ViViD HD

HD/SDI variable video delay

USER MANUAL

Crystal Vision

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Revision 1.	RM34 information added	20-09-07
Revision 2.	Amended Delay Menu section on page 12 Amended Presets table on page 12.	17-10-10
Revision 3.	GPI selection table added to page 6.	21-02-11
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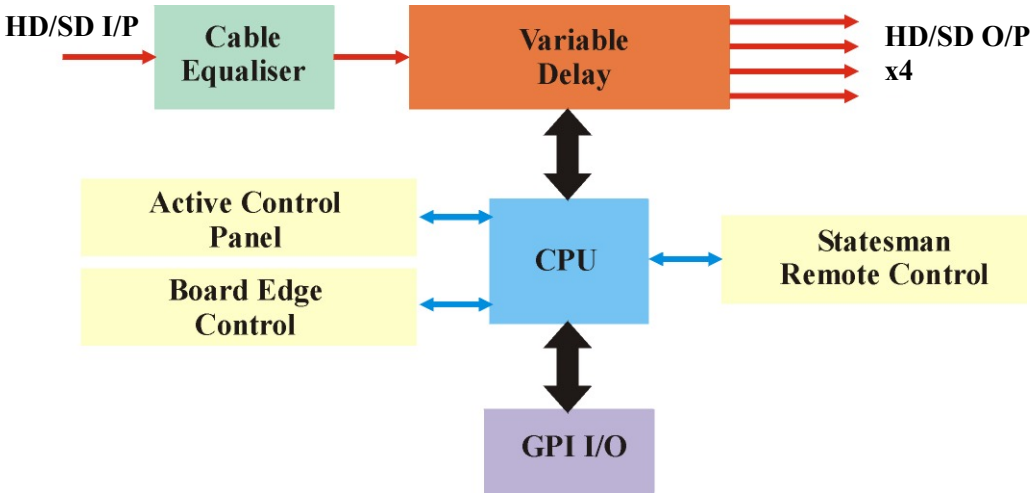
Revision 5.	GPI preset control table amended. Page 6.	10-12-12

1 Introduction

ViViD HD is a variable video delay, which offers up to 14 frames of delay in HD mode or 78 frames in SD and has been designed to match system delays elsewhere in an equipment chain.



ViViD HD Video Delay

The main features are as follows:

- Passes entire data stream.
- Auto line standard selection.
- Four outputs.
- Delay adjustable from 36 pixels to 78 frames depending on line standard, in increments of fields, lines and pixels (approx. 0.6 seconds in HD to 3.2 seconds in SD mode).
- Recall of 16 presets with GPI control.
- GPI output indication of serial input fail.
- GPI output pulse of delay time.

ViViD HD is a 100mm x 266mm module, which fits in the four standard frames and can be integrated with any boards from the company's full product range. It uses the RM29 and RM34 rear connectors.

Applications include virtual studios where ViViD HD can offset the virtual set delay so the camera feed and graphics both reach the chroma keyer at the same time and transmission where ViViD HD can compensate for the delay of MPEG encoders or decoders.

2 Hardware installation

The ViViD HD single height module uses the RM29 and RM34 rear connectors that will fit into all Crystal Vision rack frames. All modules can be plugged in and removed while the frame is powered without damage.

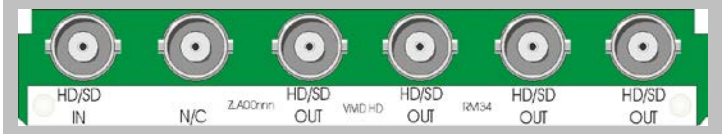
2.1 Rear modules and signal I/O

The Indigo 4 4U frames will house up to 24 single height modules with up to three power supplies. The Indigo 2 2U frames will house up to 12 single height modules and dual power supplies. The Indigo 1 1U frames will house six single height modules and a single power supply. The Indigo DT desk top boxes both have 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

Rear module connections with RM34

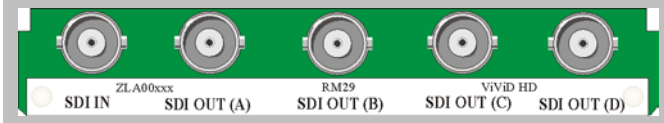
The RM34 being the rear module of choice is a single height module that will allow maximum packing density with the maximum number of outputs available.

