grass valley

8964DEC/-FS

4-CH NTSC/PAL TO SDI DECODER MODULE

Instruction Manual

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Preface

About This Manual

This manual describes the features of a specific module of the Gecko 8900 Signal Processing System. As part of this module family, it is subject to Safety and Regulatory Compliance described in the Gecko 8900 Series frame and power supply documentation (see the *8900TX/8900TF/8900TFN Frames Instruction Manual*).

8964DEC 4-Channel NTSC/PAL to SDI Decoder

Introduction

The 8964DEC module offers four independent, full-function, high density decoders on one module. With 10-bit A-to-D and full-adaptive decoding, the 8964DEC provides high quality conversion of NTSC/PAL video into a broadcast quality component 4:2:2 signal from even the noisiest inputs such as satellite and microwave links. A frame synchronization option is also available.

The 8964DEC features:

- 4 NTSC/PAL to 270 Mbs SDI decoders with independent controls for:
  - Line sync mode for horizontal timing,
  - Frame sync (option) adding vertical timing and freeze modes,
  - Automatic gain and chroma controls (AGC and ACC),
  - Monochrome In signal support,
  - Processing amplifier,
  - Line-by-line VBI processing with remote control,
  - Test signal generator (color bars and pathological signal outputs),
  - EDH insertion for error tracking, and
  - Picture detail enhancement.
- User adjustable 2D adaptive comb decoding,
- An OSD (On Screen Display) can be keyed in and out of video output,
- Analog color black NTSC/PAL reference inputs,
- Up to 10 8964DEC decoders in a 2 RU Gecko™ 8900 video frame providing up to 40 decoders in one frame, and
- Remote interface with the 8900NET module (version 3.2.0 or later):
  - Web browser configuration and control,
  - SNMP traps for use with NetCentral, and
  - Control panel connections.

Installation

Installation of the 8964DEC module is a process of:

1. Placing the module in the proper frame slot, and
2. Cabling and terminating signal ports.

The 8964DEC module can be plugged in and removed from a Gecko 8900 video frame with power on. When power is applied to the module, LED indicators reflect the initialization process (see *Power Up* on page 11).

Frame Capacity

The 8964DEC module can be installed in all Gecko 8900 video frames but with varying maximum quantities determined by frame cooling capacity. Table 1 provides the power capacity, cooling capacity, and maximum module count for each frame type.

Table 1. Video Frame Power Capacity

Capacity Calculated	8900TX Frame	8900TF Frame	8900TFN Frame
Power (W)	100	100	100
Recommended Module Cooling (W)	30	90	90
8964DEC (-FS) Modules	5	10	10

Note Module capacity figures assume no other modules are in the frame.
X = Not recommended without forced air cooling.

Module Placement in the Gecko 8900 Frame

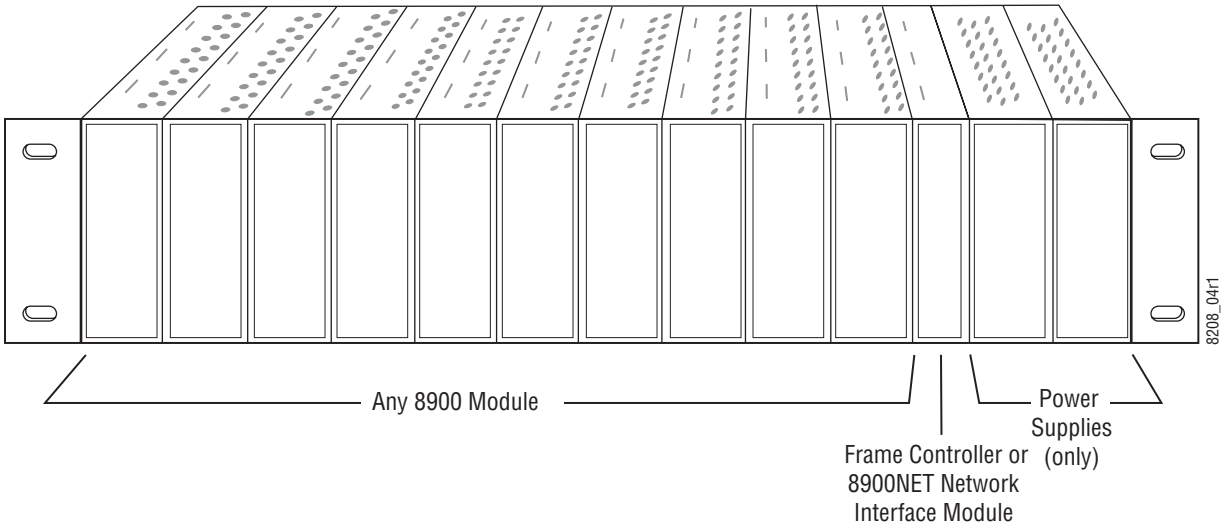
There are ten cell locations in the frame to accommodate either analog or digital modules. These are the left ten locations. Refer to Figure 1 on page 9.

The two cells on the right are allocated for the power supplies. For additional information concerning the Power Supply module, refer to the 8900 Power Supply manual.

The third cell from the right is allocated for the Frame Monitor or 8900NET Network Interface module. These modules provide health monitoring and control options.

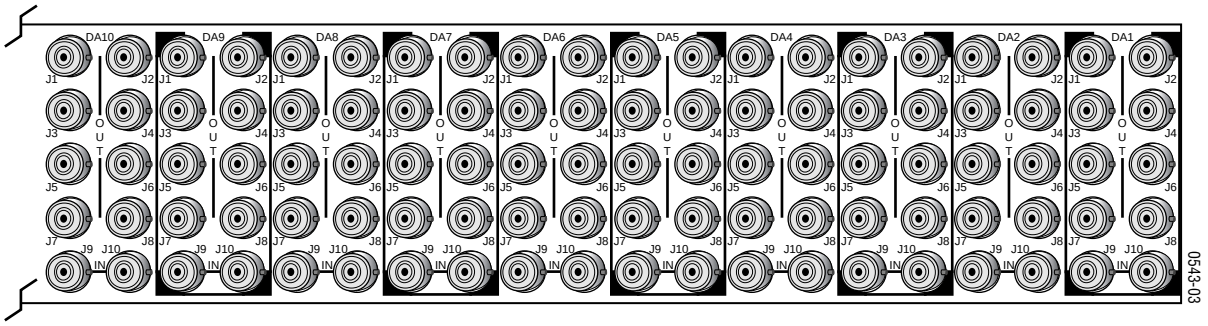
Note If using an 8900NET module in the frame, it must be running software version 3.2.0 or higher for proper remote operation of the 8964DEC module.

Figure 1. Gecko 8900 Series Frame



8900 module slots are interchangeable within the frame. There are 10 BNC connectors in each slot's I/O group. The functional assignment of each connector in a group is determined by the module that is placed in that slot. The maximum number of modules a Gecko 8900 frame can accept is ten. Figure 2 illustrates the rear connector plate for a Gecko 8900 frame.

Figure 2. Gecko 8900 Series Frame Rear Connector



To install a module in the frame:

1. Insert the module, connector end first, with the component side of the module facing to the right and the ejector tab to the top.
2. Verify that the module connector seats properly against the backplane.
3. Press in the ejector tab to seat the module.

Cabling

Cabling to and from the module is done at the back of the Gecko 8900 frame.

Note At the back of every hard cover manual are overlay cards that can be placed over the rear connector BNCs to identify the specific 8964DEC connector functions.

Inputs

Four analog composite video inputs are provided at BNCs J1, J3, J5, and J7. The inputs are non-looping and internally terminated.

Note If feeding a monochrome signal to a channel, select **Monochrome In** with the Composite In controls. Refer to Table 5 on page 18 control summary.

Outputs

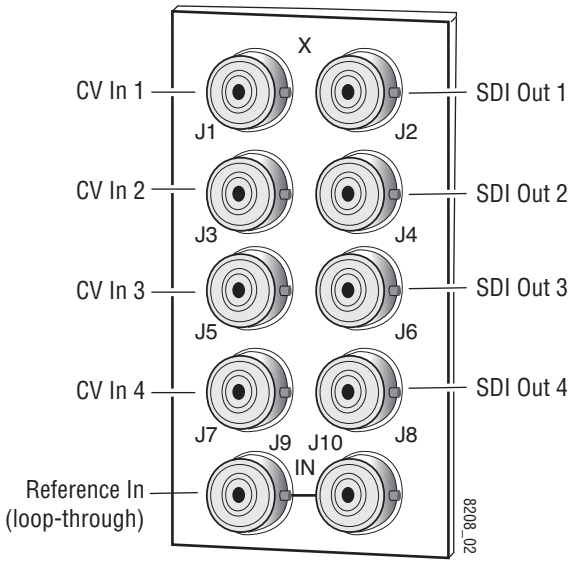
Four corresponding serial digital video outputs are provided at BNCs J2, J4, J6, and J8 as shown in Figure 3. There is no audio tracking output on the output of the module.

Reference Loop-through Input

Connect an NTSC/PAL analog color black reference source to one of the loop-through reference connectors, J9 or J10. Terminate the unused connector into 75 Ω if the signal is not looped to other equipment.

Note The line rate for the module (all four decoder channels) will be auto-detected from the Reference In signal.

Figure 3. 8960 Input/Output Connectors



Power Up

The front LED indicators and configuration switches are illustrated in Figure 4. Upon power-up, the green PWR LED should light and the yellow CONF LED should illuminate for a few seconds for the duration of module initialization.

Operation Indicator LEDs

With factory default configuration and a valid input signal connected, the green PWR LED and one of the green signal standard LEDs (525 or 625) should illuminate (refer to Table 2 on page 12 to see the possible operating indicator combinations).

Video input presence on each decoder channel is indicated by the CH1–CH4 green LEDs on.

Figure 4. LEDs and Configuration Switches

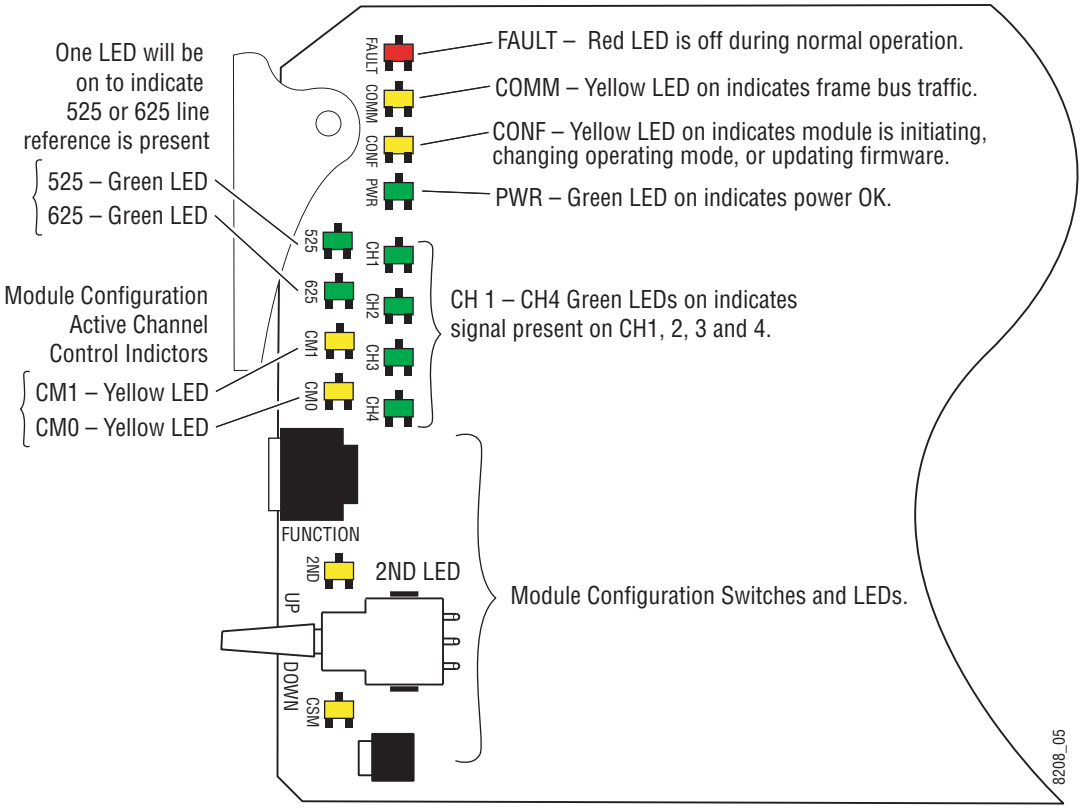


Table 2. Board Edge LED Names and Meaning

LED	Indication	Condition
FAULT (red)	Off	Normal operation.
	On continuously	Module has detected an internal fault. (Refer to *Service* on page 54.)
	Flashing	Configuration problems. Check inputs and settings. Missing video.
COMM (yellow)	Off	No activity on frame communication bus.
	3 Quick Pulses	Locate Module command received by the module from a remote control system.
	Short flash	Activity present on the frame communication bus.
CONF (yellow)	Off	Module is in normal operating mode.
	On continuously	Module is initializing, changing operating modes or updating firmware.
	3 Quick Pulses	Locate Module command received by the module from a remote control system.
PWR (green)	Off	No power to module or module's DC/DC converter failed.
	On continuously	Normal operation, module is powered.
625 (green)	Off	No reference or standard is other than 625.
	On continuously	Valid 625 video reference is present.
525 (green)	Off	No reference or standard is other than 525.
	On continuously	Valid 525 video reference is present.
CM1 (yellow)	Off	On/Off combination Indicates what channel is enabled for configuration when Channel Select Mode (CSM) LED is on (described in Table 6 on page 21).
	On	
CM0 (yellow)	Off	
	On	
CH1 (green)	Off	No signal present on Ch 1 or input signal line rate does not match reference.
	On continuously	Valid signal is present on Channel 1.
CH2 (green)	Off	No signal present on Ch 2 or input signal line rate does not match reference.
	On continuously	Valid signal is present on Channel 2.
CH3 (green)	Off	No signal present on Ch 3 or input signal line rate does not match reference.
	On continuously	Valid signal is present on Channel 3.
CH4 (green)	Off	No signal present on Ch 4 or input signal line rate does not match reference.
	On continuously	Valid signal is present on Channel 4.
2ND (yellow)	Off	Rotary switch is addressing Bank 1 configuration functions.
	On continuously	Rotary switch is addressing Bank 2 configuration functions.
	Flashing	Rotary switch is addressing Bank 3 configuration functions.
CSM (yellow)	Off	Paddle switch controls current Bank parameter mode.
	On continuously	Paddle switch controls channel selection.

Configuration

The 8964DEC can be configured locally using onboard switches or remotely using the 8900NET network interface GUI or a networked control panel.

Refer to the following sections for configuration instructions:

- Configuration Summary (page 13)
- Local Onboard Module Configuration (page 20)
- Remote Control and Monitoring (page 26)
- Control Panel Configuration (page 51)

Operation of these control types is explained in detail in their respective sections of this manual.

Configuration Summary

This section provides a summary of all parameters that can be configured on the 8964DEC module. The video processing configuration is described by what line types will be affected by the adjustments or choices made. Use this section in conjunction with the specific configuration method instructions for each configuration type. Table 5 on page 18 provides a summary in table format of all parameters and their ranges, default values, and remote, local, and control panel function names and locations for setting each value.

Video Processing Controls

The 8964DEC provides video processing controls for the decoding process for all four channels independently. How the video data is processed depends on what line the video is on. Some processing affects all lines, other processing affects just the active picture lines, programmable VBI lines or the fixed VBI lines.

Line Categories

The line categories used in the configuration of the video signal for the 8964DEC are defined as follows:

- F_Active Lines – the portion of the active video that is fixed and always treated by the module as carrying active video (not programmable).
- P_Active Lines – lines in the active video that can be configured by the user to carry either active video or be reserved for carrying user data.

- CVBI – the lines in the vertical interval that can be configured by the user.
- FVBI – the line in the vertical blanking interval that are fixed and are not configurable.

The line numbers for each category above are defined in Table 3 for both 525 and 625 line rates on the 8964DEC module.

