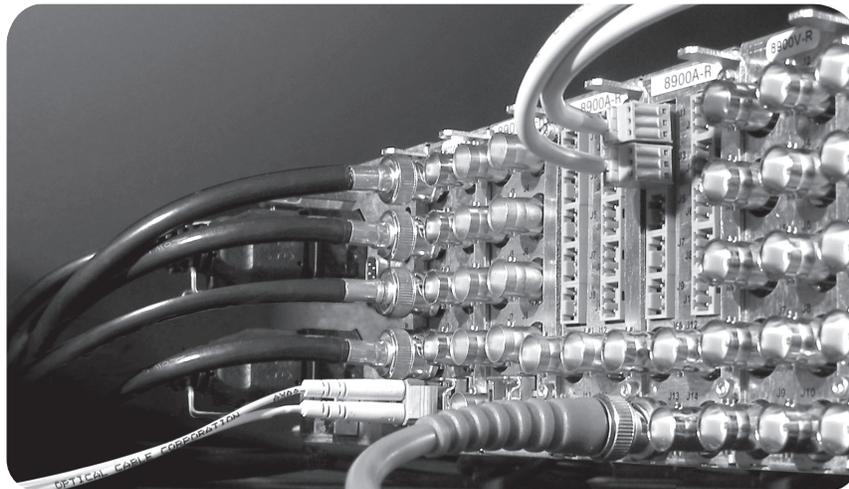


8964ENC/-FS

4-CH SDI TO NTSC/PAL ENCODER MODULE



Instruction Manual

Software Version 1.2.2

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8964ENC/-FS

4-CH SDI TO NTSC/PAL ENCODER MODULE

Instruction Manual

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Preface

About This Manual

This manual describes the features of a specific 8900 module as part of the Gecko and GeckoFlex Signal Processing System families. As part of this module family, it is subject to Safety and Regulatory Compliance described in the *Gecko 8900 Frames Instruction Manual* and the *GeckoFlex Frames 8900FX/FF/FFN Signal Processing System Instruction Manual*.

These manuals can be found on-line in PDF format at this link:

www.grassvalley.com/docs/modular

8964ENC/-FS 4-Channel SDI To NTSC/PAL Encoder

Introduction

The 8964ENC and 8964ENC-FS (with Frame Sync) modules offer four independent, full-function encoders on one module. With 10-bit D-A, the 8964ENC provides high quality conversion of SDI to NTSC/PAL video. Noise reduction and picture enhancement functions are included with a frame synchronizer function also available as an option.

The 8964ENC features:

- Four 270 Mbs SDI to NTSC or PAL composite video encoders with independent controls for:
 - Horizontal timing adjustment,
 - Fine phase adjustment
 - Frame sync (option) adding vertical timing and freeze modes,
 - Proc amp controls,
 - Line-by-line VBI blanking,
 - Test signal generator (color bars output),
 - Noise reduction, and
 - Picture detail enhancement.
- An OSD (On Screen Display) can be keyed in and out of video output,
- Analog color black NTSC/PAL reference inputs,
- Up to 10 8964ENC encoders in a 2 RU Gecko™ 8900 video frame providing up to 40 encoders 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,
 - NetConfig Networking application, and
 - Control panel connections.

Installation

The 8964ENC and 8964ENC-FS module can be installed in either an 8900 Gecko or a GeckoFlex frame. An 8900V-R rear module is required for use in the GeckoFlex frame.

Gecko 8900 Frame

Installation of the 8964ENC module in a Gecko 8900 frame is a process of:

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

The 8964ENC 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 18](#)).

Frame Capacity

The 8964ENC 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
8964ENC (-FS) Modules	5	10	10

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

Using the latest 8900NET (Net card) module (version 4.3.0 or later), a link to the 8900 Frame Status web page ([Figure 12 on page 35](#)) then select the link to the Power Supply/Demand web page for determining the power capacity for the frame. Using this function, the 8900NET module will determine how much power is being consumed and report back when power has been exceeded.

