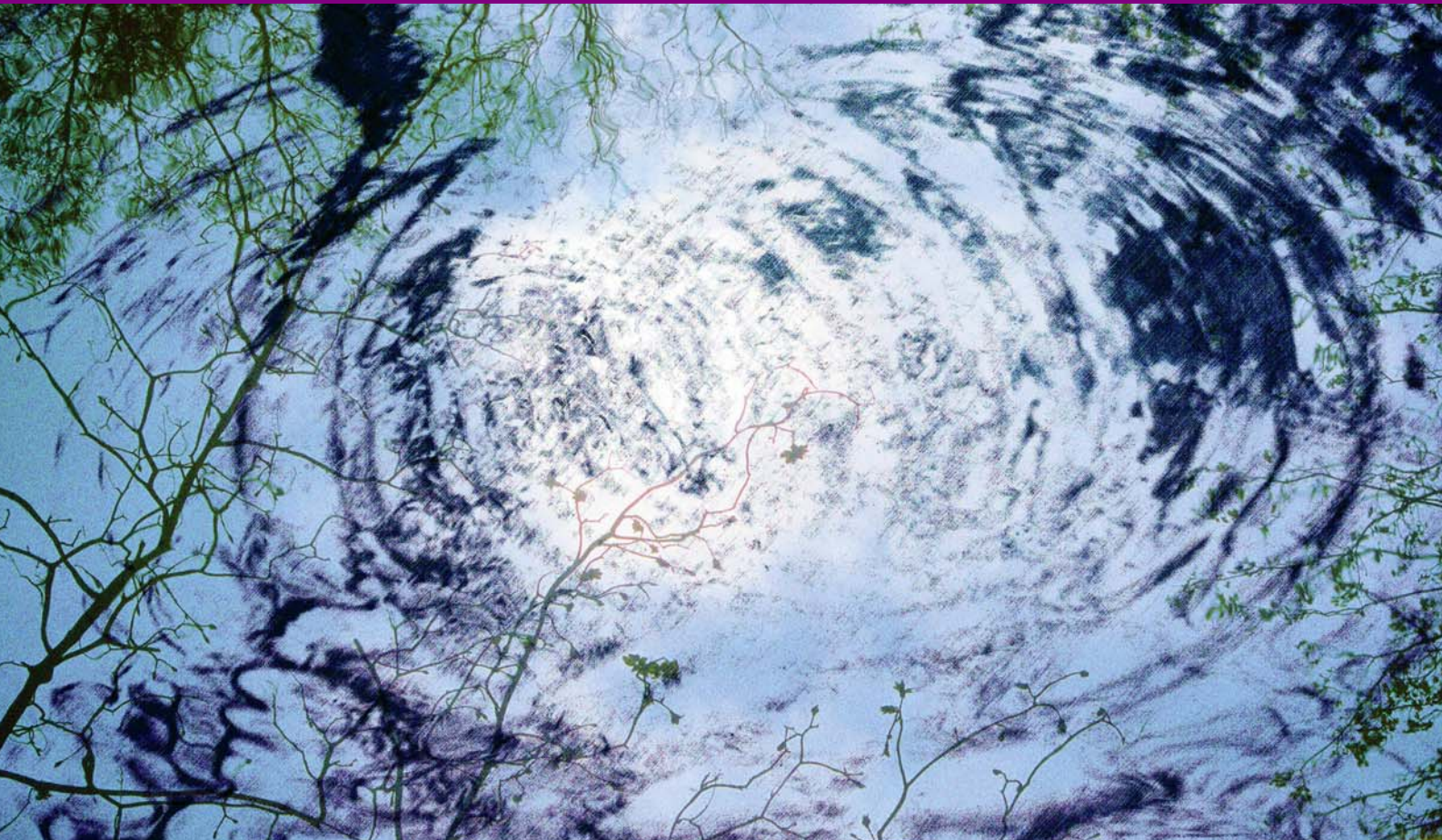




eyeheight



# safeEyesHDi

23/10/07 - 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	23/10/2007	Automation information now accurate. Grid removed and cursor luma added.	SC

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# I System Overview

The safeEyesHDI is a full-featured Safe area Generator system compatible with 1.5 Gbit/s High Definition Serial Digital formats in 1920 pixels by 1080 lines as per SMTE 274. The unit has full internal 10 Bit processing. The main features of the safeEyesHDI 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/Dashed 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
- Provides SMPTE Graticule generator.
- 24Hz, 25Hz and 30Hz standards both Interlaced and Progressive - auto sensing. As per SMPTE 274.
- 6 User Memories.

# 2 Installation

## 2.1 Connections to a safeEyesHDi

The diagram below shows the typical connections to the safeEyesHDi.

