



eyeheight



# safeEyesSDi

11/05/07 – v2.20

## user manual

# Revision History

Version	Date	Description	Author
2.10	11/05/07	Unit now has 2 output instead of just 1	SF
2.20	23/10/07	Cage Luma added. Automation menus checked and updated.	SC

# Table of Contents

1 System Overview .....	5
2 Installation .....	6
2.1 Connections to a safeEyesSDi.....	6
2.2 Associated Equipment for the safeEyesSDi.....	6
3 Control Panel .....	7
4 Operation .....	9
4.1 Manual control of the safeEyesSDi.....	9
4.2 Automation Control of the safeEyesSDi.....	9
4.3 Operational Menus for the safeEyesSDi .....	9
4.4 Appendix 4, technical specification .....	24

# Table of Figures

Figure 1 - Typical Connections.....	6
Figure 2 - evolutionDT Control Panel .....	8

# I System Overview

The safeEyesSDi is a full-featured SDI Safe Area Generator system. The unit has full internal 10 Bit processing. The main features of the safeEyesSDi is as follows:

- Provides three generators for Safe Area, Safe Caption, Digital and Analogue Edge in all the current Screen formats (4:3 and 16:9) including "Shoot to protect" with Thick/Thin line and Shade/Full Black Blanking options.
- Provides one generator for Film Blanking positions providing optional on-screen "White lines", or full "Black" Blanking.
- Provides one generator for Centre Indication, H and V electronic line-up cursors, Box generation with Aspect ratio Readout for 4:3 or 16:9 targets, Analogue blanking, Text Height Measurement, Line and Pixel strobe with readout of line and pixel number.
- Dual SDI outputs to reduce the need for external distribution amplifiers
- 625 and 525 line standards - auto sensing.
- 6 User Memories.

# 2 Installation

## 2.1 Connections to a safeEyesSDi

The diagram below shows the typical connections to the safeEyesSDi.

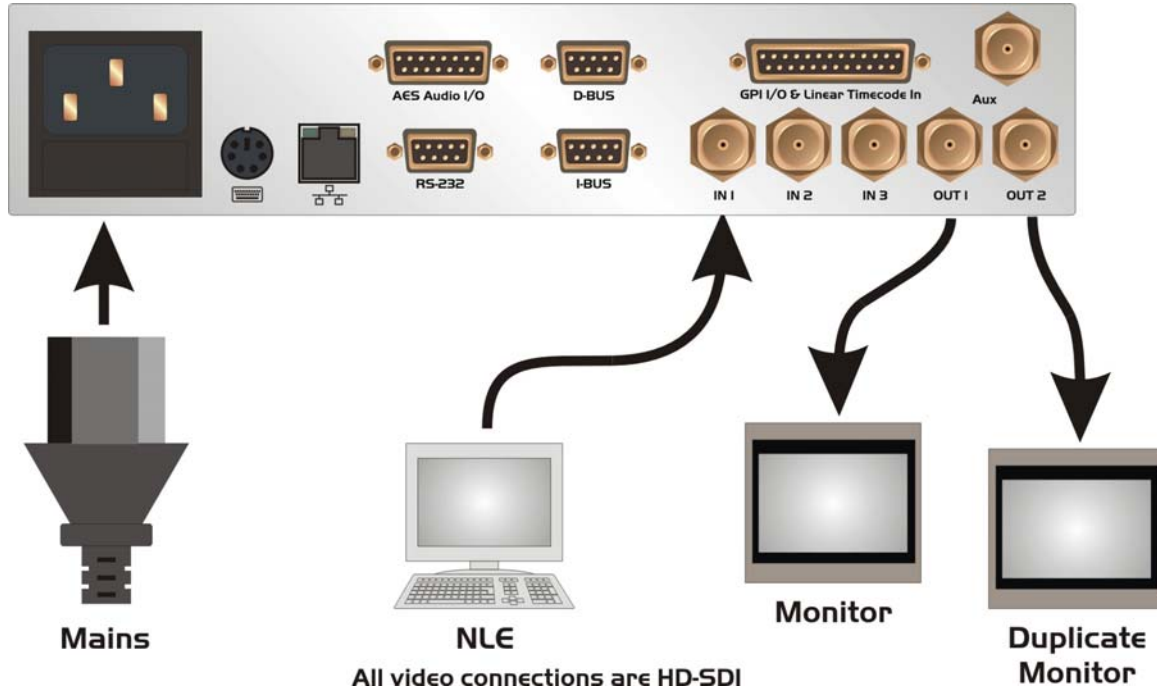


Figure 1 - Typical Connections

IN1 is the SDI input.

OUT1 is the SDI output with safe areas on it.

OUT2 is a duplicate SDI output of OUT1

## 2.2 Associated Equipment for the safeEyesSDi

The safeEyesSDi in the evolutionDT platform is fully self-contained. The evolutionDT can optionally be rack mounted in with 1 or 2 units in a 19" rack using the optional FF-6 rack mounting. This is a factory-installed option and should be ordered with the product. Rack mounted units should be supported with suitable chassis supports.

