

digital keying modular
interface audio
converters analogue video

Flip HD

HD/SD scan reverser

USER MANUAL



Contents

1 Introduction	3
2 Hardware installation	4
2.1 Rear modules and signal I/O	4
Rear module connections with RM34	4
Rear module connections with RM29	5
2.2 Module configuration	5
3 Card edge operation	6
3.1 Card edge controls	6
3.2 Reading card edge LEDs	6
3.3 Card edge switch settings	7
Return to default values	7
Engineering menu	7
4 Using the front control panel	8
4.1 Module selected	8
Updating the display	10
4.2 The Flip HD active panel menu structure	10
Flip HD Menu Structure	11
Reset (factory defaults)	11
Status	12
5 Statesman	13
5.1 Statesman operation	13
Input status	14
Flip	14

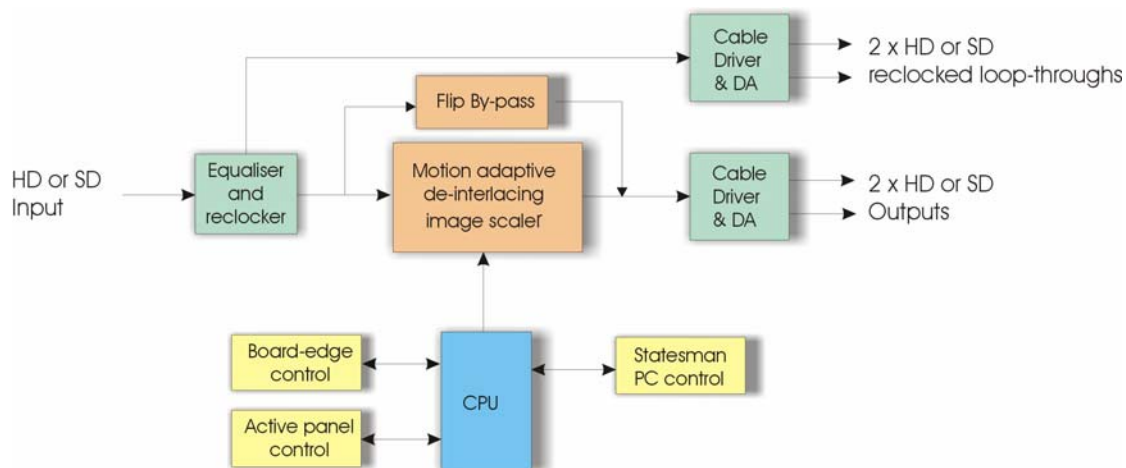
Reset (factory defaults)	14
6 Trouble shooting	15
6.1 Card edge status LEDs	15
Basic fault finding guide	15
7 Specification	16

Revision 1 RM34 information added

16/04/07

1 Introduction

Flip HD is an HD/SD scan reverser, which produces a reverse image idea for studio floor monitor applications. DA outputs are available for both the reclocked input and converted programme.



Flip HD block diagram

The main features are as follows:

- Reversed output image with bypass
- One frame video delay in all modes
- Two scaled outputs and two input loop-throughs
- Fits in standard frames alongside HD, SD and audio products

Flip 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 RM34 rear connector.

2 Hardware installation

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

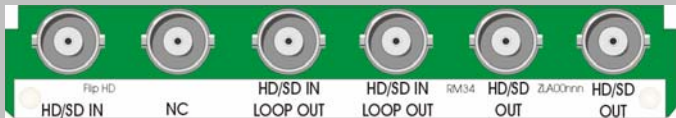
2.1 Rear modules and signal I/O

The 4U Indigo 4 frame will house up to 24 single height modules with up to three power supplies. The 2U Indigo 2 frame will house up to 12 single height modules and dual power supplies. The 1U Indigo 1 frame will house six single height modules and a single power supply. The Indigo DT desktop boxes 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

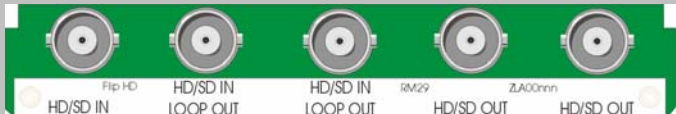
The RM34 being a single height module will allow maximum packing density with the maximum number of outputs available.

RM34 rear module connector	Description
	RM34 <ul style="list-style-type: none"> • 24 Flip HD modules per Indigo 4 frame • 12 per Indigo 2 • Six per Indigo 1 frame • 2 per Indigo DT • All frame slots can be used

BNC	I/O assignment
HD/SD OUT	Processed Serial Digital Output
HD/SD OUT	Processed Serial Digital Output
HD/SD IN LOOP OUT	High Definition / Standard Definition Serial Digital Input reclocked loop-through
HD/SD IN LOOP OUT	High Definition / Standard Definition Serial Digital Input reclocked loop-through
NC	No user connection
HD/SD INPUT	High Definition / Standard Definition Serial Digital Input

Rear module connections with RM29

The RM29 can also be used with the Flip HD but is not available for new installations. It is also a single height module allowing maximum packing density with the maximum number of outputs available.