Module Placement in the Gecko 8900 Frame

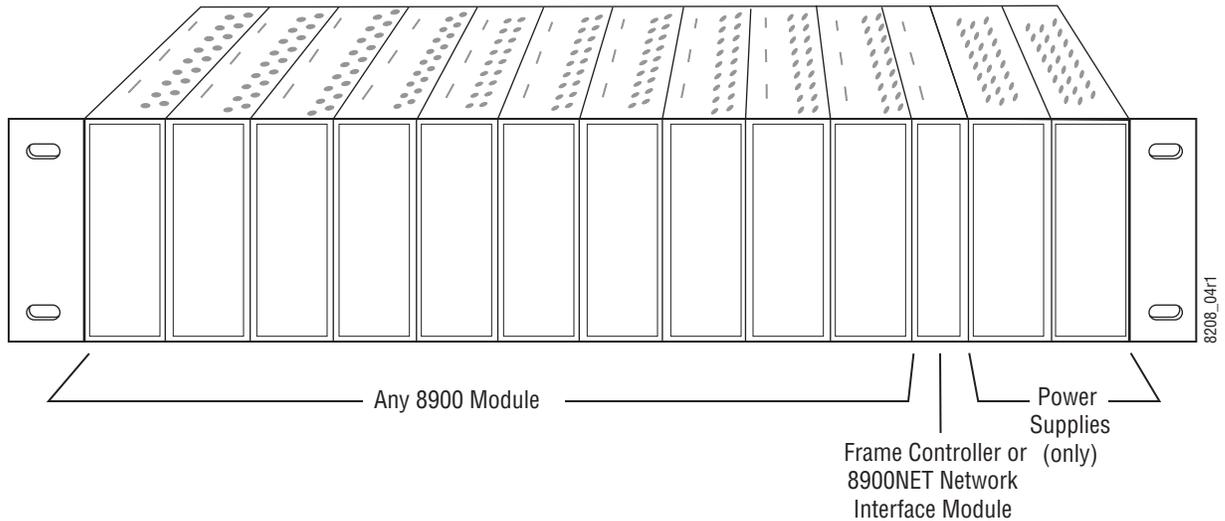
There are ten cell locations in the frame to accommodate either analog or digital modules. These are the left ten locations. Refer to [Figure 1](#).

The two cells on the right are allocated for the power supplies. For additional information concerning the Power Supply module, refer to the *8900 Gecko Frames* or the *GeckoFlex Frames 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.

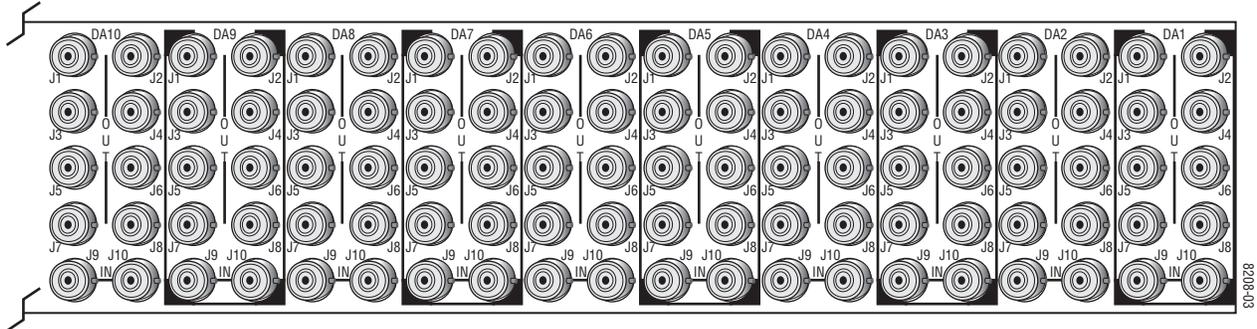
Note If using an 8900NET module in the frame, it must be running software version 4.3.0 or higher for full networking functionality and proper remote operation of the 8964ENC module.

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.

GeckoFlex Frame

Installation of the 8964ENC/FS module in a GeckoFlex frame includes:

1. Installing the 8900V-R rear module into the rear of the frame,
2. Placing the 8964ENC/FS module in the corresponding front frame slot, and
3. Cabling and terminating signal ports.

Module Installation Precautions

Please read and follow the precautions listed below before installing the front and rear modules:

- Use standard anti-static procedures during installation. As modules can be installed or removed when the GeckoFlex frame is powered up, before removing the cover, please use an anti-static bracelet or heel strap tied to a metal part of the frame.
- Install the rear module first, then install the front module.
- When installing or removing a rear module, loosen or tighten the screws holding the retainer clips to the frame manually with the retainer clip tool provided inside the front cover of the frame or use a 2 mm (5/64") hex screwdriver. Please do not use an electric screwdriver.

