

Operations Manual for the CG-1000 Cage/SAG Unit V4.4 & 4.5

Eyeheight
UNI-System
29 March 2000

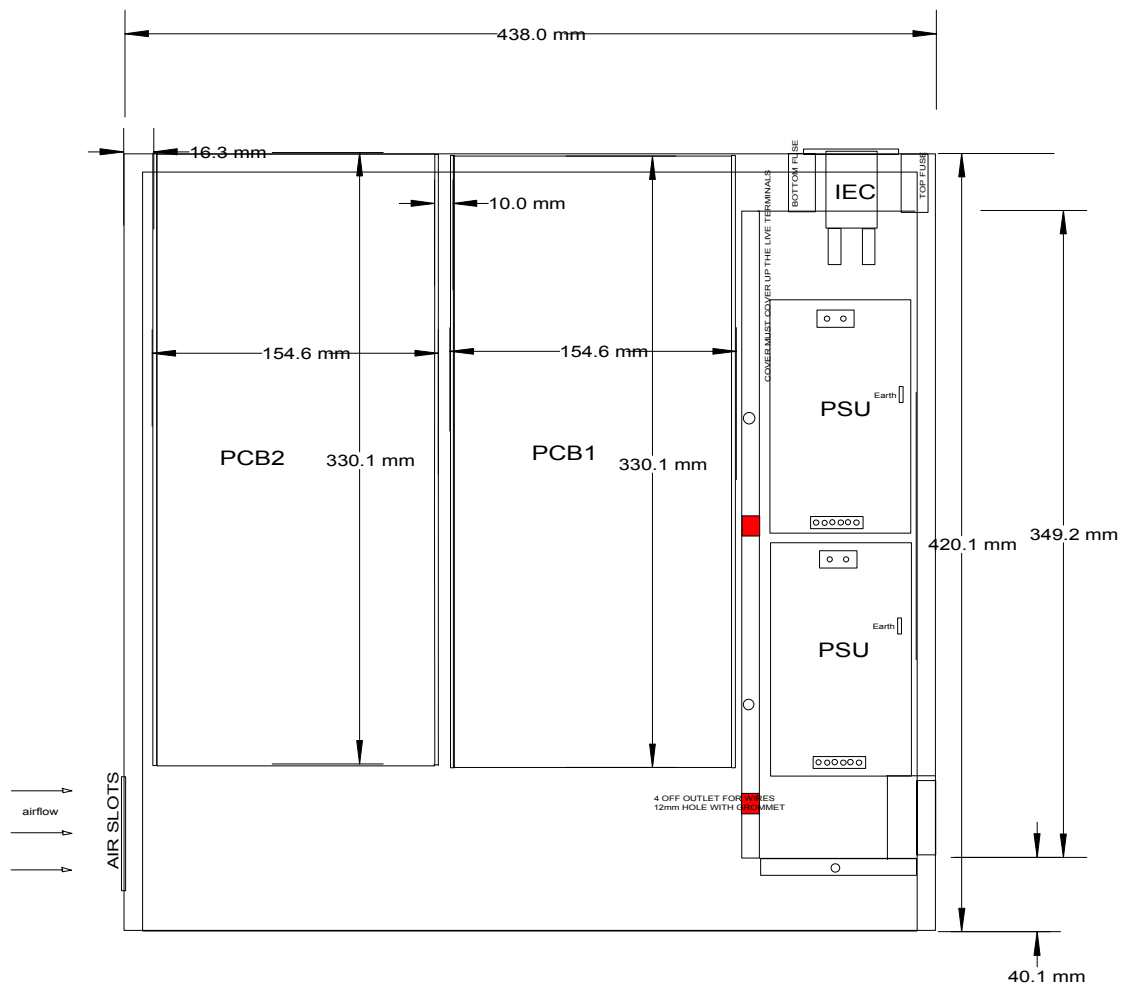


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Technical Specification

CG-1000 Cage

Physical Format	Host PCB Subsystem for fitting into an Eyeheight Uni-Box System.
Power Requirements	+5V at 1 Amp, supplied from the Uni-Box. -5V at 200mA, supplied from the Uni-Box.
General Features	Generates All commonly used guide lines for 625 and 525, 4/3, 14/9 and 16/9 Television Formats such as Safe action, safe title etc. Generates Top and bottom of picture film aspect Blanking in Black or reduced opacity picture.
Local Control	Standard Eyeheight Uni-Panel (UP-1000)
Remote Control	Standard Eyeheight Uni-Panel situated up to 50M remotely using RS422 control with power from the Uni-Box.
Accessories	The CG-1000 PCB requires a spare slot in an Eyeheight Uni-Box (UB-1000) Control is by Eyeheight Uni-Panel (UP-1000). Optional monitoring RGBS/YUV outputs with plug-in PCMIA Card. (DA-1)
Input	270 Mbit Serial Digital with active loop through. Input R.L <-15dB, 75 Ohm
Outputs	2 off Main Serial Digital outputs (BNC). 75 Ohm. 1 off Act. loop through (BNC). 75 Ohm. Optional monitoring quality RGBS, YUV Configurable outputs (4 off BNC). 75 Ohm, +/- 2% video level accuracy, Sync o/p 2V pk-pk
Other Connections	RS422 control 9W D type (fem)

CG-1000 Operation

The CG-1000 Cage/Cursor/Safe area generator is generally controlled from an Eyeheight Uni-Panel either locally mounted on the front of a Uni-Box or remotely sited using the rear RS422 control system. Optionally the user may wish to control the system from a computer system simulating a Uni-Panel. The RS422 Protocol for the Uni-Panel is published in the Manual for the Uni-Panel/Box. Fig. 1 Shows the 10 Pre-set switches for the CG-1000 operation. If the CG-1000 unit is used in conjunction with a “Legal-Eyes 2” CG-1000 Serial Digital RGB Clipper unit, the lower set of legends (Labelled in Fig. 1 as “NoDev”) will correspond to the CG-1000 “Legal Eyes 2” unit, we will ignore this in the description of the CG-1000 cage unit.

SAG > NoDev	Text ----	S.act ----	S.Capt ----	Centre ----	Box ----	Cursor ----	Edge ----	Blamk ----	On ----
SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 7	SW 8	SW 9	SW10