RM34 rear module connector	Description
	**RM34** • 24 ViViD HD modules per Indigo 4 frame • 12 per Indigo 2 frame • Six per Indigo 1 frame • 2 per Indigo DT • All frame slots can be used

BNC	I/O assignment
HD/SD OUT	High Definition/Standard Definition serial digital output
HD/SD OUT	High Definition/Standard Definition serial digital output
HD/SD OUT	High Definition/Standard Definition serial digital output
HD/SD OUT	High Definition/Standard Definition serial digital output
NC	No user connection
HD/SD INPUT	High Definition/Standard Definition serial digital input

Rear module connections with RM29

The RM29 – although no longer available for new installations – can also be used. This is also a single height rear module giving maximum packing density with the maximum number of outputs available.

RM29 rear module connector	Description
	**RM29** • 24 ViViD HD modules per Indigo 4 frame • 12 per Indigo 2 frame • Six per Indigo 1 frame • 2 per Indigo DT • All frame slots can be used

BNC	I/O assignment
SDI OUT (D)	High Definition/Standard Definition serial digital output
SDI OUT (C)	High Definition/Standard Definition serial digital output
SDI OUT (B)	High Definition/Standard Definition serial digital output
SDI OUT (A)	High Definition/Standard Definition serial digital output
SDI INPUT	High Definition/Standard Definition serial digital input

2.2 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	The 16 user preset configurations can be recalled using binary notation.	
1	‘b’	Recall preset bit 2		
2	‘c’	Recall preset bit 4		
3	‘d’	Recall preset bit 8		
4	‘e’	Loss of input	Input missing	Input present
5	‘f’	Video delay pulse	Pulse width equal to audio delay	

As supplied, each GPI output has a 220Ω resistor in series with its output. This allows for an external LED to be driven, connected to a DC voltage of +5V.

The recall presets with GPI control must be enabled from the user controls, i.e. card edge, active front panel or Statesman PC control system.

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

GPI / Preset	Bit 4	Bit 3	Bit 2	Bit 1
1	1	1	1	1
2	1	1	1	0
3	1	1	0	1
4	1	1	0	0
5	1	0	1	1
6	1	0	1	0
7	1	0	0	1
8	1	0	0	0
9	0	1	1	1
10	0	1	1	0
11	0	1	0	1
12	0	1	0	0
13	0	0	1	1
14	0	0	1	0
15	0	0	0	1
16	0	0	0	0

4U frame GPI connections

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

Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin
1 (Upper)	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 (Lower)	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)

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 one 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 one of 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 rear remote connector 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

Once the start-up initialisation procedure is complete, the ViViD HD card can be controlled or configured from the card edge, the active control panel or the Statesman PC interface. This chapter will concentrate on the card edge controls.

The front edge of the card provides power rail monitoring, menu selection, delay assignment and a ten-digit visual status display.

ViViD HD front edge view

3.1 Card edge switch settings

The 4-way piano switch allows control options to be selected.

Lever	Function	Action
All UP	Status	Card status viewed by rotating Select control
1 Down	Save	Set lever 1 down then up to save any selected parameters
2 Down	Preset	Set lever 2 down to select from up to 16 presets
3 Down	Delay & GPI	Set lever 3 down to set the delay parameters and enable GPI control
4 Down	Recall	Set lever 4 down then up to recall a selected pre-saved preset

4-way piano switch menu functions

3.2 Card edge rotary controls

Control	Function
Adjust	Clockwise rotation increases delay. Anti-clockwise decreases delay. Range is dependent on input line standard.
Select	Sub-menu selection

Rotary control functions

3.3 Reading card edge LEDs

Card edge LEDs may be used in conjunction with status information from any connected remote status panel display or from Statesman if available.

Refer also to the trouble shooting chapter for more help with solving problems and monitoring status information.

