eyeheight

keyEyesHDi

01/12/05 - v1.00

user manual

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I System Overview

keyEyes is a Luminance Keyer Unit mostly used for keying captions and graphics. These units are commonly used in transmission and post production. The main features are as follows:

- Full 10 Bit luminance Keying.
- Auto Transition (Timed Fade-in) control.
- Key Gain and lift controls.
- Multiplicative, Additive, Self Key and colour fill modes.
- Key Mix and 8 Wipe Transitions.
- Up to +/-27.6uS user definable synchronisation window for Inputs
- Transparent to all embedded signals
- Automation controllable
- 6 user memories
- GPI inputs to enable take to A or take to B
- Relay outputs to indicate on air status

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2 Installation

2.1 Connections to a keyEyesHDi

The diagram below shows the typical connections to the keyEyesHDi.

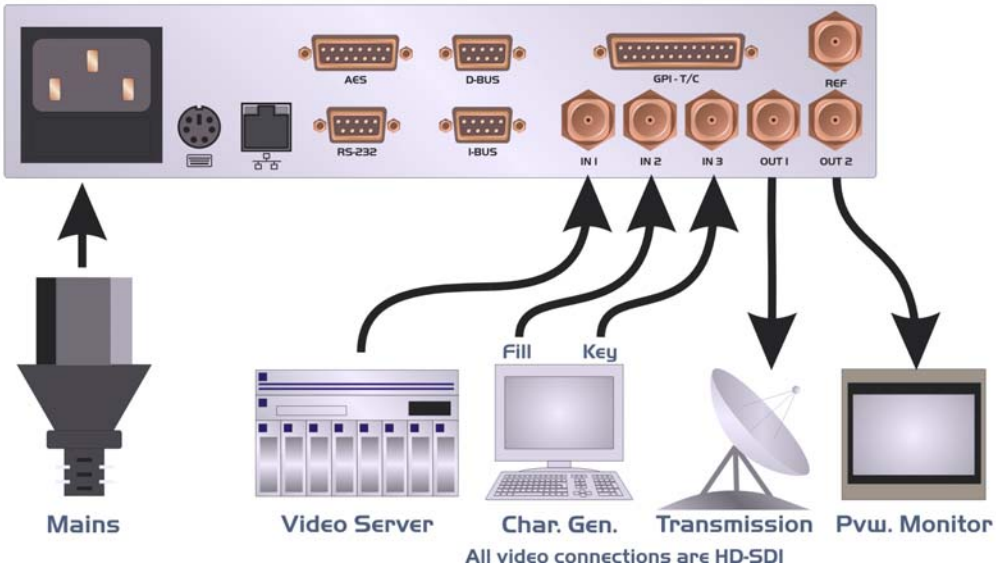

Figure 1 - Typical Connections

2.2 Applications for keyEyesHDi

Applications for keyEyesHDi include the following:

- Down Stream and Up Stream keyers in transmission systems.
- Offline Captioning.
- Presentation and Master Control systems (Eyeheight PresTX).
- Bug Keying.

keyEyesHDi will be used in a situation where a device such as a caption generator is required to overlay captions onto a video background.

2.3 Associated Equipment for the keyEyesHDi

The keyEyesHDi 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.

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3 Control Panel

Figure 2 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

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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.