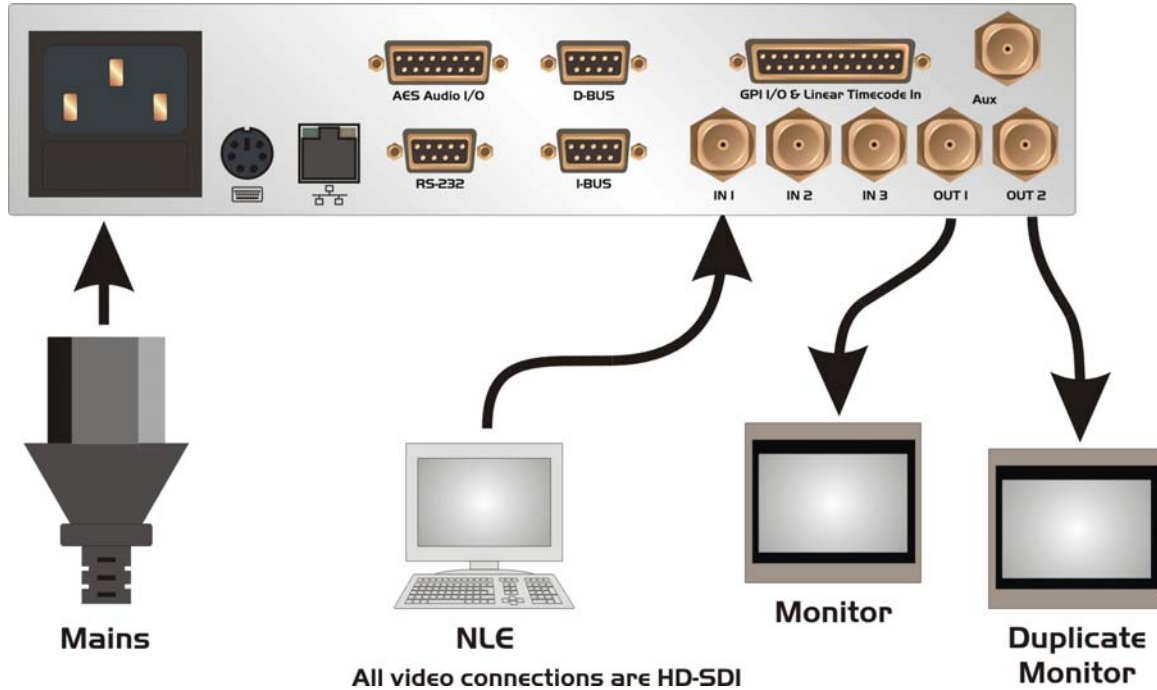


Figure 1 - Typical Connections

IN1 is the HD-SDI input. OUT1 is the HD-SDI output with safe areas on it.

## 2.2 Associated Equipment for the safeEyesHDi

The safeEyesHDi 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.

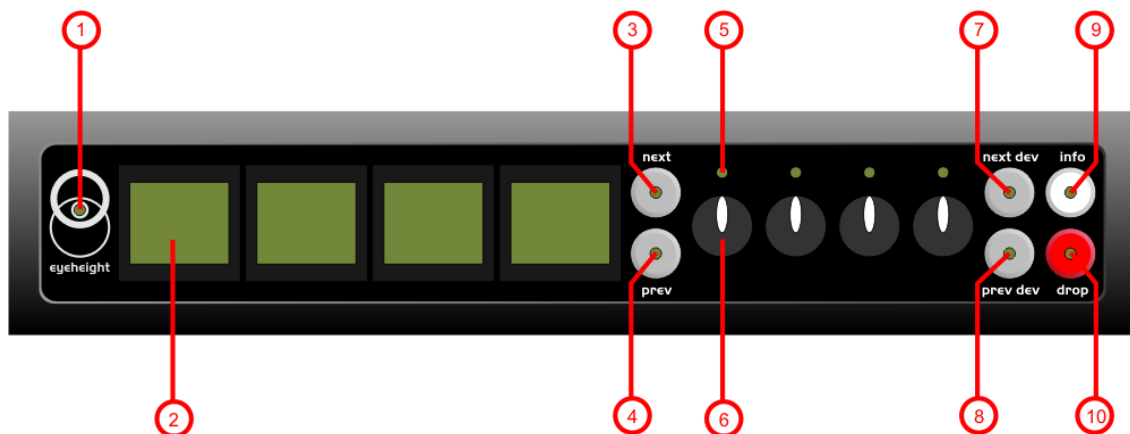


Figure 2 - evolutionDT Control Panel

# 4 Operation

## 4.1 Manual control of the safeEyesHDI

The safeEyesHDI 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 safeEyesHDI.