Selects between the Two possible Systems	Text Height Measurement system.	Safe Action area	Safe Title area	Centre of screen	define Box	Move Hor' and vert' cursors	Edge os picture and film Blanking ratios	Top and bottom of picture blanking	Cursors On/Off. Keep pressed for Menu.

Fig. 1 Uni-Panel Pre-set Switches for Single CG-1000 Unit

UNI-Panel Set-up

Before describing the cage unit in detail, some general features of a Uni-panel should be noted pertaining to possible problems if control of a CG-1000 unit cannot be obtained.

The Uni-Panel has a number of set-up features that are important to know about. These set-up features are permanently stored in EE-prom such that once they are set up there should be little or no need to change them again.

The set up modes are activated by pressing certain keys on the Uni-Panel while the unit is being powered up. If the Uni-Panel is locally situated on the front of a Uni-Box, then the whole Uni-box must be re-powered while the set-up keys are pressed in. If the Uni-panel is remotely sited, then it may be easier to re-power the panel only by disconnecting and reconnecting the 9W D type, while the set-up keys are being pressed.

In the following text the terminology “**slot 0**” refers to the PCB system on the Right Hand side looking from the **rear** of the Uni-Box.

The terminology “**slot 1**” refers to the PCB system on the Left Hand side looking from the **rear** of the Uni-Box.

First Birthday:

Pressing switches 1 and 10 together when power-up happens, will cause a 1st Birthday to occur. This will clear the EE-prom to 00h, **and consequently**

put the panel into 'Local' mode and lose all the CG-1000 start-up data and the user set device names. Re-powering will however put the system into a sensible default mode.

After EE-Prom is cleared, the message 'EE-OK' will appear on the LCD display and the host systems must be restarted by a total power down.

Protocol Change:

Pressing switches 3 and 8 together when power-up happens, will cause the panel protocol to toggle between 'Eyeheight 2 wire local talk' and RS422. If the panel is remotely sited 'RS422' is required. If the panel is on the front of a Uni-Box then 'Local' is required.

Slot Identification Text:

Pressing switches 5 and 6 together when power-up happens, will cause a mode to be entered such that the "user slot text" can be changed and stored in EE-prom.

The Text is displayed when a user uses SW 1 to switch between slot 0/1. This announces that now you are controlling, for example 'Studio 1 Cage' or 'P Box 1 Cage'.