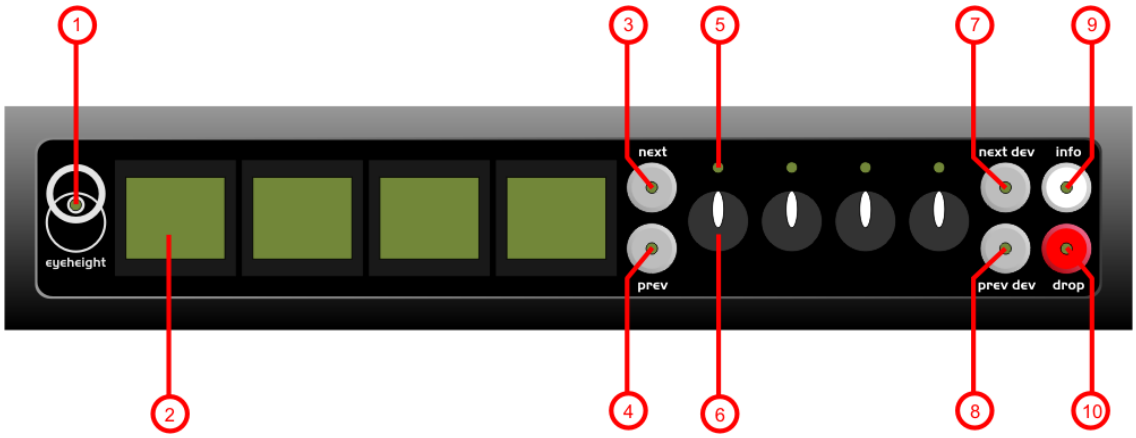

Figure 2 - evolutionDT Control Panel

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4 Operation

4.1 Manual control of the keyEyesHDi

The keyEyesHDi 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 keyEyesHDi.

See chapter 4 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 keyEyesHDi

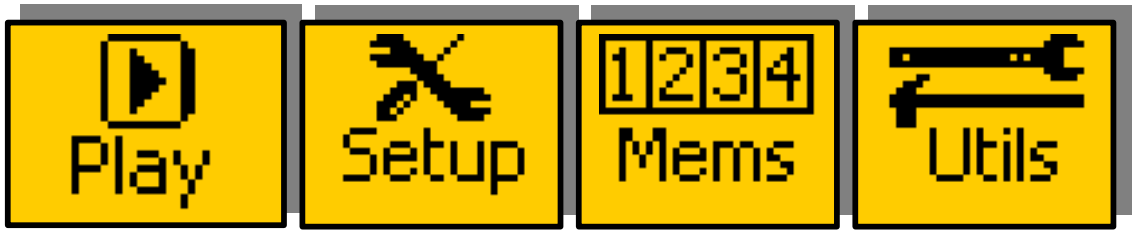
Automation of the evolutionDT products is achieved either via the RS232 port (currently not implemented) or via the I-Bus Port using an optional DG-9 (RS232 to I-Bus dongle). Automation control of the keyEyesHDi is performed using the geNETics Automation Protocol.

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 keyEyesHDi

Menus 00-03 Top Level Menus



Menu Num.	Heading	Automation	Function
00	PLAY	none	Go To the main Play menus (4-7)
01	SETUP	none	Go To the main Set-up menus (84-87)
02	MEMS	none	Go To the Memory menus (16-47)
03	UTIL	none	Go To the main Utility menus (108-111)

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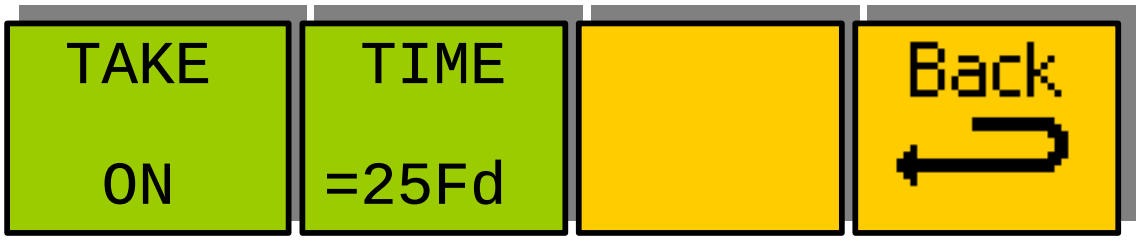
Menus 04-07 PLAY Menus



Menu Num.	Heading	Automation	Function
04	TAKE	1=take off 2=take on	This Causes the Auto Transition to occur. The On/Off state is also indicated in the window.
05	TIME	1-200	This is the Key Transition time. The time taken for the key to fade on or off in auto transition mode
06			
07	BACK	none	Go To the Top Level Menus

Menus 08-11 System set-up menus (For Automation use only)

Menu Num.	Heading	Automation	Function
08	K.GAIN	0-511 (Default is 299)	This sets the key gain. 100% represents unity key gain (default).
09	K.LIFT	-128-511 (Default is –64)	This sets the key lift. 0% represents no lift (default)
10	KEY:	0=normal 1=invert key	This inverts the key signal.
11	BACK	none	Go To the Top Level Menus