Table 3. Line Numbers for 8964DEC Line Categories

Line Categories				
Label	**525**		**625**	
	Start	**End**	**Start**	**End**
F_Active	25 (F1) 288 (F2)	263 (F1) 525 (F2)	29 (F1) 342 (F2)	310 (F1) 623 (F2)
P_Active	21 (F1) 284 (F2)	24 (F1) 287 (F2)	24 (F1) 337 (F2)	28 (F1) 341 (F2)
CVBI	10 (F1) 273 (F2)	20 (F1) 283 (F2)	6 (F1) 319 (F2)	23 (F1) 336 (F2)
FVBI	1 (F1) 264 (F2)	9 (F1) 272 (F2)	624 (F1) 311 (F2)	5 (F1) 318 (F2)

Note The categories may not match the line definition as specified in the applicable standard.

Line pairs in the P_Active line category can be reserved for carrying data by configuring Data Line Pairs with local or remote controls. Refer to Table 4 for a listing of the Data Line Pairs lines that are available with each setting.

Table 4. Lines Reserved for Carrying Data

525 Line Selection	Data Line Pairs Reserved
None	None
21/284	21/284
22/285	21/284 – 22/285
23/286	21/284 – 23/286
24/287	21/284 – 24/287

625 Line Selection	Data Line Pairs Reserved
None	None
24/337	24/337
25/338	24/337 – 25/338
26/339	24/337 – 26/339
27/340	24/337 – 27/340
28/341	24/337 – 28/341

All Lines – Composite In Video Path Processing

The incoming video composite signal path for each channel can be processed before decoding. These processing functions affect all lines of video at once, both active picture lines and VBI lines.

The following processing functions are available for the video composite input signals:

- AGC and ACC on or off – the Auto Gain Control (AGC) and Auto Chroma Control (ACC) are set to default to the off condition (**Enable AGC** and **ACC** checkboxes not checked). This is the recommended state and provides the following controls for video and chroma gain:
  - Input Video Gain – adjust the input video gain in percent relative to 100% (100% = 1 V p-p). AGC operation is based on sync tip.

Note Manually adjusting Input Video Gain may shift picture position slightly (± 1 clock).

  - Input Chroma Gain – adjust the percentage of chroma gain relative to 100%.

    Checking the **Enable AGC** or **Enable ACC** checkbox will enable the respective automatic gain settings.
- Monochrome In – check this box when a monochrome input signal (or any signal that does not contain burst) is being fed to a channel. This checkbox must be checked for the module to recognize the signal as valid and light the corresponding input LED. This will also enable the Chroma Kill function on the Video Proc page, changing it to a read-only state.

Active Picture Lines – Video Path Processing

The video processing functions described below affect all active picture lines (F_Active lines and the P_Active the user has chosen to be part of the active picture).

The available video path processing controls are the following:

- Contrast/Y Gain – adjusts the percentage of luminance relative to white.
- Saturation/Chroma Gain – adjusts percentage of saturation and chroma gain relative to 100% saturation.
- Brightness/Y Offset – adjusts amount of brightness/Y offset in mV.
- Hue/Chroma Phase – adjusts hue/chroma phase in degrees for both line rates (525 and 625).
- Remove Setup – set to **NO** when no setup is present (Japanese NTSC), or **YES** when setup is present (NTSC). Available in 525 mode only.
- TSG (100% Color Bars) – when on, enables the internal test signal generator to output a 100% Color Bars test signal to the channel output.
- TSG (Pathological) – when on, enables the internal test signal generator to output a Pathological test signal to the channel output.

Note Test signals are not adjustable in the Video Processing controls.

- On Screen Display (OSD) – enables or disables the On Screen Display on the selected channel output. Jumper JP3 on module must be set to enable control. Refer to *8964DEC Module Onboard Configuration Settings on page 23*.
- Chroma Kill – removes all chroma from the signal (black and white). This is a global control, affecting chroma on all lines of active video and includes the VBI.
- EDH insertion – allows EDH to be inserted in any of the four channel outputs (available in Remote mode only).
- Decode Mode – select the type of decoding (filtering) for each input from comb adaptive, comb non-adaptive or notch. Adaptive decoding is 3-line in NTSC and 4-line in PAL.

Programmable VBI and Active Picture Lines – Composite Input

Programmable lines in the composite input vertical blanking interval include the configurable VBI lines (CVBI). Programmable active picture lines (P_Active) are the lines reserved for carrying data (Data Lines) (refer to Table 4 on page 14). Both of these line pair types can be configured for the following:

- Decode Mode – select from Notch Decode or Pass Through (blank U and V). (Global control – all line pairs are affected in the same manner.)

Note When Notch Decode is selected, active picture lines reserved for data are actually comb decoded with potential artifacts.

- Chroma Kill – removes all chroma on VBI and P_Active lines reserved for data. (Global control – all line pairs are affected in the same manner.)

Note This control has no affect when Chroma Kill is already enabled on the Video Proc web page.

- Remove Setup from VBI – with local onboard controls, select YES to remove setup or NO to not remove setup from all lines of CVBI (global). In remote mode on the web page, setup can be removed on a line-by-line basis.

Note When **Remove Setup from active video** is not selected on the Video Composite In web page (No removal), the VBI Setup Removal function will have no affect.

- Blank – in local mode, select YES to blank all lines of CVBI or NO to not blank. In remote mode, lines can be blanked on a line-by-line basis with the web page (toothed blanking).

Video Timing and Freeze Controls

With a standard 8964DEC module with no Frame Sync enabled the following Line Sync timing adjustment is available:

- Horizontal Timing – adjusts the horizontal delay on the channel output in pixels. This will add an additional delay of up to one line.

With an 8964DEC-FS module (8964DEC with Frame Sync enabled, see *Module Option Upgrade* on page 51), the following Frame Sync timing adjustments can be made:

- Horizontal Timing – identical to the line sync timing above.
- Vertical Timing – adjusts vertical delay in line increments.

Also available with the 8964DEC-FS are the following freeze controls:

- None – when signal is lost, no automatic freeze occurs and no manual freeze is activated.
- AutoBlue – when AutoBlue is enabled on a channel, the output will automatically freeze to a blue screen when the input signal is lost on that channel.
- AutoFreeze – when AutoFreeze is enabled on a channel, the output will automatically freeze on the last valid field when the input signal is lost on that channel.
- Field 1 – manually freezes the output signal on field 1 of the last frame.
- Field 2 – manually freezes the output signal on field 2 of the last frame.
- Frame – manually freezes the output signal on the last frame.

A field freeze provides less resolution and no motion artifacts in the output. In frame mode, the resolution is higher since both fields are present, but the presentation of the two fields can cause motion artifacts.

Picture Enhancer Controls

The Picture Enhancer feature is standard on the 8964DEC and 8964DEC-FS modules. This feature allows separate picture enhancement control on each channel output. Picture enhancement affects all lines of video.

Use the following controls for picture enhancement:

- Disable – the Picture Enhancer process can be turned off by selecting Disable.
- Picture enhancement can be enabled by selecting one of three settings, Low, Medium, or High. Amount of adjustment will depend on picture type and noise level.

Table 5 provides a complete summary of the 8964DEC processing functions and a comparison of the functionality available with each control type along with the ranges and default values for each parameter. The table is organized to provide a breakdown of the video path processing adjustments by specific grouping of line type in the video signal.

Table 5. Summary of 8964DEC Configuration Functions By Line Type

Processing Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Rotary Switch Bank/Setting	Newton Control Panel	Notes/ Conditions
All Lines, Channels 1–4. Composite In Video Path Processing (before decoding).						
Input signal status	N/A	Present/Not Present	Status/ CV Input 1-4 status	N/A	SigStt1-4	Read-only signal input reporting
Reference input status	N/A	Present/ Warn- Not Locked	Status/ Ref Input status	N/A	RefStt	
AGC (Auto Gain Control)	Off	On/Off	Video Composite In/ Enable AGC checkbox	1:3	N/A	On enables AGC
ACC (Auto Chroma Control)	Off	On/Off	Video Composite In/ Enable ACC checkbox	2:9	N/A	On enable ACC
Input Video Gain	100%	72.5–200% (0.5% steps)	Video Composite In/ Input Video Gain (%)	1:4	vciGain1-4	AGC off.
Input Chroma Gain	100%	50–200% (0.6% steps)	Video Composite In/ Input Chroma Gain (%)	1:5	vciChGn1-4	ACC off.
Detail Enhancer	Disable	Disable, Low, Medium or High	Picture Enhancer/ Select Disable, Low, Medium or High radio button	3:B (Disable or Low) 3:C (Medium or high)	N/A	8964DEC and 8964DEC-FS
Active Picture Lines, Video Path Processing, Channels 1–4. All settings Global (affects all active picture lines).						
Saturation/Chroma Gain	100%	50–200% (0.6% steps)[1]	Video Proc/ Saturation/Chroma Gain (%)	1:8	ChrGain1-4	Active only when Video Proc is enabled.
Hue/Chroma Phase	0	± 180 degrees (1.4 degree steps)[1]	Video Proc/ Hue/Chroma Phase (deg)	1:9	ChrmPhs1-4	
Brightness/Y Offset	0	± 400 mV (3 mV steps)[1]	Video Proc/ Brightness/Y Offset (mV)	1:7	YOffset1-4	
Contrast/Y Gain	100%	50–200% (0.6% steps)[1]	Video Proc/ Contrast/Y Gain (%)	1:6	YGain1-4	
Remove setup from active video	Yes	Yes/No	Video Composite In/ Remove setup from active video checkbox	1:2	N/A	525 only.
TSG (Test Signal Generator) (100% Color Bars)	Off	On/Off	Video Proc/ Color Bars 100% checkbox	1:D (enable mode) 1:E (choose type)	TstSig1-4	Test signals are not adjustable.
TSG (Test Signal Generator) (Pathological)	Off	On/Off	Video Proc/ Pathological Test checkbox			
OSD (On Screen Display)	Off	On/Off	OSD Control/ On Screen Display	1:1	N/A	Jumper JP2 must be enabled on module.
Decode Mode	Comb Adaptive	Adaptive/Notch	Video Composite In/ comb adaptive, comb non-adaptive, or notch	1:A (enable mode) 1:B (choose type)	N/A	

Table 5. Summary of 8964DEC Configuration Functions By Line Type

Processing Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Rotary Switch Bank/Setting	Newton Control Panel	Notes/ Conditions
Chroma Kill	Off	On/Off	Video Proc/ Chroma Kill checkbox	1:C	ChrmKill1-4	Global, also affects CVBI lines.
Monochrome In	Off	On/Off	Video Composite In/ Monochrome In checkbox	2:A	N/A	On indicates monochrome input signal.
Insert EDH	On	On/Off	Functional View/ Insert EDH checkbox	N/A	N/A	Remote control only.
Programmable VBI Lines, Composite Input, Channel 1–4						
Blank VBI Lines	Off	On/Off	VBI/ Blank VBI/Data Line Pair	2:5	N/A	Line selectable in Remote. Global in Local.
VBI Decoding Mode	Notch Decode	Notch Decode/ Pass Through	VBI/ Notch Decode or Pass Through button	2:6	N/A	Global, effects all CVBI lines. Active when Blanking off.
Remove VBI Setup (525 only)	No	Yes/No	VBI/ Remove Setup checkboxes	2:7	N/A	Line selectable in Remote. Global in local.
VBI Chroma Kill	Off	On/Off	VBI/ Chroma Kill checkbox	2:4	N/A	Global, effects all CVBI lines. No affect when Video Proc chroma kill on.
Frame Sync Functions						
Horizontal Timing	0	0 - 857.5 pixels (525) 0 - 863.5 pixels (625) (0.5 pixel steps)	Timing/ Horizontal Timing (pixels)	2:F	HTiming1-4	8964DEC (Line Sync) or 8964DEC-FS (Frame Sync)
Vertical Timing	0	0 – 524 lines (525) 0 – 624 lines (625) (1line steps)	Timing/ Vertical Timing (lines)	3:1	VTiming1-4	8964DEC-FS only.
Freeze Mode	None	None, AutoFreeze, AutoBlue, Field 1, Field 2, or Frame	Timing/Freeze Mode Select None, AutoFreeze, AutoBlue, Field 1, Field 2, or Frame radio button	3:2 3:3 3:4	FrzMode1-4	

[1] Approximate step sizes.

Local Onboard Module Configuration

The 8964DEC module can be configured locally using the rotary and paddle switches. Several LEDs interact with the switches to indicate status of the configuration process.

Configuration Switches and Controls

Each of the four decoder channels is adjusted separately. Selection of each channel is done with the paddle switch while in Channel Select Mode as explained below. Refer to Figure 5 on page 21 for the following descriptions. Use the onboard configuration components as follows:

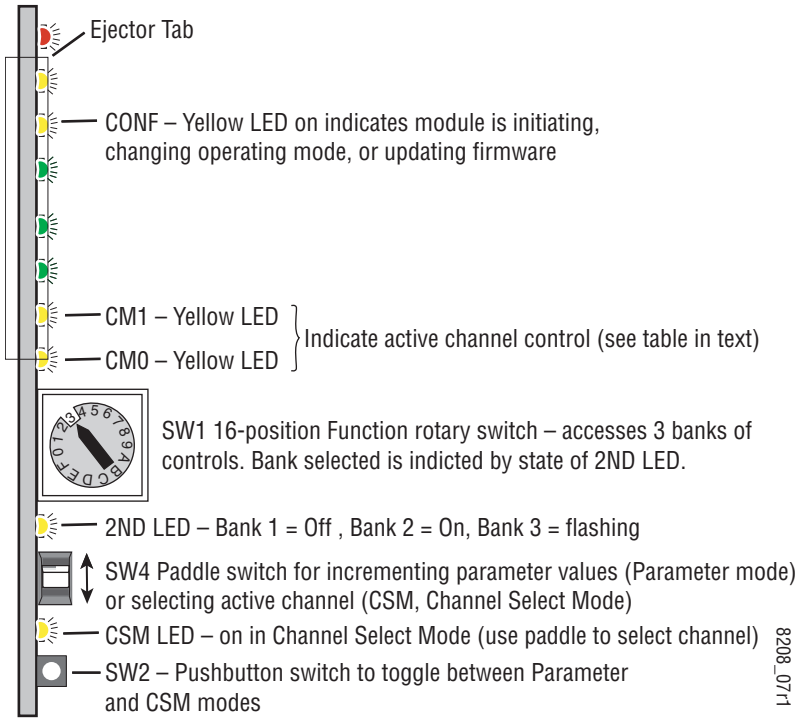
- SW1 Function (rotary) switch – this switch accesses a desired function for configuration (see Table 7 on page 24). The switch addresses three banks of functions; each bank has 16 possible positions (0 through 9 and A through F). Not all positions are used.

  The next bank of functions is accessed each time the Function switch makes a complete revolution past zero (or back through F): While in Bank 1, a complete revolution past zero accesses Bank 2; while in Bank 2, a complete revolution past zero accesses Bank 3. The yellow 2ND LED indicates which bank is currently being accessed.

Note The Function switch should be kept in position 0 in any bank (parked) when not in use to avoid any inadvertent change in configuration. Position 0 in each bank is inactive.

- 2ND (second Function) yellow LED – when off, indicates that the rotary switch is addressing the first bank of functions. When on, indicates that the rotary switch is addressing the second bank of functions. When flashing, indicates that rotary switch is addressing the third bank of functions.
- SW4 (paddle) switch – actuates or selects the desired setting or channel selection for the selected function when the switch is held momentarily in either the up or down position. Switch between Parameter and Channel Select Mode with pushbutton SW4.
- CSM (Channel Select Mode) yellow LED – when on, paddle switch is in Channel Select Mode. Use the paddle switch to select channel 1, 2, 3, or 4. When off, paddle switch is in Parameter mode.
- CM1 and CM0 LEDs – indicate what channel is active for adjustment. Refer to Table 6 on page 21.
- SW2 (pushbutton) switch – press to toggle assignment of paddle switch SW2 between Parameter mode (CSM LED off) and Channel Select Mode (CSM LED on).
- CONF (configuring) yellow LED – when on, indicates the module is initializing or processing configuration information.

