ViPA102

Video proc-amp

USER MANUAL

Crystal Vision

Crystal Vision Ltd., Lion Technology Park, Station Road East, Whittlesford, Cambridge, CB22 4WL, England.
E-mail: sales@crystalvision.tv Website: www.crystalvision.tv Tel: +44(0) 1223 497049 Fax: +44(0) 1223 497059

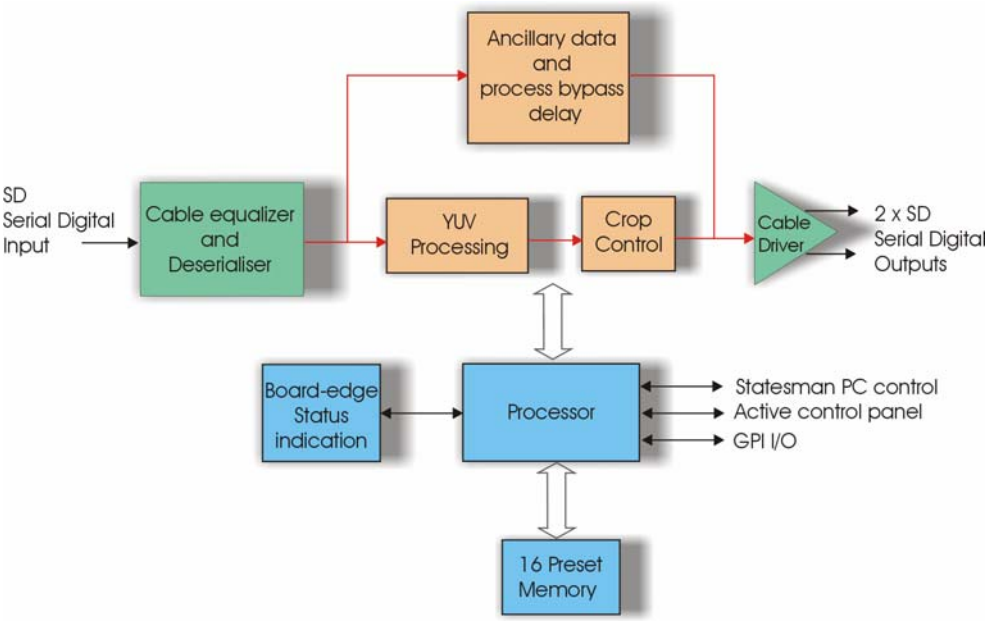
Contents

Revision 1.	Rear module connection information corrected.	14-06-07
Revision 2.	Manual reformatted.	25-06-07

1 Introduction

ViPA102 is a 10 bit video proc-amp allowing flexible independent adjustments of a digital signal image in the YUV colour space, essential for correcting transmission errors and colour space or A to D conversion errors.

ViPA102 passes all ancillary data, including embedded audio, transparently. Sixteen memories are provided to store user-defined adjustments and there is GPI output indication of YUV clipping. Control options include active frame front panel, remote panel and the Statesman PC Control System.



ViPA102 10-bit processing amplifier

The main features are as follows:

- Digital processing amplifier
- 12 ViPA modules fit in 2U (24 in 4U, 6 in 1U, 2 in desk top box)
- Allows independent digital image adjustments in YUV domain
- Tools to adjust level, gain, soft clipping and timing
- All limiting has adjustable softness
- Enforces CCIR601 dynamic range specification
- Bypass control
- Passes ancillary information
- Sixteen user memories
- EDH generation
- Flexible control

The ViPA102 has one input and two outputs and is based on a 100mm x 266mm module, which fits in all Crystal Vision frames and can be integrated with any boards from the company's full product range. It uses the RM01 rear connector.

Processing modes

Processing modes are as follows:

- Advance/retard Y/C offset delay in 148ns steps
- Advance/retard overall horizontal delay (74ns increments)
- Correct for NTSC colour shift (Hue) errors on the U and V channels
- Increase/decrease Y, U and V channel lift and gain independently
- Set and soft limit Y, U, and V channel positive (Hi) and negative (Lo) excursions independently
- Set horizontal and vertical active picture area cropping region on final output

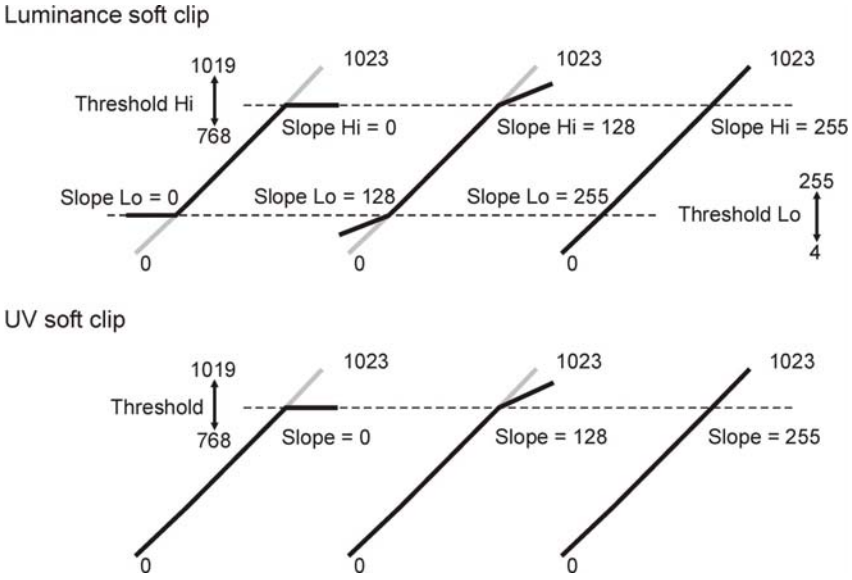
Independent YUV adjustable soft clipping ensures colours do not overrun the CCIR601 specification by forcing the picture to remain within the valid dynamic signal range whilst avoiding picture artefacts caused by hard clipping.

The adjustable horizontal and vertical cropping may be used to clean up picture edges. For example, the vertical crop can be used to remove widescreen-signalling information now part of the active picture following aspect ratio conversion.

If no correction is required processing is completely transparent, preserving signal integrity.

Soft limiting

Soft limiting or clipping is provided by a combination of adjustable threshold and slope controls. The luminance channel has both high and low limiting, whilst UV channels have one clipping control for each colour component.



2 Hardware installation

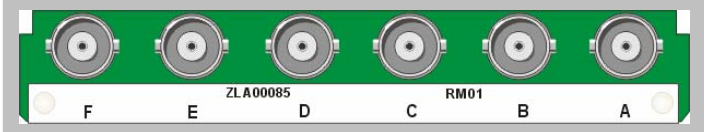
The ViPA102 video proc-amp is a single height module that fits into all Crystal Vision rack frames. All modules can be plugged in and removed while the frame is powered without damage.