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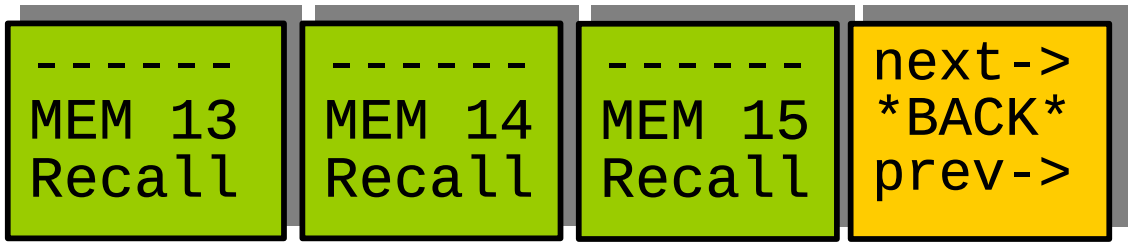
Menus 12-15 System set-up menus (For Automation use only)

Menu Num.	Heading	Automation	Function
12	BG POS	Level A 0-15. Default=7 Level B 0-15. Default=7	When this button is pressed to "Green", the window indicates shows two options, which can be changed by adjusting the two rotary digipots A and B. Digipot A moves the position of the background picture relative to the key and the foreground. Digipot B moves the position of the key relative to the foreground and the background.
13	L= H= S=	Menu Level "A" 0-255 (L) Menu Level "B" 0-255 (H) Menu Level "C" 0-255 (S)	Press this button and the three digipots indicated by the lit LED's will change the Luma, Hue and Saturation of the Matte colour.
14	KEYING	0=normal 1=additive 2=self key 3=colour Fill	This changes the keying mode. "Normal" is the default mode. "Additive" is selected for an Additive Key mode. "Self" is selected for Self Key mode where the key is derived from the foreground input. Colour Fill mode provides an internal Matte Fill.
15	BACK	none	Go To the Top Level Menus

Menus 16-19 Memory 1→3 menus (NEXT to navigate)



Menu Num.	Heading	Automation	Function
16	MEM13	1=Recall	Pressing this will recall Memory number 13.User Names can be programmed in to the memories using a keyboard. See "geNETics User guide", section "Giving product Memories names"
17	MEM14	1=Recall	Pressing this will recall Memory number 14.

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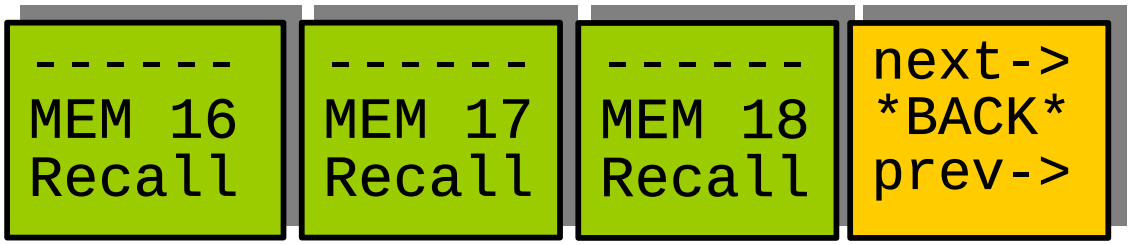
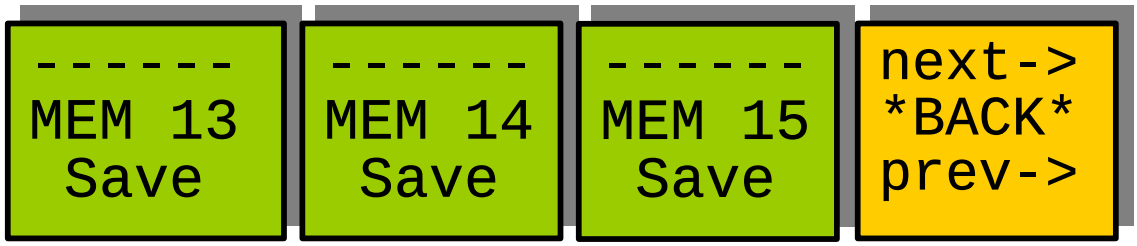
18	MEM15	1=Recall	Pressing this will recall Memory number 15.
19	BACK	none	Go To the Top Level Menus