Figure 5. Onboard Configuration Components – Front View



Refer to Table 6 for reading the CM1 and CM0 active channel LED indicators.

Table 6. CM1 and CM0 LED Table

CM1 LED State	CM0 LED State	Channel Control
Off	Off	Channel 1 is active
Off	On	Channel 2 is active
On	Off	Channel 3 is active
On	On	Channel 4 is active

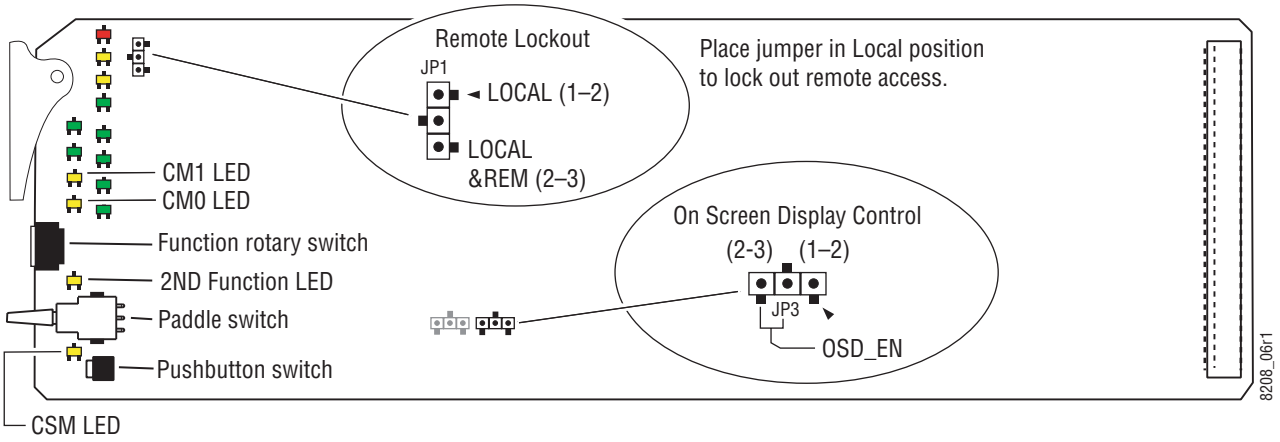
Onboard Jumpers

Two onboard jumpers (Figure 6) must be set for the following:

- Jumper JP1 allows or locks out (Local) remote control.
- Jumper JP3, OSD enables (OSD_EN pins 2-3) or disables (pins 1-2) control of the OSD (On Screen Display).

  The On Screen Display (OSD) graphic can be enabled on the output of each channel to allow viewing of the currently selected Rotary switch function and the currently assigned parameters. The OSD is provided for an aid in configuring the module in local mode and should be turned off on each channel with either the local or remote controls before broadcasting the signal. When control is enabled with jumper JP3, the OSD for each channel can be turned on or off with either local or remote controls.

Figure 6. Module Configuration Switches and LEDs



8964DEC Module Onboard Configuration Settings

Onboard configuration is done on a channel-by-channel basis, there is no gang mode (apply settings to all channels). You may use an on-screen display on the output of each channel to view the parameters being adjusted.

Control of the OSD function must first be enabled locally by setting jumper JP3 (Figure 6 on page 22) to either disabled (pins 1-2), or enabled (pins 2-3, labeled OSD_EN). Once OSD control has been enabled with JP3, it can be turned on or off with individual local channel controls (Bank 1/Position 1) or through the web browser (refer to *OSD Control Web Page* on page 47).

To make a configuration setting:

1. Select the channel to be adjusted by pressing pushbutton SW4 to toggle to the Channel Select Mode (yellow CSM LED on). This allows using the paddle switch to increment through the channel selections. The currently selected channel is indicated by the state of the CM1 and CM0 LED. Refer to Table 6 on page 21for reading LED states.

2. When the desired channel is active, use pushbutton SW4 to toggle back to Parameter mode (CSM LED off).

3. Rotate the Function switch to Bank 1 (2ND LED off) or Bank 2 (2ND LED on) or Bank 3 (2ND LED slow flash) and to the desired function within that bank.

4. Move the paddle switch to the up or down position and hold momentarily to set the desired function (refer to Table 7 on page 24).

Note Holding the paddle switch in the up or down position for more than a half second will automatically accelerate through the value range for parameters with 256 or more values. The full range can be accessed in about 10 seconds.

Table 7. Local Rotary and Paddle Switch Functions

	Function Switch Setting	Paddle Switch Up	Paddle Switch Down	Function Description	OSD Text Summary
Bank 1 (2ND LED off)					
Adjust individual channels for input video path and video processing.					
Bank 1 (2ND LED off)	0	–	–	Default position for normal operation (parked)	Ch#, Channel Name 1:0 (bank/#) Model # HW ver x.x SW ver x.x FW: xx SN: xxxxxxxxxx
	1	On	Off	Turn OSD (on screen display) on or off	Ch#, Channel Name 1:1 Video: rate or NO Ref: rate or NO On Screen Disp: (current state) Choices or scroll bar
	2	Yes	No	Remove setup in composite input video	1:2 Remove Setup (525 only)
	3	On	Off	Turn AGC (Auto Gain Control) on or off	1:3 AGC
	4	Increase	Decrease	Adjust input video gain (% relative to 1 V p-p)	1:4 Input Video Gain
	5	Increase	Decrease	Adjust input chroma gain	1:5 Input Chroma Gain
	6	Increase	Decrease	Adjust contrast/Y gain	1:6 Contrast/Y Gain
	7	Increase	Decrease	Adjust brightness/Y offset	1:7 Bright/Y Offset
	8	Increase	Decrease	Adjust saturation/chroma gain	1:8 Sat/Chroma Gain
	9	Increase	Decrease	Adjust hue/chroma phase	1:9 Hue/Chroma Phase
	A	Comb	Notch	Select decoding mode	1:A Decoding mode
	B	Adaptive	Fixed	In Comb mode, select type of filtering	1:B Comb Type
	C	On	Off	Turn Global Chroma Kill on or off	1:C Chroma Kill
	D	On	Off	Turn output test signal generator on or off	1:D Vid Proc
	E	Bars	Pathological	When test signal on, select signal type	1:E Test Sig
	F	–	Recall	Recall factory defaults	1:F Factory Default
Bank 2 (2ND LED on)					
Bank 2 (2ND LED on)	0	–	–	Default position for normal operation (parked).	2:0 (parked position information)
	1	None	21/284 or 24/337	Select P_Active lines to reserve for data (525 or625). See Table 4 on page 14.	2:1 Rsv For Data
	2	22/285 or 25/338	23/286 or 26/339		2:2 Rsv For Data
	3	24/287 or 27/340	28/341 (625 only)		2:3 Rsv For Data
	4	On	Off	Turn VBI Chroma Kill on or off (all VBI lines).	2:4 VBI Chroma Kill
	5	On	Off	Turn VBI blanking on or off (all VBI lines).	2:5 VBI Blanking
	6	Pass Thr	Notch	Select VBI decoding mode (all VBI lines).	2:6 VBI mode
	7	Yes	No	Remove VBI setup (525 only).	2:7 Remove VBI Setup
	8	>2s Learn	Recall	Hold paddle for more than 2 seconds to learn current channel settings into E-MEM register. select down to Recall.	2:8 EMEM
	9	On	Off	Turn ACC (Auto Chroma Control) on or off	2:9 ACC
	A	On	Off	Turn Monochrome In on or off	2:A Monochrome In
	B-E	–	–	Not used	
	F	Increase	Decrease	Adjust horizontal timing	2:F Horizontal Timing

Table 7. Local Rotary and Paddle Switch Functions

	Function Switch Setting	Paddle Switch Up	Paddle Switch Down	Function Description	OSD Text Summary
Bank 3 (2ND LED flashing)					
Adjust Frame Sync (8964DEC-FS) and Picture Enhancer functions.					
Bank 3 (2ND LED flashing)	0	–	–	Default position for normal operation (parked).	3:0 (parked position information)
	1	Increase	Decrease	Adjust vertical timing	3:1 Vertical Timing [1]
	2	None	AutoBlue	Select None or Autoblue freeze type	3:2 Frz mode [1]
	3	Field 1	Field 2	Select Field 1 or Field 2 manual freeze	3:3 Frz mode [1]
	4	Frame	AutoFreeze	Select Frame manual freeze or AutoFreeze	3:4 Frz mode [1]
	5 – A	–	–	Not used	
	B	Disable	Low	Disable or enable Picture Enhancer to Low	3:B PE Level
	C	Medium	High	Set Picture Enhancer to Medium or High	3:C PE Level

[1] These controls are active only in the 8964DEC-FS model.

Remote Configuration and Monitoring

8964DEC configuration and monitoring can be performed using a web browser GUI interface or the Newton Control System when the 8900NET Network Interface module is present in the frame (Gecko 8900TFN frame). This section describes the GUI access to the module configuration functions. For information on using the Newton Control Panels, refer to *Newton Control Panel Configuration* on page 51.

For remote access, make sure the jumper block on the module is set for both Local and Remote access (Figure 6 on page 22).

Refer to the 8900NET Network Interface Module Instruction Manual for information on the 8900NET Network Interface module and setting up and operating the Gecko 8900 frame network.

Note The 8900NET module in the frame must be running software version 3.2.0 or higher for proper remote and control panel operation. Upgrade software and instructions for the 8900NET are available on a separate CD-ROM with the module or can be downloaded from the Grass Valley web site.

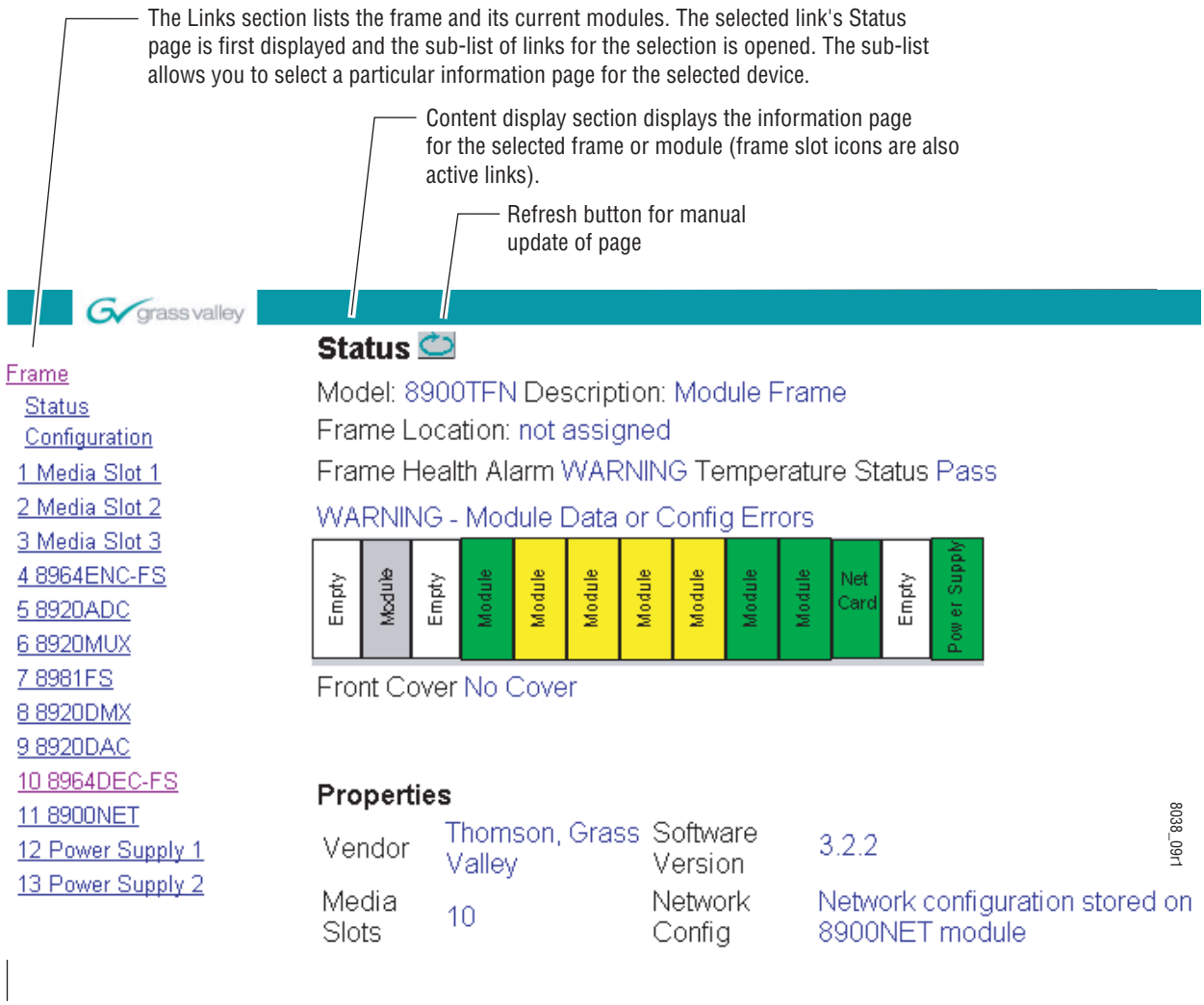
Refer to the Frame Status web page shown in Figure 7 on page 27. The 8900 modules can be addressed by clicking either on a specific module icon in the frame status display or on a module name or slot number in the link list on the left.

Note The physical appearance of the menu displays on the web pages shown in this manual represent the use of a particular platform, browser and version of 8900NET module software. They are provided for reference only. Displays will differ depending on the type of platform and browser you are using and the version of the 8900NET software installed in your system. This manual reflects the 8900NET software version 3.2.2.

Use the **Refresh** button to update the display (available with 8900NET software version 3.2.0 and later).

For information on status and fault monitoring and reporting shown on the Status web page, refer to *Status Monitoring* on page 55.

Figure 7. Frame Status Web Page



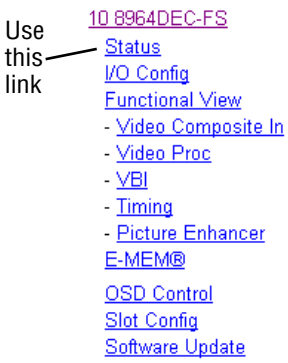
8964DEC Links and Web Pages

The 8900 GUI provides the following links and web pages for the 8964DEC module (Figure 8):

- Status – reports input and reference signal status and module information (page 29),
- I/O Config – shows a graphic representation of inputs and outputs to the module and allows naming of each input (page 31),
- Functional View – shows a block diagram of the module with links to each configuration web page (page 32),
- Module Configuration web pages for setting up the module (page 33),
- E-MEM – provides Learn and Recall functions for up to 5 E-MEM registers along with **Save to** and **Load from** file operations (page 43),
- OSD Control – provides controls to enable or disable the OSD for each channel (page 47),
- Slot Config – provides a Locate Module function and Slot Memory (page 48), and
- Software Update – allows updating of software from a CD-ROM or the web site (page 50).

Figure 8. 8964DEC Web Page Links

Status Web Page



The Status web page (Figure 9 on page 30) shows the input signal status of each of the decoder channels and the reference input. Color coding of the display indicated the signal status. Refer to *Status Monitoring* on page 55 for an explanation of the color coding.