# 3 Control Panel

Figure 3 shows the control panel of the evolutionDT platform.

## 1 - Power/Status LED

Green – Normal operation

Green Flashing – Version Information Display

Orange – Product is initialising

Flashing Red – Product is in Field Reprogramming Mode

## 2 - Menu Display/Button (1 of 4)

Displays Menu Information. The colour of the menu button indicates the function.

Green – adjustment menu. Pressing the menu or using the associated digipot(6) will adjust the menu value.

Yellow – information menu, no adjustment possible.

Blue – navigation menu. Pressing the button will take you up or down the menu hierarchy.

Red – multiple variable menu. Pressing the button will “open” the menu assigning one digipot(6) to each variable. The active LED(5) will light above the digipots associated with each variable.

## 3 - Next Menu Button

Within a layer of the menu hierarchy there may be more than four menus and where this is the case the “next” button will illuminate to show that further menus are available. Pressing the “next” button moves you to the next set of menus.

## 4 – Previous Menu Button

Within a layer of the menu hierarchy there may be more than four menus and where this is the case the “prev” button will illuminate to show that previous menus are available. Pressing the “prev” button moves you to the previous set of menus.

## 5 – Digipot Active LED (1 of 4)

Illuminates to indicate that the digipot below is active for adjustment of the associated menu variable.

## 6 – Digipot (1 of 4)

Allows for rapid adjustment of the associated menu variable. Pressing a digipots returns the associated variable to its default value.

## 7 – Next Device Button

It is possible to control more than one device from a single evolutionDT control panel. Where more than one device is assigned to the panel the “next dev” will move control to the next device in the device list.

In setup mode this button will pick up a free device and assign it to this panels device list. The button will flash to indicate that a free device is selected.

## 8 – Previous Device Button

Where more than one device is assigned to the panel the “prev dev” will move control to the previous device in the device list.

In setup mode this button will remove a device owned by this panel from this panels device list. The button will flash to indicate an owned device is selected.

### 9 – Info Button

This button displays all hardware, software and firmware version information for the currently selected product and this panel.

In setup mode where a free evolutionDT device is selected this button will flash indicating that the network address (box & slot) can be changed. Pressing this button will take you to the adjustment menus.

### 10 – Setup Button

Press and hold this button for four seconds to enter setup mode.

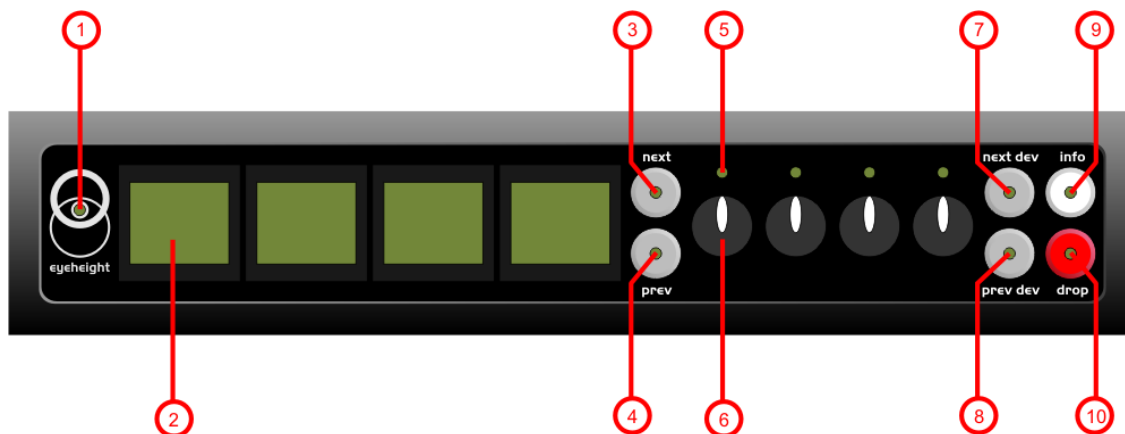


Figure 2 - evolutionDT Control Panel

# 4 Operation

## 4.1 Manual control of the safeEyesSDi

The safeEyesSDi is controlled using a set of MENUS. Each of these menus contains up to 3 parameters that are adjusted using the rotary digipots. The Menus define all of the adjustable operational parameters in the safeEyesSDi.

See chapter 3 Control Panel Operation for details of the control panel operation.

See section 3 of this chapter for the full list of menus.

## 4.2 Automation Control of the safeEyesSDi

Automation of the evolutionDT products is achieved either via the RS232 port (currently not implemented) or via the I-Bus Port using an optional DG-9 (RS232 to I-Bus dongle). Automation control of the safeEyesSDi is performed using the geNETics Automation Protocol.