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 safeEyesHDI

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 safeEyesHDI is performed using the geNETics Automation Protocol.

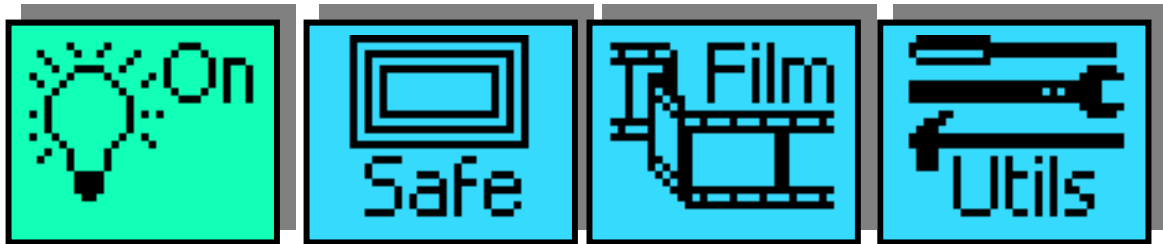
Genetics protocol is described in detail in the “geNETics User Guide” section titled “Automation Protocol on the geNETics Platform”. The menu list in section 3 of this chapter contains the data information for the protocol.

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

## 4.3 Operational Menus for the safeEyesHDI

Menus 00-03

Top Level Menus

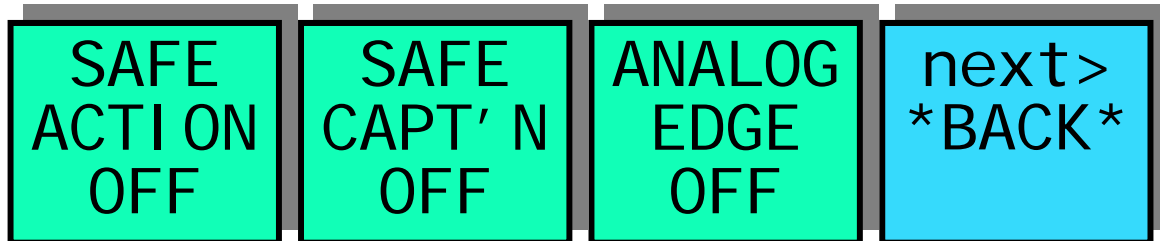


Menu Num.	Heading	Automation	Function
0	On/Off	Off,On [0, off→1, on]	This will switch in and out the system as a whole, effectively putting it into and out of bypass mode.
1	Safe	None	Displays Safe Areas menus
2	Film	None	Displays Film Areas menus

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

**Menus 04-07**

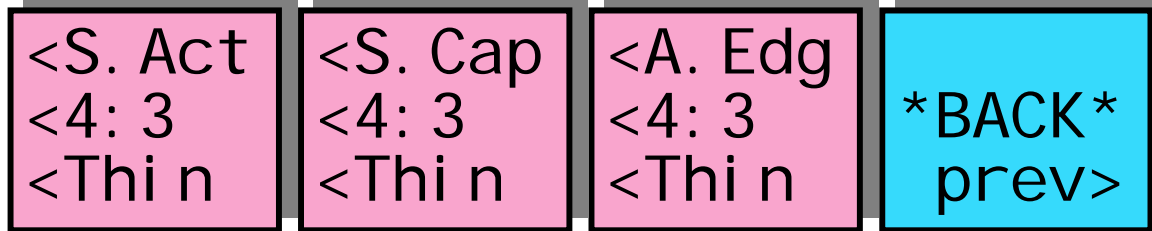
**Safe Areas Menus**



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	'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 3' On/Off
7	Back	none	Pressing this button moves the display back up a level of the nested menu structure

