCR quality PAL video.
Extensive keyer control	Keyer modes include Amiga only, External Video only, Overlay, Inverse Overlay, and control of Amiga ECS and AGA special effects.
Built-in audio processor	Allows software switching and mixing control of two separate monaural audio sources, with full control over volume, treble, and bass.
RGB Color Splitter feature	G-Lock can operate as an adjustable electronic RGB color splitter for direct use with the NewTek Digi-View™ or other slow-scan video digitizers.
Display Enhancer compatible	Works with the Display Enhancer and FlickerFreeVideo boards for simultaneous genlocked video and deinterlaced Amiga graphics output.
Complete software control	G-Lock has an Intuition-based software control panel with full ARexx and CLI interfaces. Example ARexx scripts are provided that perform A/B video source switching, fade-to-black transitions, and more.
AmigaDOS 1.3, 2.0, 2.1, 3.0 compatible	Supports all version of Kickstart/Workbench and AmigaDOS from 1.3 and up. Hotkeys can be redefined when using 2.0 and higher.
Does not require separate power supply	G-Lock is a completely self-contained unit and does not require any external power supply or power source.
GVP custom-designed VLSI and surface mount technology	Allows for lowest possible component count and higher reliability for longer life.

Hardware Reference

G-Lock is an extremely versatile genlock, capable of accepting two composite video sources or a single high quality Y/C input source, and simultaneously providing high quality composite, Y/C, and RGB or YUV genlocked outputs. Additionally, the ability to accept two separate audio sources increases the unit's flexibility in video and multimedia productions.

G-Lock is a small unit with eight connectors, two interfaces, and one cable located around its sides. These connections are utilized in the following manner.

Video Inputs

(2) composite sources

(1) Y/C (Hi8 or S-Video) source

Video Outputs

(1) composite video

(1) S-Video (Y/C)

(1) RGB or YUV

Audio Inputs

(2) monaural audio sources

Audio Output

(1) audio output switchable between two monaural input sources, or mixed input sources

Computer Interface

(1) Amiga interface 24-pin connector (uses supplied 25-pin to 23-pin cable) to obtain Amiga RGB signals

(1) 9-pin control cable interface

Software Reference

The primary user interface for G-Lock is the GL program. This control program uses a combination of menus and panels that together control all of G-Lock's functions. The format and operation of the control program's interface conform very closely to AmigaDOS 2.0 style guides, making them familiar, easy to learn, and easy to use. The design of the control program also incorporates carefully chosen combinations of colors and graphics that allow its menus and control panels to be clearly read at a distance, even on composite monitors.

The control program provides two optional operating modes: Standard and Advanced. Standard mode has two control panels, the Video Panel and the Audio panel, each controlling a different aspect of G-Lock's performance. In Advanced mode there are up to 4 additional control panels allowing more control of video parameters and characteristics. These advanced panels are intended for experienced video users and, therefore, are not normally accessible.

An important G-Lock control program feature found on all control panels is the Setup function. Located at the bottom of each panel, these three buttons, Setup1, Setup2, and Setup3 are used to store and recall three separate sets of video and audio configurations. These setups can be used to retain G-Lock settings for different equipment configurations, or to facilitate quick comparison of experimental adjustments.

The G-Lock control program can be started from Workbench or run from the CLI after the genlock is initialized. Once running, the GL control program can be hidden or recalled by using the available menus, or the default Hot-key combinations (ALT-F1 and ALT-F10), or by rerunning its icon.

Special Features

With G-Lock connected and initialized, run the Digi-View™ or other digitizer software as normally directed by the manufacturer. Select Digi-View's Slow-Scan/Color Camera option for the best quality images. Before the digitizing procedure begins, move back to G-Lock's Advanced 3 panel and select a color to digitize — let's start with Red. Now go back to the digitizer software and command it to digitize Red. Then use Alt-F6 to switch to external mode. Repeat the process for Blue, then Green, and the process is complete.