The default text after a first birthday is 'Dev 1' for slot 0 and 'Dev 2' for slot 1.

To change the text for slot 0, enter this mode by powering up with sw 5 and 6 pressed. You will now see the Slot 0 text (Dev 1). adjust character under the underscore by moving the 'adj.' digipot. To move the underscore use the 'menu' digipot.

When you have completed the slot 0 text, press sw 10 (Flashing led). this will then do the same for the slot 1 text. When this is complete press SW 10 and after a few seconds re-power the system.

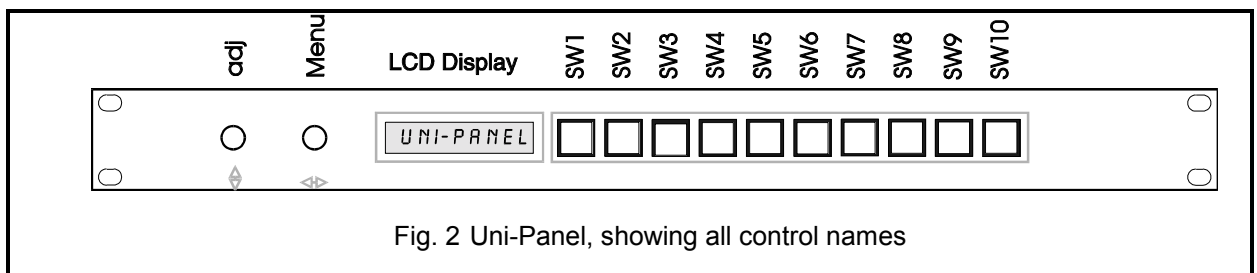


Fig. 2 Uni-Panel, showing all control names

Operation of the CG-1000 Cage/Cursor/SAG unit

The CG-1000 is controlled from the 10 front panel switches as follows:

SW 1 - Device Select	This button toggles between the Two possible systems being controlled by the Uni-Panel. In the case where there is only one CG-1000 system installed, this button does nothing. If a CP-1000 was installed in the second slot, control would toggle between the CG-1000 cage and the CP-1000 RGB Clipper.
SW 2 - Text	This button invokes the text height measurement system. After pressing this button a darkened band will appear on the screen. The "Text Pos" menu will appear on the LCD display. To move the band over the text use the "Adjust Digipot". To change the text height, move to the next menu using the "Menu" digipot and adjust the text height with the "Text Height" menu.
SW 3 - S.Act	Sequential presses of this button selects between 5 Common Safe Action areas, 1.. 4/3 (5%) Safe area. This is the Safe Action area used for when the source format and the destination format are of a 4/3 aspect ratio. 2.. 16/9 (3.5%) Safe area. This is the Safe Action area used for when the source format and the destination format are of a 16/9 aspect ratio. 3.. 16/9 shoot to protect 14/9. This is the Safe Action area used for when the source format is 16/9 and the destination format is 14/9. 4.. 16/9 shoot to protect 4/3. This is the Safe Action area used for when the source format is 16/9 and the destination format is 4/3. 5.. 4/3 shoot to protect 14/9. This is the Safe Action area used for when the source format is 4/3 and the destination format is 14/9.
SW 4 - S.Capt.	Sequential presses of this button selects between 4 Common Safe Caption areas, 1.. 4/3 (10%) Safe Caption area. This is the Safe Caption area used for when the source format and the destination format are of a 4/3 aspect ratio. 2.. 16/9 Safe Caption area. This is the Safe Caption area used for when the source format and the destination format are of a 16/9 aspect ratio. 3.. 16/9 shoot to protect 14/9. This is the Safe Caption area used for when the source format is 16/9 and the destination format is 14/9 . 4.. 16/9 shoot to protect 4/3. This is the Safe Caption area used for when the source format is 16/9 and the