Menus 08-11

Safe Areas Menus

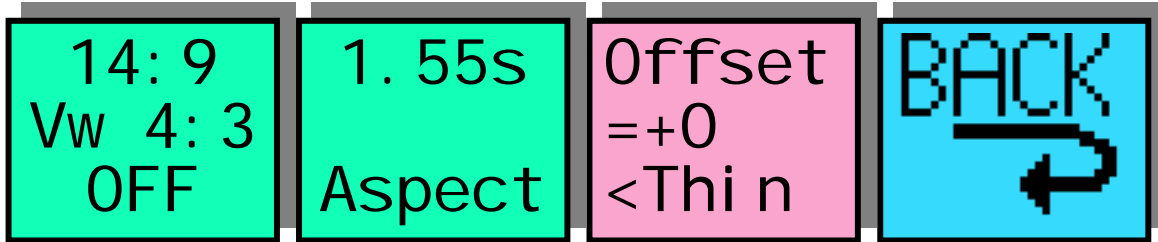


Menu Num.	Heading	Automation	Function
8	'S. Act' or 'S.Cap' or 'D.Edg' or 'A.Edg' or 'C.App'	<u>Digipot A</u> S. Act S.Cap D.Edg A.Edg C.App [0→4]	Controls 'Safe Area box 1'  When this button is pressed to "Green". The Three-line display in the window indicates the three options, which can be changed 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 Selects the "Clean Apatur" option
		<u>Digipot B</u> 4:3 16:9 16p4:3 16p149 43p16:9 [0→4]	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
		<u>Digipot C</u> Thin Thick Shade Black Dash1 Dash2 [0→5]	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" Thin Dashed White lines are used Thick Dashed White lines are used
9	Same as Menu 8	Same as Menu 8	Controls 'Safe Area box 2'  Same as Menu 8

10	Same as Menu 8	Same as Menu 8	Controls 'Safe Area box 3' Same as Menu 8
11	Back	none	Pressing this button moves the display back up a level of the nested menu structure

**Menus 12-15**

**Film Menus**

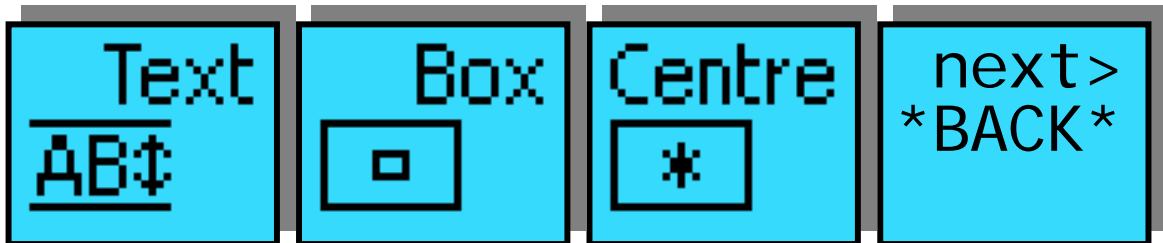


Menu Num.	Heading	Automation	Function
12	Film Safe Areas	Digipot A On/Off [0, off→1, on]  <u>Digipot B</u> 1.55s 1.66s 1.78s 1.85s 2.05s 2.35s 1.33w 1.55w 1.66w 1.85w 2.05w 2.35w [0→11]	Activates the Film Box Generator  -Determines the basic Function -14:9 AR viewed on a 4:3 Glass -Super16 viewed on 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
13	Selected Aspect Ratio	1.33 to 2.35	Shows the decimal equivalent of the aspect ratio chosen in menu 12
14	Offset		The Selected area is chosen by pressing the "Red" switch next to this one and adjusting the rotary digipots with the

		<u>Digipot A</u> [-134 to 255]  Digipot B Thin Thick Shade Black Dash1 Dash2 [0→5]	green LED's which are alight.  This determines the position of the frame vertically in line increments. These frames are often offset to include subtitles or teletext.  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" Thin Dashed White lines are used Thick Dashed White lines are used
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**

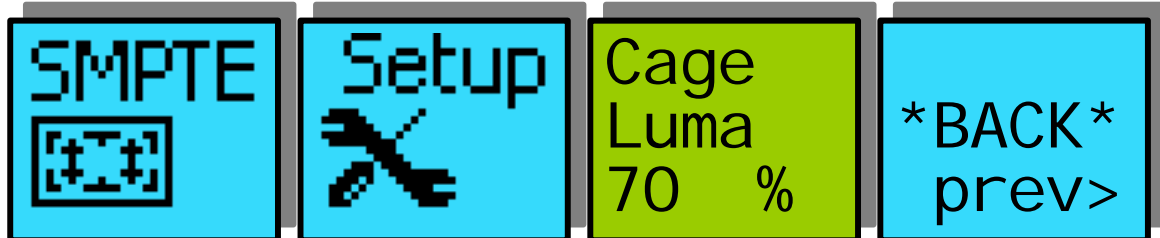
**Tools Menus 2**



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**

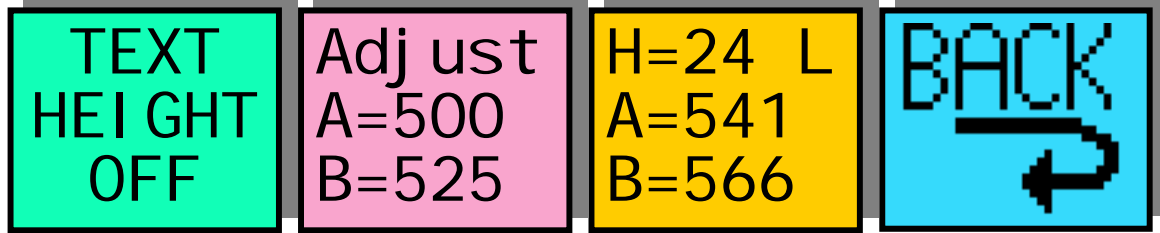
**Tools Menus 3**



Menu Num.	Heading	Automation	Function
24	SMPTE	none	Displays SMPTE Graticule menu
25	Set-Up	none	Go to Set-Up menus
26	Cage Brightness	64→940	Cursor luminance level.
27	Back	none	Pressing this button moves the display back up a level of the nested menu structure