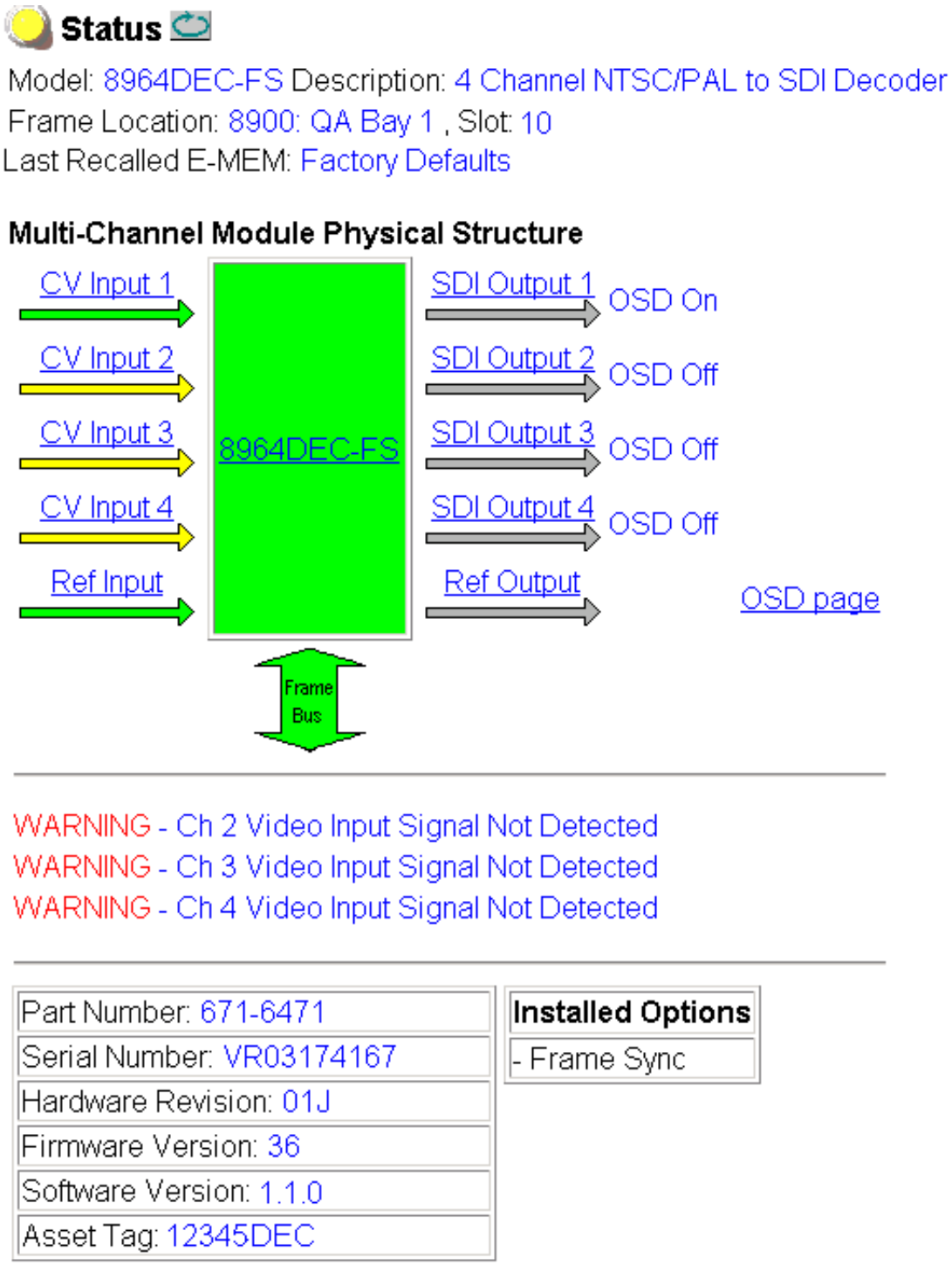
Status of the OSD displays on each output is also shown. A link to the OSD Control web page is provided so the OSD can be enabled or disabled from the browser. For more information on enabling or disabling an OSD display through the web browser, refer to *OSD Control Web Page* on page 47.

Information about the module, such as part number, serial number, hardware revision and software and firmware versions are given in a read-only section at the bottom of the display. Enabled options are also reported.

An Asset Tag identifier can be assigned to the module on the Slot Config web page (see *Slot Config Web Page* on page 48).

Clicking on the model number in the center box will take you to the Functional View web page illustrating a block diagram overview of the module with links to each of the configuration web pages.

Figure 9. 8964DEC Status Web Page



I/O Config Web Page

Use this link

10 8964DEC-FS
Status
I/O Config
Functional View
- Video Composite In
- Video Proc
- VBI
- Timing
- Picture Enhancer
E-MEM®
OSD Control
Slot Config
Software Update

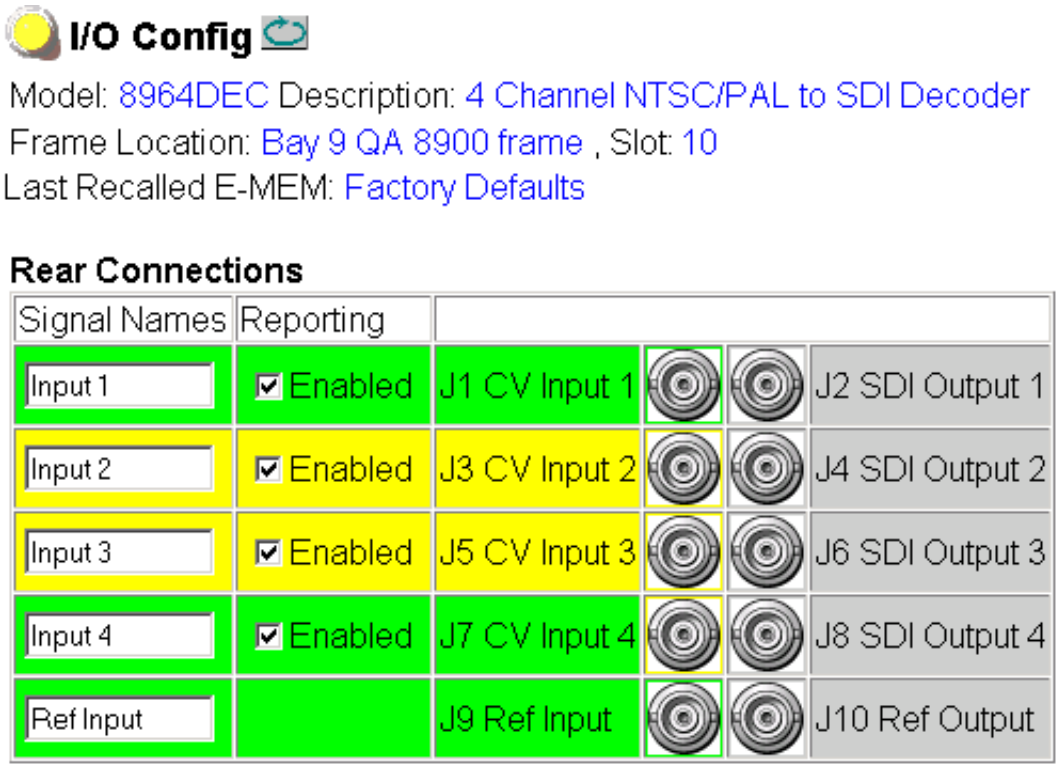
The I/O Config web page (Figure 10) shows the rear input and output connections to the module and allows you to name each input. Type the desired input name (up to 10 characters) into the corresponding box. The status of each input is indicated by the color of the display.

Note Outputs are not monitored in this application.

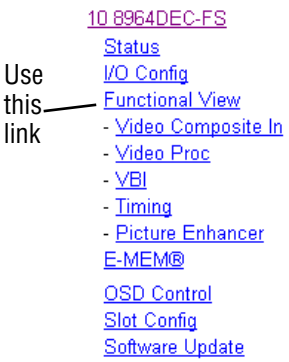
SNMP trap reporting of each channel input can be enabled or disabled by selecting or deselecting the corresponding checkbox in the **Reporting** column. The **Reporting** column will appear only when an SNMP monitoring application such as NetCentral is installed.

Refer to *Status Monitoring* on page 55 for an explanation of the color coding and using an SNMP monitoring application.

Figure 10. 8964DEC I/O Config Web Page



Functional View Web Page



The Functional View web page (Figure 11) illustrates a block diagram of the 8964DEC module showing module functions and signal paths that are active or inactive in the current configuration and provides control for EDH insertion. It can be used as a link map for configuring module functions. Each block has a link to the configuration web page for that function.

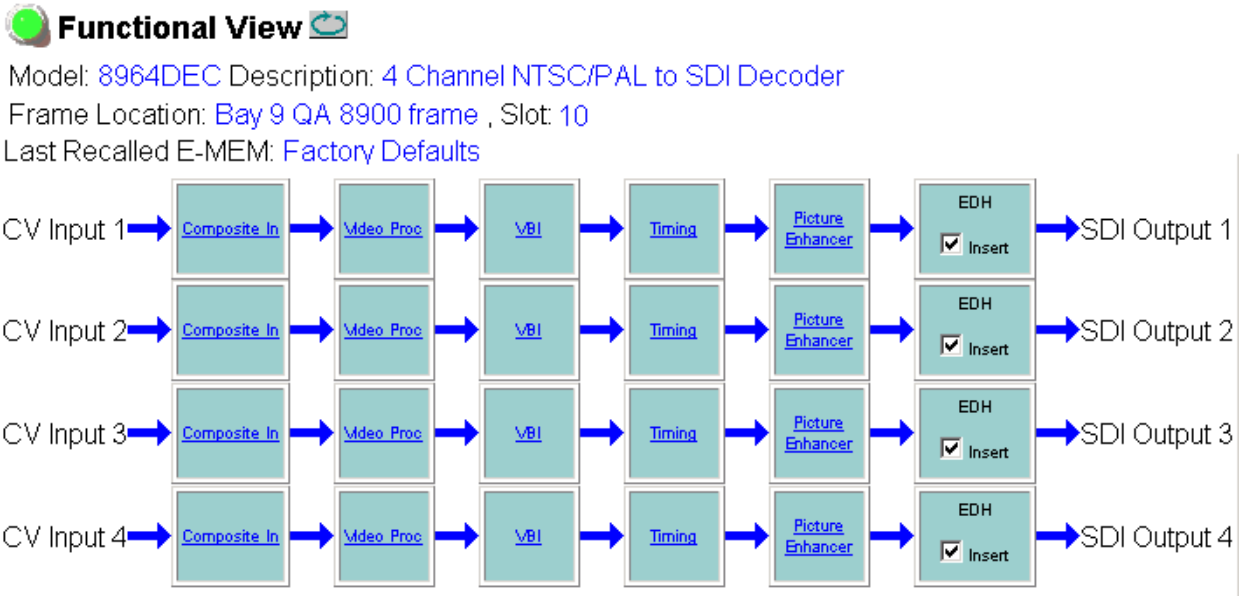
Color coding indicates active functions and signal flow. Grayed components are inactive due to hardware and/or software constraints. Underlined module functions are links to the web page for that function.

Use the Functional View to configure the 8964DEC module in the order of the signal flow. Refer to each of the module configuration web pages given in the next section.

EDH Insertion

Select the corresponding **Insert** checkbox to insert EDH into the SDI output for each channel. Uncheck the box to not insert EDH.

Figure 11. 8964DEC Functional View Web Page



Module Configuration Web Pages

Module configuration is provided for the following functions with the GUI interface:

- Video Composite In (page 34)
- Video Processing (page 36)
- VBI (page 38)
- Timing (page 40)
- Picture Enhancer (page 42)

Read-only information about the module is given on the top of each web page including model name and description, frame and slot location and last E-MEM register recalled.

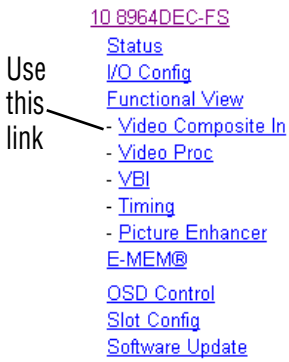
When a channel is selected to configure, the input name (as defined on the I/O Config web page) will be displayed under the selected channel or will show the default name in bold type. Each channel will show the signal reference type (NTSC or PAL).

After making a change, click on **Apply** to activate settings in each selection then click on the **Refresh** button at the top of the display to see the changes.

Each of the four decoder channels can be adjusted separately or settings can be applied to other or all channels. Use the **Apply Setting To** (**Channel 1**, **2**, **3** or **4** as applicable) or **All** buttons to apply the same values to the other channels selected or all channels.

To reset the current channel or all channels to factory defaults, select the Reset defaults for **Current Channel** or **All Channels** buttons.

Select the **Back**, **Functional View**, or **Next** link to navigate to the next function or use the links on the left of the web page.



Video Composite In Web Page

The Video Composite In web page provides adjustments for the video composite input signals prior to decoding. Refer to Table 5 on page 18 for a summary of controls, defaults, parameter ranges and what lines of video are affected by each control.

Select the channel to be adjusted from the **Channel 1 – 4** buttons. Configure the following for each channel:

- The **Enable AGC** and **Enable ACC** are set to default to disabled as shown in Figure 12 on page 35 and provide the following corresponding gain controls:
  - Input Video Gain – adjust the percentage of gain relative to 100%.
  - Input Chroma Gain – adjust the percentage of gain relative to 100%.

    When either checkbox is selected (enabled), the automatic gain or chroma controls will be enabled, setting the display to a read-only condition (100%) as shown in Figure 13 on page 35.

Note The setting of the ACC affects the status of the Sat/Chroma control on the Video Proc web page (see page 36).

- **Report Signal Loss** checkbox– checking this selection enables the SNMP status reporting of all input signals to the module. Leave this box unchecked to disable reporting of all inputs in SNMP and on web page indicators.

  Individual inputs can also be enabled or disabled for SNMP reporting on the I/O Config web page (see *I/O Config Web Page* on page 31).
- **Monochrome In** checkbox – select this checkbox when the input signal to this channel is a monochrome signal. This must be checked for the module to recognize a signal with no burst as a valid signal and light the respective input LED.
- **Remove setup from active video** checkbox – for NTSC signals only, select the checkbox when setup is present (NTSC). Leave the box unchecked (no removal) when no setup is present (Japanese NTSC).

Note When **Remove active video from setup** is unchecked (no removal), setup removal is disabled on the VBI web page.

- Decode Mode – select the type of decoding for the input signal with one of the radio buttons.