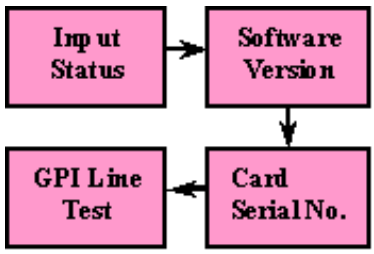
The following table summarises the card edge LED functions and colours:

Name	Led Colour	Function when ON
HD	Green (upper)	High Definition input video present
SD	Green (lower)	Standard Definition input video present
PSU	Green	Good power supply (PSU) rails
Error	Red	Illuminated whilst the delay time is being adjusted

Status Menu

The ViViD HD will report the status of its video input. 21 High Definition line standards and two Standard Definition line standards will be identified and shown on the board edge display. The identified line standard will then determine the maximum obtainable delay. If the presented line standard is not identified by the ViViD HD, a set of default parameters are applied.

Select		Function
0	*nnnn_n_nn*	Input video line standard. e.g. 1080 i 50, 720 p 24, 625 i 50 etc.
1	Sware 3.00	Installed software version
2	SerNo 0112	Serial number electronically stored on the card
3	GPI n	Grounding GPI lines 1-4 will give a binary number from 1-15
4-F	Not Used	No function



ViViD HD card edge Status menus

Presets

To enter the preset menu set DIL2 switch lever DOWN.

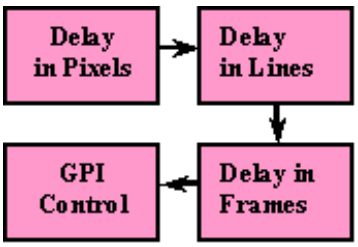
[Preset 01]		Function and card edge display examples (0-15)
Option:	0 to 15	These menus allow the saving and recall of user presets To save the current ViViD HD setup as a preset, proceed as follows: • Select the required preset 0 to 15 with the SELECT switch. Press Menu lever 1 DOWN then UP to save the preset To recall a preset proceed as follows: • Select the required preset 0 to 15 with the SELECT switch (SW 3) • Press Menu lever 8 DOWN then UP to recall the preset

Note: GPI control requires enabling from the delay menu before GPI preset recall is active.

Delay Menu

To enter the Delay menu set DIL switch lever 3 DOWN.

The delay/GPI menu control cycle:



ViViD HD delay card edge menus

The ADJUST shaft encoder changes the assigned parameter in each active menu.

The video delay through the ViViD HD can be adjusted from several frames down to a few tens of pixels. The minimum and maximum delay through the ViViD HD will be dependent on the video format. The following table lists the maximum and minimum delays for the more common video formats.

Format	Absolute max delay in frames	Minimum delay in pixels
1920x1080/50/2:1	14	50
1920x1080/59.94/2:1	17	50
1280x720/50/1:1	28	50
1280x720/59.94/1:1	34	50
625/50/2:1	78	30
525/59.94/2:1	93	30
Default	42	50

Note: All other input formats will be assigned with the default value range.

Adjustment is made by selecting the required field, pixels, lines or frames then rotating the ADJUST rotary control. A clockwise rotation will increase the delay, anti-clockwise will decrease the delay.

If the adjustment exceeds the maximum allowed, the value displayed will be reset to zero and one will be added to the higher value delay menu. This works for all menus, except for the Frame menu.

If an attempt is made to go below zero, one will be subtracted from the lower value delay menu. This works for all menus, except for the Pixel menu. It is not possible to reduce the total delay of the module below the minimum number of pixels for a given input format.

Format	Number of pixels per line	Number of lines per frame
1920x1080/50/2:1	1125	1125
1920x1080/59.94/2:1	1125	1125
1280x720/50/1:1	750	750
1280x720/59.94/1:1	750	750
625/50/2:1	864	625
525/59.94/2:1	858	525
Default	1000	1000

GPI configuring

Turn the SELECT control to display **[GPI '*option*']**, turn the ADJUST control to select the desired option and then confirm the new value.