2.1 Rear modules and signal I/O

The Indigo 4 4U frame will house up to 24 single height modules with up to three power supplies. The Indigo 2 2U frame will house up to 12 single height modules and dual power supplies. The Indigo 1 1U frame will house six single height modules and a single/dual power supply. The Indigo desk top box has a built-in power supply and will house up to two single height modules.

Note: For details of fitting rear connectors please refer to the appropriate frame manual.

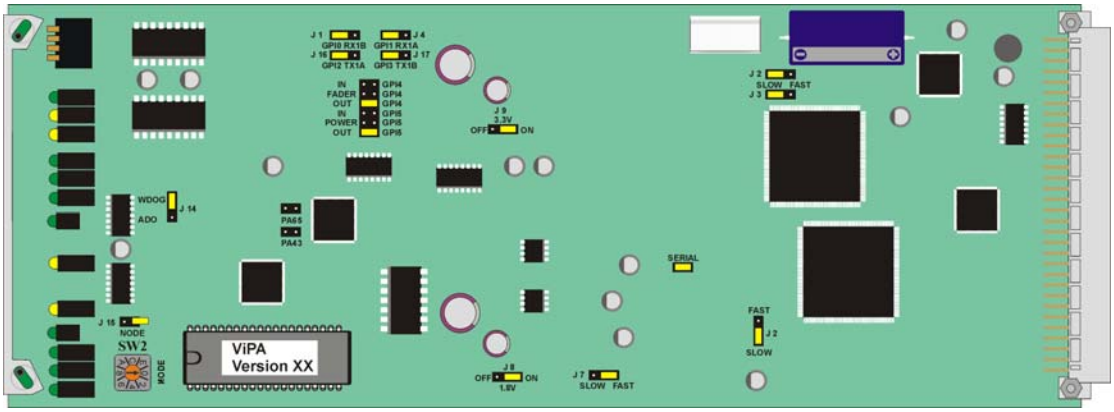
RM01 rear module connections:

RM01	Description
	**RM01 (ZLA00085 artwork)** • 24 modules per Indigo 4 frame • 12 per Indigo 2 frame • 6 per Indigo 1 frame • 2 per Indigo DT frame • All frame slots can be used

BNC	Signal
A	No connect
B	Serial Digital In
C	No connect
D	Serial Digital Out 1
E	Serial Digital Out 2
F	No connect

2.2 ViPA102 configuration

The jumper links on the board are set correctly when ViPA102 is tested before despatch and should be left as set at the factory. The following information is for jumper position confirmation only.



ViPA102 showing default factory jumpers

Link positions - board viewed as above

Link	Required position
J8 & J9	Must be in the ON position
J2, J3, J5, J7	Must be in the SLOW position
J6	Leave jumper in place
J14	Leave in WDOG position
J1, J4, J16, J17	Leave in GP 0 – 3 positions
PL7	Selects GPI 4 (IN/FADER/OUT) and GPI 5 (IN/POWER/OUT) function – default is OUT
PA43/PA65	Not used

2.3 General Purpose Interface (GPI)

Each frame slot has up to six connections ‘a-f’ for GPI control and monitoring. These connections are available at the rear of the frame on the 26-way D-Type remote connectors.

GPI			Low (<1V)	High (+5V)
0	**‘a’**	**Recall preset bit 1**	See following table for user preset control	
1	**‘b’**	**Recall preset bit 2**		
2	**‘c’**	**Recall preset bit 4**		
3	**‘d’**	**Recall preset bit 8**		
4	**‘e’**	**Link 7 selected**	IN/FADER/OUT	
5	**‘f’**	**Link 7 selected**	IN/POWER/OUT	

As supplied, each GPI output has a 270Ω resistor in series with its output. This allows for an external LED to be driven, connected to a DC voltage of +5V.

Each General Purpose Input (GPI) is fitted with a 6800Ω resistor connected to the internal +5V.

The 16 user preset configurations can be recalled using binary notation.

GPI / Preset	Bit 4	Bit 3	Bit 2	Bit 1
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

4U frame GPI connections

GPI lines 'a' to 'f' of each card connect to two of eight rear remote connectors as follows:

Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin
1	8 (1)	9 (1)	18 (1)	26 (1)	19 (2)	20 (2)
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)
3	8 (3)	9 (3)	18 (3)	26 (3)	19 (4)	20 (4)
4	7 (3)	16 (3)	17 (3)	25 (3)	10 (4)	11 (4)
5	5 (1)	6 (1)	15 (1)	24 (1)	1 (2)	2 (2)
6	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
7	5 (3)	6 (3)	15 (3)	24 (3)	1 (4)	2 (4)
8	4 (3)	14 (3)	13 (3)	23 (3)	3 (4)	4 (4)
9	3 (1)	12 (1)	22 (1)	21 (1)	12 (2)	13 (2)
10	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)
11	3 (3)	12 (3)	22 (3)	21 (3)	12 (4)	13 (4)
12	10 (3)	11 (3)	19 (3)	20 (3)	21 (4)	22 (4)
Slot no.	**'a' pin**	**'b' pin**	**'c' pin**	**'d' pin**	**'e' pin**	**'f' pin**
1	8 (5)	9 (5)	18 (5)	26 (5)	19 (6)	20 (6)
2	7 (5)	16 (5)	17 (5)	25 (5)	10 (6)	11 (6)
3	8 (7)	9 (7)	18 (7)	26 (7)	19 (8)	20 (8)
4	7 (7)	16 (7)	17 (7)	25 (7)	10 (8)	11 (8)
5	5 (5)	6 (5)	15 (5)	24 (5)	1 (6)	2 (6)
6	4 (5)	14 (5)	13 (5)	23 (5)	3 (6)	4 (6)
7	5 (7)	6 (7)	15 (7)	24 (7)	1 (8)	2 (8)
8	4 (7)	14 (7)	13 (7)	23 (7)	3 (8)	4 (8)
9	3 (5)	12 (5)	22 (5)	21 (5)	12 (6)	13 (6)
10	10 (5)	11 (5)	19 (5)	20 (5)	21 (6)	22 (6)
11	3 (7)	12 (7)	22 (7)	21 (7)	12 (8)	13 (8)
12	10 (7)	11 (7)	19 (7)	20 (7)	21 (8)	22 (8)

Upper

Lower

Table shows pin number (remote number)

Note: Remote 1, Remote 3, Remote 5 and Remote 7 are 26-way high-density D-Type female sockets. Frame ground is pin 2 and +5V @500mA is pin 1 in each case.

Remote 2, Remote 4, Remote 6 and Remote 8 are 26-way high-density D-Type male plugs and frame ground is pin 6 in each case and +5V @500mA is pin 15 on Remote 2 and Remote 6.