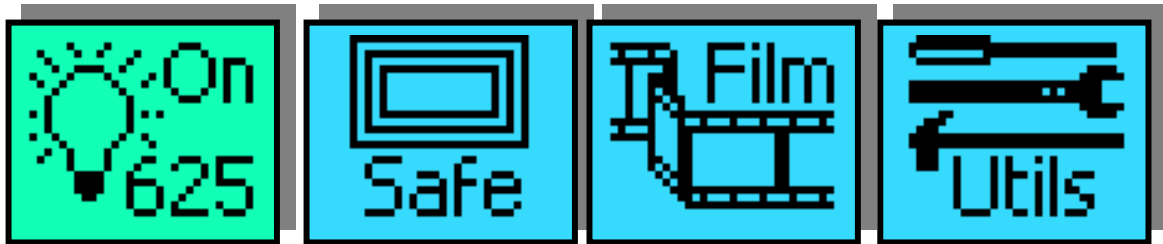
Genetics protocol is described in detail in the “geNETics User Guide” section titled “Automation Protocol on the geNETics Platform”. The menu list in section 3 of this chapter contains the data information for the protocol.

Please refer to the “User guide for the DG-9 eyeheight dongle and set-up software.

## 4.3 Operational Menus for the safeEyesSDi

Menus 00-03

Top Level Menus

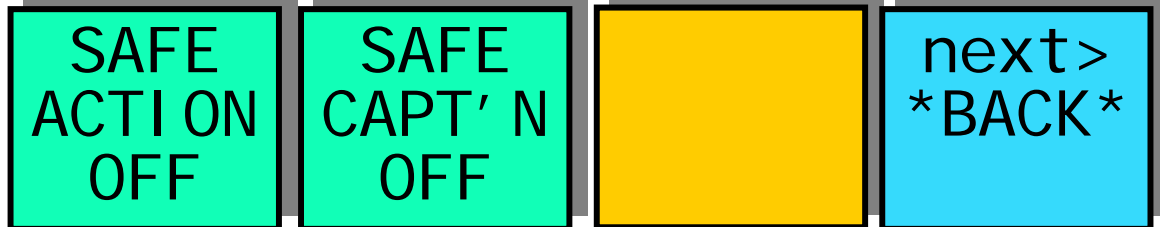


Menu Num.	Heading	Automation	Function
0	On/Off	Off,On [0, off→1, on]	This will switch in and out the system as a whole, effectively putting it into and out of bypass mode.
1	Safe	None	Displays Safe Areas menus
2	Film	None	Displays Film Areas menus

3	Tools	None	Displays menus for Text, Box, Centre, Strobe, Cursor, Memories and Setup

**Menus 04-07**

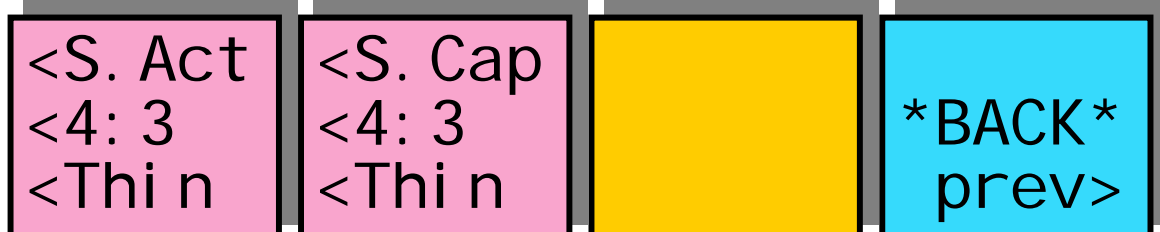
**Safe Areas Menus**



Menu Num.	Heading	Automation	Function
4	'Safe Action' or 'Safe Capt'n' or 'Analog Edge' or 'Digital Edge' or 'Clean Apature'	On/Off [0, off→1, on]	This turns 'Safe Area box 1' On/Off
5	'Safe Action' or 'Safe Capt'n' or 'Analog Edge' or 'Digital Edge' or 'Clean Apature'	On/Off [0, off→1, on]	This turns 'Safe Area box 2' On/Off
6	Blank	N/A	
7	Back	none	Pressing this button moves the display back up a level of the nested menu structure