If your digitizer software can be controlled by ARexx, it is possible to completely automate the digitizing process using an ARexx script. A sample ARexx script for use with Digi-View software (V4.0) is provided on disk.

Using the G-Lock composite output will produce acceptable results for the final digitized image. However, superior results can be obtained with any slow-scan digitizer if the Y (Luminance) signal, available from the S-VHS OUT connector, is used. A special cable, not supplied with G-Lock, is necessary in order to use this signal. This custom cable can be made, or is available from Redmond Cable. The part number is RCA681, 4MMINI-2RCA.

Redmond Cable is reachable at the following address:

17371 - A1 NE 67th Ct

Redmond, WA 98052

Phone #: (206) 882-2009

Fax #: (206) 883-1430

System Requirements (Computer)

G-Lock will work with any NTSC or PAL-based Amiga having at least 512K of memory and version 1.3 or higher Amiga operating system. If G-Lock is multitasked or operated under ARexx control, a minimum of 1MB of Chip RAM is required.

G-Lock is powered directly by the Amiga. While power requirements are minimal, the A500, A500 Plus, and A600 series computers may be limited in the number of other peripherals that can be attached. Please consult your Amiga reference manual for specific recommendations.

Recommended Equipment (Computer)

Increased flexibility and performance can be achieved when one or more of the following are present in an Amiga with a G-Lock attached:

- ECS graphics Chipset
- AGA Graphics Chipset
- Additional FastRAM
- Hard Drives for system and image storage
- Accelerator for faster processing and program execution

System Requirements (Video)

G-Lock is calibrated for either NTSC or PAL operation, depending on the country in which it was purchased. G-Lock is designed to be used with the following external video and audio equipment:

Camera — as a live video source

- Composite
- S-Video (Y/C) Hi8 and S-VHS

VCR, VTR, camcorder, or laserdisc player

- Composite
- S-Video (Y/C) Hi8 and S-VHS
- RGB/YUV with separate syncs (from G-Lock only)

CD or cassette player Monitors

- Amiga RGB monitors (1080, 1084, 1084S, 1950, 1960)
- Studio monitor, TV receiver

Questions and Answers

Q. What is a genlock?

A. Genlock is shorthand for "generator lock," a term borrowed from professional television production. When two or more composite video signals are "genlocked" their vertical, horizontal, and subcarrier signals are either synchronized exactly or timed to a fixed offset. When signals are genlocked, they can be mixed, keyed, and layered with professional results.

Q. Can I connect more than one monitor to my G-Lock?

A. Yes, because of G-Lock's transcoding capability it is possible to simultaneously use all the available outputs for monitoring and recording.

Q. Why is the picture quality of my S-VHS (Y/C) source so poor?

A. There is probably a composite source connected to G-Lock. All composite input sources must be disconnected from G-Lock when using an S-VHS (or Hi8 or S-Video) input source.

Q. Should I always leave G-Lock connected to a video source?

A. Yes. Even when not overlaying graphics the highest quality output from the genlock output is realized when a stable video source or external sync is available to G-Lock.

Q. What special video effects can be created with G-Lock?

A. G-Lock's six video control panels allow you to generate a wide range of special and customized effects. Here are just a few possibilities:

- Use the video and color sliders on the Video Panel to create unusual colorization of images or video.
- Easily turn a video image into black and white by selecting the ColorKill option from the Advanced 1 Panel.
- Create color-filter and colorization effects by turning on and off various combinations of RGB by using Advanced 3 Panel's RGB switches.
- Use the Advanced 4 Panel to generate unusual keying effects by experimenting with BitPlane or Chroma Keying.

Q. What special audio effects can be created with G-Lock? A. Because G-Lock's Audio Panel allows control of the volume, bass, treble, and muting, many interesting and useful effects are possible. A few are listed here:

- Use the two switchable input sources on the Audio Panel to record or create bilingual segments.
- Feed the left and right stereo channels into Audio 1 and 2, then select Mix 1+2 to combine the channels without the need for a "Y" cable.
- It is possible to fade in and out between available sources. While this is easily accomplished by manually manipulating the volume control sliders and audio source buttons, it is a relatively simple matter to write an ARexx script to do this automatically.
- Use the treble and bass controls to form equalization effects on the audio sources.
- Using DSS8+™ to sample audio sequences, you can process them to create special effects (such as echoing), and then mix them with G-Lock's incoming audio.