Figure 12. 8964DEC Video Composite In Web Page with AGC and ACC Disabled

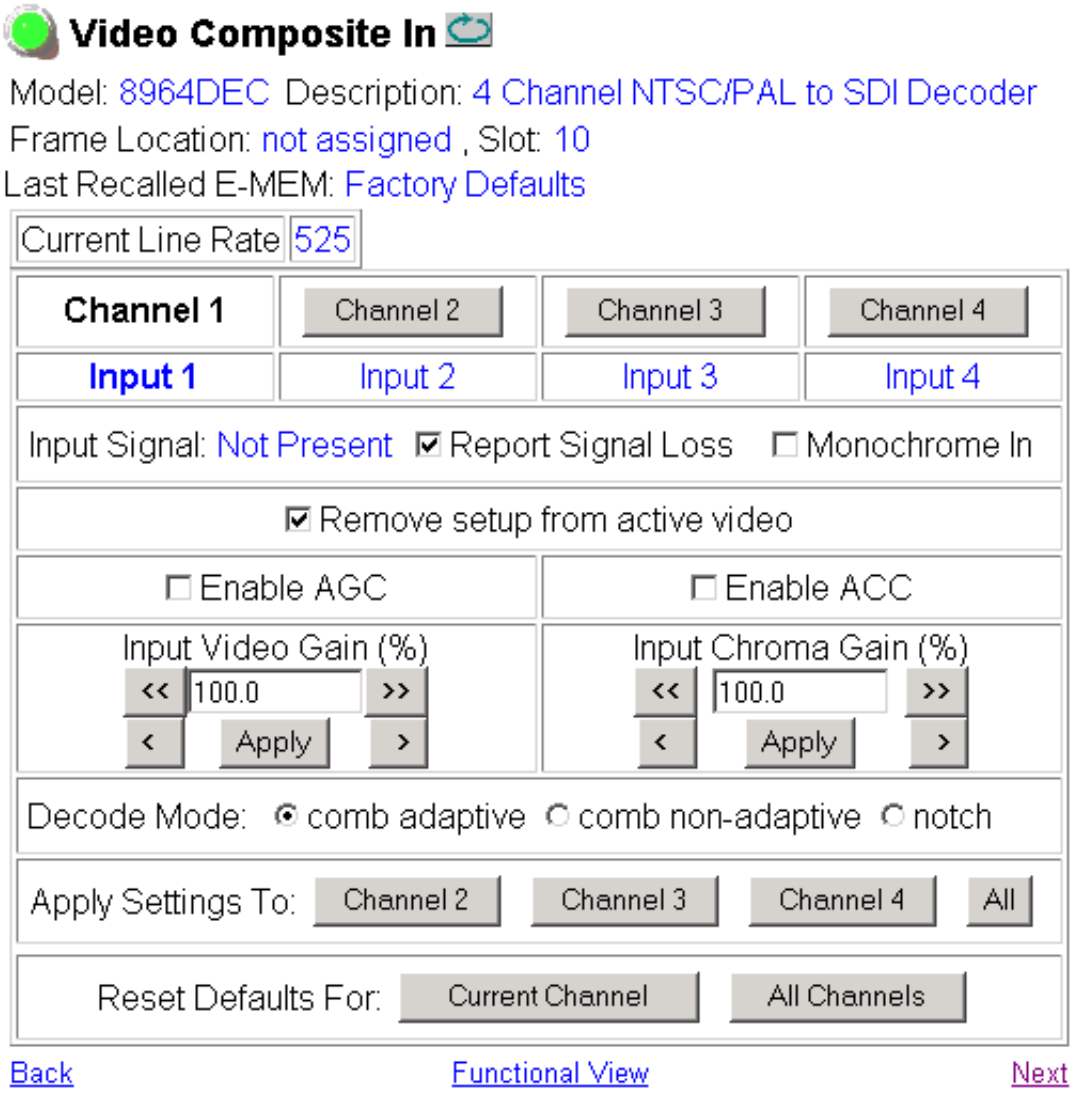
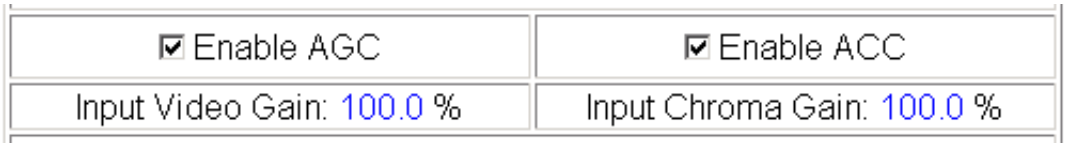
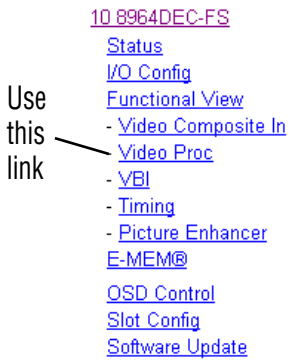


Figure 13. 8964DEC Video Composite In Web Page with AGC and ACC Enabled





Video Processing Web Page

The Video Proc web page (Figure 14 on page 37) provides access to processing amplifier controls for each channel. Refer to Table 5 on page 18 for a summary of controls, defaults, parameter ranges and what lines of video are affected by each control.

Select the channel to be adjusted from the **Channel 1 – 4** buttons.

Configure the following for each channel:

- Video Processing – enable or disable video processing for the channel or select a test signal (100% Color Bars or Pathological).

Note Test signals are not adjustable with the video processing controls. The video processing controls can be changed while using the test signals but will have no affect on the test signal output.

- Chroma Kill – select this checkbox to shut off chroma on the channel output. This control will also affect the VBI lines.

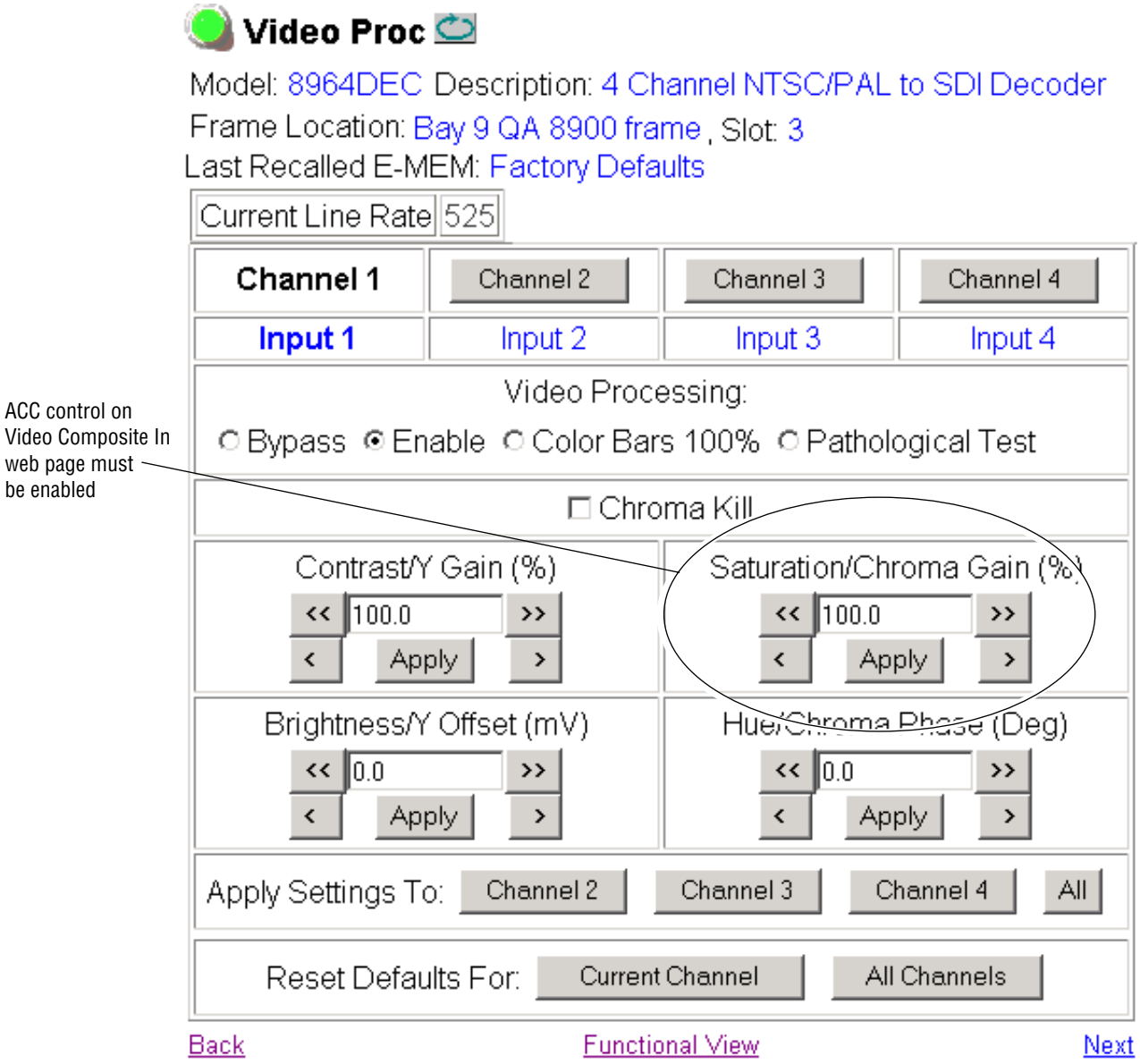
  If the channel is assigned as a monochrome signal (see*Video Composite In Web Page* on page 34), the Chroma Kill function will be forced to a read-only state as shown in Figure 15 on page 37. If the monochrome status is turned off, the checkbox will return to its previous state.

When the **Enable** button is checked in the Video Processing section, the following controls will be active:

- Contrast/Y Gain – adjusts the percentage of luminance relative to white.
- Saturation/Chroma Gain – when ACC is enabled on the Video Composite In web page, adjust the percentage of saturation and chroma gain relative to 100% saturation. When ACC is disabled (the default), this control will be a read-only value (100%).
- Brightness/Y Offset – adjusts amount of brightness/Y offset in mV.
- Hue/Chroma Phase – adjust hue/chroma phase in degrees for both line rates.

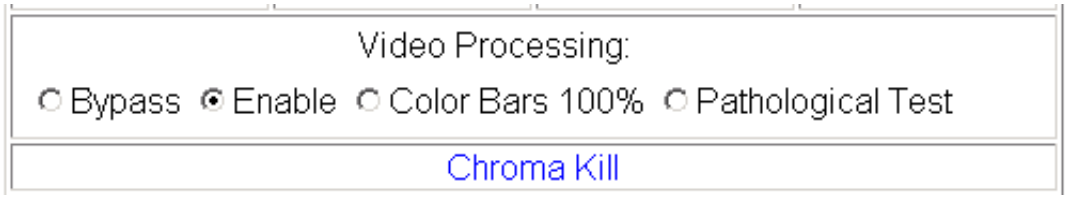
Note The Contrast Y Gain control interacts with the Brightness/Y Offset control. Adjusting the former will affect the latter in order to maintain optimum performance and range. This is normal operation and part of the design of these controls.

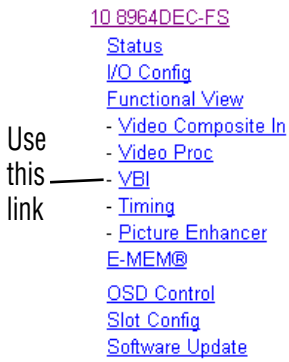
Figure 14. 8964DEC Video Proc Web Page



ACC control on Video Composite In web page must be enabled

Figure 15. 8964DEC Video Proc Web Page with Monochrome Signal





VBI Web Page

Use the VBI web page (Figure 16 on page 39 for 525 line rate or Figure 17 on page 39 for 625 line rate) to configure the programmable line pairs in the vertical blanking interval of each channel. Refer to *Programmable VBI and Active Picture Lines – Composite Input* on page 16 for information on VBI lines. Table 5 on page 18 gives a summary of controls, defaults, parameter ranges and what lines of video are affected by each control.

Select the channel to be adjusted from the **Channel 1 – 4** buttons. The current line rate for the selected channel will appear in the upper left of the display.

The display will show each of the programmable VBI line pairs available for that line rate and any Data Line Pairs that have been reserved for carrying data.

Configure the VBI Line Pairs in each channel for the following:

- Decode Mode – select the type of decoding for the channel VBI and Data Line Pairs as **Notch Decode** or **Pass Through**. This is a global control and affects all lines of programmable VBI lines.
- Chroma Kill – select this checkbox to shut off chroma on the programmable VBI lines. This is a global control and affects all lines of programmable VBI lines.

Note This control has no affect when Chroma Kill has already been enabled on Video Proc web page.

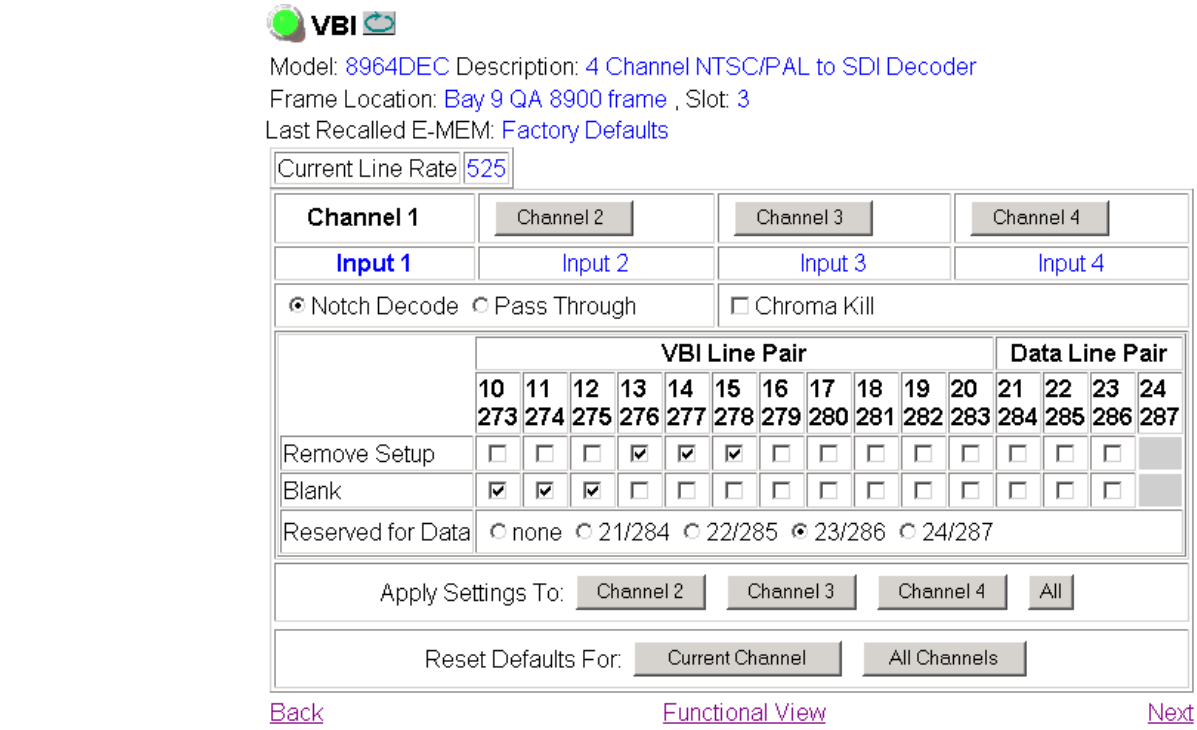
The following controls can be applied to each programmable VBI Line Pair on a line selectable basis:

- Remove Setup (525 only) – select to remove setup on the selected line pair.

Note Only adjustable when **Remove active video from setup** is checked on Video Composite In web page. When **Remove active video from setup** is unchecked (no removal), setup removal has no affect on the VBI web page.

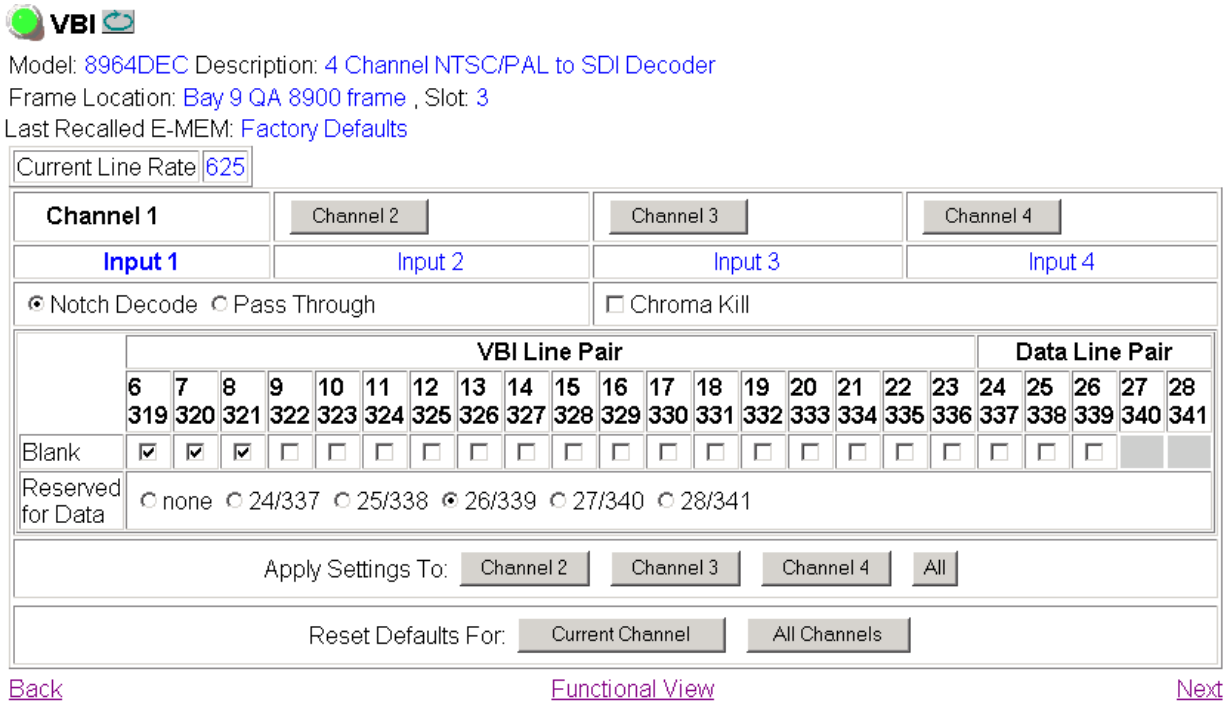
- Blank – select to blank the line pair.
- Data Line Pairs – check one of the Reserved for Data selections to reserve the line pair for carrying data. Line pairs reserved for data will be graphically displayed.