Menus 28-31

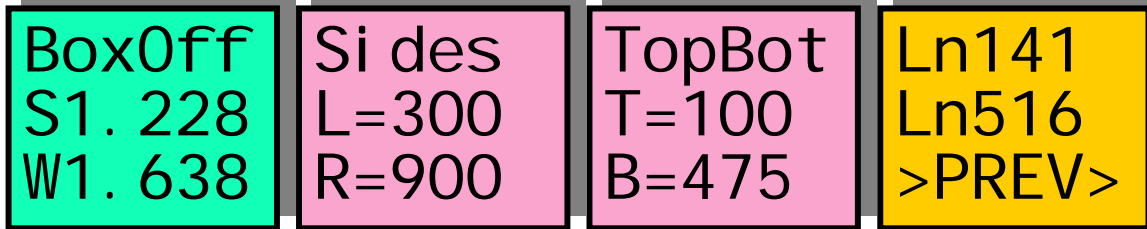
Text Menus



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	<p>H= 1 to 1078</p> <p>A= 42 to 1121</p> <p>B= 42 to 1121</p>	<p>Calculated text height between lines set in menu 29</p> <p>Displays 'video format' line number for both line A and B, which will change for interlaced and progressive video</p>
31	Back	none	Pressing this button moves the display back up a level of the nested menu structure

Menus 32-35

Box Menus

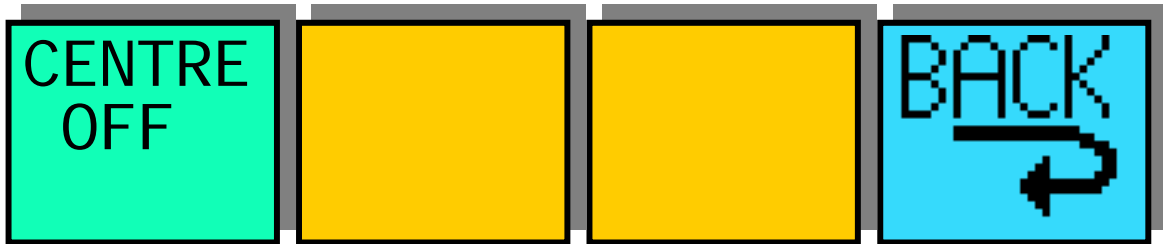


Menu Num.	Heading	Automation	Function
32	Box control & Aspect Ratio Readout	Off/On/Clip [0→2]	Activates the User Box Generator can also select 'clip' which blanks around box & Displays the Aspect Ratio of the user defined box. There are two readouts the readout prefixed by the "s" is the Aspect Ratio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

		[1→1080]	
35	Format line number	42 to 1121	Displays 'video format' line number for both top and bottom of box, which will change for interlaced and progressive video

**Menus 36-39**

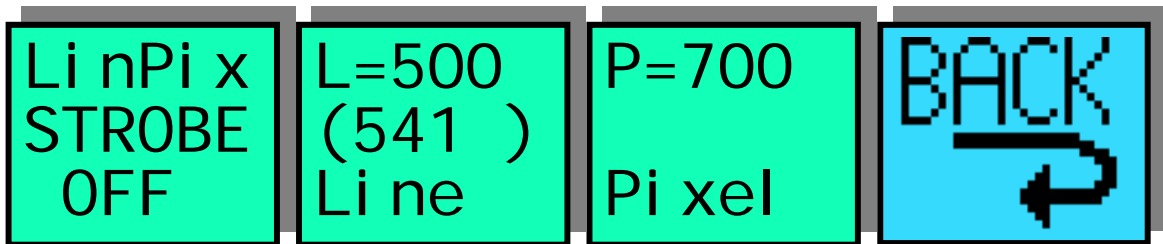
**Centre Menu**



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 Menu**



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	<u>Digipot C</u> 1 to 1920 [1→1920]	Can be changed by adjusting the rotary digipot C.  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