[GPI '*option*']		**Rotate ADJUST to enable/disable GPO6 (B)**
Option:	***dis***	GPI is disabled
	En	GPI is enabled
Confirmation:		The new value is active the moment it is displayed

4 Using the active front panel

4.1 Module selected

This operational guide assumes that the panel has been setup 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

Menu numbering scheme

This manual uses a simple menu numbering convention based on the sequence of keys required to reach each menu from the top level home menu. For example, menu 1.1.2 is reached from the home menu by pressing F1, then F2. Menu 1.2.3 is reached by pressing F2 and then F3. Further options can be reached by using the shaft to scroll up or down.

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

Selecting ViViD HD

To select a particular card in a frame, press the DEVICE key to go to the Device menu. 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.

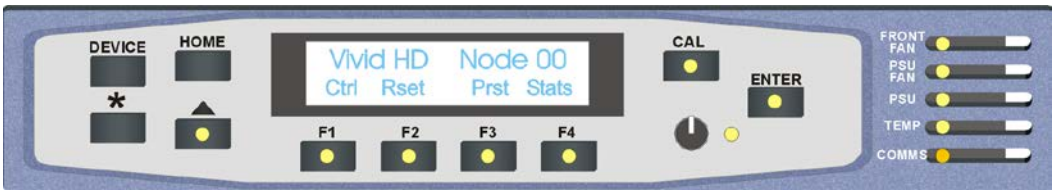
The available cards menu

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 3.

When the desired card is selected press the ENTER key to access that card's HOME menu.

The message shows that a ViViD HD has been selected.



The ViViD HD home menu

4.2 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.

4.3 The ViViD HD 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 ViViD HD module 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:

- Delay (configure Pixel, Line and Frame Delay) – press F1
- Reset (reset board) – press F2
- Preset – press F3
- Stats (Status) – press F4

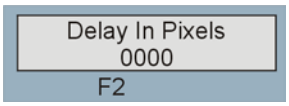
When a sub menu has been selected, further options may be obtained by using the Shaft control to scroll through them. Once the desired option has been located a selection or value change can be made by either toggling the appropriate function key or by selecting and using the shaft control to alter a 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 ViViD HD menus. The actual menus available may vary slightly as software is updated.

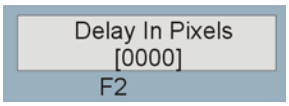
Example: to adjust the delay in pixel steps.

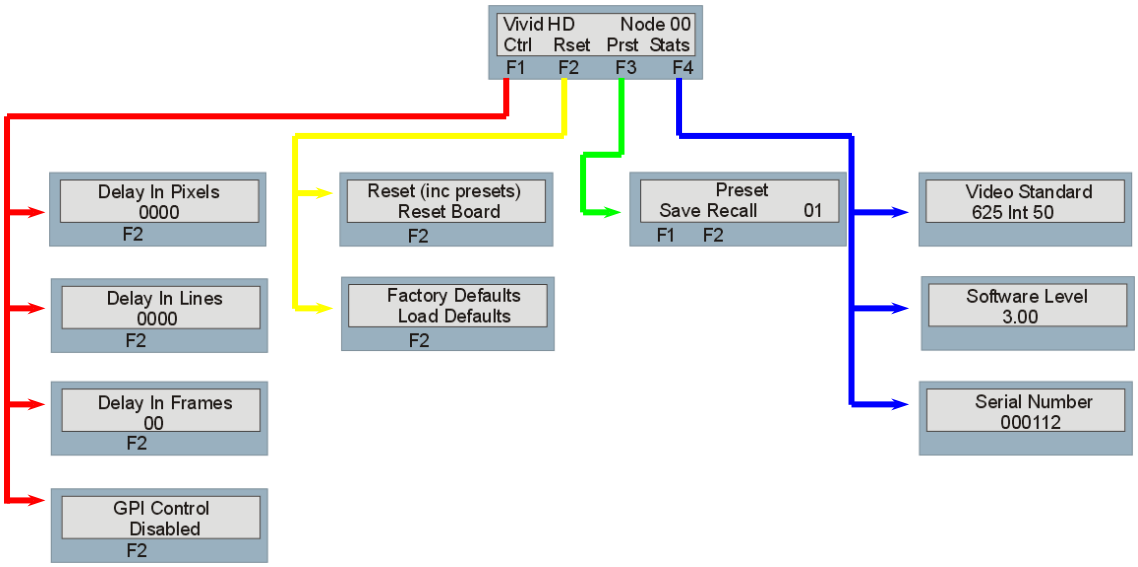
From the Home menu select the Control sub-menu by pressing F1. Rotate the shaft control to display the 'Delay in Pixels' sub-menu. Press F2 and note that the pixel value now appears in square brackets. Rotating the shaft control will now increment the sample value. Once the required value has been reached it can be fixed by pressing the Enter button. Pressing F3 at any time will zero the value.