Note On newer 751- version GeckoFlex frames, a Rear Retainer Clip removal tool and 2 extra retainer clips and screws for installing them are provided on the inside of the frame cover.

- Make every effort to leave the screws holding the retainer clips in place (do not remove them completely). They are very small and can easily drop into other equipment causing a shorting hazard. (Two turns of the screw should be enough to loosen the screws, 3 turns or more will remove it.)
- When installing a rear module, tighten the screws on the retainer clips just until snug. Do not apply more force than is necessary to seat the rear module. Do not use an electric screwdriver. Refer to the rear retainer screw torque specification in the **Mechanical** section of [Table 7 on page 62](#).

Rear Module Installation

All unused rear slots in a GeckoFlex frame should have a blank rear adapter cover installed.

1. Each 8900V-R rear module or blank rear adapter cover is held in place by two retainer clips as shown in [Figure 3](#). Loosen (but do not remove completely) the two screws holding each retainer clip to the frame with a 2 mm (5/64") hex screwdriver or the Rear Retainer Clip tool provided (751- frames only). Pull up on the retainer to remove it, leaving the screws in place.

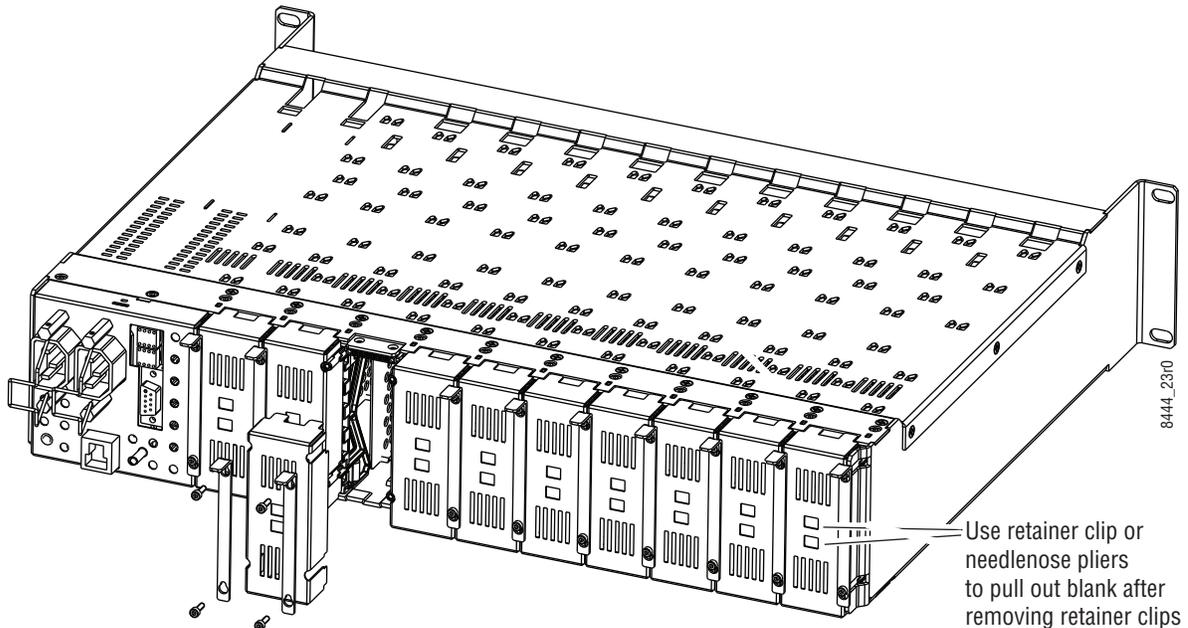
CAUTION Be careful to leave the screws in place as they can be easily lost or fall into equipment below the frame creating a shorting hazard.

2. Remove the blank rear adapter cover by inserting needlenose pliers into the slots in the top and bottom of the blank and pulling it off.

Note To remove a rear module already installed, follow the same steps. It is helpful to first remove the front module so the rear can be pulled out more easily.

3. Insert the rear module into the empty slot.
4. Replace each retainer clip over the two screws on both sides of the module and push down to seat the retainer.
5. Tighten the screws for each retainer clip just until they are snug. Do not force or torque the screws too tightly.