**Menus 08-11**

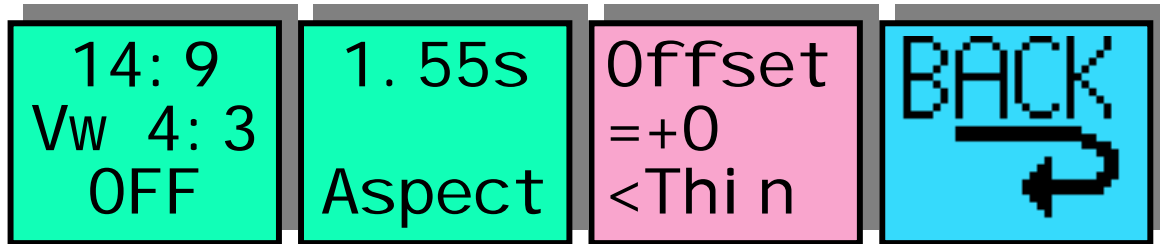
**Safe Areas Menus**



Menu Num.	Heading	Automation	Function
8	'S. Act' or 'S.Cap' or 'D.Edg' or 'A.Edg'	<u>Digipot A</u> S. Act S.Cap D.Edg A.Edg [0→3]  <u>Digipot B</u> 4:3 16:9 16p4:3 16p149 43p16:9 [0→4]  <u>Digipot C</u> Thin Thick Shade Black [0→3]	Controls 'Safe Area box 1'  When this button is pressed to "Green". The Three-line display in the window indicates the three options, which can be changed by adjusting the three rotary digipots A, B and C.  Determines the basic Function Selects "Safe Action" option Selects "Safe Caption" option Selects "Digital Edge" option Selects the "An. Edge" option Determines the Screen Format Standard 4:3 Screen Standard 16:9 Screen 16:9 Shoot to protect 4:3 16:9 Shoot to protect 14:9 4:3 Shoot to protect 16:9  Determines the Style of Indicate Thin White lines are used Thick White lines are used Shade is used for "danger area" Black is used for "danger area"
9	Same as Menu 8	Same as Menu 8	Controls 'Safe Area box 2'  Same as Menu 8
10	Blank	N/A	
11	Back	none	Pressing this button moves the display back up a level of the nested menu structure

Menus 12-15

Film Menus

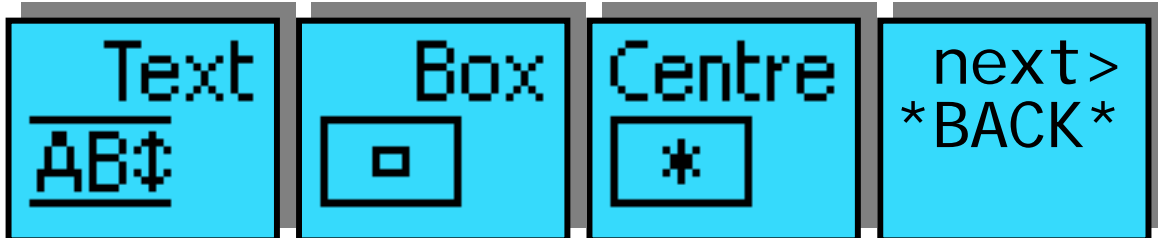


Menu Num.	Heading	Automation	Function
12	Film Safe Areas	<p>Digipot A On/Off [0, off→1, on]</p> <p><u>Digipot B</u>                      1.55s                      1.66s                      1.78s                      1.85s                      2.05s                      2.35s                      1.33w                      1.55w                      1.66w                      1.85w                      2.05w                      2.35w                      [0→11]</p>	<p>Activates the Film Box Generator</p> <p>-Determines the basic Function                      -14:9 AR viewed on a 4:3 Glass                      -Super16 viewed on a 4:3 Glass                      -16:9 AR viewed on a 4:3 Glass                      -1.85 AR viewed on a 4:3 Glass                      -2.05 AR viewed on a 4:3 Glass                      Cinemascope Vw'd on 4:3 Glass                      4:3 Viewed on a 16:9 Glass                      14:9 Viewed on a 16:9 Glass                      Super16 Viewed on a 16:9 Glass                      1.85 Viewed on a 16:9 Glass                      2.05 Viewed on a 16:9 Glass                      Cinemascope Vw'd on 16:9 Glass</p>
13	Selected Aspect Ratio	1.33 to 2.35	Shows the decimal equivalent of the aspect ratio chosen in menu 12
14	Offset	<p><u>Digipot A</u>                      [-134 to 255]</p> <p>Digipot B</p>	<p>The Selected area is chosen by pressing the "Red" switch next to this one and adjusting the rotary digipots with the green LED's which are alight.</p> <p>This determines the position of the frame vertically in line increments. These frames are often offset to include subtitles or teletext.</p>

		Thin Thick Shade Black  [0→3]	Determines the Style of Indicate Thin White lines are used Thick White lines are used Shade is used for "danger area" Black is used for "danger area"
15	Back	none	Pressing this button moves the display back up a level of the nested menu structure

**Menus 16-19**

**Tools Menus 1**



Menu Num.	Heading	Automation	Function
16	Text	none	Displays Text Height menu
17	Box	none	Displays User Box menu
18	Centre	none	Displays Centre menu
19	Back	none	Pressing this button moves the display back up a level of the nested menu structure