Note. If the value change is not fixed by pressing the Enter button the value will revert to its previous fixed value on exiting from the menu.



Press F2



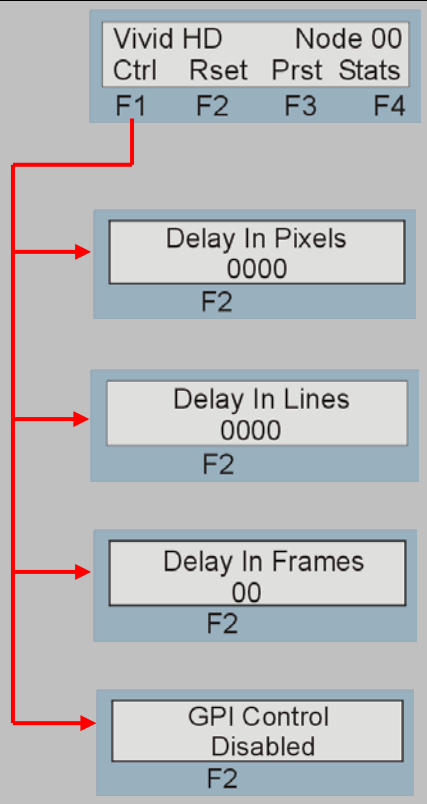


The ViViD HD menu tree

Note: Function key LEDs are illuminated when active.

4.4 Configuring delay

Pressing F1 from the home menu will bring up the control menu. The control menu provides access to the Pixel, Line, Frames and GPI Control sub-menus. Rotate the shaft encoder to select each sub-menu and also to change the parameters.

ViViD HD control menu	Description
	From the Home menu, press F1 to select the control menu, which is then traversed by rotating the shaft control Rotate shaft encoder to select the delay in pixels. Press F2 to select to change the value. Rotate shaft encoder to set the new value. Press enter to accept the new value. Rotate shaft encoder to select the delay in lines. Press F2 to select to change the value. Rotate shaft encoder to set the new value. Press enter to accept the new value. Rotate shaft encoder to select the delay in frames. Press F2 to select to change the value. Rotate shaft encoder to set the new value. Press enter to accept the new value. Rotate shaft encoder to select the GPI Control. Press F2 to select to change the setting. Rotate shaft encoder to set either enabled or disabled. Press enter to accept the new value.

The video delay through the ViViD HD can be adjusted from several frames down to a few tens of pixels. The minimum and maximum delay through the ViViD HD will be dependent on the video format. The following table lists the maximum and minimum delays for the more common video formats.

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1280x720/50/1:1	28	50
1280x720/59.94/1:1	34	50
625/50/2:1	78	30
525/59.94/2:1	93	30
Default	42	50

Note: All other input formats will be assigned with the default value range.

Adjustment is made by selecting the required field, pixels, lines or frames then rotating the ADJUST rotary control. A clockwise rotation will increase the delay, anti-clockwise will decrease the delay.

If the adjustment exceeds the maximum allowed, the value displayed will be reset to zero and one will be added to the higher value delay menu. This works for all menus, except for the Frame menu.

If an attempt is made to go below zero, one will be subtracted from the lower value delay menu. This works for all menus, except pixel. It is not possible to reduce the total delay of the module below the minimum number of pixels for a given input format.