Figure 3. Installing Rear Module

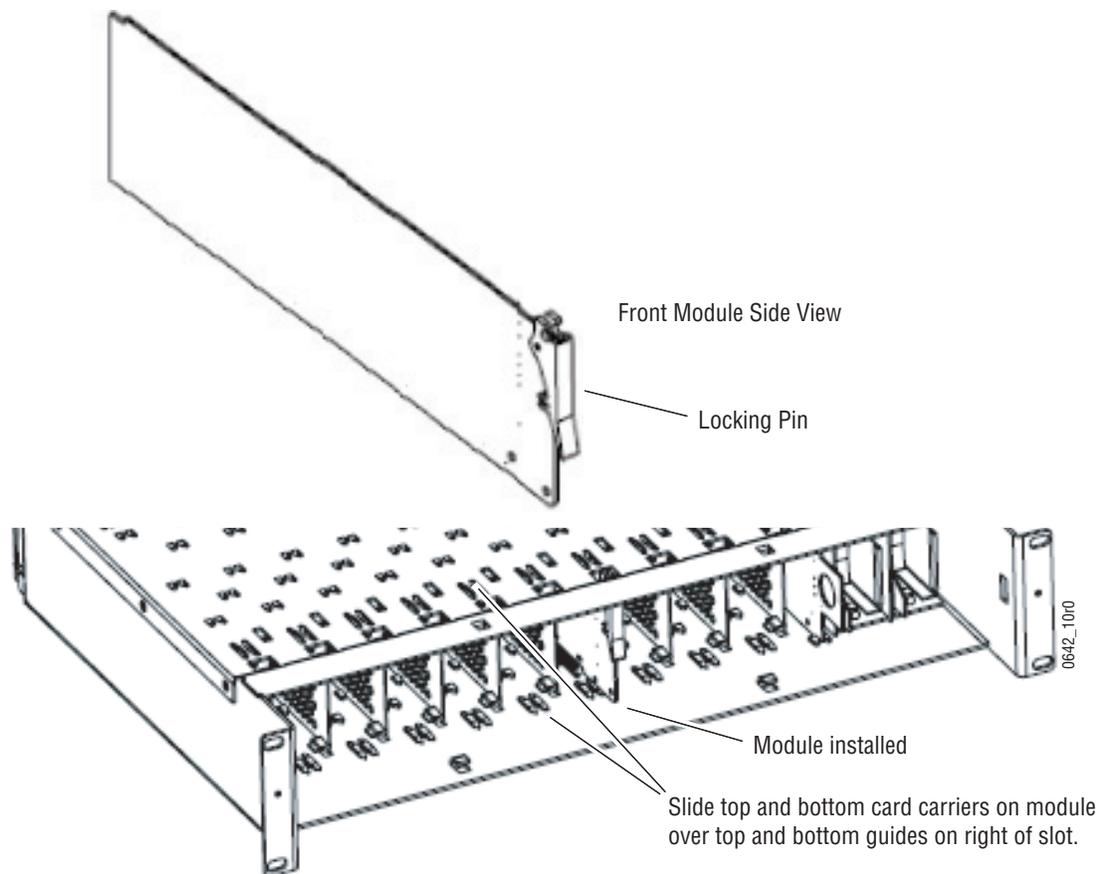


Front Module Installation

After installing the rear module, install the front module as follows:

1. Remove the front cover of the frame if required.
2. Locate the corresponding front slot.
3. Insert the front module so that the plastic card guides on the module top and bottom edges go over the upper and lower raised rail guides on the right of the top and bottom of the slot ([Figure 4](#)).
4. Carefully slide the module into the rear connector.
5. Lock the front module ejector tab into the locking pin.

Figure 4. Front Module Installation



Cabling

Cabling to and from the module is done at the back of the Gecko frame (Figure 5) and the 8900V-R rear module on a GeckoFlex frame (Figure 6) as described below for both frame types.