Q. What other programs can I use with G-Lock? A. Any software that has an ARexx port and can multitask with G-Lock can be used. Scala MultiMedia has an EX module that can control the G-Lock hardware from within a Scala script.

G-Lock Technical Specifications

Video Inputs	**CVBS1 - In @ 1Vp-p/75ohm, RCA Jack**
	CVBS2 - In @ 1Vp-p/75ohm, RCA Jack
	— or —
	Y/C - In: Y @ 1Vp-p/75ohm; C (Burst) @ 286mVp-p/75ohm, Mini-DIN
Video Outputs	**CVBS - Out @ 1Vp-p/75ohm, RCA Jack**
	Y/C - Out: Y @ 1Vp-p/75ohm; C (Burst) @ 286mVp-p/75ohm, Mini-DIN
Component Input	Amiga - RGB - In @ 700mVp-p/75ohm, DB23 on cable (TO AMIGA)
Component Outputs	**RGB - Out @ 700mVp-p/75ohm (w/ separate sync), DB23 (TO RGB MONITOR)**
	— or —

	YUV - Out: Y @ 1Vp-p/75ohm, UV @ 700mVp-p/75ohm (w/ separate sync), DB23 (TO RGB MONITOR)	
Sync	**Composite Sync Out: TTL Level, Negative Polarity, Pin 10 - DB23 Out**	
	Horizontal Sync Out: TTL Level, Negative Polarity, Pin 11 - DB23 Out	
	Vertical Sync Out: TTL Level, Negative Polarity, Pin 12 - DB23 Out	
Video Performance	**Video Input Standards (user selectable):**	
	NTSC-M	
	PAL-B/G/I	
	SECAM-L/B/G/K	
	Video Output Standards:	
	NTSC-M	
	PAL-B/G/I (Amiga dependent)	
	Differential Gain:	>5%
	Differential Phase:	>5°
	RGB Output Bandwidth:	-3dB @ 8MHz typical
	CVBS (Luma) Bandwidth:	4.5MHz typical
	Y/C Bandwidth:	5.5MHz typical
	Luminance Resolution:	>360 lines
	Hue Control Range:	+30 to -30°
	Minimum video burst level for color decoding:	30mV
	Video (Luma) Peaking Range:	0dB to 6dB (user selectable steps) @ 3MHz
	Video (Luma) Delay Range:	594nS to 882nS in 6 steps (user selectable)
	Insertion Delay (CVBS In to CVBS Out):	1300nS
	Horizontal Lock Range:	+/-1200Hz typical
	SubCarrier Lock Range:	+/-350Hz minimum
	XCLK Frequency (To Amiga):	28.63636MHz NTSC
	XCLK Phase Jitter:	28.375156MHz PAL
	CVBS1/CVBS2 Crosstalk:	15nS (Dependent on Video Input)
	Video Trap Filter (Color-Killer) Attenuation:	-35dB maximum
		40dB minimum
Audio Input/Output	**AUDIO1 @ Line level, 20k ohms**	
	AUDIO2 @ Line level, 20k ohms	
	AUDIO - Out @ Line level, 100 ohms	
Audio Performance	Frequency Response:	20Hz to 20kHz
	Programmable Volume Gain:	-64dB to +6dB, 2dB steps
	Programmable Bass Gain:	-12dB to +15dB, 3dB steps @ 50Hz
	Programmable Treble Gain:	-12dB to +12dB, 3dB steps @ 15kHz
	Mute Control:	-80dB when active
Power Supply	+5VDC - 150mA maximum	
	+12VDC - 350mA maximum	
	FTZ/FCC CLASS B APPROVAL	