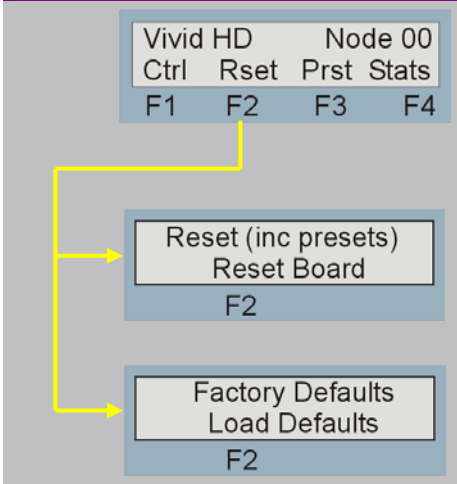
Format	Number of pixels per line	Number of lines per frame
1920x1080/50/2:1	1125	1125
1920x1080/59.94/2:1	1125	1125
1280x720/50/1:1	750	750
1280x720/59.94/1:1	750	750
625/50/2:1	864	625
525/59.94/2:1	858	525
Default	1000	1000

GPI control

Select GPI control then press F2 to enable selection. Rotate the ADJUST rotary control to enable or disable GPI preset recall. Press enter to confirm action.

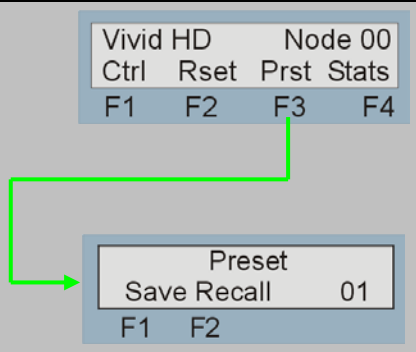
4.5 Resetting delay

Press CAL in any menu to assign the minimum delay value for the variable shown.

ViViD HD reset menu	Description
	From the Home menu, press F2 to select the reset menu, which is then traversed by rotating the shaft control. Rotate shaft encoder to select to reset the board. Press F2. Press F3 to confirm or HOME to exit. Rotate shaft encoder to select factory defaults. Press F2. Press F3 to confirm or HOME to exit.

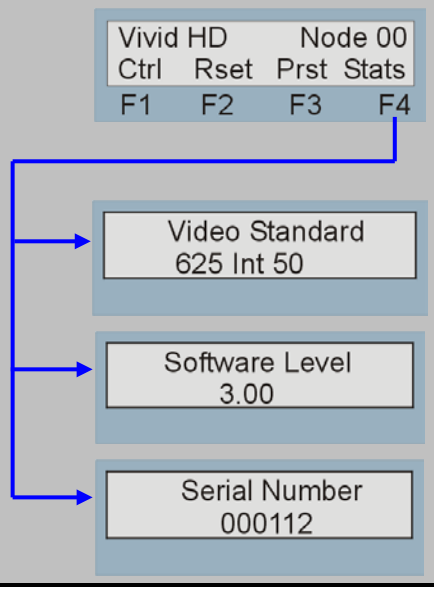
4.6 Presets

There are 16 preset locations available where board configurations may be saved for future use.

ViViD HD preset menu	Description
	From the Home menu, press F3 to select the preset menu, which is then traversed by rotating the shaft control. To save the current ViViD HD setup as a preset proceed as follows: • Press either F1 or F2 to enter save/recall mode • Select the required preset 0 to 15 with the rotary control. Press F1 to save the preset To recall a preset proceed as follows: • Select the required preset 0 to 15 with the rotary control. Press F2 to recall the preset

4.7 Stats

The stats menu contains various information about the board and the video input format. The ViViD HD can recognise 21 HD and two SD formats. If an unrecognised format is present, the message “Not known” will be displayed.

ViViD HD status menu	Description
	From the Home menu, press F4 to select the status menu, which is then traversed by rotating the shaft control. Rotate the shaft control to view the video standard. Rotate the shaft control to view the software level. Rotate the shaft control to view the serial number.