Menus 20-23 Memory 4→6 menus (NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
20	MEM16	1=Recall	Pressing this will recall Memory number 4.
21	MEM17	1=Recall	Pressing this will recall Memory number 5.
22	MEM18	1=Recall	Pressing this will recall Memory number 6.
23	BACK	none	Go To the Top Level Menus

Menus 24-27 Save memory 1→3 menus (NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
24	SAVE MEM13	1=Save	Pressing this will Save Memory number 1.
25	SAVE MEM14	1= Save	Pressing this will Save Memory number 2.
26	SAVE15 MEM3	1= Save	Pressing this will Save Memory number 3.
27	BACK	none	Go To the Top Level Menus

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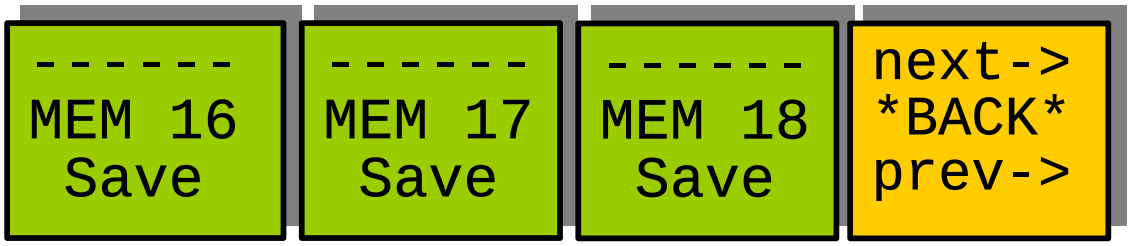
Menus 28-31 Save memory 4→6 menus (NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
28	SAVE MEM16	1= Save	Pressing this will Save Memory number 4.
29	SAVE MEM17	1= Save	Pressing this will Save Memory number 5.
30	SAVE MEM18	1= Save	Pressing this will Save Memory number 6.
31	BACK	none	Go To the Top Level Menus

Menus 32-35 Power on memory menus

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

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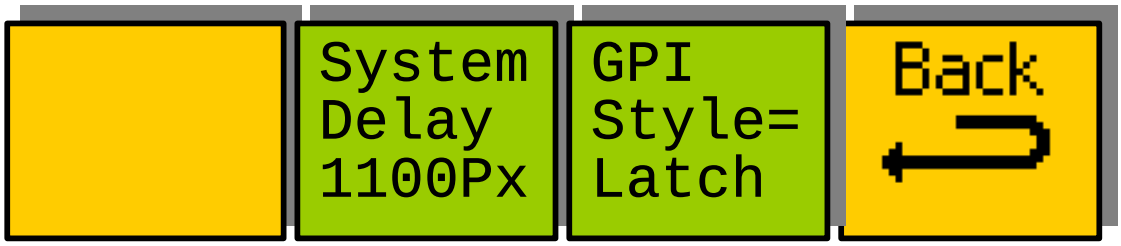
Menus 36-39 Key timing menus



Menu Num.	Heading	Automation	Function
36			
37	Timing	0-2048	This changes the system delay through the unit. The default is ½ of a video line (14.8uS=1100 pixels). The user can make this smaller or larger. If the delay is made smaller, the system delay becomes smaller but also the synchronising range becomes smaller. This becomes a compromise between synchronising range and delay.
38	GPI Style	0=Latched 1=Momentary	Controls the operation of GPI1 and 2 Latched – Take action is toggled ON and OFF when GPI1 is toggled ON and OFF Momentary – When GPI1 is toggled ON Take is set to ON, when GPI2 is toggled ON Take is set to OFF
39	BACK	none	Go To the Top Level Menus

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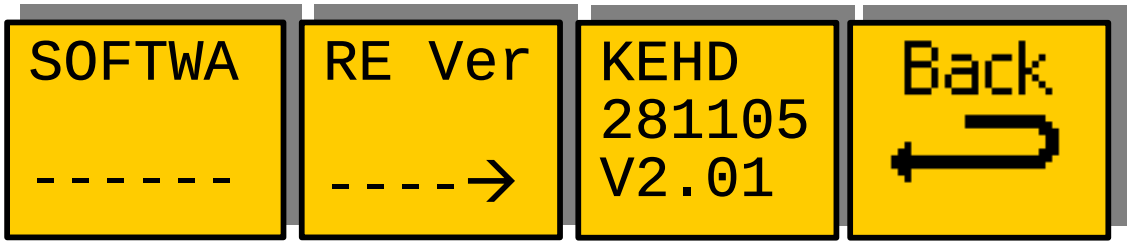
Menus 40-43 Preview safe area generator (For Automation use only)