Note. The +5V output is protected by self-resetting thermal fuses, which limit the total output current available from Remotes 1-4 to approximately 1A. Remotes 5-8 are similarly protected.

2U frame GPI connections

GPI lines 'a' to 'f' of each card connect to two of four rear remote connectors as follows:

Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin
1	8 (1)	9 (1)	18 (1)	26 (1)	19 (2)	20 (2)
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)
3	8 (3)	9 (3)	18 (3)	26 (3)	19 (4)	20 (4)
4	7 (3)	16 (3)	17 (3)	25 (3)	10 (4)	11 (4)
5	5 (1)	6 (1)	15 (1)	24 (1)	1 (2)	2 (2)
6	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
7	5 (3)	6 (3)	15 (3)	24 (3)	1 (4)	2 (4)
8	4 (3)	14 (3)	13 (3)	23 (3)	3 (4)	4 (4)
9	3 (1)	12 (1)	22 (1)	21 (1)	12 (2)	13 (2)
10	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)
11	3 (3)	12 (3)	22 (3)	21 (3)	12 (4)	13 (4)
12	10 (3)	11 (3)	19 (3)	20 (3)	21 (4)	22 (4)

Table shows pin number (remote number)

Note: Remote 1 and Remote 3 are 26-way high-density D-Type female sockets. Frame ground is pin 2 and +5V @500mA is pin 1 in each case.

Remote 2 and Remote 4 are 26-way high-density D-Type male plugs and frame ground is pin 6 in each case and +5V @500mA is pin 15 on Remote 2.

Note. The +5V output is protected by self-resetting thermal fuses, which limit the total output current available from Remotes 1-4 to approximately 1A.

1U frame GPI connections

GPI lines 'a' to 'f' of each card connect to the two rear remote connectors as follows:

Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin
1	8 (1)	9 (1)	18 (1)	26 (1)	19 (2)	20 (2)
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)
3	5 (1)	6 (1)	15 (1)	24 (1)	1 (2)	2 (2)
4	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
5	3 (1)	12 (1)	22 (1)	21 (1)	12 (2)	13 (2)
6	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)

Table shows pin number (remote number)

Note: Remote 1: 26-way high-density D-Type female socket. Frame ground is pin 2 and +5V @500mA is pin 1.

Remote 2: 26-way high-density D-Type male plugs and frame ground is pin 6 and +5V @500mA is pin 15.

Note. The +5V output is protected by self-resetting thermal fuses, which limit the total output current available from Remotes 1-2 to approximately 1A.

Indigo DT desk top box GPI connections

GPI lines ‘a’ to ‘f’ of each card connect to the two rear remote connectors as follows:

Slot no.	‘a’ pin	‘b’ pin	‘c’ pin	‘d’ pin	‘e’ pin	‘f’ pin
1	8 (1)	9 (1)	18 (1)	26 (1)	19 (2)	20 (2)
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)

Table shows pin number (remote number)

Note: Remote 1: 26-way high-density D-Type female socket. Frame ground is pin 2 and +5V @500mA is pin 1.

Remote 2: 26-way high-density D-Type male plugs and frame ground is pin 6 and +5V @500mA is pin 15

Note. The +5V output is protected by self-resetting thermal fuses, which limit the total output current available from Remotes 1-2 to approximately 1A.

3 Card edge operation

The front edge of the card provides status LEDs for serial control, input presence, GPI status and bypass indication. There is also a CPU heartbeat LED and power rail monitoring.

ViPA102 front edge view

Note:

The 4-way DIL switch has no function on ViPA102.
Both input LEDs illuminate when an input signal is present.

The following table summarises the card edge LED functions and colours:

Status	Led Colour	Description
OnA	Green - flashing	Communications OK
TxA	Amber - flashing	Serial communication data transmission
RxA	Amber - flashing	Serial communication data reception
OnB, TxB, RxB	N/A	Not used
GPI 0 to 5	Green	GPI preset selection
Ch 1 Pres	Green	Input Present
Bypass	Amber	Bypass indication
625/525	Amber	Indicates 625 (upper LED) or 525 (lower LED)
♥ - flashing	Green	Heartbeat – CPU OK
1.3V	Green	1.3V supply rail OK
3.3V	Green	3.3V supply rail OK
5 V	Green	5V supply rail OK
I/O Config	Amber	Not used

4 Using the front control panel

4.1 Module selected

This operational guide assumes that the panel has been set up according to the panel set up procedure described in the Crystal Vision Control Panel manual.

Note: It is **ESSENTIAL** that the panel set up procedure is followed and any old or unknown passwords cleared prior to using the panel for the first time.

At power up, the two line 20-character screen will display ‘Crystal Vision’ followed by the firmware version number for the control panel. All eight control panel keys LEDs will illuminate.

The Crystal Vision control panel start up display

'Control Panel' then briefly replaces the version number display.

If the control panel firmware has been updated for Statesman control (version 1.5.0 or higher), Statesman Mode will be entered and the message, ‘Press CAL to Exit’ will be displayed and the CAL LED will light.

Statesman mode is entered by default

To continue with control panel operation or configuration, press the CAL key once. A second press of the CAL key will return to Statesman control.

The control panel will display the name of the card that first responds to the polling request together with its location number.

The location number consists of the frame number plus the card position in the frame.

Navigating the display

The functions assigned to control panel keys are:

- DEVICE – enters Device menu to select a card or show cards available / enters panel set up when held down during power up / shows frame status when pressed from Statesman mode
- CAL – enters or leaves Statesman mode / enters panel diagnostics mode when held down during power up / updates the display
- Asterisk – enters board rename menu from the Device menu
- F1 to F4 – soft keys, function assigned within each menu
- HOME – moves the display to the home menu
- ENTER – accept current selection
- Upward arrow – used to move up the menu structure / enter lock panel menu from the Device menu
- Rotary control – shaft encoder used to select options or variable data

Note: Please refer to the Crystal Vision Control Panel manual for details of the Panel Setup, Lock Panel and Diagnostic menus.

Selecting ViPA102

To select a particular card in a frame, press the DEVICE key to go to the Device menu. Note there may be a delay whilst the frame is interrogated during which time the 'No cards Found' could be displayed.

The top line of the display will show 'Available Cards X', where X is the number of cards that have responded so far to the polling request.

The available cards menu

Rotate the shaft encoder and the bottom row will display the successfully polled cards by name and location or slot number.

In the example above, the card displayed is located in the first frame in slot number 1.

When the desired card is selected press the ENTER key to access that card's HOME menu. The message shows that a ViPA102 has been selected.

The ViPA home menu

Updating the display

The values displayed on an active front panel are only updated when an adjustment is made and when changing menu level. If changes occur through the use of card edge controls or other remote control, the text displayed on the active front panel will not be updated immediately. If necessary, use the upward arrow to leave and then re-enter a menu to update the display.