RM29 rear module connector	Description
	<p>RM29</p> <ul style="list-style-type: none"> • 24 Flip HD modules per Indigo 4 frame • 12 per Indigo 2 • Six per Indigo 1 frame • 2 per Indigo DT • All frame slots can be used

BNC	I/O assignment
HD/SD OUT	Processed Serial Digital Output
HD/SD OUT	Processed Serial Digital Output
HD/SD IN LOOP OUT	High Definition / Standard Definition Serial Digital Input reclocked loop-through
HD/SD IN LOOP OUT	High Definition / Standard Definition Serial Digital Input reclocked loop-through
HD/SD IN	High Definition / Standard Definition Serial Digital Input

2.2 Module configuration

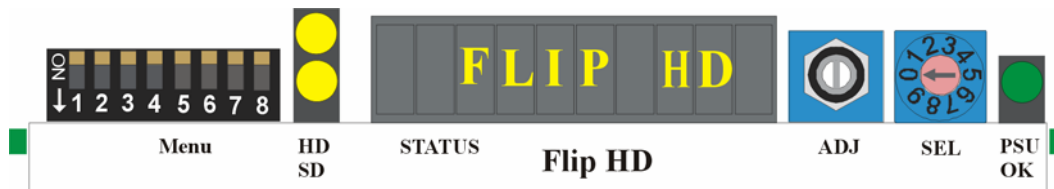
There are no user re-configurable jumper links on the Flip HD.

3 Card edge operation

3.1 Card edge controls

Once the start-up initialisation procedure is complete, the Flip 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, variables adjustment and a ten-digit visual status display.



Flip HD front edge view

The Menu piano switch is used to select any the main menus, whilst the [SEL] rotary hex switch selects sub-menus. The [ADJ] shaft encoder is used to select an option within a menu or sub menu.

3.2 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	Function when Off
HD	Yellow	Video input standard is HD (High Definition)	} Input not present
SD	Yellow	Video input standard is SD (Standard Definition)	
PSU	Green	Good power supply (PSU) rails	One or more of the monitor supplies is out of specification

3.3 Card edge switch settings

The 8-way piano switch allows control options to be selected.

Lever	Function	Action
All UP	Flip HD	
1 Down	Not used	No function assigned.
2 Down	Output Select	Flip/Bypass select.
3 Down	Reset	Reset to defaults.
4 Down	Not Used	No function assigned.
5 Down	Not used	No function assigned.
6 Down	Status	Input standard and engineering information.
7 Down	Not used	No function assigned.
8 Down	Not used	No function assigned.

Return to default values

Menu piano lever 3 **DOWN**, all others in the **UP** position:-



SEL No.	Menu	Function and card edge display examples
0	Reset	Rotate [ADJ] to return all values to their default
1-F	Not used	No function assigned.

Parameter	Default value
Flip/Bypass	Bypass.

Engineering menu

Menu piano lever 6 **DOWN**, all others in the **UP** position:-



SEL No.	Menu	Function and card edge display examples
0	Input Standard	Shows the auto detected input video standard. Example: 525 i 59
1	Software	Shows the version level of the currently fitted software.
2	Serial number	Shows the electronically stored six-digit serial number. Example 643231

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 setup procedure described in the Crystal Vision Control Panel manual.

Note: It is **ESSENTIAL** that the Panel setup 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 setup 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 Flip HD

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.

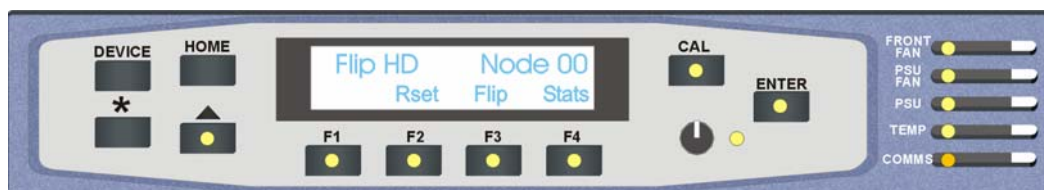


The available cards menu

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 3.

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



The Flip HD 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 Flip 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.