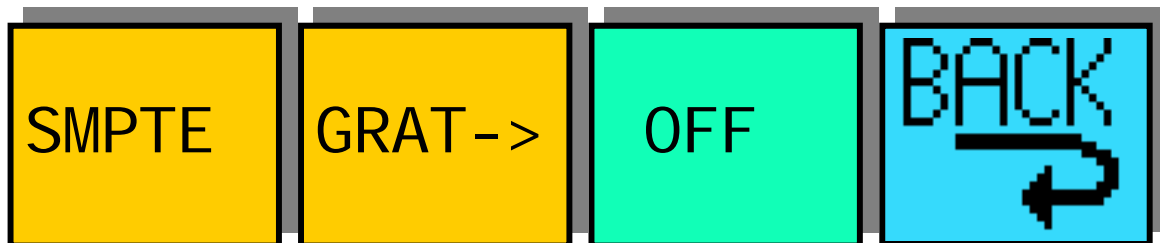


Menu Num.	Heading	Automation	Function
44	Cursor control	On/Off [0, off→1, on]	Activates the Cursor Generator
43			When this button is pressed to "Green". The Three-line display in the window indicates the two options, which can be changed by adjusting the two rotary digipots A and B .

		<u>Digipot A</u> Horiz' Position 2 to 1920 [2→1920] even numbers only	Adjusts the horizontal position of the cursors from the centre of picture.
		<u>Digipot B</u> Vertical Position 2 to 1080 [2→1080] even numbers only	Adjusts the vertical position of the cursors from the centre of picture.
44	Mems	<u>Digipot C</u> Thin Thick [0→1]	When this button is pressed to "Green". 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.
45	Back	none	Pressing this button moves the display back up a level of the nested menu structure

### Menus 48-51

### SMPTE Graticule Menus

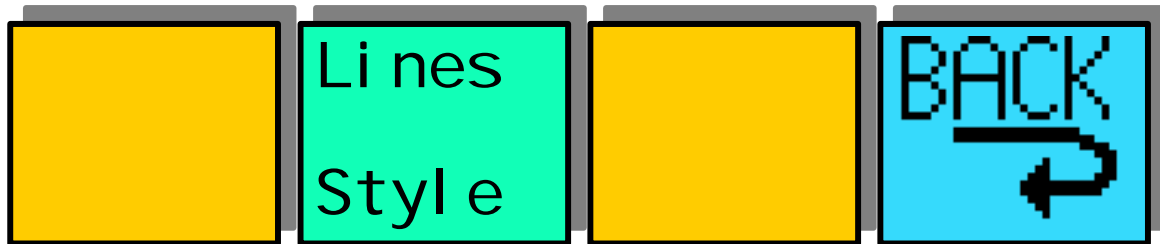


Menu Num.	Heading	Automation	Function
48	none	none	Just displays "SMPTE"
49	none	none	Just displays "GRAT->"
50	SMPTE Graticule	On/Off [0, off→1, on]	Activates the Graticule Generator

	control		
51	Back	none	Pressing this button moves the display back up a level of the nested menu structure

### Menus 52-55

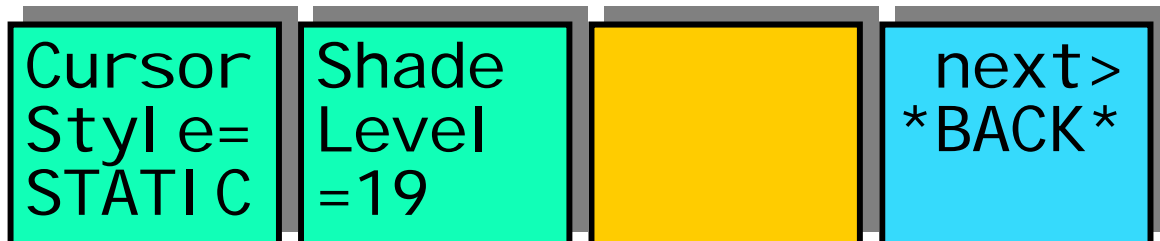
### SMPTE Menus



Menu Num.	Heading	Automation	Function
52	none	none	none
53	Grid style	Lines/Dots [0→1]	Selects between displaying complete lines on grid or dots at intersections of lines
54	none	none	none
55	Back	none	Pressing this button moves the display back up a level of the nested menu structure