4.2 The ViPA active panel menu structure

At any time the main top-level menu (Home) is obtained by pressing the HOME key. From the home menu further selections can be made. Active function keys are indicated by illuminated, integrated LEDs.

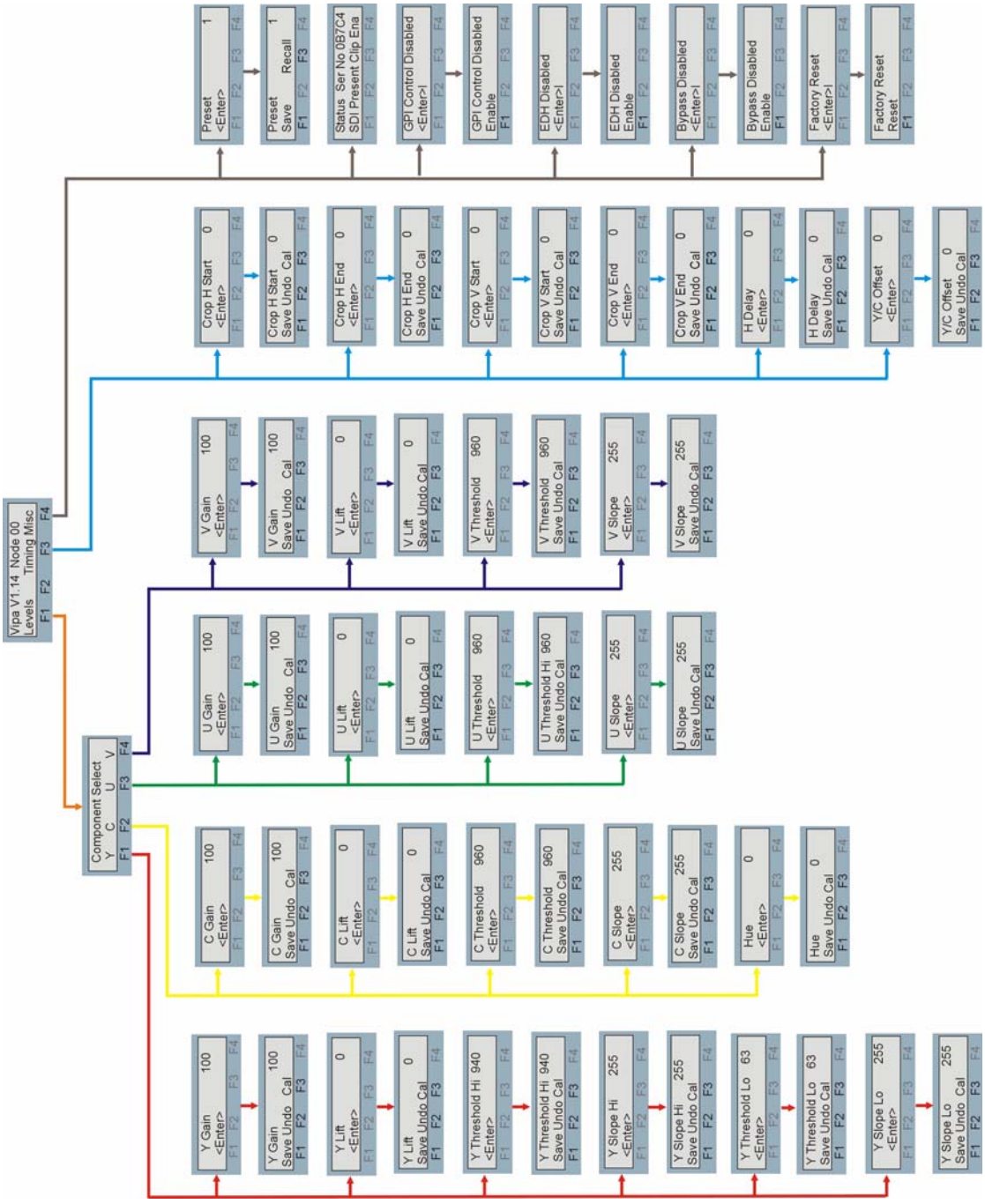
The main top-level menus for the ViPA102 are obtained by pressing the F1- F4 keys from the HOME menu. Menu keys are illuminated when active and when further menus are available. The top-level menus are:

- Levels – Press F1 (Gains, Offsets, Slopes and Thresholds)
- Timing – Press F3 (Crops and delays)
- Misc – Press F4 (Presets, Status, Controls and Factory reset)

When a sub menu has been selected, further options may be obtained by using the Shaft control to scroll through them. Once the desired option has been located a selection or value change can be made by either toggling the appropriate function key or by selecting and using the shaft control to alter a numerical value. A configuration change or value will be activated as the shaft control is rotated or function button is toggled. The variable being adjusted will appear in brackets. Pressing Enter will fix the new value.

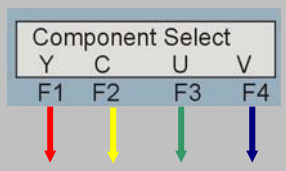
The following chart shows the available ViPA102 menus. The actual menus available may vary slightly as software is updated.

4.3 The ViPA menu structure



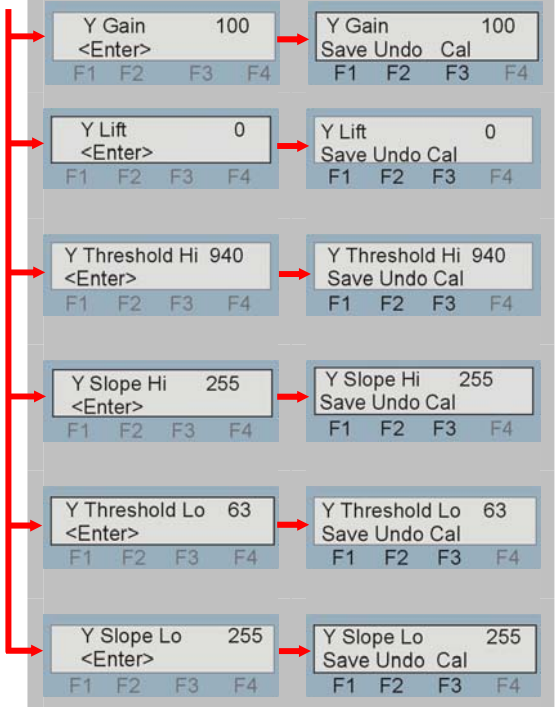
4.4 Component processing

Pressing F1 from the home menu will bring up the component Select menu. This menu provides access to Gain, Lift, Threshold and Slope parameters for Luminance (Y), Chrominance (C), and the Pb (U) and Pr (V) colour difference components of the incoming SDI signal.