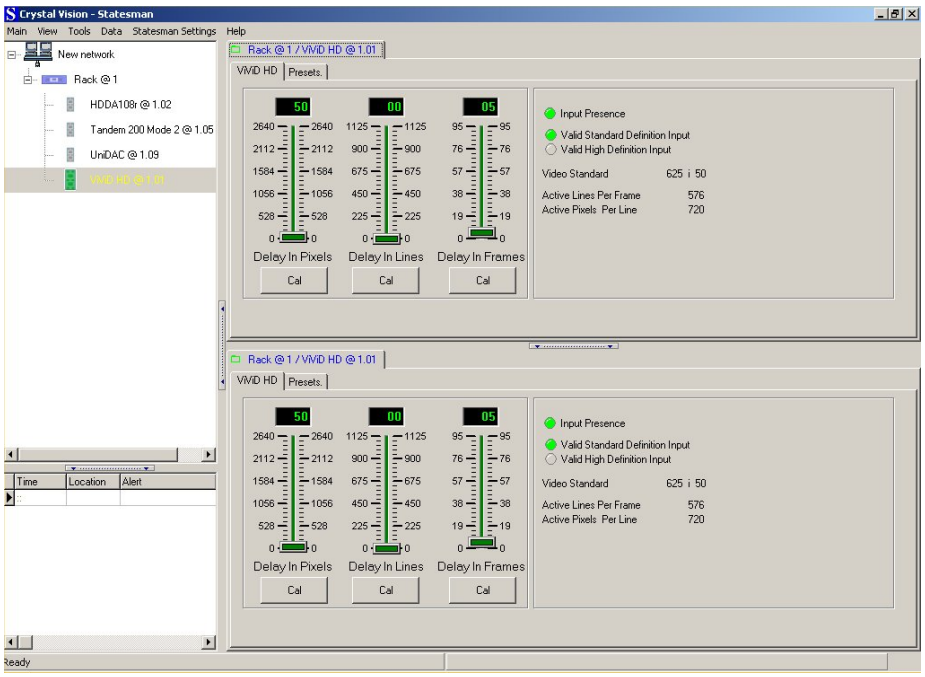
5 Statesman

The Crystal Vision Statesman PC control software is designed to control a range of Crystal Vision modules via serial control from a PC. Statesman provides a user friendly means of configuring and operating Crystal Vision modules with the benefit of see-at-a-glance status monitoring.

The main Statesman application communicates with each module in a frame through an active control panel. An active panel must be fitted to allow for Statesman control.

5.1 Statesman operation

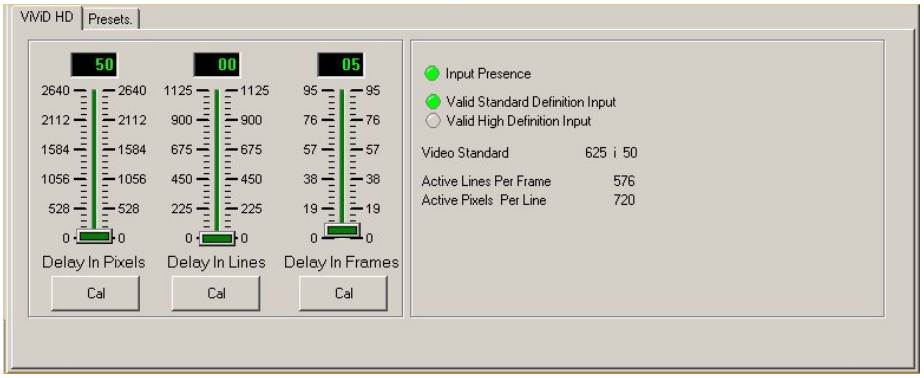
The initial view will show an Explorer style view of the connected frames and modules. Double-clicking on a module will enable the display of the main application menus.



The Statesman main application window

The menu display is repeated for convenience to allow dual-control display of modules with duplicate signal paths or to allow two functions to be viewed at the same time.

ViViD HD has two Statesman menu tabs, one that provides status information and allows configuration of delay and a second for assigning presets.



ViViD HD Status and Configuration menu

Input status

The Input present indicator will illuminate green when a valid input is present or red if the input is missing.

The video standard is automatically detected and is shown by a yellow indicator.

Further status information is provided by the Statesman logging and alarms feature, which is described in more detail in the Statesman manual.

Configuring delay

The three sliders labelled delay in pixels, delay in lines and delay in frames, may be adjusted to obtain a video delay between a minimum and maximum determined by the input video format.