Figure 5. Input/Output Connectors – Gecko Frame

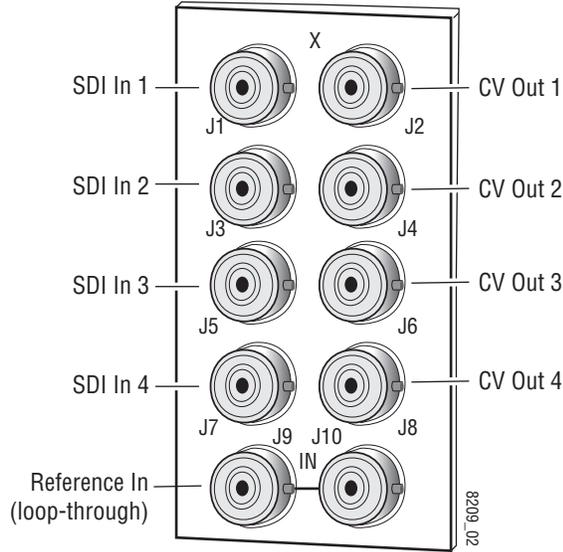
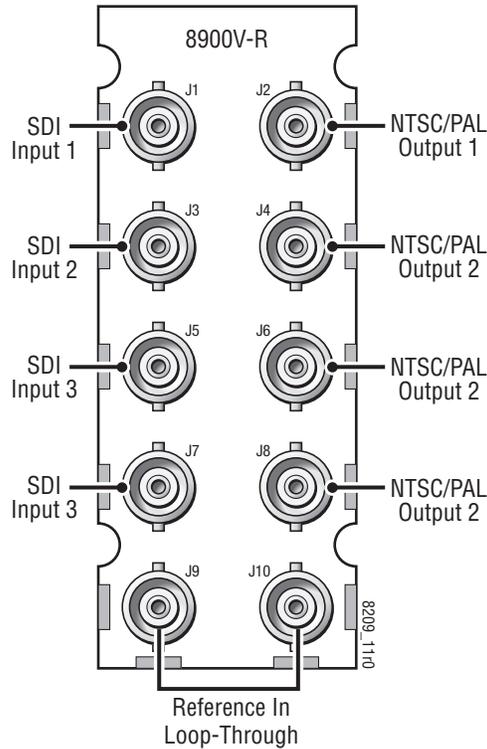


Figure 6. Input/Output Connectors – 8900V-R GeckoFlex Frame



Inputs

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

Outputs

Four corresponding NTSC or PAL composite video outputs are provided at BNCs J2, J4, J6, and J8.

Reference Loop-through Input

Connect an NTSC/PAL analog color black reference source (with Signal to Noise specification of > 40 dB recommended) to one of the loop-through reference connectors, J9 or J10. Terminate the unused connector into 75 $\frac{3}{4}$ if the signal is not looped to other equipment.

Note The line rate for the module (all four encoder channels) will be auto-detected from the Reference In signal. The line rate must match the reference input.

Power Up

The front LED indicators and configuration switches are illustrated in [Figure 7](#). 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.

Note When a module is first plugged into a GeckoFlex frame, the 8900NET module (if present) may report a momentary fault. This will clear once the module has booted up.

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 19](#) to see the possible operating indicator combinations).

Video input presence on each encoder channel is indicated by the CH1-CH4 green LEDs on.