### Menus 56-59

### Setup Menus

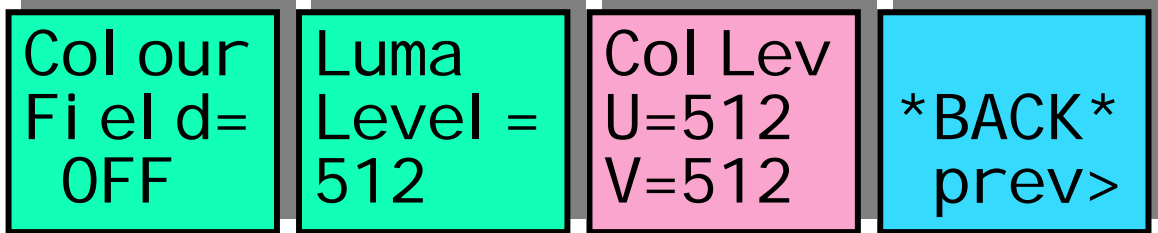


Menu Num.	Heading	Automation	Function
56	Lines display	Static/dynamic	Selects line display style for all

	type	[0→1]	boxes/grids/cursors/etc.  Static – Lines drawn as white Dynamic – Lines drawn as white on dark backgrounds and black on light backgrounds
57	Shade Level	0→99 [0→99]	Sets luminance level of shaded areas of box generators in menus 04 thru 15
58	none	none	none
59	Back	none	Pressing this button moves the display back up a level of the nested menu structure

### Menus 60-63

### Colour Field Generator Menus

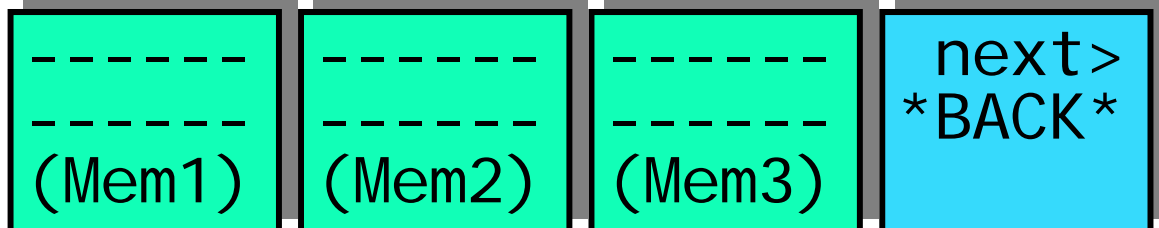


Menu Num.	Heading	Automation	Function
44	Colour Field	On/Off [0, off→1, on]	Activates the Colour Field Generator
45	Luma Level	<u>Digipot A</u> 4 to 1019 [4→1019]	Adjusts the Luma value of the Colour Field Generator
46	Colour Level	<u>Digipot A</u> 4 to 1019 [4→1019]  <u>Digipot B</u> 4 to 1019	When 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 Cb colour difference value  Adjusts the Cr colour difference value

		[4→1019]	
47	BACK	none	Go To the Top Level Menus

**Menus 64-67**

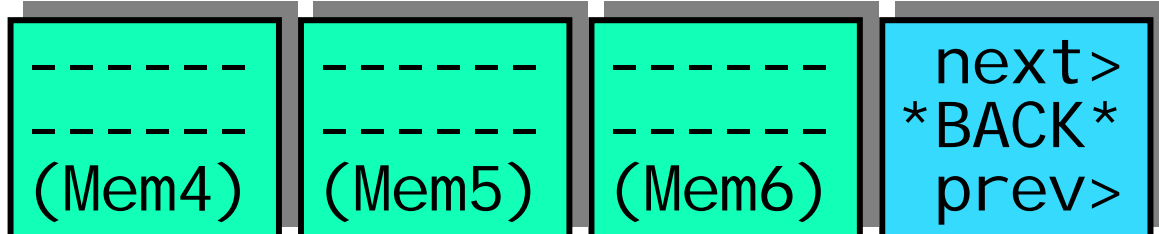
**Utility Menus (Memories)**



Menu Num.	Heading	Automation	Function
64	MEM1	1=Recall	Pressing this will recall Memory number 1. User Names can be programmed in to the memories using a keyboard. See "geNETics User guide", section "Giving product Memories names"
65	MEM2	1=Recall	Pressing this will recall Memory number 2.
66	MEM3	1=Recall	Pressing this will recall Memory number 3.
67	BACK	none	Go To the Top Level Menus

**Menus 68-71**

**Utility Menus (Memories)**

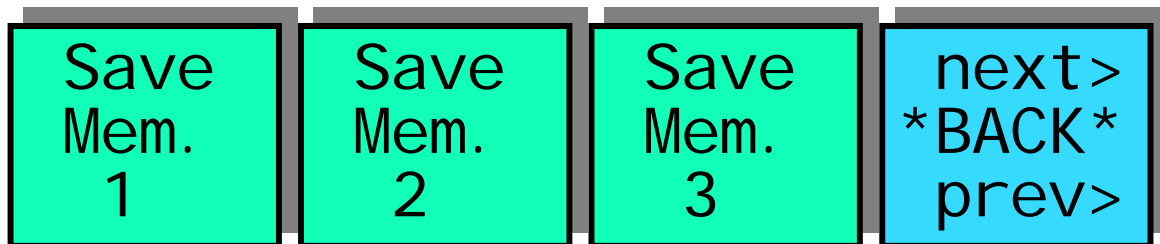


Menu Num.	Heading	Automation	Function

68	MEM4	1=Recall	Pressing this will recall Memory number 4.
69	MEM5	1=Recall	Pressing this will recall Memory number 5.
70	MEM6	1=Recall	Pressing this will recall Memory number 6.
71	BACK	none	Go To the Top Level Menus