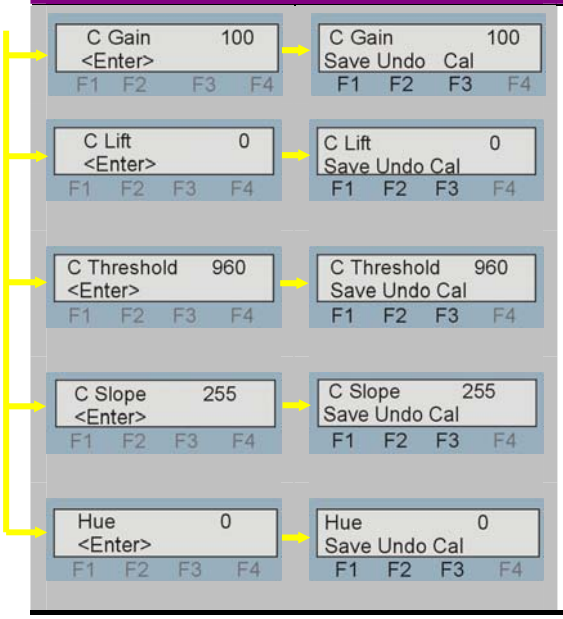
ViPA102 Component Select menu	Provides access to the following sub-menus:
	Y (Luminance) Menu – press F1 C (Chrominance) Menu – press F2 U (Pb) Menu – press F3 V (Pr) Menu – press F4

Press F1 from Component Select menu 1.1 and then rotate the shaft encoder to access the Y processing menus. Press the ENTER key when the chosen menu is displayed to enter data-entry mode. Press ENTER again to leave the data-entry mode and continue navigating the available menus.

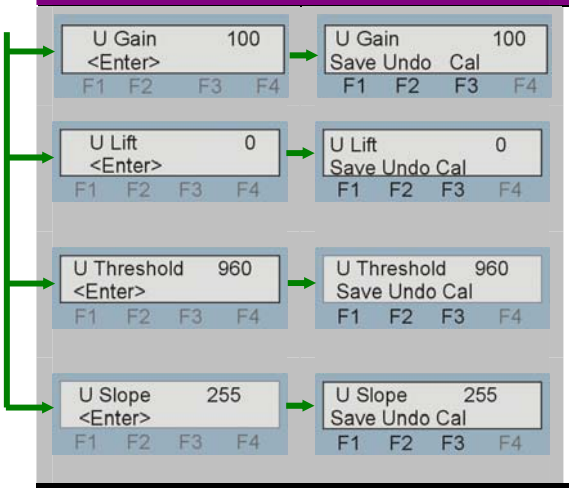
Note: It may be necessary to press the ENTER key when first navigating the available menus.

ViPA102 Y menu	Description
	Set Y gain from 0 to 200 – default/unity gain: 100 F1: Save, F2: Undo, F3: Cal (default value) Set Y Lift from -512 to 512 – default is: 0 F1: Save, F2: Undo, F3: Cal (default value) Set Y Threshold Hi from 768 to 1019 – default is: 940 F1: Save, F2: Undo, F3: Cal (default value) Set Y Slope Hi from 255 to 0 – default is: 255 F1: Save, F2: Undo, F3: Cal (default value) Set Y Threshold Lo from 4 to 255 – default is: 63 F1: Save, F2: Undo, F3: Cal (default value) Set Y Slope Lo from 255 to 0 – default is: 255 F1: Save, F2: Undo, F3: Cal (default value)

Press F2 from Component Select menu 1.1 and then rotate the shaft encoder to access the C processing menus. Press the ENTER key when the chosen menu is displayed to enter data-entry mode. Press ENTER again to leave the data-entry mode and continue navigating the available menus.

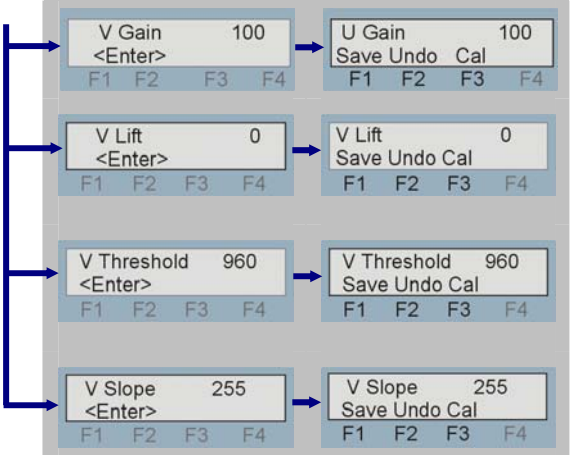
ViPA102 C menu	Description
	Set C gain from 0 to 200 – default/unity gain: 100 F1: Save, F2: Undo, F3: Cal (default value) Set C Lift from -512 to 512 – default is: 0 F1: Save, F2: Undo, F3: Cal (default value) Set C Threshold from 768 to 1019 – default is: 960 F1: Save, F2: Undo, F3: Cal (default value) Set C Slope from 255 to 0 – default is: 255 F1: Save, F2: Undo, F3: Cal (default value) Set C Hue from -30 to 30 – default is: 0 F1: Save, F2: Undo, F3: Cal (default value)

Press F3 from Component Select menu 1.1 and then rotate the shaft encoder to access the U processing menus. Press the ENTER key when the chosen menu is displayed to enter data-entry mode. Press ENTER again to leave the data-entry mode and continue navigating the available menus.

ViPA102 U menu	Description
	Set U gain from 0 to 200 – default/unity gain: 100 F1: Save, F2: Undo, F3: Cal (default value) Set U Lift from -512 to 512 – default is: 0 F1: Save, F2: Undo, F3: Cal (default value) Set U Threshold from 768 to 1019 – default is: 960 F1: Save, F2: Undo, F3: Cal (default value) Set U Slope from 255 to 0 – default is: 255 F1: Save, F2: Undo, F3: Cal (default value)

Press F4 from Component Select menu 1.1 and then rotate the shaft encoder to access the V processing menus. Press the ENTER key when the chosen menu is displayed to enter

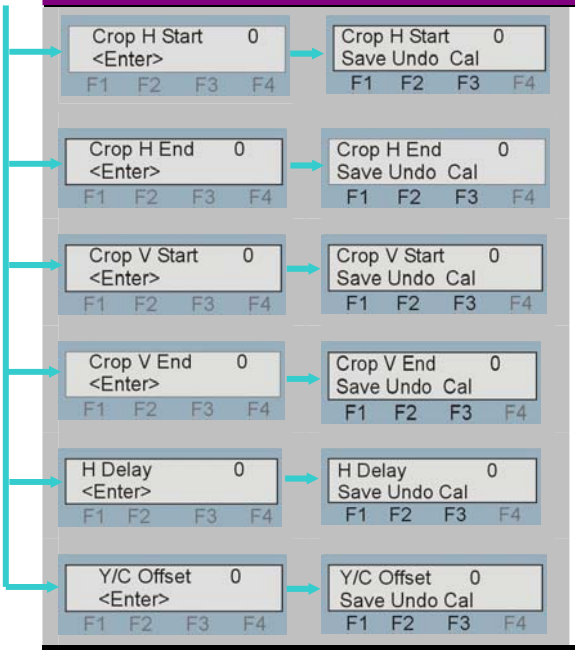
data-entry mode. Press ENTER again to leave the data-entry mode and continue navigating the available menus.