Figure 7. LEDs and Configuration Switches

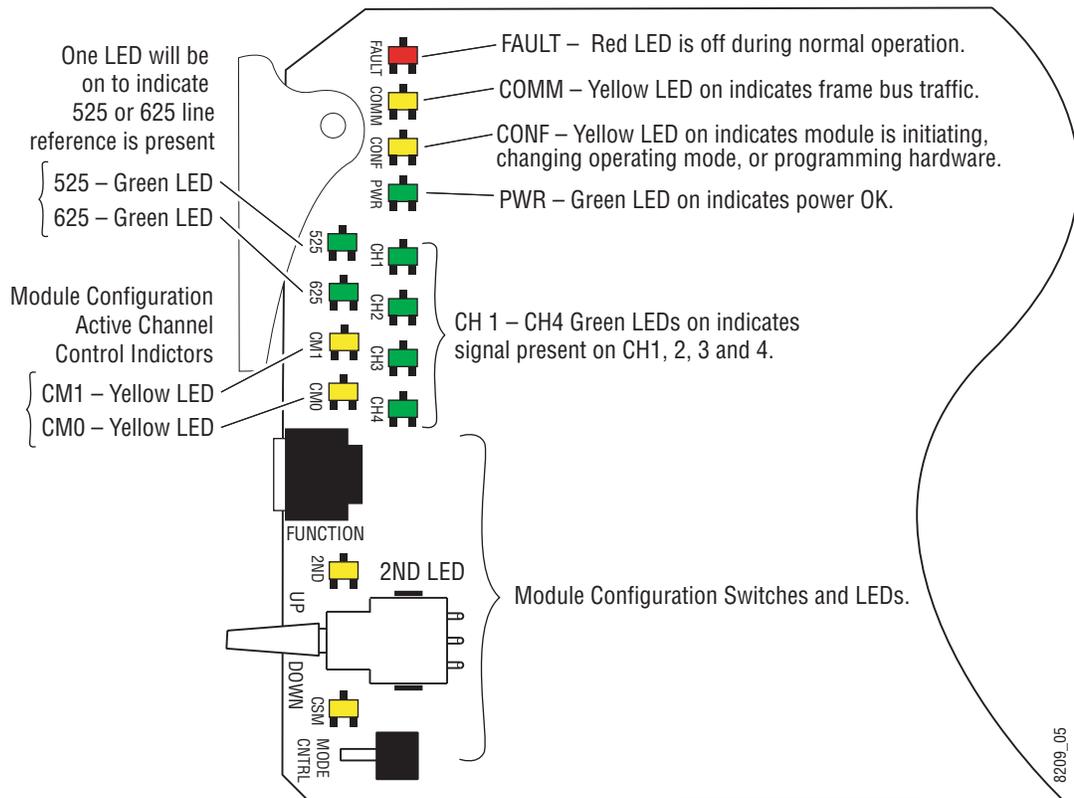


Table 2. Board Edge LED Names and Meaning

LED	Indication	Condition
FAULT (red)	Off	Normal operation.
	On continuously	Module has detected an internal fault. (Refer to Status Monitoring on page 64.)
	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 programming hardware.
	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 5 on page 28.)
	On	
CM0 (yellow)	Off	
	On	
CH1 (green)	Off	No signal present on Channel 1.
	On continuously	Valid signal is present on Channel 1.
	Flashing	Input signal line rate does not match reference.
CH2 (green)	Off	No signal present on Channel 2.
	On continuously	Valid signal is present on Channel 2.
	Flashing	Input signal line rate does not match reference.
CH3 (green)	Off	No signal present on Channel 3.
	On continuously	Valid signal is present on Channel 3.
	Flashing	Input signal line rate does not match reference.
CH4 (green)	Off	No signal present on Channel 4.
	On continuously	Valid signal is present on Channel 4.
	Flashing	Input signal line rate does not match reference.
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 8964ENC 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 20](#))
- Local Onboard Module Configuration ([page 27](#))
- Remote Control and Monitoring ([page 33](#))

Operation of these control types is explained in detail in their respective sections of this manual. [Table 8 on page 67](#) 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.

Configuration Summary

This section provides a summary of all parameters that can be configured on the 8964ENC 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.

Video Timing and Freeze Controls

With a standard 8964ENC module with no Frame Sync the following line sync timing adjustments are available:

- Horizontal Timing – adjusts the horizontal delay of the channel output in half pixels. and
- Fine Phase Adjustment – adjusts the horizontal fine phase relative to the input sync reference (in percent of 37 ns).

With an 8964ENC-FS module (8964ENC with Frame Sync, see [Module Option Upgrade on page 61](#)), the following vertical timing adjustments can be made:

- Horizontal Timing – identical to the line sync timing above.
- Fine Phase Adjustment – identical to the fine phase timing above.
- Vertical Timing – adjusts vertical delay in line increments.

Also available with the 8964ENC-FS are the following freeze controls (one must be selected from the five choices):

- 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 freeze the output signal on field 1 of the last frame.
- Field 2 – manually freeze the output signal on field 2 of the last frame.
- Frame – manually freeze the output signal on the last frame.

Note 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 8964ENC and 8964ENC-FS modules. This feature allows separate picture enhancement control on each channel output.

Use the following controls for bypassing or disabling picture enhancement:

- Bypass – the Picture Enhancer circuitry can be bypassed to decrease the amount of delay in the module if required.
- Disable – the Picture Enhancer process can be disabled, still routing the signal through the Picture Enhancement circuitry.

When Picture enhancement is enabled, the following controls are available:

- Split screen – split the output screen to view the original video on the left and the enhanced video on the right.
- Detail level – set the amount of picture enhancement detail based on the split screen comparison.
- Overshoot protection – set the amount of clipping looking at a waveform monitor.

Vertical Blanking Interval Controls

The 8964ENC provides line-by-line vertical blanking interval (VBI) processing.

Line Categories

The line categories used in the configuration of the video signal for the 8964ENC 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.

Table 3. Line Numbers for 8964ENC 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)

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	625 Line Selection	Data Line Pairs Reserved
None	None	None	None
21/284	21/284	24/337	24/337
22/285	21/284 – 22/285	25/338	24/337 – 25/338
23/286	21/284 – 23/286	26/339	24/337 – 26/339
24/287	21/284 – 24/287	27/340	24/337 – 27/340
		28/341	24/337 – 28/341

Programmable VBI and Active Picture Lines

The programmable lines in the vertical blanking interval include the configurable VBI lines (CVBI). Configurable active picture lines (P_Active) can be reserved for carrying data (refer to [Table 4](#)).