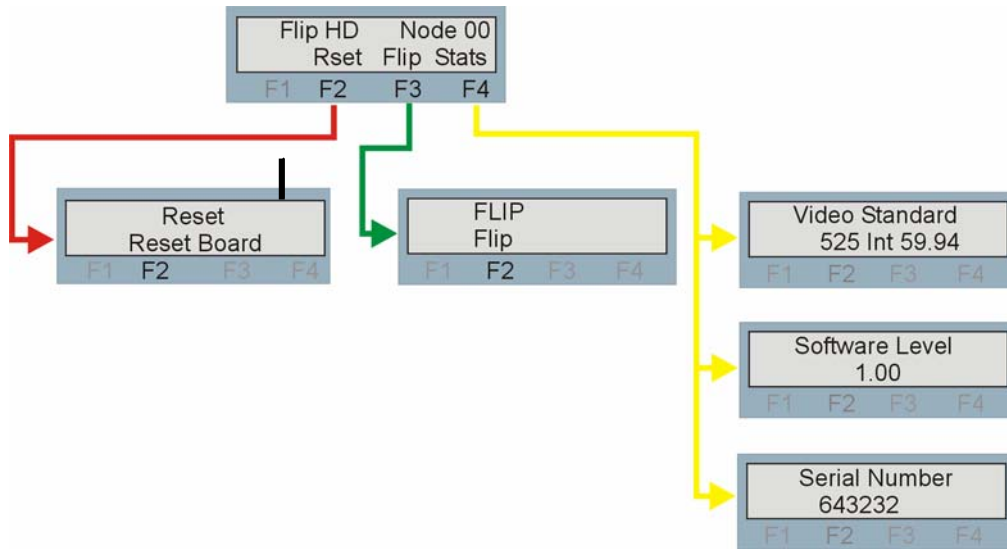
The main top-level menus for the Flip HD module are obtained by pressing the F1- F4 keys from the HOME menu. Menu keys are illuminated when active and when further menus are available. The top-level menus are:

- F1 (not used)
- Rset (Factory defaults) – press F2
- Flip/Bypass – 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 Flip HD menus. The actual menus available may vary slightly as software is updated.

Flip HD Menu Structure

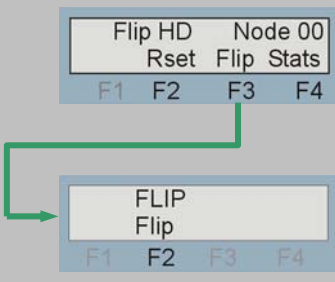


Reset (factory defaults)

This menu gives access to the reset control which will return all user controlled variables to their factory default values.

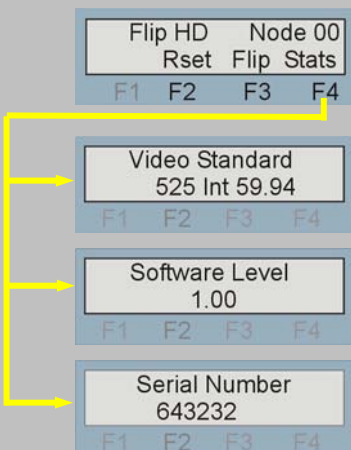
Reset menu	Description
	From the Home menu, press F2 to select the Reset menu.
	Press F2 to select to Reset.
	Press F3 to action Reset.

Parameter	Default value
Flip	Bypass

Flip menu	Description
	<p>From the Home menu, press F2 to select the Flip menu.</p> <p>Press F2 to select to Flip and rotate Scroll/Adj. to select Bypass or Flip. Press ENTER to action</p>

Status

The status menu contains various information about the board and the video input.

Flip HD status menu	Description
	<p>From the Home menu, press F4 to select the status menu, which is then traversed by rotating the shaft control.</p> <p>Rotate the shaft control to view the video input status and line rate.</p> <p>Rotate the shaft control to view the currently fitted software version.</p> <p>Rotate the shaft control to view the electronically stored board serial number.</p>