ViPA102 V menu	Description
	Set V gain from 0 to 200 – default/unity gain: 100 F1: Save, F2: Undo, F3: Cal (default value) Set V Lift from -512 to 512 – default is: 0 F1: Save, F2: Undo, F3: Cal (default value) Set V Threshold from 768 to 1019 – default is: 960 F1:Save, F2: Undo, F3: Cal (default value) Set V Slope from 255 to 0 – default is: 255 F1: Save, F2: Undo, F3: Cal (default value)

4.5 Timing

Pressing F3 from the home menu will bring up the Timing menu. The Timing menu provides access to Crop, horizontal delay and Y/C Offset controls.

Rotate the shaft encoder to access the timing menus. Press the ENTER key when the chosen menu is displayed to enter data-entry mode. Press ENTER again to leave the data-entry mode and continue navigating the available menus.

ViPA102 Timing menu	Description
	Set Crop H Startn from 0 to 723 – default: 0 F1: Save, F2: Undo, F3: Cal (default value) Set Crop H End from 723 to 0 – default is: 723 F1: Save, F2: Undo, F3: Cal (default value) Set Crop V Start from 22(20) to 312(265) – default is: 22(20) – number in brackets is for 525 F1: Save, F2: Undo, F3: Cal (default value) Set Crop V End from 312(265) to 22(20) – default is: 312(265) – number in brackets is for 525 F1: Save, F2: Undo, F3: Cal (default value) Set H delay from -128 to 128 – default is: 0 F1: Save, F2: Undo, F3: Cal (default value) Set Y/C Offset from -128 to 128 – default is: 0 F1: Save, F2: Undo, F3: Cal (default value)

4.6 Miscellaneous

Pressing F4 from the home menu will bring up the Miscellaneous menu. The Miscellaneous menu provides access to Preset, Status, GPI, EDH, Bypass and Factory Reset controls.

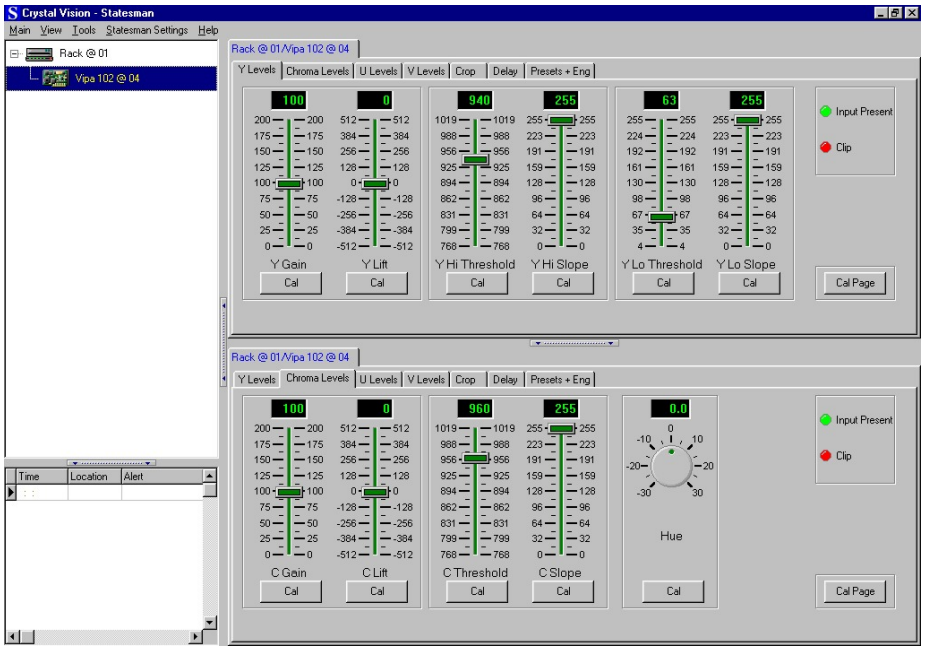
Rotate the shaft encoder to access the Miscellaneous menus. Press the ENTER key when the chosen menu is displayed to enter data-entry mode. Press ENTER again to leave the data-entry mode and continue navigating the available menus.

ViPA102 Miscellaneous menu	Description
Preset 1 <Enter> → Preset 1 Save Recall F1 F2 F3 F4 → F1 F2 F3 F4	Select preset memory from 1 to 16 F1: Save, F2: Undo, F3: Cal (default value)
Status Ser No 0B7C4 SDI Present Clip Ena F1 F2 F3 F4	Show current status - e.g. SDI Present/Missing It is not necessary to press ENTER
GPI Control Disabled <Enter>I → GPI Control Disabled Enable F1 F2 F3 F4 → F1 F2 F3 F4	Enable or disable GPI control F1: Enable/Disable
EDH Disabled <Enter> F1 F2 F3 F4 → EDH Disabled Enable F1 F2 F3 F4	Enable or disable EDH checking F1: Enable/Disable
Bypass Disabled <Enter>I → Bypass Disabled Enable F1 F2 F3 F4 → F1 F2 F3 F4	Enable or disable board bypass F1: Enable/Disable
Factory Reset <Enter>I → Factory Reset Reset F1 F2 F3 F4 → F1 F2 F3 F4	Apply factory reset F1: Reset

5 Statesman

5.1 Statesman operation

The initial view will show an Explorer style view of the connected frames and modules. Double-click on a module to display the main application control panes.



Statesman main application window

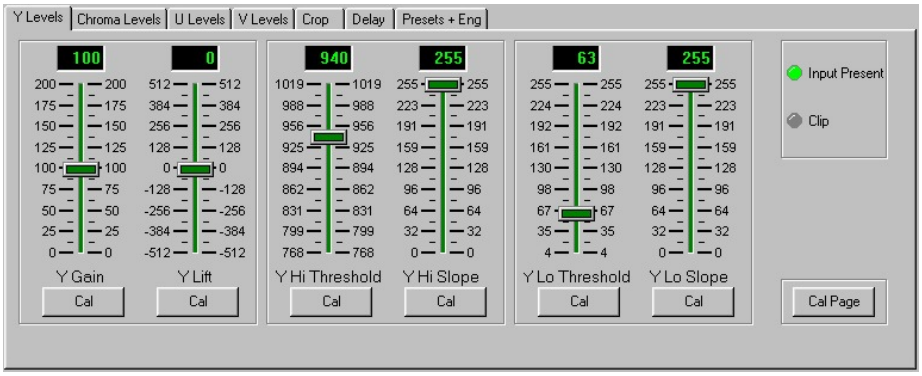
The two control panes may display different menus for the same card, or controls for different cards. Click on the horizontal button-bar between the two panes to close the lower pane or drag the button to vary the size of the panes.