Figure 16. 8964DEC VBI Web Page in 525 Line Rate

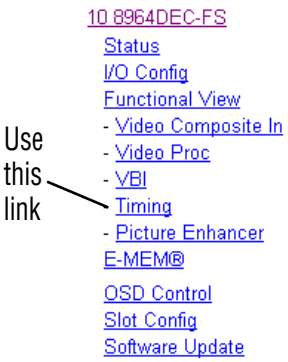


Refer to Figure 17 for the web page display in 625 line rate.

Figure 17. 8964DEC VBI Web Page for 625 Line Rate



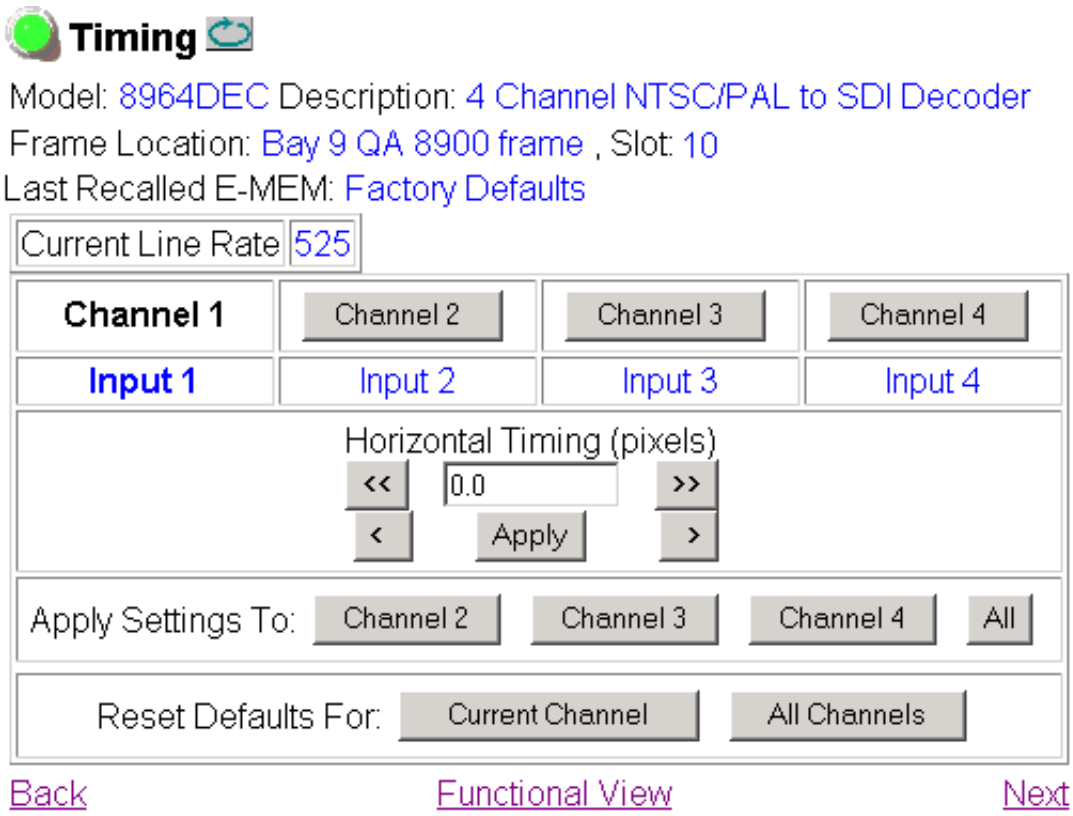
Timing Web Page



Timing adjustments are provided on all models of the 8964DEC. When no Frame Sync option is enabled, the Timing web page will display a Line Sync adjustment for horizontal timing only. When frame sync is enabled (8964DEC-FS), the Timing web page will include horizontal and vertical timing as well as freeze controls. Table 5 on page 18 gives a summary of controls, defaults, parameter ranges and what lines of video are affected by each control.

Select the channel to be adjusted from the **Channel 1 – 4** buttons. For the 8964DEC model with Line Sync (Figure 18), adjust the Horizontal Timing control in pixels for the correct timing output for each channel.

Figure 18. 8964DEC Timing with Line Sync



When the Frame Sync option is enabled (8964DEC-FS), the Timing web page (Figure 19) will also include a Vertical timing adjustment and Freeze controls.

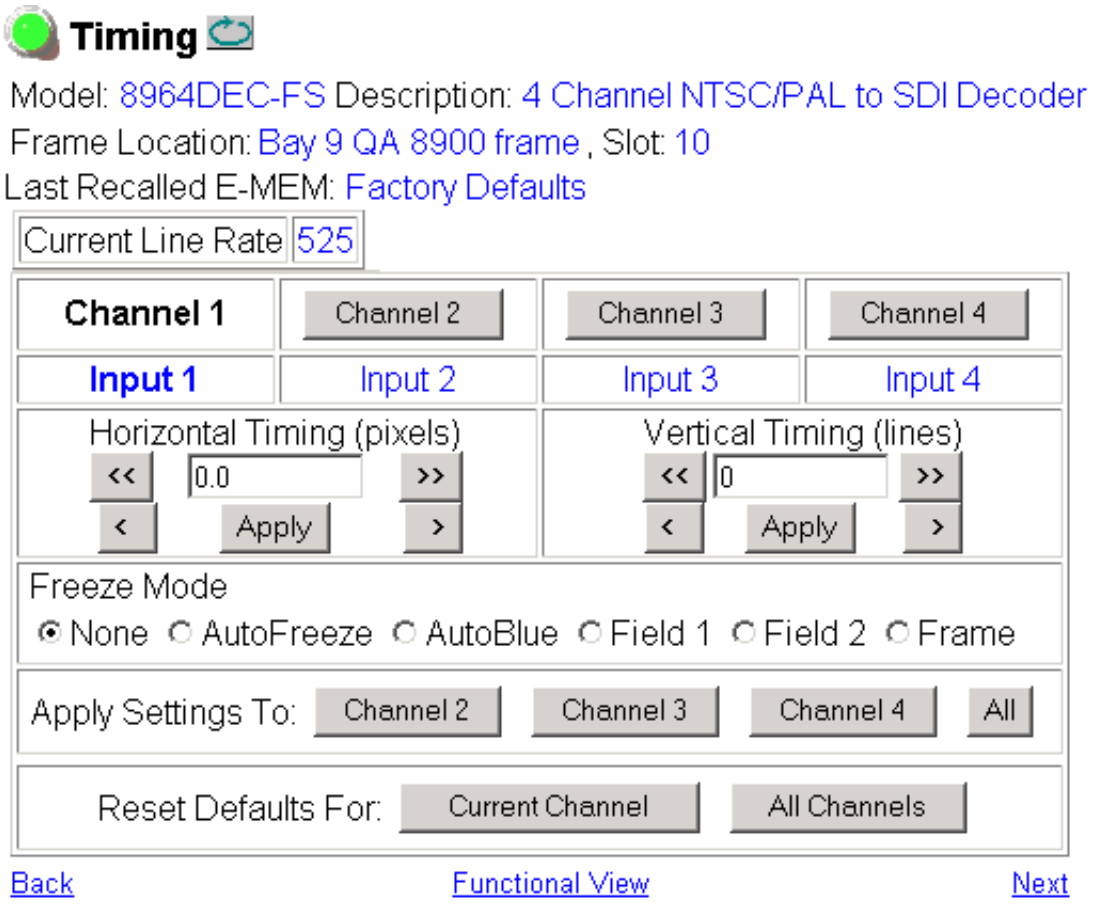
Select the channel to be adjusted from the **Channel 1 – 4** buttons and adjust the following Frame Sync timing controls:

- Horizontal Timing (in pixels)
- Vertical Timing (in lines)

Select one of the following buttons from Freeze Mode:

- **None** – no manual or auto freeze enabled.
- **AutoFreeze** – auto freeze to last valid field will occur upon loss of signal.
- **AutoBlue** – auto freeze to blue screen will occur upon loss of signal.
- **Field 1**, **Field 2**, or **Frame** – selecting one of these buttons performs an immediate manual freeze on the selected channel output.

Figure 19. 8964DEC-FS Timing With Frame Sync and Freeze Controls



Picture Enhancer Web Page

The Picture Enhancer function can be enabled to adjust picture detail or can be disabled for each channel on the web page shown in Figure 20.

Select the channel to be adjusted from the **Channel 1 – 4** buttons.

- Select the **Disable** button to turn off picture enhancement.
- Select the **Low**, **Medium**, or **High** button to enable the amount of picture enhancement on the channel output.

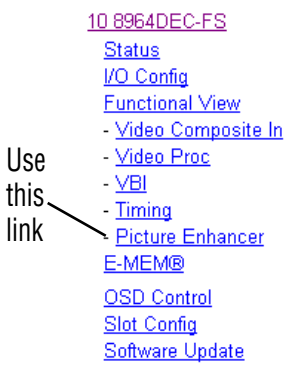
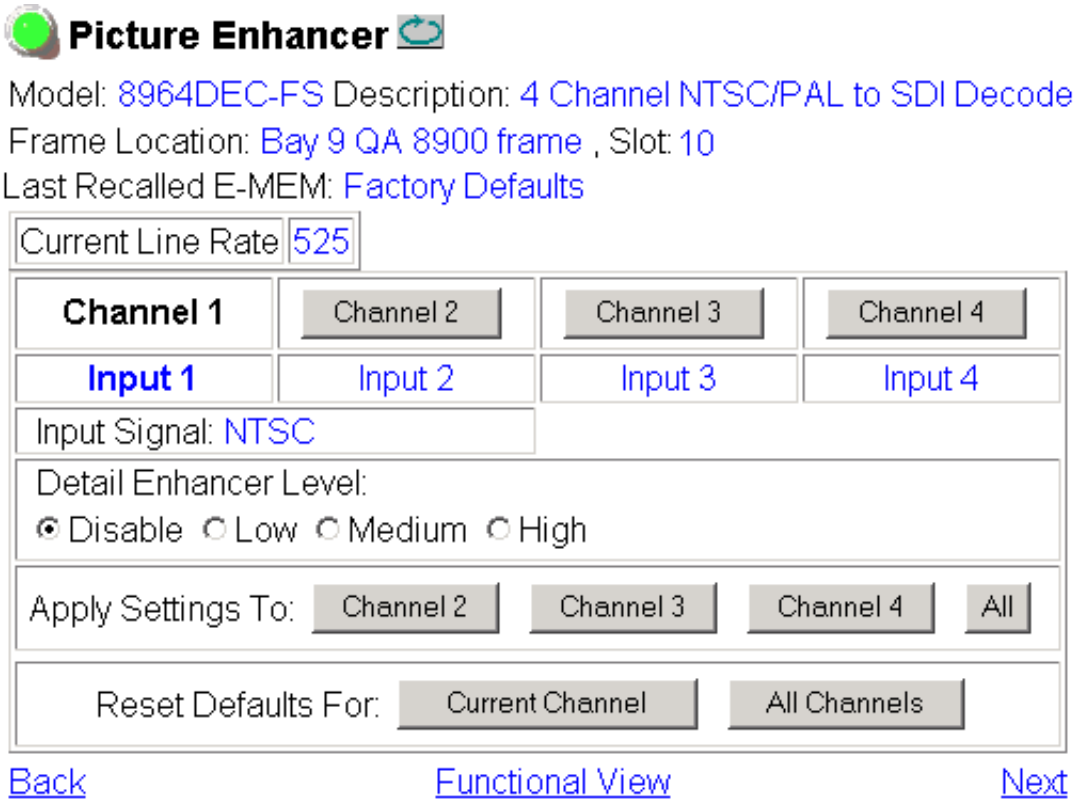
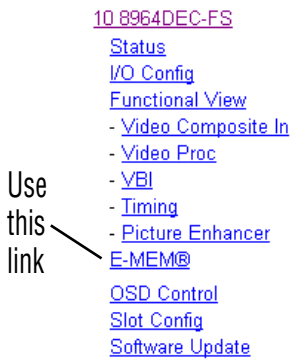


Figure 20. 8964DEC Picture Enhancer Web Page



E-MEM Web Page



The E-MEM web page provides local operations for learning and recalling configurations into E-MEM registers. File operations are also available for saving or loading the learned E-MEM files to and from a hard disk or other accessible media.

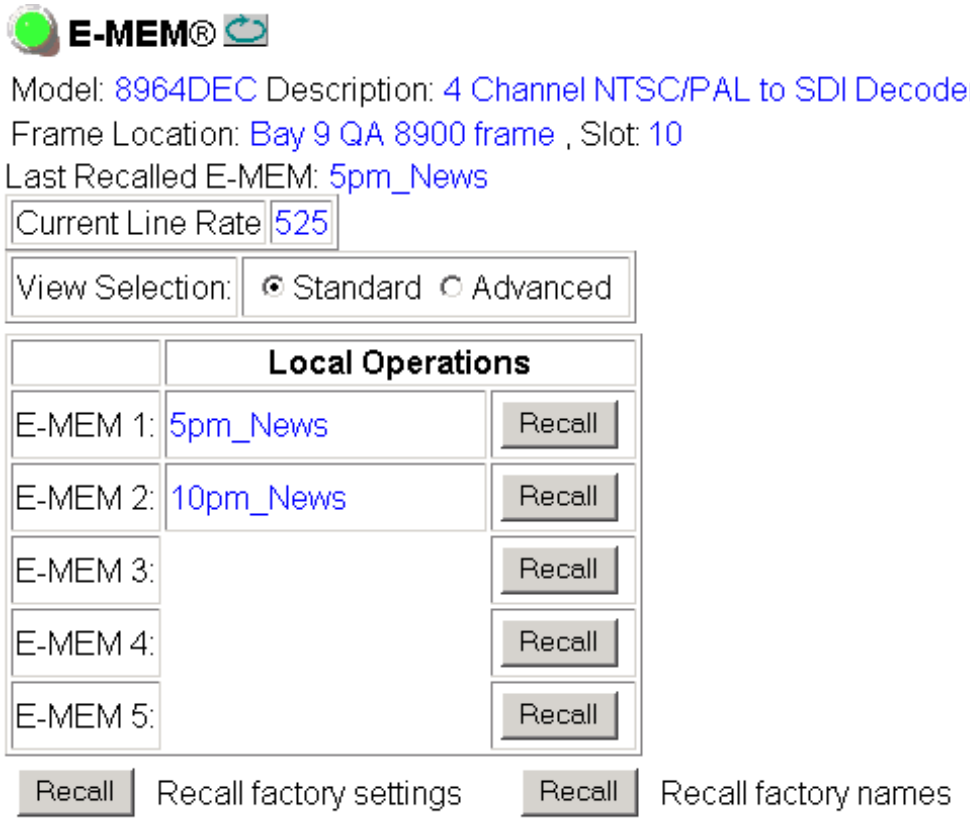
Factory default settings for all channels can be recalled by selecting the **Recall factory settings** button. To return the module to the factory signal names (such as the signal inputs), select the **Recall factory names** button.

There are two E-MEM view selections: **Standard** and **Advanced**.

In Standard view (Figure 21), any one of five learned E-MEMs can be recalled by selecting the corresponding **Recall** button in the Local Operations window. This will place the configuration for all four channels learned into that E-MEM into the 8964DEC. This change will occur immediately upon recall. The name of the last recalled E-MEM will appear in the top header of each web page for the module.

To learn an E-MEM select the **Advanced** button in the View Selection section. This will open the Advanced view (Figure 22 on page 44).