	<p>destination format is 4/3.</p> <p>5.. 4/3 shoot to protect 14/9. This is the Safe Caption area used for when the source format is 4/3 and the destination format is 14/9.</p>
SW 5 - Centre	<p>Momentary pressing of this switch activates a small crosshair at the centre of the screen.</p> <p>If this button is held down for longer, the crosshair will change from small to full screen size.</p> <p>After Activating the Centre button, the H and V knobs can be used to activate the <u>Drop cursor and connected line drawing system</u>. This is described in more detail later.</p>
SW 6 - Box	<p>This will generate a box. The position can be moved using the "adj." (vertical) and "menu" (Horizontal) knobs, and the dimensions of the box can be changed using the "adj." (vertical) and "menu" (Horizontal) knobs whilst at the same time holding down the "Box" button.</p>
SW 7 - Cursor	<p>This will activate the Horizontal and vertical Cursors. These are adjusted with the "adj." (vertical) and "menu" (Horizontal) rotary knobs.</p>
SW 8 - Edge	<p>This shows the edge of picture and also enables the selection of various other aspect ratios. Selection of these is done with the "menu" (Horizontal) knob. A vertical offset in two line intervals may also be introduced to aspect ratios greater than 1.33 using the "adj." (vertical) knob.</p>
SW 9 - Blank	<p>Once activated this puts the system into the top and bottom <u>Film Blanking mode</u>. While the LED is flashing a set of set-up menus is activated (Which will be described later). While the LED is ON the film blanking is activated, it can be switched off by further button presses. Moving the Adjust Digipot will vary the blanking ratios.</p>
SW10- On/Off	<p>This Button has three functions.</p> <p>If this button is pressed momentarily it will toggle between removing and revealing all the cursors, but not the Film Blanking. (This is switched on/off using SW 9.</p> <p>If this button is kept pressed for more than 3 seconds the <u>On-Screen menu</u> appears. There are various set-ups and test signals available on this menu and it is described later.</p> <p>If this button is kept pressed for more than 6 seconds the unit will do a complete RESET. This may be useful when the uses changes Line standard from</p>

	525 to 625 or vice versa. A reset will re-boot the unit in the correct line standard without de-powering.
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On Screen Menu

Activating the Menu Button allows a number of set-ups to be changed. These set-ups are not stored in EE-Prom, consequently they will default themselves after power down.

BUTTON SELECT	EFFECT
SW 3 (Safe Action)	Enables and disables the On Screen co-ordinate system. This gives co-ordinates for the Cursors from the screen centre and the Movable box size and position.
SW 4 (Safe Title)	This changes the Blanking Edge 4/3 dotted guide line from wide (Digital blanking) to narrow (Analogue Blanking)
SW 5 (Cent)	As SW 6 and SW 7 except with 10% Luma lift.
SW 6 (Box)	This Activates the 100% Colour Bars Test Signal. This signal is intended for Monitor line up only. The test signal is slightly narrow and the user is required to apply Black to the input of the cage if this causes a problem.
SW 7 (Cursor)	As above except with Blue patch Bars.
SW 8 (Edge)	This changes all the cursor ratios such that they are applicable to the 16/9 wide screen format.
SW 10 (On)	Exits the On Screen Menu.

Drop cursor and connected line drawing system.

After Activating the Centre button, the “adj” and “Menu” knobs can be used to activate the Drop cursor and connected line drawing system. Once the “adj” and “Menu” knobs are adjusted an On screen menu at the bottom informs you of the options available to you.

BUTTON SELECT	EFFECT
SW 2 Cursor	Draws a line from the last point
SW 5 Centre	Drops a small marker at this point
SW 8 Edge	Exits the system, leaving all the cursors, lines and markers on the screen.
SW 10 On	Exits the system, Deleting all the cursors, lines and markers on the screen.

Film Blanking mode

This set of set-ups is adjusted using the “Menu” and “adj” knobs while observing the LCD Display on the front of the Uni-Panel. Hit the “Blank” Button first.

MENU (SELECT -“MENU” KNOB)	EFFECT (CHANGE-“ADJ” KNOB)
Aspc ratio	Changes the top and bottom Film blanking between a number of pre-set aspect ratios.
top blank	Allows single adjustment of the top blanking in terms of the line number.
Bot Blank	Allows single adjustment of the bottom blanking in terms of the line number.
Blnk opacity	Changes the opacity of the top and bottom blanking in 3 steps, 66% of picture, 33% of picture, and 0% of picture (Black)
Cursor= <Standard> <dynamic>	This changes the cursor mode from Standard (Normal 80% Luma Cursor) to Dynamic, (Cursor changes from light to dark dynamically in order to show up against all backgrounds)

Text Height Measurement mode

This set of set-ups is adjusted using the “Menu” and “adj” knobs while observing the LCD Display on the front of the Uni-Panel. Hit the “Text” Button first.