Menu Num.	Heading	Automation	Function
40	SAFE ACTION	None	This Switches on and off the currently selected area. Pressing the "Red" switch next to this one and adjusting the rotary digipots with the lighted green LED's chooses the Selected area.
41	None	Menu Level “A” 0=S.Action 1=S.Capt. 2=DigEdge 3=An Edge Menu Level “B” 0=4:3 1=16:9 2=16p4:3 3=16p149 4=43p16:9 **Menu Level “C”** 0=Thin 1=Thick 2=Shade 3=Black	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. <u>Digipot A</u> Determines the basic Function Selects "Safe Action" option Selects "Safe Caption" option Selects "Digital Edge" option Selects the "An. Edge" option <u>Digipot B</u> 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 (*) (*) -- Not available in 525 <u>Digipot C</u> 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"
42	PGM:	0=EDH Off 1=EDH On	Re-insert EDH Control (Off/On)
43	BACK	none	Go To the Top Level Menus

Menus 44-47 Software version menu



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Menu Num.	Heading	Automation	Function
44	Info	none	Information
45	Info	none	Information
46	none	none	Software Version Information
47	BACK	none	Go To the Top Level Menus

Menus 48-51 Keyer transition time menus (For Automation use only)

Menu Num.	Heading	Automation	Function
48	info	none	info
49	info	none	info
50	Transition Time	1→200	Changes the Key Transition Time.
51	info	none	info

Menus 52-55 Keyer transition type menus (For Automation use only)

Menu Num.	Heading	Automation	Function
52	TRANS	0=Mix 1=Wipe 2=Cut 3=Mix+Wipe	This sets the transition type between Mix, Wipe and Cut and Mix+Wipe. Mix+Wipe does a simultaneous Mix with the selected wipe pattern.
53	WIPE (Pattern)	0=Vertical 1=Horiz 2=Vert Curtain 3=Horiz Curtain 4=Diagonal 5=Diamond 6=Arrow Left 7=Arrow Up	This shows a representation of the shape of the currently selected Wipe Transition.
54	Wipe Softness	1→49	This adjustment softens the wipe edge.
11	BACK	none	Go To the Top Level Menus

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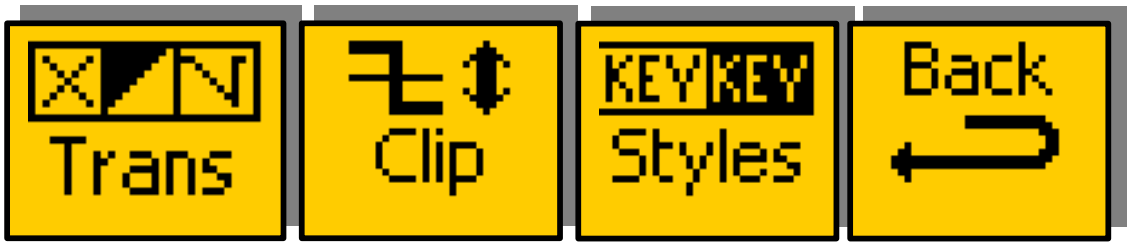
Menus 56-59 Utility Menus: (For Automation use only)

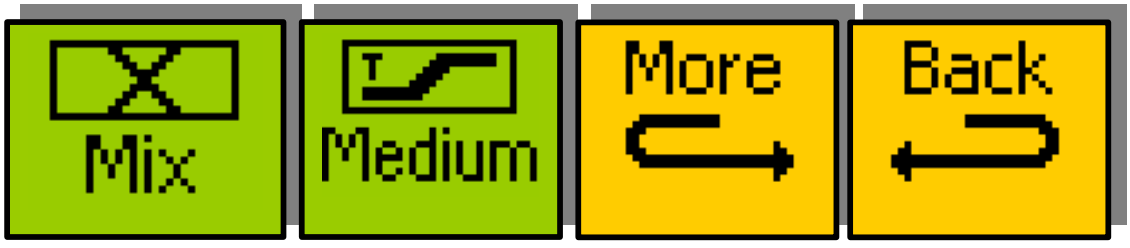
Menu Num.	Heading	Automation	Function
56	Garbage Matte Control	0=Off 1=On 2=Invert	This is a box shaped Garbage Matte that can be used to Box out unwanted Key Spill.
57	Box LR	Menu Level “A” L=0→719 Menu Level “B” R=0→719	This is the Left and Right position adjustment for the garbage matte box
58	Box TB	Menu Level “A” L=0→575 Menu Level “B” R=0→575 (For 525=487)	This is the Top and Bottom position adjustment for the garbage matte box
59	BACK	none	Go To the Top Level Menus