**Menus 20-23**

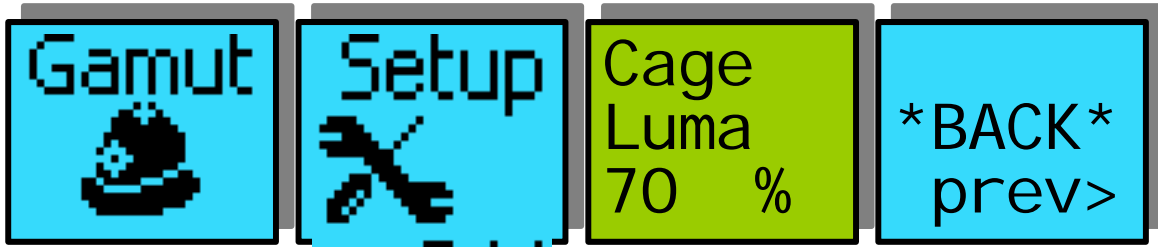
**Tools Menus 2**



Menu Num.	Heading	Automation	Function
20	Strobe	none	Displays Strobe menu
21	Cursor	none	Displays Cursors menu
22	Mems	none	Displays Memories menu
23	Back	none	Pressing this button moves the display back up a level of the nested menu structure

### Menus 24-27

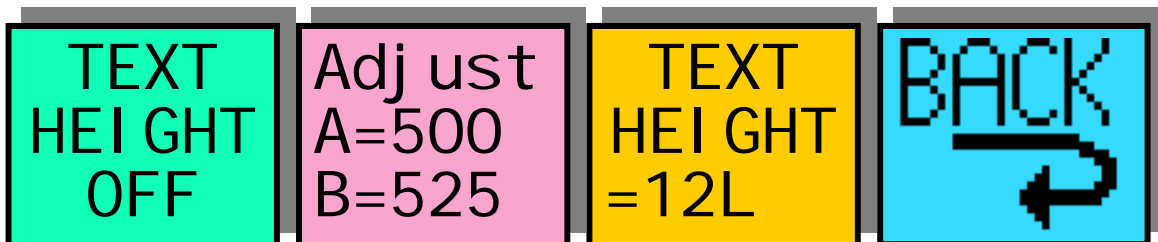
### Tools Menus 3



Menu Num.	Heading	Automation	Function
24	Gamut	none	Displays Gamut menu
25	Set-up	none	Displays Setup menu
26	Cursor Brightness	64→940	Brightness of cage cursors
27	Back	none	Pressing this button moves the display back up a level of the nested menu structure

### Menus 28-31

### Text Menus



Menu Num.	Heading	Automation	Function
28	Text Height control	On/Off [0, off→1, on]	Activates the Text Height Generator
29	Offset	<p><u>Digipot A</u> [1→1080]</p> <p><u>Digipot B</u> [1→1080]</p>	<p>The Selected area is chosen by pressing the "Red" switch next to this one and adjusting the rotary digipots with the green LED's which are alight.</p> <p>This determines the position of one of the lines of text heigh.</p> <p>This determines the position of the other line of text height.</p>
30	Text height value	1 to 1078	Calculated text height between lines set in menu 29
31	Back	none	Pressing this button moves the display back up a level of the nested menu structure

### Menus 32-35

### Box Menus

BoxOff  
S1. 228  
W1. 638

Si des  
L=300  
R=900

TopBot  
T=100  
B=475

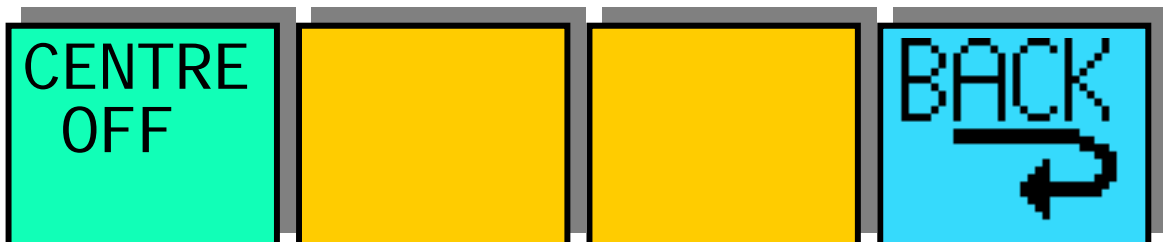


Menu Num.	Heading	Automation	Function
32	Box control & Aspect Ratio	Off/On/Clip [0→2]	<p>Activates the User Box Generator can also select 'clip' which blanks around box &amp;</p> <p>Displays the Aspect Ratio of the user defined box. There are two readouts the readout prefixed by the "s" is the Aspect</p>