Figure 21. 8964DEC E-MEM Web Page (Standard View)

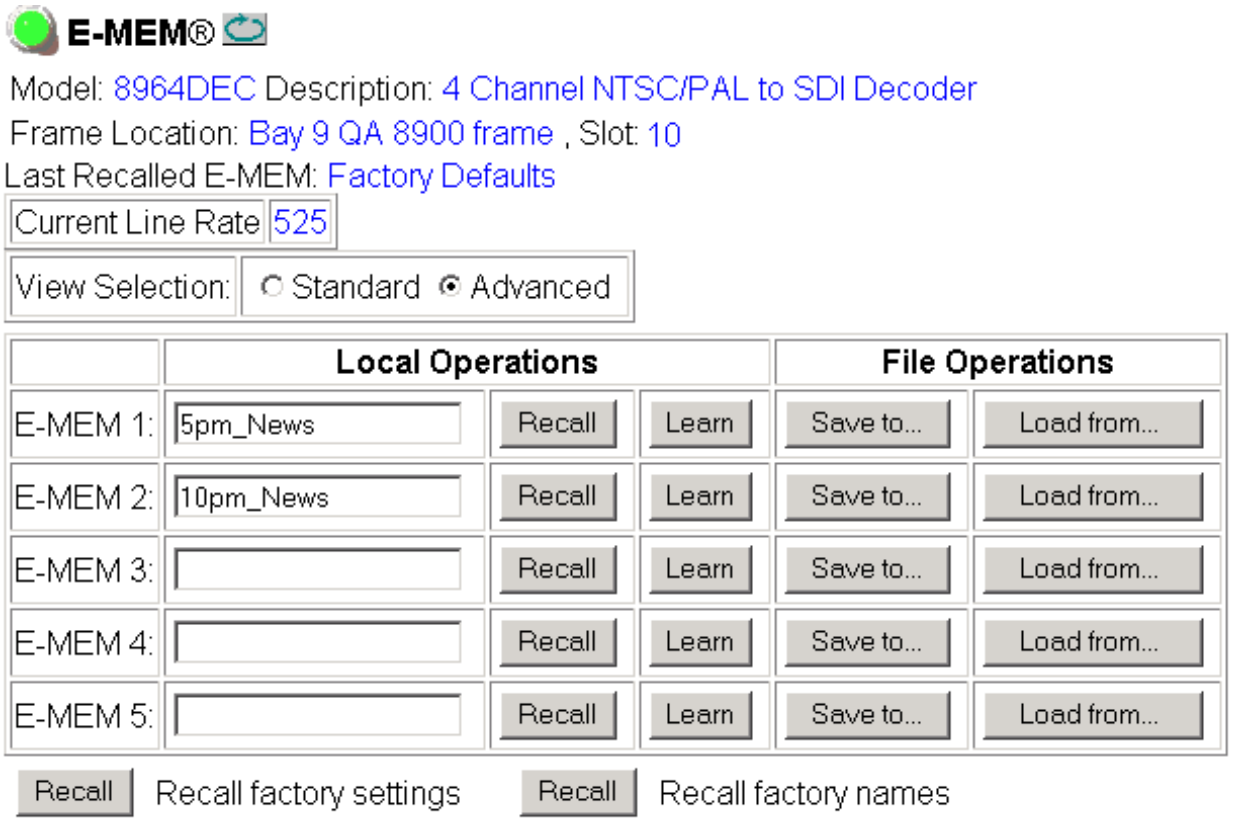


The Advanced View (Figure 22) includes a File Operations section to Learn a configuration into E-MEM (**Learn**), save a file to a disk location (**Save to…**) or load a file from a disk location (**Load from…**).

To learn an E-MEM:

1. Open the Advanced view.
2. When the configuration is complete for all channels on the module, type a descriptive name for the configuration into an unused E-MEM register (or overwrite an existing one).
3. Learn the E-MEM to memory by selecting the corresponding **Learn** button. All channel configurations are learned at once and stored in the same register. This register is now learned and ready for recall.

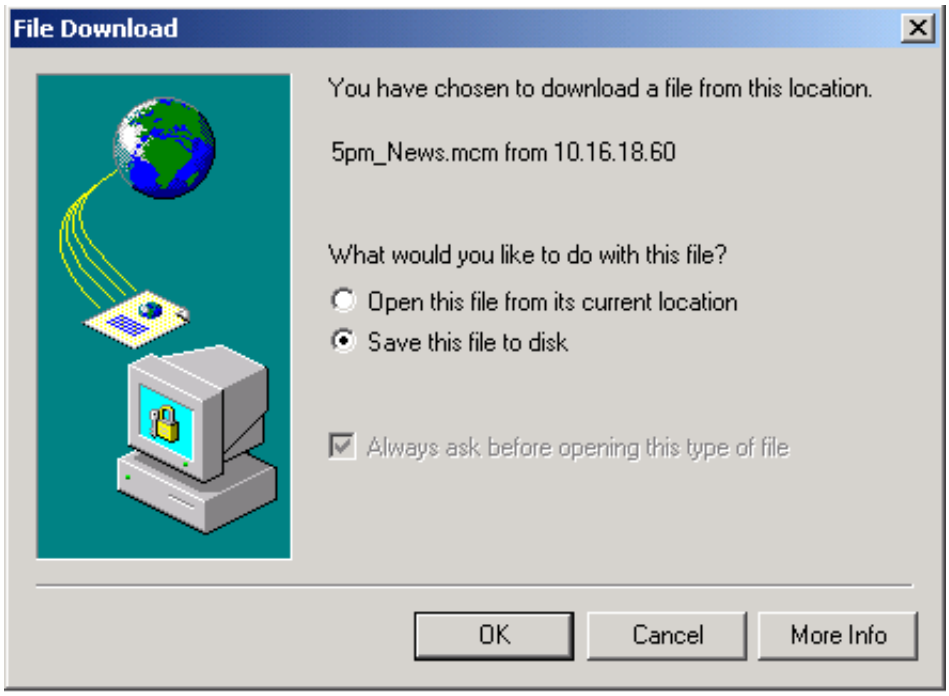
Figure 22. E-MEM Web Page (Advanced View)



To Save an E-MEM configuration to a file on a hard drive or other accessible media:

1. Select the corresponding **Save to...** button.
2. This will bring up a File Download screen (Figure 23).
3. Select the **Save this file to disk** button and **OK**.

Figure 23. E-MEM Save to Operation



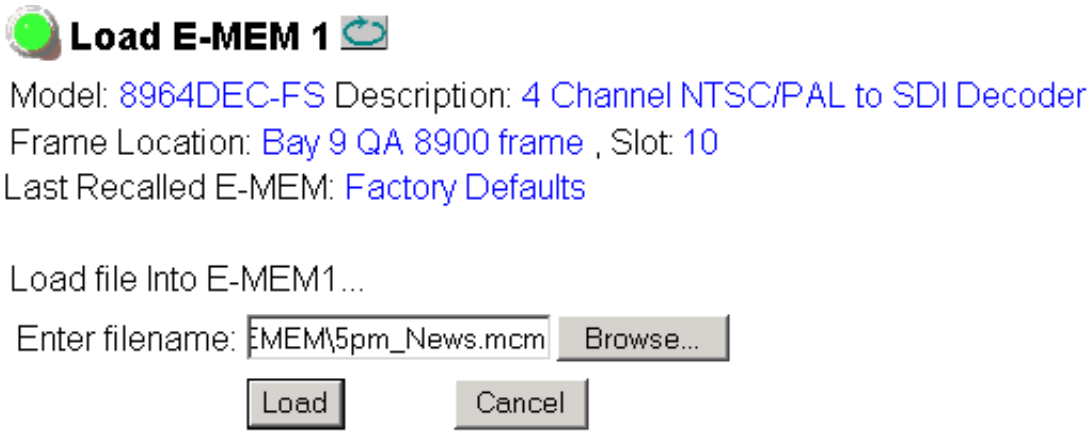
4. In the resulting Save As dialog box, the file name default to the E-MEM name. Browse to the folder where you want to save the configuration and select **Save**. The file saves as a .mcm file type.

Note You may rename the file during the Save process but the E-MEM name entered into the Local Operations window will not change on the web page to match the Save As name. Best practice is to leave the Save As file name the same as the E-MEM name.

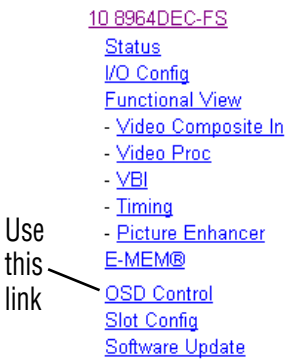
To load a saved E-MEM from a location

1. Select the **Load from …** button.
2. This will bring up the Load E-MEM web page (Figure 24).
3. Browse to the location of the file you wish to load and select the file then the **Open** button to load the file or enter the filename and path in the Enter filename box.
4. Once the correct path and filename is loaded, select the **Load** button on the Load E-MEM page.
5. This should place the recalled E-MEM file into the corresponding E-MEM window. Select the corresponding **Recall** button to invoke this configuration.

Figure 24. Load E-MEM Web Page



OSD Control Web Page



The OSD Control web page (Figure 25) allows enabling and disabling of the OSD on any of the four channel outputs. It also displays the status of the onboard OSD jumper, JP3 (see *8964DEC Module Onboard Configuration Settings* on page 23).

Jumper JP3 on the module enables control of the OSD by either the local onboard controls or this OSD Control web page. Once the OSD control is enabled, it can be turned on and off for each channel with the controls in this display or with the local onboard controls.

Figure 25. 8964DEC OSD Control Web Page

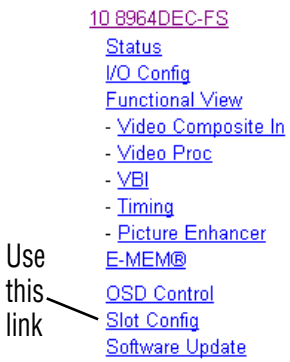
OSD Control

Model: 8964DEC Description: 4 Channel NTSC/PAL to SDI Decoder
Frame Location: Bay 9 QA 8900 frame , Slot: 10
Last Recalled E-MEM: Factory Defaults

On Screen Display

OSD Jumper Status:	Enabled
Channel 1 OSD:	(•) Off ( ) On
Channel 2 OSD:	( ) Off (•) On
Channel 3 OSD:	(•) Off ( ) On
Channel 4 OSD:	(•) Off ( ) On

Slot Config Web Page



Use the Slot Config web page (Figure 26 on page 49) to perform the following functions on the 8964DEC module:

- **Locate Module** – selecting **Flash** from the **Locate Module** pulldown flashes the yellow COMM and CONF LEDs on the front of the module so it can be located in the frame.
- **Slot Identification** – You may identify the module by typing a specific name in the **Name** field. The assigned name is stored on the 8900NET module and travels with the 8900NET module if it is moved to another frame. Select **Default** to enter the factory default module name.

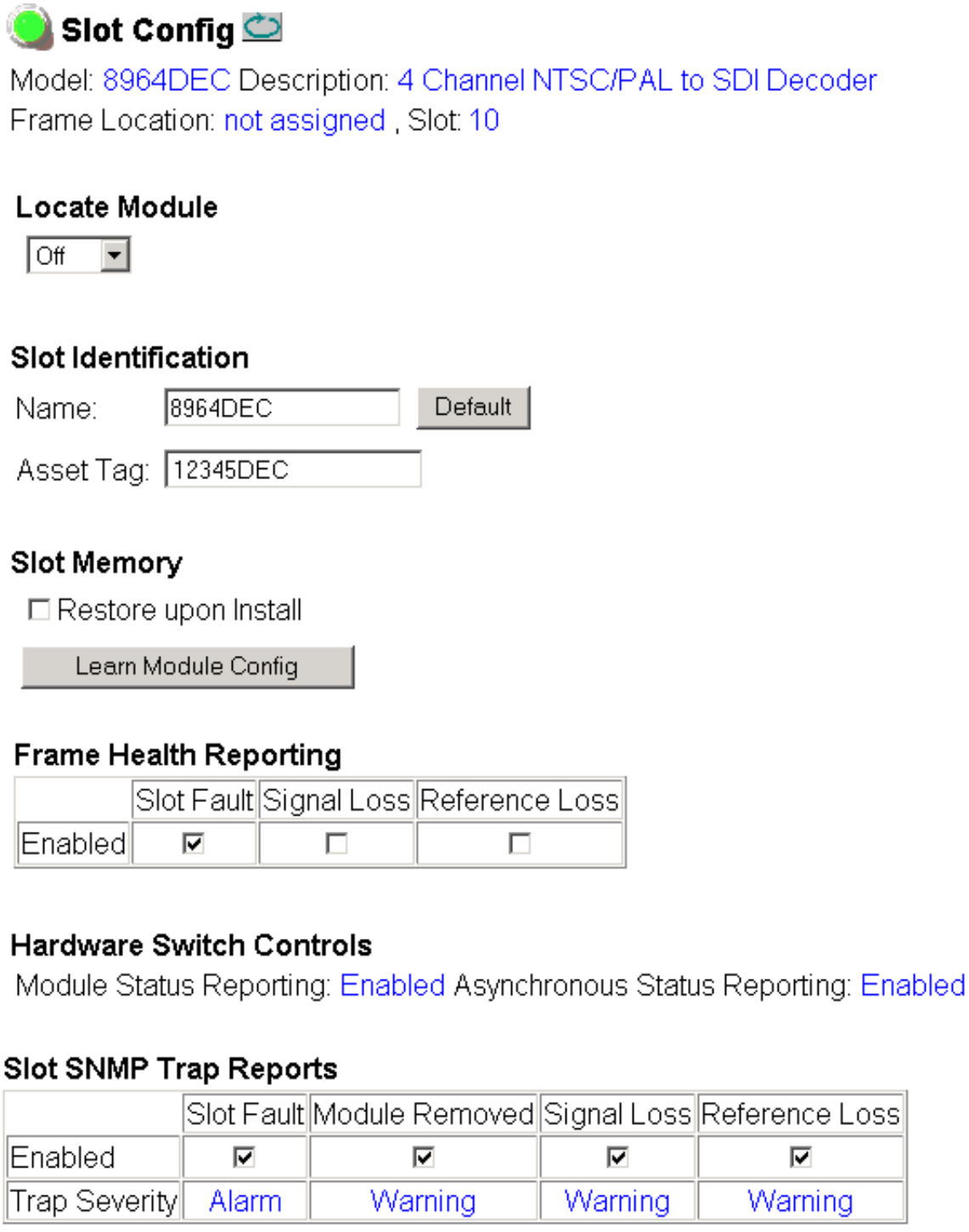
  An asset identifier may be entered into the **Asset Tag** field for inventory purposes (functionality requires 8900NET software 3.2.2 or later). The asset tag will appear on the Status web page and can be used in the Inventory function with the NetConfig Network Configuration application.
- **Slot Memory** – the slot configuration for each media module is automatically saved periodically (once an hour) to the 8900NET module in that frame. You may also select the **Learn Module Config** button at any time to save the current configuration for this slot. The configuration is saved on the 8900NET module. If the 8900NET module is removed or powered down, the stored configurations are not saved.

  When the **Restore upon Install** box has been checked, the current configuration saved to this slot is saved as slot memory. When the current module is removed and another module of the same type is installed, the configuration saved to the 8900NET module will be downloaded to the new module. The box must be checked before the current module with the saved configuration is removed.
- **Hardware Switch Controls** – a read-only status report of 8900NET module switch settings for Module Status Reporting and Asynchronous Status Reporting. These functions must be enabled for the following Slot SNMP Trap Reports to function.
- **Frame Heath Reporting** – this function is not used on the current version of 8900NET software which controls this page.
- **Slot SNMP Trap Reports** – displayed only when the SNMP Agent software has been installed on the 8900NET module. Slot SNMP traps can be enabled only when the hardware switches for Module Fault reporting and Asynchronous Status reporting are in enabled on the 8900NET module (dipswitch S1 segment 5 and dipswitch S2 segment 1).