Menus 84-87 Keyer set-up menus



Menu Num.	Heading	Automation	Function
84	Transition	none	Go To the main Trans menus (92-95)
85	Clip and gain	none	Go To the main clip menus (96-99)
86	Styles	none	Go To the styles menus (104-107)
87	Back	none	Go To the main top menus (0-3)

Menus 92-95 Key transition menus



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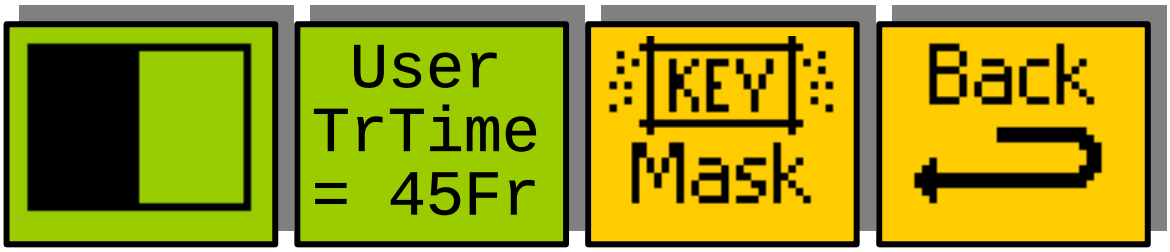
Menu Num.	Heading	Menu Options	Function
92	Transition type	0=mix 1=wipe 2=cut 3=wipe+mix	This changes the type of transition, which is the way in which the keyed in source appears.
93	Transition Speed	0=fast 1=medium 2=slow 3=user	This changes the speed of the transition.
94	More		This takes you to menus 88→91 which further configure the mixer transitions.
95	Back		This takes you back to menus 84-87

Menus 88-91 more key transition menus



Menu Num.	Heading	Menu Options	Function
88	Wipe pattern	0= vertical wipe 1= horizontal wipe 2=vertical curtain 3=horizontal curtain 4=diagonal wipe 5=diamond wipe 6=horizontal arrow 7=vertical arrow	This changes the type of wipe pattern when wipe is selected as the key transition.
89	User Transition Time	User Tran Time 3→253.	This changes the transition time of the “user” setting for menu 93
90	Mask		This takes you to the key mask menus (100→103)
91	Back		This takes you back to menus 92→95.

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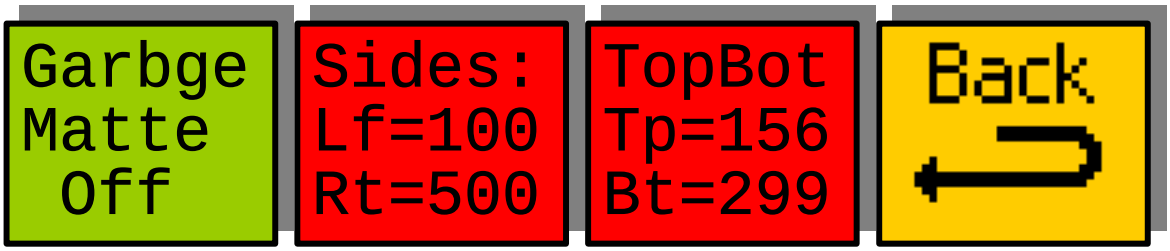
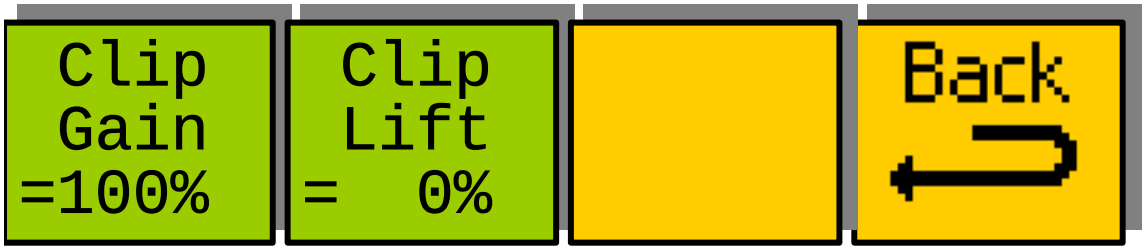
Menus 100-103 Garbage matte (mask) menus