	Readout		Ratio when the picture is viewed on a 4:3 monitor. The readout prefixed by the "w" is the Aspect Ratio when the picture is viewed on a 16:9 monitor.
33	Position of the sides in the Box	<u>Digipot A</u> 1→1920 [1→1920]  <u>Digipot B</u> 1→1920 [1→1920]	When this button is pressed to "Green". The Three-line display in the window indicates the two options, which can be changed by adjusting the two rotary digipots A and B.  -Defines the position of the left hand side  -Defines the position of the right hand side
34	Position of the top and bottom of the Box	<u>Digipot A</u> 1 to 1080 [1→1080]  <u>Digipot B</u> 1 to 1080 [1→1080]	When this button is pressed to "Green". The Three-line display in the window indicates the two options, which can be changed by adjusting the two rotary digipots A and B.  -Defines the position of the Top  -Defines the position of Bottom
35	Back	none	Pressing this button moves the display back up a level of the nested menu structure

**Menus 36-39**

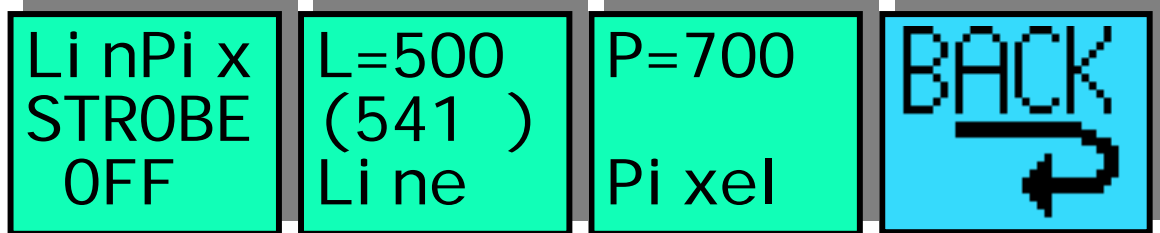
**Centre Menu**



Menu Num.	Heading	Automation	Function
36	Centre control	Cross Square Dot Off [0→3]	Activates the Centre Generator and controls it's format
37	none	none	none
38	none	none	none
39	Back	none	Pressing this button moves the display back up a level of the nested menu structure

### Menus 40-43

### Strobe Menus



Menu Num.	Heading	Automation	Function
40	Strobe control	On/Off [0, off→1, on]	Activates the Strobe Generator
41	Line number	<u>Digipot B</u> 1→1080 [1→1080]	Can be changed by adjusting the rotary digipot B.  Sets Strobes Line number  Also shows Strobes line number represented in video format style within brackets, which will change for interlaced and progressive video.
42	Pixel number		Can be changed by adjusting the rotary digipot C.

		<u>Digipot C</u> 1 to 1920 [1→1920]	Sets Strobes pixel number
43	Back	none	Pressing this button moves the display back up a level of the nested menu structure

**Menus 44-47**

**Cursor Menus**

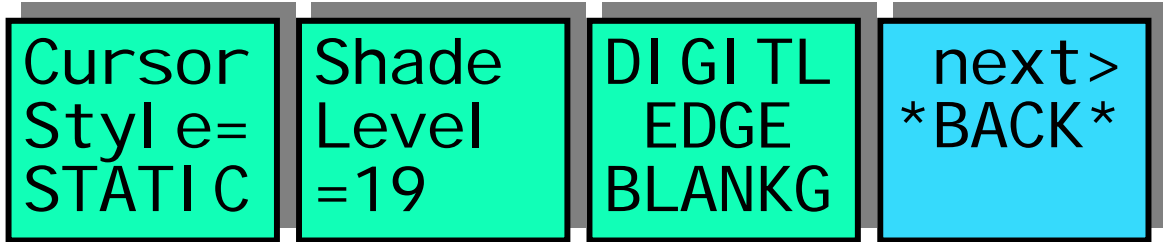


Menu Num.	Heading	Automation	Function
44	Cursor control	On/Off [0, off→1, on]	Activates the Cursor Generator
45	Cursor Position	<u>Digipot A</u> Horiz' Position 2 to 1920 [2→1920] even numbers only  <u>Digipot B</u> Vertical Position 2 to 1080 [2→1080] even numbers only	When this button is pressed to "Green". The Three-line display in the window indicates the two options, which can be changed by adjusting the two rotary digipots A and B .  Adjusts the horizontal position of the cursors from the centre of picture.  Adjusts the vertical position of the cursors from the centre of picture.
46	Cursor Style	Thin Thick [0→1]	The display in the window indicates the two options, that can be changed by adjusting the rotary digipot C which selects between thick and thin line

			cursors.
47	Back	none	Pressing this button moves the display back up a level of the nested menu structure