The two panes allow dual-control display of two menus such as Luminance and Chrominance controls or U and V controls.

Associated controls such as U and V may be ganged together by right-clicking on them to associate them. Moving the last selected control should then move all associated controls.

Controlling luminance levels

The Y Levels menu provides access to Y Gain, Y Lift, Y Hi Threshold, Y Hi Slope, Y Lo Threshold and Y Lo Slope controls.



Y level controls

The Y level control ranges and default values are as follows:

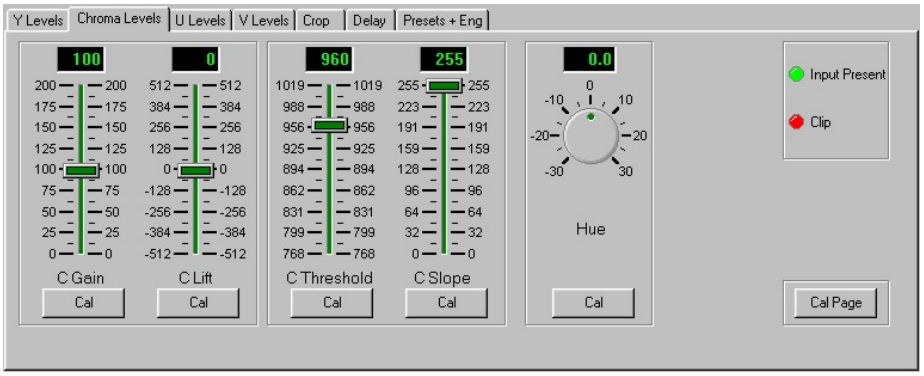
Y controls	Min	Default	Max
Y Gain	0	100	200
Y Lift	-512	0	512
Y Hi Threshold	768	940	1019
Y Hi Slope	0	255	255
Y Lo Threshold	4	63	255
Y Lo Slope	0	255	255

Default values can easily be entered by clicking on individual Cal buttons or by clicking on the Cal Page button to enter default values for all controls.

The Input Present and Clipping warning indicators are shown on the right of the menu.

Controlling chrominance levels

The Chroma Levels menu provides access to C Gain, C Lift, C Threshold and C Slope.



Chroma level controls

The Chroma level control ranges and default values are as follows:

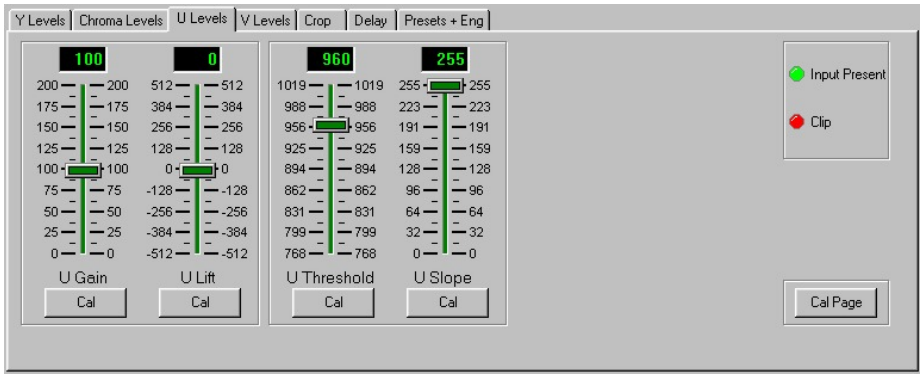
C controls	Min	Default	Max
C Gain	0	100	200
C Lift	-512	0	512
C Threshold	768	960	1019
C Slope	0	255	255
Hue	-30	0	30

Default values can easily be entered by clicking on individual Cal buttons or by clicking on the Cal Page button to enter default values for all controls.

The Input Present and Clipping warning indicators are shown on the right of the menu.

Controlling U levels

The U Levels menu provides access to U Gain, U Lift, U Threshold, and U Slope controls.



U level controls

The U level control ranges and default values are as follows:

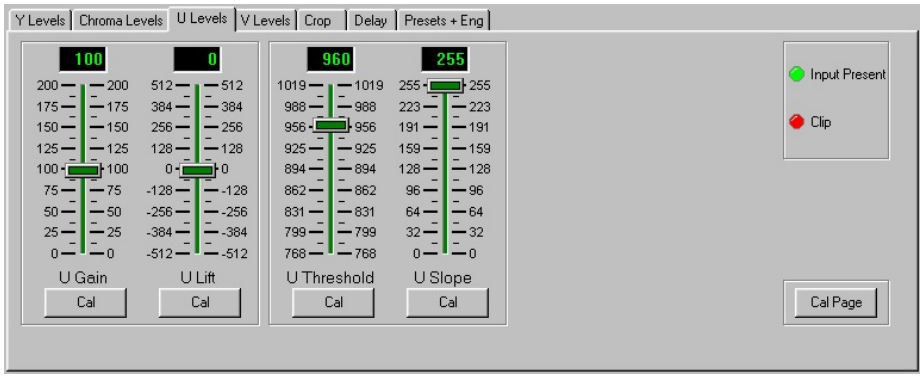
U controls	Min	Default	Max
U Gain	0	100	200
U Lift	-512	0	512
U Threshold	768	960	1019
U Slope	0	255	255

Default values can easily be entered by clicking on individual Cal buttons or by clicking on the Cal Page button to enter default values for all controls.

The Input Present and Clipping warning indicators are shown on the right of the menu.

Controlling V levels

The V Levels menu provides access to V Gain, V Lift, V Threshold, and V Slope controls.