Menu Num.	Heading	Menu Options	Function
100	Garbage matte (mask)	0= Off 1= On 2=Invert	This switches on the garbage matte. The garbage matte allows you to configure a “box” within the picture outside of which NO keying is visible. With the “invert” option no keying is possible INSIDE the box.
101	Sides of garbage matte box	**Level A:** Left edge of garbage matte (0→719) **Level B:** Right edge of garbage matte (0→719)	Pressing this button will make the three rotary digipots A and B active: Digipot A will change the garbage matte box top edge. Digipot B will change the garbage matte box bottom edge.
102	Top and bottom of garbage matte box	**Level A:** Top of garbage matte (0→575) **Level B:** Bottom of garbage matte (0→575)	Pressing this button will make the three rotary digipots A and B active: Digipot A will change the garbage matte box top edge. Digipot B will change the garbage matte box bottom edge.
103	Back		This takes you back to menus 88→91.

Menus 96-99 Key clip and gain menus



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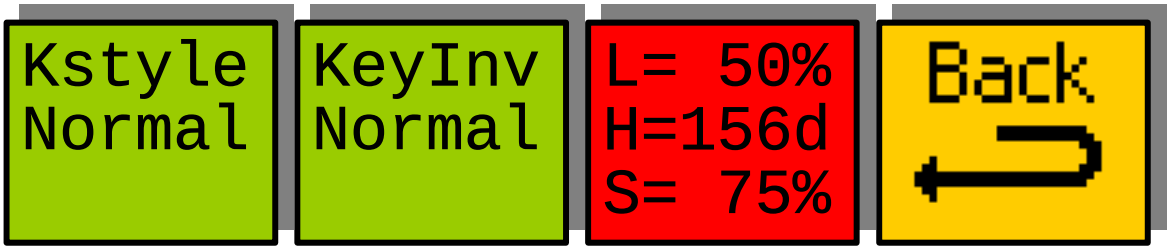
Menu Num.	Heading	Menu Options	Function
96	Clip Gain	Gain=0→511 (299=100%,0=0%)	This adjusts the key gain.
97	Clip Lift	Lift=0→511 (363=100%,64=0%)	This adjusts the key lift.
98			
99	Back		This takes you back to menus 84→87

Menus 104-107 Key style menus



Menu Num.	Heading	Menu Options	Function
104	Key Style	0= normal 1= additive 2=self key 3=colour fill	This switches between keying styles. Normal is multiplicative keying Additive keying is used for key sources with an anti aliased fill AND key (most character generators). Self Key uses the Fill as the Fill AND key source Colour Fill, replaces the Fill source with a matte generator.
105	Key Invert	0= normal 1= invert	This inverts the key source if invert is selected.
106	Colour fill Matte.	**Level A:** Border Luminance, 0→255 **Level B:** Border Hue, 0→255 **Level C:** Border saturation, 0→255	Pressing this button will make the three rotary digipots A,B and C active: Digipot A will change the colour fill matte luminance. Digipot B will change the colour fill matte hue. Digipot C will change the colour fill matte saturation.
107	Back		This takes you back to menus 84→87.