  The enabled SNMP traps will be reported to any SNMP manager that is identified as an SNMP Report Destination in 8900NET configuration. Trap severity is read-only hard-coded information that is interpreted and responded to by the SNMP Manager software configuration.

  SNMP reporting can be also be disabled for individual signal inputs on the I/O Config and Video Composite In web pages.

Figure 26. 8964DEC Slot Config Web Page



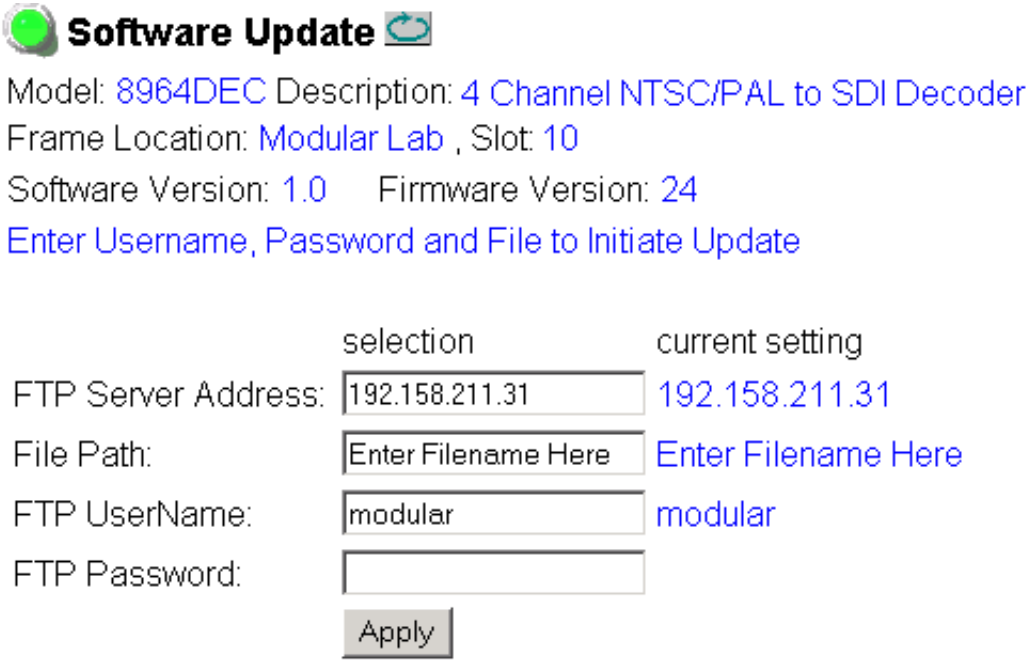
Software Update Web Page

The Software update web page (Figure 27) allows updating of software from remote locations such as a CD-ROM or the Grass Valley web site. For instructions on updating to the latest software, refer first to the 8964DEC Release Notes that accompany the software update for complete details.

Updating with this method requires the use of an ftp server application available from the Grass Valley web site. Refer to the *8900NET Network Interface Instruction Manual* for instructions for installing and using the ftp server application.

Software updates may also be performed using the NetConfig application available from Grass Valley. Refer to the *NetConfig Instruction Manual* for more information.

Figure 27. 8964DEC Software Update Web Page



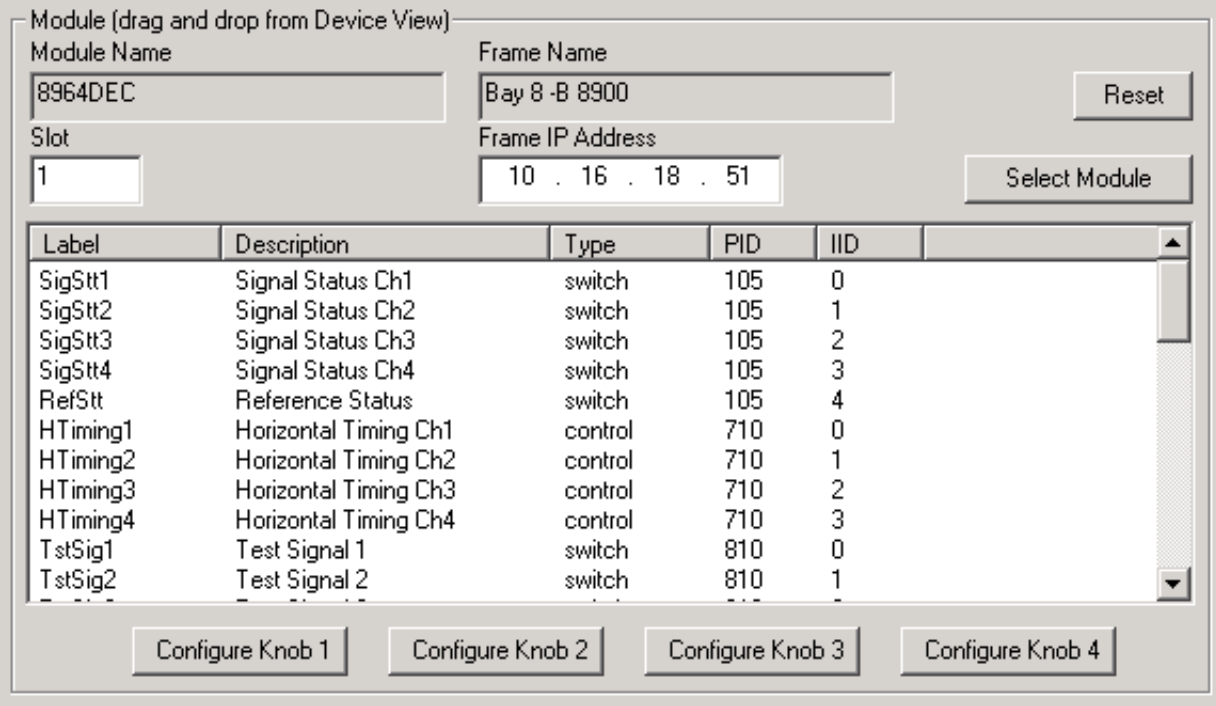
Newton Control Panel Configuration

A Newton Control Panel can be interfaced to the Gecko 8900 Series frame over the local network to control 8964DEC configuration and control parameters.

Note The 8900NET module in the Gecko 8900 frame must be running software version 3.2.0 or later for proper operation of the Newton Control Panel.

Not all parameter controls are available with the Newton Control Panel. The available control panel controls are listed in Table 5 on page 18. An example of the Newton Configurator for the 8964DEC is shown in Figure 28.

Figure 28. Newton Configurator Example



Refer to the documentation that accompanies the Newton Control Panel for installation, configuration, and operation information.

Module Option Upgrade

The 8964DEC module can be upgraded to enable the Frame Sync option. This upgrade must currently be done at the factory. Contact your nearest Grass Valley Sales or Service representative for more information.

Specifications

Table 8. 8964DEC Specifications

Parameter	Value
Composite Input (per channel)	
Number of inputs	4, one for each decoder
Signal type	Composite analog video conforming to: NTSC (525/59.9) SMPTE170M PAL-B/PAL-I (625/50) CCIR624-4
Signal level	0.5 p-p to 2 V p-p, 1 V p-p nominal
Signal source	75 Ω BNC on rear of frame
Impedance	75 Ω terminating
Return loss	> 40 dB to 5.75 MHz
Common mode rejection ratio	None
Composite Input Performance	
Sampling	27 MHz (2 x oversampling)
Input quantization	10 bits
Overall processing accuracy	8.5 bits
Luma frequency response	± 0.1 dB to 5 MHz
Chroma (R-Y, B-Y) response	– 1.5 dB at 1.3 MHz
Group delay error	< 8 ns to 5 MHz
Chroma/luma delay	< 10 ns
Luma non-linearity	< 0.8%
K factor (2T)	< 0.5%
Line tilt	< 0.5%
Field tilt	< 0.5%
Differential phase	< 1 degree
Differential gain	< 1%
Signal/noise ration (CCIR410 or EIA RS-250B)	> 54.5 dB RMS to 5 MHz
Phasing	None
Picture centering error	0.0 ± 20 ns (non-adjustable)
Decoding modes	3-/4-line adaptive/non-adaptive multiple modes
Blanking start/end	SMPTE170M or CCIR624, non-adjustable
Input locking noise level	> 15 dB RMS S/N

Table 8. 8964DEC Specifications

Parameter	Value
SDI Outputs	
Number of outputs	4, one for each decoder
Signal type	Serial digital video conforming to SMPTE259M 10-bit 4 2:2 component digital signal
Signal level	800 mV ±10%
Connector type	75 Ω BNC on rear of frame
DC offset	< 0.5 V when terminated into 75 Ω
Output return loss	> 15 dB up to 270 Mb/s
Jitter	Conforms to SMPTE 17.12/002 < 400 ps above 1 kHz
Rise/Fall times	700-900 ps (20 – 80% amplitude)
Error checking	EDH embedded
Timing Control Parameters (line/frame synchronizer delay)	
Reference input return loss w/75 Ω termination	> 45 dB
Reference signal level	300 mV sync tip ± 37 ns steps
Reference signal noise level	> 40 dB S/N RMS
Timebase offset tolerance	< ± 40 ppm
Locking time	< 1.5 sec, critically damped
Delay adjustment	Frame sync: 0 to 1 frame, 37 ns steps Line sync: 0 to 1 line, 37 ns steps
Latency (minimum absolute delay from video in to SDI out)	Line delay: 1 line + 55 µs Frame sync: 1 line + 55 µs
Fine phase subpixel delay	None
Freeze control	Auto (last valid field or blue) or Manual (Field 1, Field 2 or Frame)
Environmental	
Frame temperature range	0 to 45 degrees C
Operating humidity range	0 to 90% non-condensing
Non-operating temperature	-10 to 70 degrees C
Mechanical	
Frame type	Gecko 8900 Video
Power Requirements	
Supply voltage	+12V
Power consumption	< 8.2 W (2 A slow blow fuse)

Service

The 8964DEC modules make extensive use of surface-mount technology and programmed parts to achieve compact size and adherence to demanding technical specifications. Circuit modules should not be serviced in the field unless directed otherwise by Customer Service.

If your module is not operating correctly, proceed as follows:

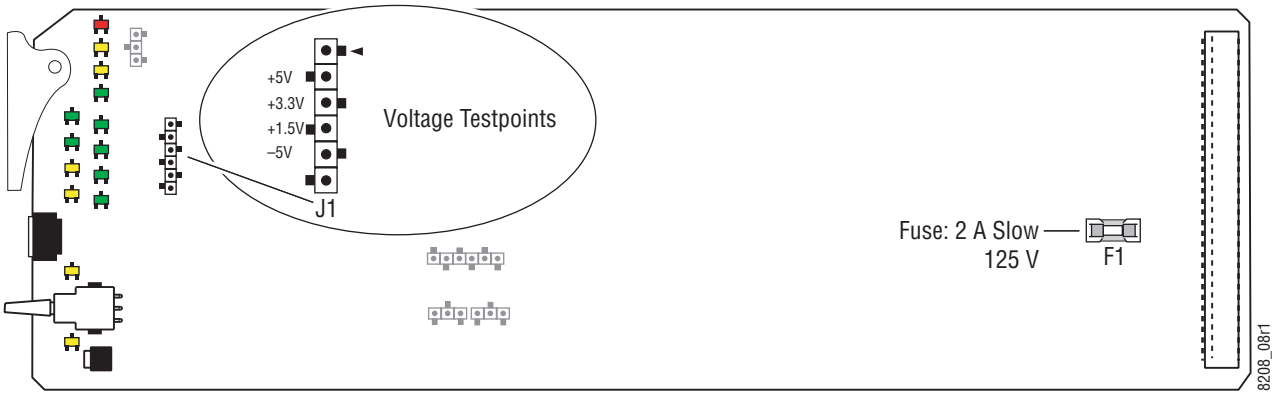
- Check frame and module power and signal present LEDs.
- Verify power at the voltage testpoints (see Figure 29) and check Fuse F1 if no voltage is detected.
- Check for presence and quality of input signals.
- Verify that source equipment is operating correctly.
- Check cable connections.
- Check output connections for correct I/O mapping (correct input connector is used for the corresponding channel output).

Refer to Figure 4 on page 11 for the location of PWR LED and Table 2 on page 12 for proper LED indications.

If the module is still not operating correctly, replace it with a known good spare and return the faulty module to a designated Grass Valley repair depot. Call your Grass Valley representative for depot location.

Refer to the *Contacting Grass Valley* at the front of this document for the Grass Valley Customer Service Information number.

Figure 29. 8964DEC Fuse and Voltage Testpoint Locations



Status Monitoring

This section provides a summary of status monitoring and reporting for a Gecko 8900 Series system. It also summarizes what status items are reported and how to enable/disable reporting of each item. There are a number of ways to monitor status of modules, power supplies, fans and other status items depending on the method of monitoring being used.

8900 Frame status will report the following items:

- Power supply health,
- Status of fans in the frame front cover,
- Temperature,
- Module health, and
- Frame bus status.

Module health status will report the following items:

- Internal module state (and state of submodule or options enabled) including configuration errors (warning), internal faults, and normal operation (Pass).
- Signal input states including valid/present (pass), not present or invalid (warning), not monitored, and not available (no signal inputs).
- Reference input states including locked/valid (pass), not locked/invalid (warning), and not monitored.
- Signal output states with reporting functionality (reference output).

LEDs

LEDs on modules in the frame and on the front of the 8900TF/TFN frames indicate status of the frame and the installed power supplies, fans in the front covers, and modules. (The 8900TX-V/A frames have no LED indicators on the front cover.)

When a red FAULT LED is lit on a frame front cover, the fault will also be reported on the 8900NET or Frame Monitor module. The LEDs on the front of these modules can then be read to determine the following fault conditions:

- Power Supply 1 and 2 health,
- Fan rotation status,
- Frame over-temperature condition,
- Frame Bus fault (8900NET only), and
- Module health bus.

In general, LED colors used on the frame and modules indicate:

- Green = normal operation, (Pass) or signal present, module locked.
- Red – On continuously = fault condition, flashing = configuration error.
- Yellow – On continuously = active condition (configuration mode or communication), flashing in sequence = module locator function.

Status LEDs for this module are described in *Operation Indicator LEDs* on page 11. LEDs for the 8900NET module are described in the *8900NET Network Interface Instruction Manual*.

Frame Alarm

A Frame Alarm connection is available on pins 8 and 9 of the RS-232 connector on the rear of 8900 frame (Frame Monitor or 8900NET Network Interface module required). This will report any of the status items enabled with the 8900NET or Frame Monitor module configuration DIP switch. Connection and use of the Frame Alarm is covered in detail in the *8900NET Network Interface Instruction Manual.*

Web Browser Interface

When the 8900NET module is installed in the frame, a web browser GUI can indicate frame and module status on the following web pages:

- Frame Status web page – reports overall frame and module status in graphical and text formats.
- Module Status web page – shows specific input and reference signal status to the module along with enabled options and module versions.
- A Status LED icon on each web page to report communication status for the frame slot and acts as a link to the Status web page where warnings and faults are displayed (8900NET version 3.0 or later).

In general, graphics and text colors used indicate the following:

- Green = Pass – signal or reference present, no problems detected.
- Red = Fault – fault condition.
- Yellow = Warning – signal is absent, has errors, or is mis-configured.
- Gray = Not monitored (older 8900 module).
- White = Not present.

Status reporting for the frame is enabled or disabled with the configuration DIP switches on the 8900NET module. Most module status reporting items can be enabled or disabled on individual configuration web pages.

SNMP Reporting

The Gecko 8900 Series system uses the Simple Network Monitoring Protocol (SNMP) internet standard for reporting status information to remote monitoring stations. When SNMP Agent software is installed on the 8900NET module, enabled status reports are sent to an SNMP Manager such as the Grass Valley's NetCentral application.

There are both hardware and software report enable switches for each report. Both must be enabled for the report to be sent. Software report switches are set on the 8900NET Configuration web page for the Frame, the 8900NET module, and each module slot. Refer to the *8900NET Network Interface Instruction Manual* for installation instructions.

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