MENU (SELECT -“MENU” KNOB)	EFFECT (CHANGE-“ADJ” KNOB)
Text pos	Changes the Position of the “Text height Measurement band”
text height	Changes the Height of the “Text height measurement band”

Cage Reset

This can be done by pressing the “on” button for more than 6 seconds. This must be done if the user **changes the Line Standard of the input e.g. from 625 to 525**. The system senses the line standard upon power up and software reset.

Assembly of the CG-1000 PCB into a Uni-box.

Normally a system will be assembled and set-up at the factory, However a user may wish to move cards from one Uni-Box to another and change user settings from time to time.

The procedure for assembling a CG-1000 into a Uni-Box is as follows:

- 1).... Remove the mains from the Uni-Box.
- 2).... Remove the blank rear cover, by unscrewing the six M2.5 screws at the rear slot. If there is already one PCB Subsystem in the rear of the unit there will only be one rear blank cover over Slot 1 and this will be on the LEFT looking from the rear of the unit. If for and reason there are NO PCB Subsystems in this Uni-Box, then the CG-1000 MUST be inserted into Slot 0, which is the Right Hand slot looking from the rear.
- 3).... Insert the CG-1000 PCB into the slot and affix the six M2.5 screws. Take care not to snag the Coaxial cables as you do this, the connections are delicate.
- 4).... Re-apply the mains to the Uni-Box and the systems will start-up.
- 5).... On start-up you should now get the message "CG-1000 SAG Vxx" either once or twice depending on whether there are one or two CG-1000 PCBs in this Uni-Box. On the first power-up you should also observe the message "EE-upload" rather than the usual EE-download message on the LCD Display of the Uni-Panel.
- 6).... Refer to the "Slot Identification text" section of this manual under "Uni-Panel" set-up for instruction on how to personalise the name of the Cage (e.g. "Paintbox Cage")

Installing and using the DA-1 Analogue Output Option

The DA-1 analogue output option is available as a user-upgradable Option for the CG-1000 PCB. It is a PCMIA style monitoring Quality Digital to Analogue converter used to display the output (Or the Input) of the CG-1000 on a standard Analogue RGBS or YUV Monitor.

Installation of the DA-1

Remove the CG-1000 from the Uni-Box using the reverse procedure detailed above. Insert the PCMIA converter into the PCB in position SK 1.

Linking options for the DA-1

For RGBS output, locate LK4 on the CG-1000 PCB. Jumper across the pairs of pins labelled R, G, B, SYNC **ONLY DO NOT** link any other pins on LK4.

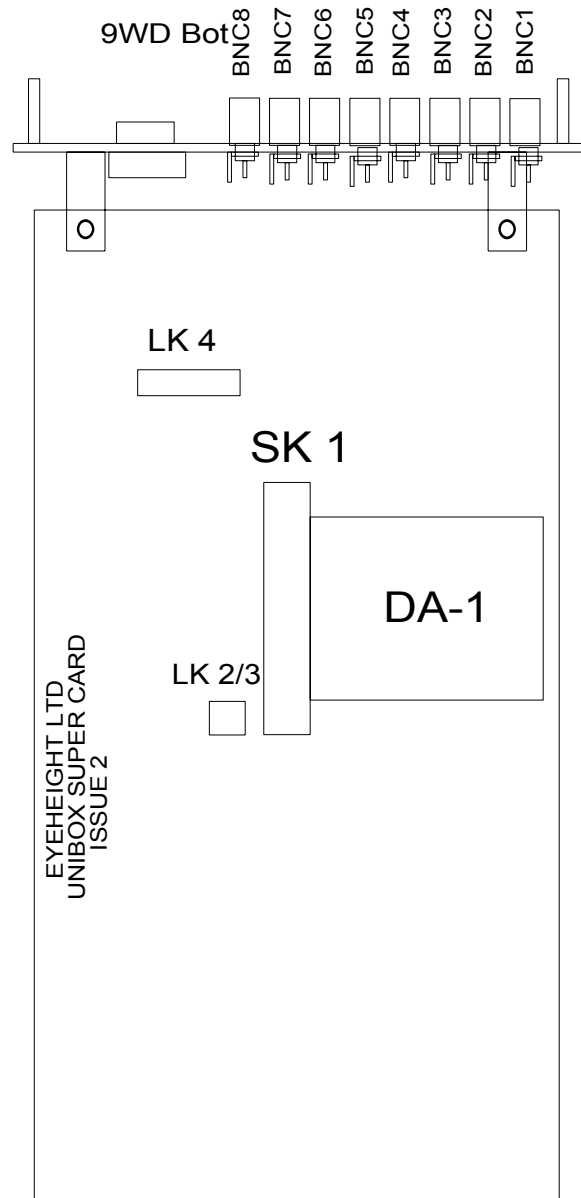
For YUV output, locate LK4 on the CG-1000 PCB. Jumper across the pairs of pins labelled Y, PR, PB, SYNC **ONLY DO NOT** link any other pins on LK4.