**Menus 48-51**

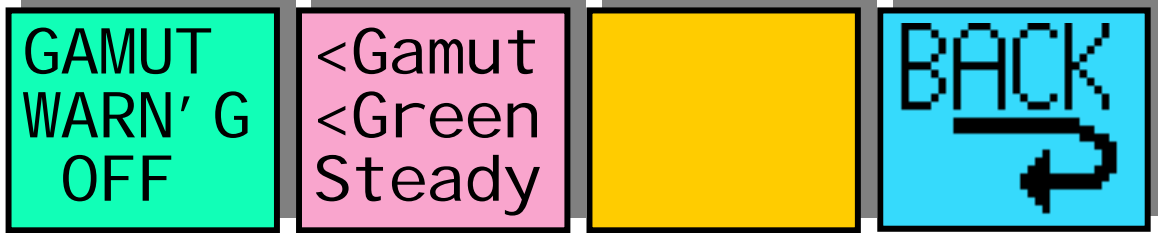
**Setup Menus**



Menu Num.	Heading	Automation	Function
48	Lines display type	Static/dynamic [0→1]	Selects line display style for all boxes/grids/cursors/etc.  Static – Lines drawn as white Dynamic – Lines drawn as white on dark backgrounds and black on light backgrounds
49	Shade Level	0→99 [0→99]	Sets luminance level of shaded areas of box generators in menus 04 thru 15
50	Edge Blanking	Digital Analog [0→1]	This activates analogue side blanking. Digital Blanking is effectively edge Blanking Off.
51	Back	none	Pressing this button moves the display back up a level of the nested menu structure

Menus 52-55

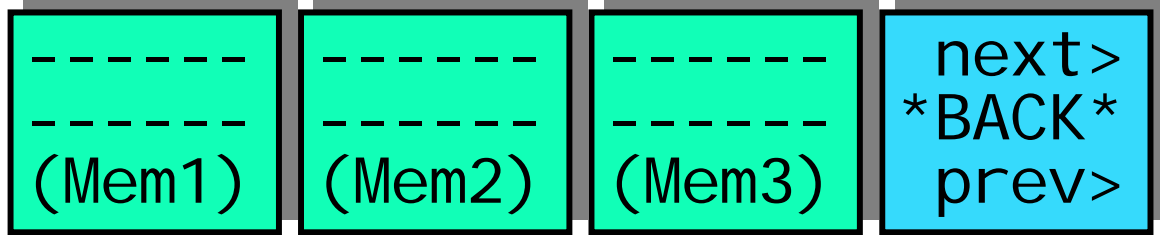
Gamut Menus



Menu Num.	Heading	Automation	Function
52	Gamut Warning	0=off 1=on	This approximates the out of gamut parts of the picture. This is set to +0.5% above 0.7 RGB gamut and 0.5% below 0V RGB gamut with respect to the analogue domain.
53	Out of Gamut Colour Out of Gamut Flash Warning	0→99 [0→99]  <u>DigipotA</u> Black Blue Red Purple Green Cyan Yellow White [0→71]  <u>DigipotB</u> Steady Flash [0→1]	When this button is pressed to “Green” the Three-line display in the window indicates the two options, which can be changed by adjusting the two rotary digipots A and B.  This is the colour used to fill in the illegal parts of the picture “Show” or “Flash” indicates modes.  Gamut Indication is steady. Gamut Indication flashes.
54	Blank	N/A	
55	Back	none	Pressing this button moves the display back up a level of the nested menu structure

**Menus 56-59**

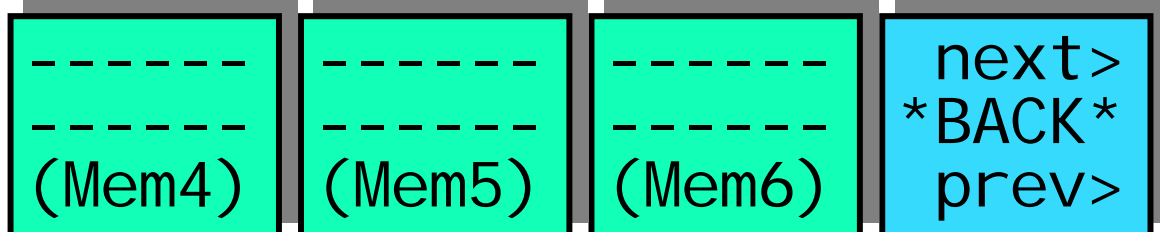
**Utility Menus (Memories)**



Menu Num.	Heading	Automation	Function
56	MEM1	1=Recall	Pressing this will recall Memory number 4.
57	MEM2	1=Recall	Pressing this will recall Memory number 5.
58	MEM3	1=Recall	Pressing this will recall Memory number 6.
59	BACK	none	Go To the Top Level Menus

**Menus 60-63**

**Utility Menus (Memories)**

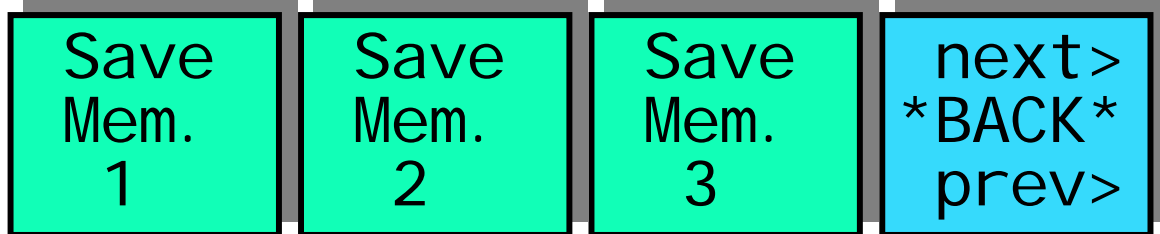


Menu Num.	Heading	Automation	Function
60	MEM4	1=Recall	Pressing this will recall Memory number 4.
61	MEM5	1=Recall	Pressing this will recall Memory number 5.
62	MEM6	1=Recall	Pressing this will recall Memory number 6.