V level controls

The V level control ranges and default values are as follows:

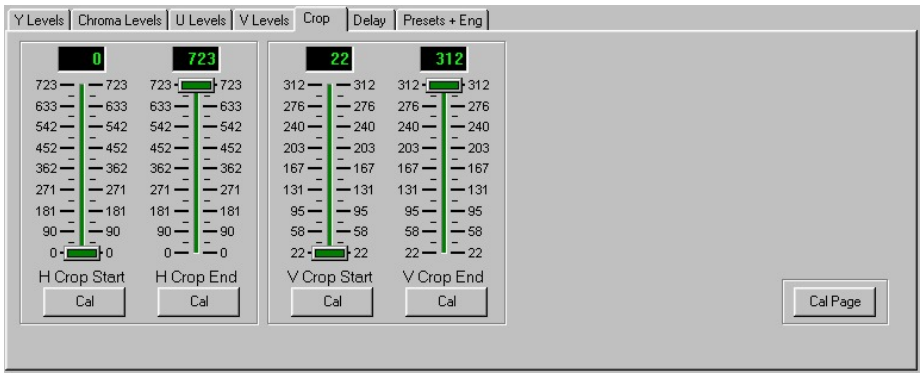
V controls	Min	Default	Max
V Gain	0	100	200
V Lift	-512	0	512
V Threshold	768	960	1019
V Slope	0	255	255

Default values can easily be entered by clicking on individual Cal buttons or by clicking on the Cal Page button to enter default values for all controls.

The Input Present and Clipping warning indicators are shown on the right of the menu.

Adjusting picture crop

The picture crop menu provides access to the H Crop Start, H Crop End, V Crop Start, V Crop End controls.



Picture crop controls

The Picture Crop control ranges and default values are as follows:

Crop controls	Min	Default	Max
H Crop Start	0	0	723
H Crop End	0	723	723
V Crop Start - 625	22	22	312
V Crop End - 625	22	312	312
V Crop Start - 525	20	20	265
V Crop End - 525	20	265	265

Default values can easily be entered by clicking on individual Cal buttons or by clicking on the Cal Page button to enter default values for all controls.

Setting Y/C offset and H delay

The Delay menu provides access to H Delay and Y/C Offset controls.

Delay controls

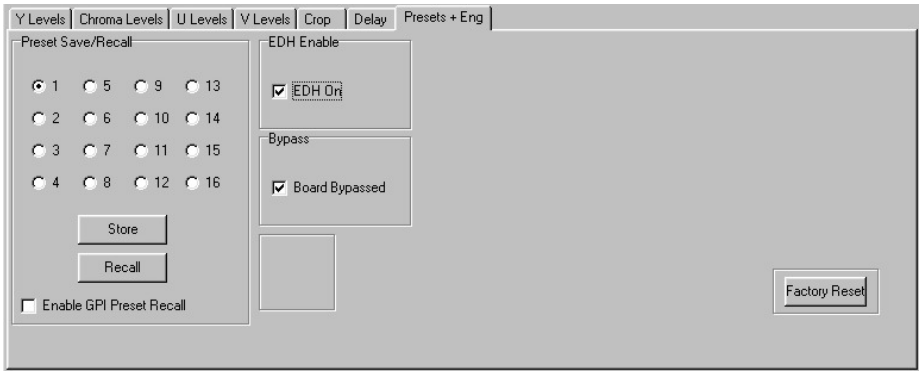
The Delay control ranges and default values are as follows:

Delay controls	Min	Default	Max
H Delay	-128	0	128
Y/C Delay	-128	0	128

Default values can easily be entered by clicking on individual Cal buttons or by clicking on the Cal Page button to enter default values for all controls.

Using presets

The presets menu allows up to 16 preset memories of the control state of the entire ViPA102 module to be saved and recalled.



Presets and Engineering controls

It is strongly recommended to uncheck the Enable GPI Preset recall, to prevent inadvertent GPI recall whilst using this menu.

EDH generation

To enable EDH generation place a tick in the EDH On check box.

Board bypass

The entire YUV processing may be bypassed, creating in effect a simple one in, two out SDI distribution amplifier, by clicking in the Board Bypass check box.

Factory reset

The factory reset check box may be used to apply a factory reset to the ViPA102 module restoring the factory defaults to all parameters. This is a convenient way to re-initialise the board in the unlikely event of any suspected malfunction.

Note: Performing a factory reset will erase all user stored configurations.

6 Trouble shooting

Card edge monitoring

Once the start-up initialisation procedure is complete, the ViPA102 card can be controlled or configured from active control panel or the Statesman PC interface. Although operation from the card edge is not possible status information is supplied at the card edge from a number of LEDs.

The front edge of the card provides status LEDs for serial control, input presence, GPI status and bypass indication. There is also a CPU heat beat LED and power rail monitoring.

ViPA102 front edge view

Note:

The 4-way DIL switch has no function on ViPA102.
Both input LEDs illuminate when an input signal is present.

Trouble shooting may be performed by using the card edge, remote status panel display or from Statesman.

The following table summarises the card edge LED functions and colours:

Status	Led Colour	Description
OnA	Green - flashing	Communications OK
TxA	Amber - flashing	Serial communication data transmission
RxA	Amber - flashing	Serial communication data reception
OnB, TxB, RxB	N/A	Not used
GPI 0 to 5	Green	GPI preset selection
Ch 1 Pres	Green	Input Present
Bypass	Amber	Bypass indication
625/525	Amber	Indicates 625 (upper LED) or 525 (lower LED)
♥	Green (flashing)	Heartbeat – CPU OK
1.3V	Green	1.3V supply rail OK
3.3V	Green	3.3V supply rail OK
5 V	Green	5V supply rail OK
I/O Config	Amber	Not used

Fault finding guide

The Power OK LED is not illuminated

Check that the frame PSU is functioning – refer to the appropriate frame manual for detailed information

There is no video output

Check that a valid SDI is present and that any cabling is intact

Check that no unused outputs are connected

The video output exhibits jitter

Check that the input SDI stability is within normal limits and that the maximum cable length has not been exceeded

The card no longer responds to Statesman or front panel control

Check that the card is seated correctly and that the Power OK LEDs are lit

Check any active control panel cabling

Check RXA and TXA lights – flashing indicates successful communications with panel

Check if the control panel can control another card in the same rack

If necessary re-set the card by simply removing the rack power and re-applying power after a few seconds or by removing the card from the rack and then re-inserting the card

It is safe to re-insert the card whilst the rack is powered

7 Specification

General

Dimensions	100mm x 266 mm module with DIN 41612 connector
Weight	180g
Power consumption	8 W

Inputs

Video	270Mb/s serial digital to EBU Tech 3267-E and SMPTE259M Cable equalisation >200m Belden 8281 or equivalent Auto 525/625 selection

Outputs

Number and type:	2 reclocked SDI outputs to EBU Tech 3267-E and SMPTE259M with inserted EDH Will drive >200m Belden 8281 or equivalent

Processing

Vertical data	Passes entire SDI stream, including HANC and VANC
Delay	Typical input to output delay approx 1µs

Control

Local/remote control panel	Multi-drop 19200 Baud, 8 bits, no parity – control from local frame active front panel / remote panel
Statesman	RS422 control via 26-way Remote connector or RJ45 on rear of frame

GPI Inputs

Type	Memory recall
Active	Connect to ground
Inactive	High impedance, or 5 volts
Input current	Input current <50µA

GPI Outputs

Type	Picture clipped