Other Configuration for the DA-1

There are two more jumpers that effect the DA-1 these are as follows:

- | | |
|-------------|---|
| LK 2 (SYNC) | ON-Disables the Sync on everything except the Sync Output BNC.
OFF-Enables the sync on Y/Green and the Sync Output BNC. |
| LK 3 (CURS) | ON-The analogue output will monitor the Input of the CG-1000 unit. This is useful if the analogue output is to go to a Waveform Monitor.
Off- The analogue output will monitor the Output of the CG-1000 unit. This is usual if the analogue output is to go to a Picture Monitor. |

LOCATION OF DA-1 AND ASSOCI



CG-1000

Fig 3 Location of User Links

CG-1000 RS422 Connection

This is the Pinout for the 9W D-type RS422 Connector

Pin 1	Ground 0V
Pin 2	Tx-
Pin 3	Rx+
Pin 4	Not Used
Pin 5	+12V dc Power (UP-1000)
Pin 6	Not Used
Pin 7	Tx+
Pin 8	Rx-
Pin 9	Ground 0V

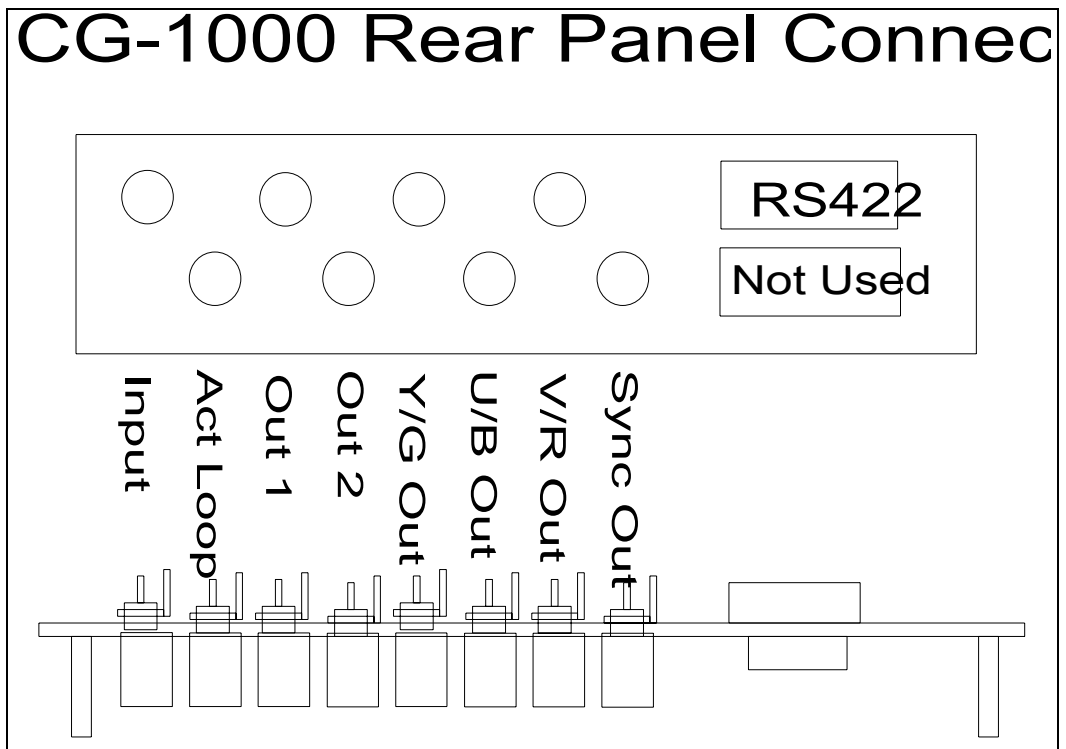


Fig 4 Rear Panel Connections