These line pairs can be configured for the following:

- Blank – in local mode, select On to blank all lines of CVBI or Off to not blank. In remote mode, lines can be blanked or passed on a line-by-line basis with the web page (toothed blanking).
- VBI Setup – in 525 mode, a control is provided for turning VBI setup on or off. This is a global control that affects all lines of VBI.

Note For this control to be active, the Active Video Setup control on the composite output must be set to on.

Video Processing Adjustments

The controls for video processing on each channel are the following:

- Test signal generator – when on, enables the internal test signal generator to output a 75% Color Bars test signal to the channel output.

Note When the internally generated color bars test signal output is enabled, the relative sync and burst may be offset in relation to the input SDI stream timing.

- 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.
- Burst On/Off – the burst can be turned on (default) or off with a control in the Video Processor section.
- Black Clip – set the level of black clipping with the remote controls (no local control).
- 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).

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

Noise Reducer Controls

The Noise Reducer feature is standard on the 8964ENC and 8964ENC-FS modules. This feature allows separate noise reduction control on each channel output. The use of these controls depends on the amount and type of noise present on the signal.

The Noise Reducer process can be enabled or disabled.

When noise reduction is enabled, the following controls are available:

- Filter Select– the type of noise filter may be selected on the web page only. Choice of the noise filter depends on the type of noise present.
- Level – adjust the noise level (amount of noise reduction).
- Threshold – adjust the noise threshold until the noise is reduced but video distortion is minimal.

Composite Output Adjustments

The composite output on each channel can be adjusted for the following:

- Add Active Video Setup – add setup to active video.

Note This control also enables or disables the VBI Setup control.

- Output Video Gain – adjust the percent of output video gain relative to 1 V p-p.

Timing and Genlock Considerations

This section is provided for information on some important points about module reference input sync and color frame timing considerations.

Reference Input Sync

The module is locked to the reference input sync. The following reference input sync considerations should be noted:

- Jitter performance of the module is influenced by the time base jitter of the reference input sync.
- Reference input sync timing determines the color burst/output timing. If a sync changeover is used for the sync reference, the timing of both sync sources must match. This ensures that the output burst phase of the module does not change and the timing from the 8964ENC remains consistent if the reference input sync switches.