**Menus 72-75**

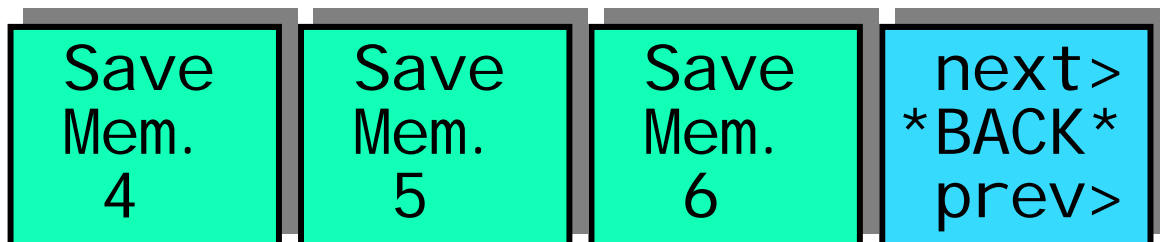
**Utility Menus (Memories)**



Menu Num.	Heading	Automation	Function
72	SAVE MEM1	1=Save	Pressing this will Save Memory number 1.
73	SAVE MEM2	1= Save	Pressing this will Save Memory number 2.
74	SAVE MEM3	1= Save	Pressing this will Save Memory number 3.
75	BACK	none	Go To the Top Level Menus

**Menus 76-79**

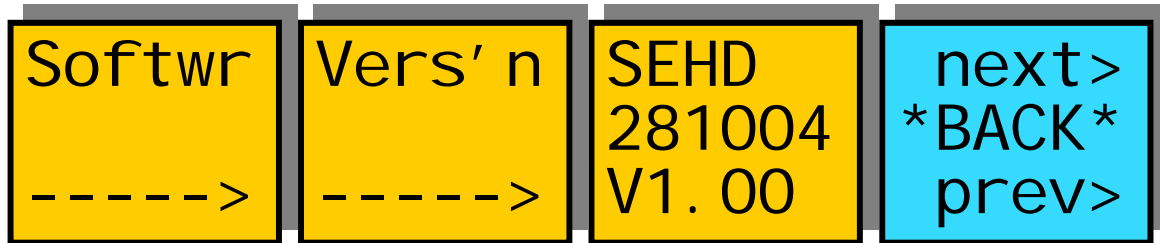
**Utility Menus (Memories)**



Menu Num.	Heading	Automation	Function
76	SAVE MEM4	1= Save	Pressing this will Save Memory number 4.
77	SAVE MEM5	1= Save	Pressing this will Save Memory number 5.
78	SAVE MEM6	1= Save	Pressing this will Save Memory number 6.
79	BACK	none	Go To the Top Level Menus

### Menus 80-83

### Utility Menus (Software)



Menu Num.	Heading	Automation	Function
80	Info	none	Information
81	Info	none	Information
82	none	none	Software Version Information
83	BACK	none	Go To the Top Level Menus

### Menus 84-87

### Utility Menus (Memories)



Menu Num.	Heading	Automation	Function
84	Set As Pow On Memory	1=Set	Pressing this will set the current system set-up as the Power on memory default.
85	Recall Pow On Memory	1=Recall	Pressing this will recall The Power-on memory set up in the last menu.
86	Total Reset	1=Reset	Pressing this will cause a first Birthday of the unit. All current memories and settings will be lost.
87	BACK	none	Go To the Top Level Menus

# 5 Appendices

## 5.1 Appendix 4, technical specification

HD-SDI Inputs 1485Mbit, 75ohm	1 input (HD-SDI)
HD-SDI cable equalisation	At least 100 Meters of Belden 1694A
HD-SDI Outputs. 1485Mbit, 75ohm, 800mV.	2 output (HD-SDI)
GPI Inputs. (activate by short to ground)	none
Tally Outputs	none
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.
Line Standards	1080-23.98psf, 1080-24psf, 1080-23.98p, 1080- 24p, 1080-25p, 1080-50i, 1080-29.97p, 1080-30p, 1080-59.94i, 1080-60i, 720p-23.98, 720p-24, 720p- 25, 720p-29.97, 720p30, 720p50, 720p59.94, 720p60
Power supply	100→240V ac. Less than 50W power consumption.