The maximum range of each slider is as follows

Format	Absolute maximum delay in frames	Minimum delay in pixels
1920x1080/50/2:1	14	50
1920x1080/59.94/2:1	17	50
1280x720/50/1:1	28	50
1280x720/59.94/1:1	34	50
625/50/2:1	78	30
525/59.94/2:1	93	30
Default	42	50

Note: All other input formats will be assigned with the default value range.

The variable assigned is always shown in the top line of the slider display. It is not possible to assign a delay beyond the range dictated by the input video format even if a slider shows a greater range. If a value less than the minimum or greater than the maximum is assigned, the slider will automatically jump to the minimum or maximum for that format.

Resetting delay

Press the CAL buttons to assign the minimum delay value for each associated delay variable.

Presets

There are 16 preset locations available where board configurations may be saved for future use.

ViViD HD Preset and Recall menu

To store a current configuration select the location by checking the radio button 1-16. Once a location has been selected the configuration is stored by pressing the Store button.

To recall a previously stored configuration simply check the radio button for the location where the configuration is held and press the Recall button.

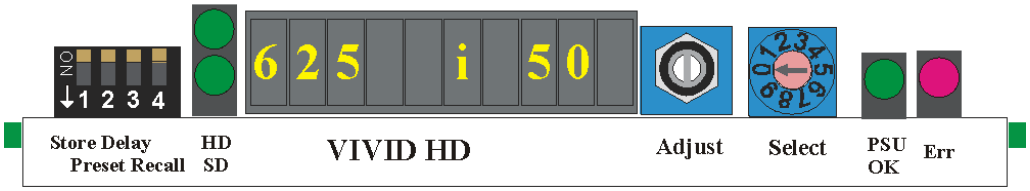
Previously stored configurations may also be recalled by grounding the GPI lines 1-4. Checking the GPI Enable box enables this function. Conversely leaving it unchecked will disable GPI recall.

6 Trouble shooting

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

6.1 Card edge status LEDs

Board edge LEDs provide status reporting and may be useful when fault finding.



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

Status	Led Colour	Description
PSU	Green	Power supply rail OK
Err	Red	Invalid input
HD/SD	Green	HD (upper) or SD (lower) input

6.2 Control panel status

The input status is also shown in the STATS menu of the active control panel.

Status menu	Description
Video Standard 625 Int 50	Status menu: STANDARD: 625 or 525

Note: The Status menu will not change if the input status changes whilst the status display is shown. To refresh the status display, press the 'CAL'button.

Basic 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 SD/HD is present and that any cabling is intact

The video output exhibits jitter

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

The card no longer responds to card edge or front panel control

Check that the card is seated correctly and that the Power OK LED is lit

Check any active control panel cabling

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

If necessary re-set the card by simply removing card from the rack power and re-inserting it after a few seconds.

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	7.5 W

Inputs

Video	HD or SD SDI 270Mb/s to 1.485Gb/s serial digital compliant to SMPTE-259M and SMPTE-292M
	Cable equalisation >250m Belden 8281 or equivalent
	HD (1.485Gb/s) – 100 metres
	SD (270Mb/s) >250 metres

Outputs

Number and type:	4 reclocked SDI outputs 270Mb/s - 1.485Gb/s to SMPTE-259M and SMPTE- 292M
	Belden 8281 or equivalent
	HD (1.485Gb/s) – 100 metres
	SD (270Mb/s) >250 metres
Jitter	Typically 0.2UI, 10Hz

Processing

Vertical data	Passes entire SDI stream, including HANC and VANC
SD Delay	Adjustable in increments of 1 pixel (74.074ns), lines or frames to 3.103 sec/93 frames, 0 lines, 0 pixels in 525 lines and 3.12sec/78 frames, 0 lines, 0 pixels in 625 lines.
	Minimum delay is 2.3us (about 30 pixels)
HD Delay	Adjustable in increments of 1 pixel (13.4ns), lines or frames to 560mS – number of frames depends on HD SDI format.
	Minimum delay is 673ns (about 50 pixels)
GPIs	Four GPIs are available to provide 16 different recalls of delay time setting (frames, lines, pixels)