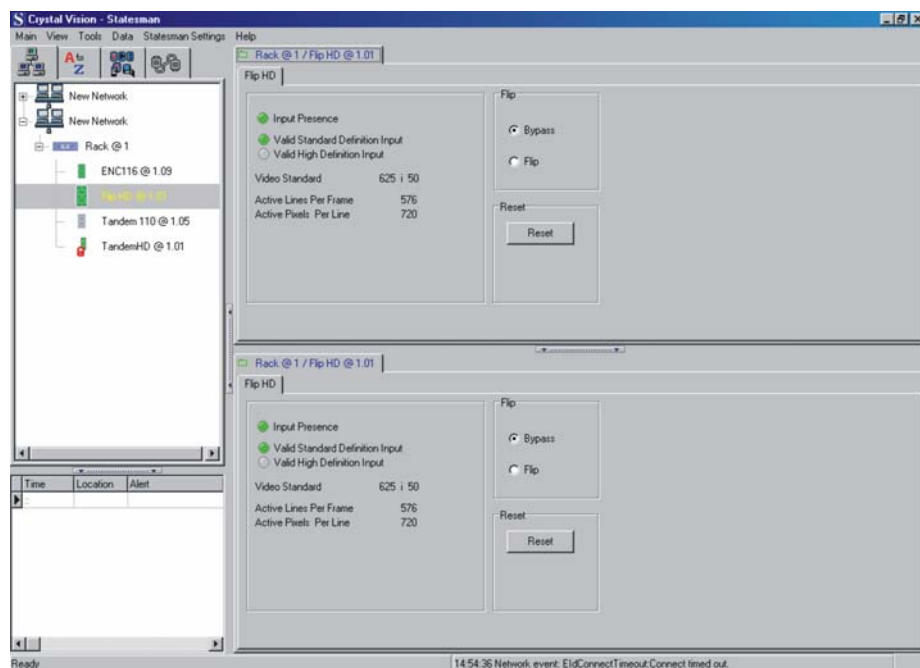
5 Statesman

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

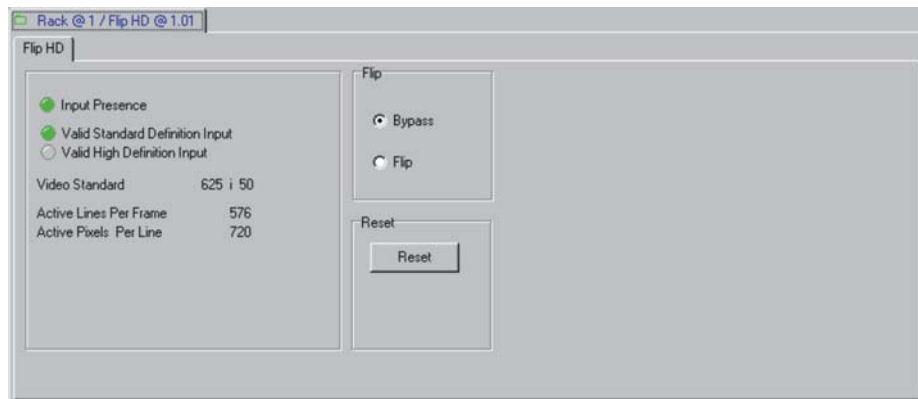
The initial view will show an Explorer style view of the connected frames and modules. Double clicking on a module will enable the display of the main application menus.



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.

The Flip HD Statesman menu tab provides status information, flip control and reset.



Flip HD menu

The status pane is divided into three group boxes: Status, Flip and Reset.

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. The input format is indicated by the illumination of a green indicator.

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

Flip

Sets the output to be a mirror image (Flip) of the input video or Normal (Bypass).

Reset (factory defaults)

The Reset button will return all parameters to their factory default levels.

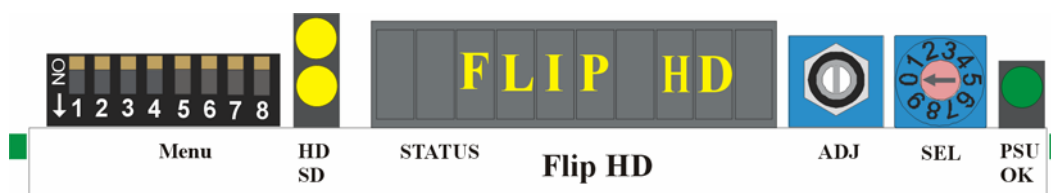
Parameter	Default value
Flip	Bypass

6 Trouble shooting

Simple trouble shooting can be performed by using either the card edge or a 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:

Name	LED Colour	Function when ON	Function when Off
HD	Yellow	Video input standard is HD (High Definition)	} Input not present
SD	Yellow	Video input standard is SD (Standard Definition)	
PSU	Green	Good power supply (PSU) rails	One or more of the monitor supplies is out of specification

The board edge display may also give some useful information when trouble shooting

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 input is present and that any cabling is intact. Use the board edge, active control panel or Statesman status information to determine a likely fault.

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 it from the rack whilst powered 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	225g
Power consumption	11 W

Inputs

Video	HD or SD SDI 270Mb/s to 1.485Gb/s serial digital compliant to SMPTE 259M and SMPTE 292M HD. Up to 140m with Belden 1694 or equivalent (Belden 8281 or equivalent up to 100m) SD (270Mb/s) >250 metres
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Outputs

Number and type:	4 reclocked SDI outputs 270Mb/s - 1.485Gb/s to SMPTE 259M and SMPTE 292M (2 x scaler outputs and 2 x input loop-throughs)
Jitter	Typically SDI 0.2UI @ 1kHz, HD 0.2UI @ 100kHz

Processing

10-bit. Active picture only.