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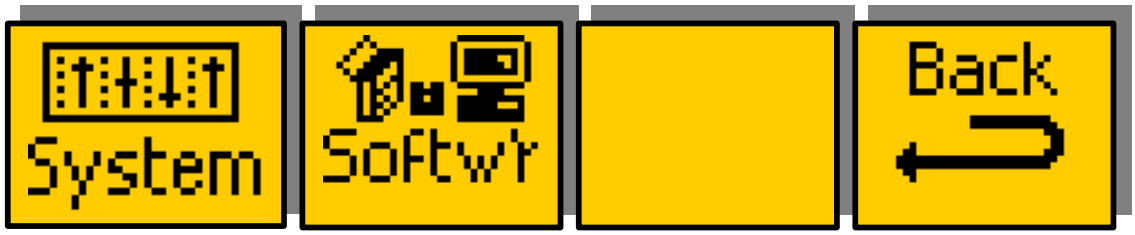
Menus 108-111 Util Menus



Menu Num.	Heading	Automation	Function
108	SYSTEM	none	Go To the System menus (36-39)
109	SOFTWARE	none	Go To the Software menus (44-47)
111	Back		This takes you back to the Top Level menus (0-3)

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5 Technical Appendix

5.1 Jumper Links on the GPI I/O

Jumper	Function
J31	Set to Top, Polarity selection for GPI Relay Output#1
J32	Set to Top, Polarity selection for GPI Relay Output#2
J33	Set to Top, Polarity selection for GPI Relay Output#3
J34	Set to Top, Polarity selection for GPI Relay Output#4

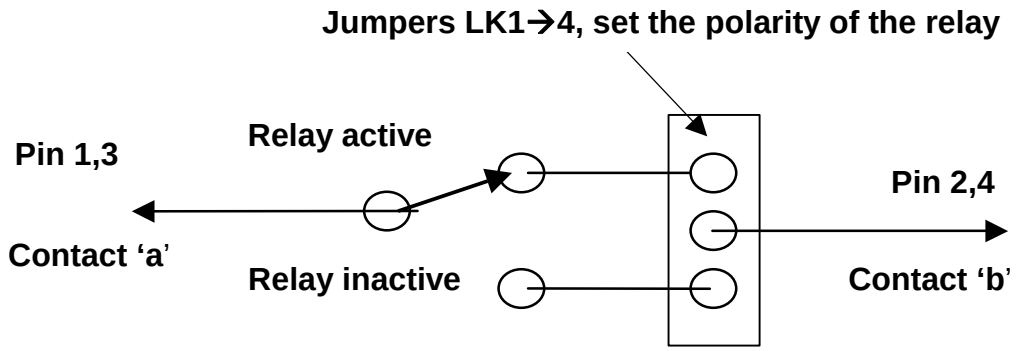

Figure 3 - Diagram of GPI Output (GPI1-4)

5.2 Rear 25W D-Type Pinout

Pin#	Function
1	General Purpose Output Switch #1 contact 'a' (GPO1a). Isolated Relay closure. Relay activated when Take key is ON Tally Out "Key On Air".
2	General Purpose Output Switch #1 contact 'b' (GPO1b). Isolated Relay closure. Relay activated when Take key is ON Tally Out "Key On Air"
3	General Purpose Output Switch #2 contact 'a' (GPO2a). Isolated Relay closure. Relay activated when Take key is OFF Tally Out "Key Off Air"
4	General Purpose Output Switch #2 contact 'b' (GPO2b). Isolated Relay closure. Relay activated when Take key is OFF Tally Out "Key Off Air"
5	Not Used
6	Not Used
7	Not Used
8	Not Used
9	Not Used
10	Not Used
11	Not Used
13	General Purpose Input #1 (GPI1). Pull to Ground to activate.

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	Take key ON. Only momentary contact required >50mS. (If GPI Style set to Momentary). Pulled to ground – Take key ON (If GPI Style set to Latched). Open – Take key OFF (If GPI Style set to Latched).
14	General Purpose Input #2 (GPI2). Pull to Ground to activate. Take key OFF. Only momentary contact required >50mS. (If GPI Style set to Momentary)
15	Not Used.
16	Not Used.
17	Not Used.
18	Not Used.
19	Not Used.
20	Not Used.
21	Not Used.
22	Not Used.
23	
24	
25	GND

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5.3 Appendix 4, technical specification

HD-SDI Inputs 1485Mbit, 75ohm	3 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)	2 GPI's Take Key On Take Key Off
Tally Outputs	2 GPO's Key is On Key is Off
Control System connections.	eyeheight I-Bus, 2 wire network.
Control Surfaces	Option of 2 eyeheight control surfaces. Integral front mounted contol 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.

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