63	BACK	none	Go To the Top Level Menus
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**Menus 64-67**

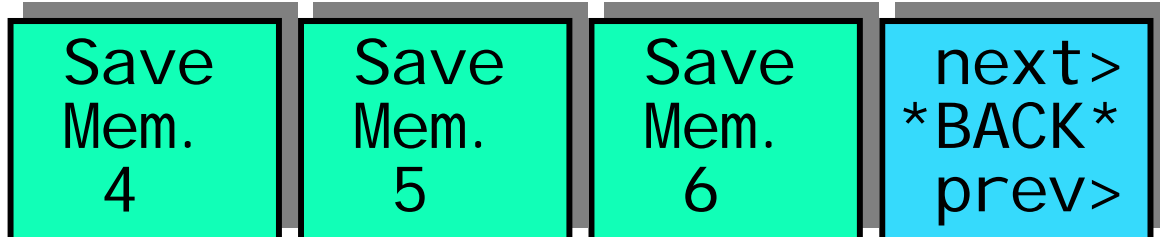
**Utility Menus (Memories)**



Menu Num.	Heading	Automation	Function
64	SAVE MEM1	1=Save	Pressing this will Save Memory number 1.
65	SAVE MEM2	1= Save	Pressing this will Save Memory number 2.
66	SAVE MEM3	1= Save	Pressing this will Save Memory number 3.
67	BACK	none	Go To the Top Level Menus

**Menus 68-71**

**Utility Menus (Memories)**

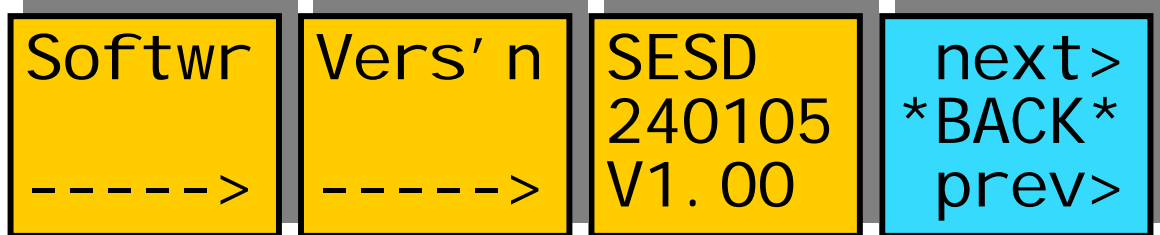


Menu Num.	Heading	Automation	Function
68	SAVE MEM4	1= Save	Pressing this will Save Memory number 4.
69	SAVE MEM5	1= Save	Pressing this will Save Memory number 5.

70	SAVE MEM6	1= Save	Pressing this will Save Memory number 6.
71	BACK	none	Go To the Top Level Menus

**Menus 72-75**

**Utility Menus (Software)**



Menu Num.	Heading	Automation	Function
72	Info	none	Information
73	Info	none	Information
74	none	none	Software Version Information
75	BACK	none	Go To the Top Level Menus

**Menus 76-79**

**Utility Menus (Memories)**



Menu Num.	Heading	Automation	Function
76	Set As Pow On Memory	1=Set	Pressing this will set the current system set-up as the Power on memory default.
77	Recall Pow On	1=Recall	Pressing this will recall The Power-on memory set up in the last menu.

	Memory		
78	Total Reset	1=Reset	Pressing this will cause a first Birthday of the unit. All current memories and settings will be lost.
79	BACK	none	Go To the Top Level Menus

## 4.4 Appendix 4, technical specification

SD-SDI Inputs 270Mbit, RL <-15db	1 input (SD-SDI)
HD-SDI cable equalisation	At least 200 metres of PSF 1/3 or equivalent cable
SD-SDI Outputs 270Mbit, RL <-15db	2 outputs (SD-SDI)
Control System connections.	eyeheight I-Bus, 2 wire network.
Control Surfaces	Option of 2 eyeheight control surfaces. Integral front mounted control panel or remote FP-9, flexipanel.
Chassis	Eyeheight evolution miniBox chassis. Either a half width 1RU assembly for desk mounting or a full 1RU assembly for 19 inch rack mounting.
Power supply	100→240V ac. Less than 50W power consumption.