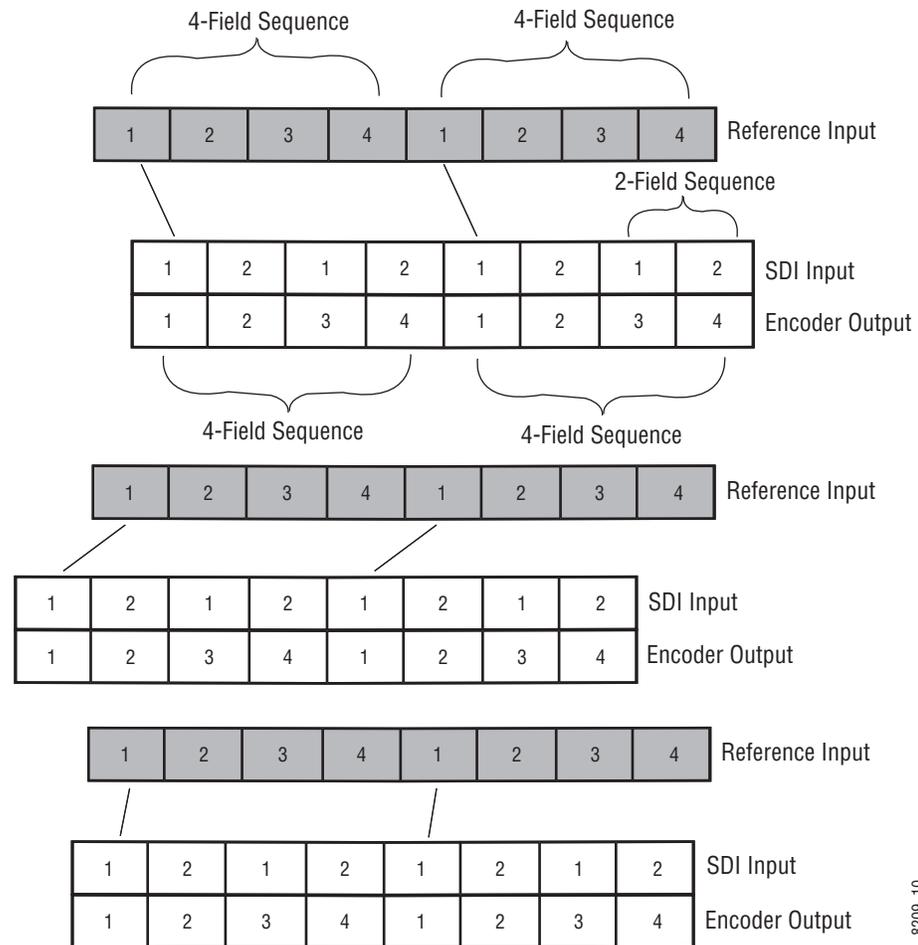
Color Frame

When converting from a SDI input signal to NTSC or PAL output, a color frame is chosen by the 8964ENC module based on the position of the closest SDI Field 1 to Field 1 of the reference input. NTSC video has a 4-field color frame sequence, while PAL has an 8-field sequence. SDI video coming into the module has a 2-field sequence.

As illustrated in the three examples in Figure 8 for a 525 reference input, the relationship of the SDI input Field 1 to the reference input Field 1 will determine the color frame of the encoder video output.

Note When the SDI video is delayed one field, the color frame jumps back two fields to the closest Field 1.

Figure 8. Color Frame Output (NTSC)



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Local Onboard Module Configuration

The 8964ENC 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 encoder 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 9 on page 28](#) for the following descriptions. Use the onboard configuration components as follows:

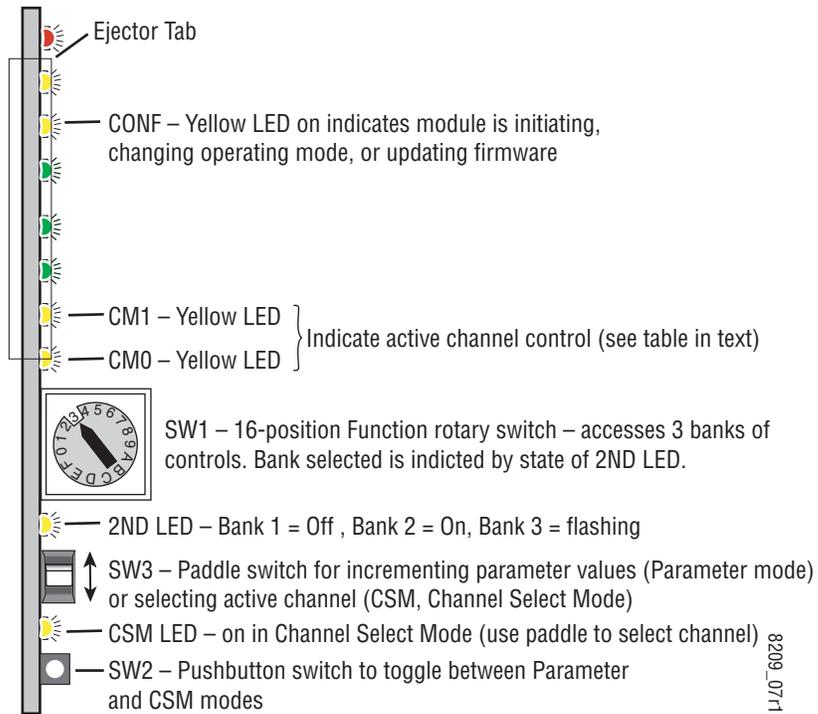
- SW1 Function (rotary) switch — This switch accesses a desired function for configuration (see [Table 6 on page 31](#)). The switch addresses three banks of functions; each bank has 16 possible positions (0 through 9 and A through F). Not all positions are used.

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.
- SW3 (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 SW2.
- 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 yellow LEDs – indicate what channel is active for adjustment. Refer to [Table 5 on page 28](#).
- SW2 (pushbutton) switch – press to toggle assignment of paddle switch SW3 between Parameter mode (CSM LED off) and Channel Select Mode (CSM LED on).
- CONF (configuring) yellow LED – when on, indicates the module is programming hardware.

Figure 9. Onboard Configuration Components – Front View



Refer to [Table 5](#) for reading the CM1 and CM0 active channel LED indicators.

Table 5. 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

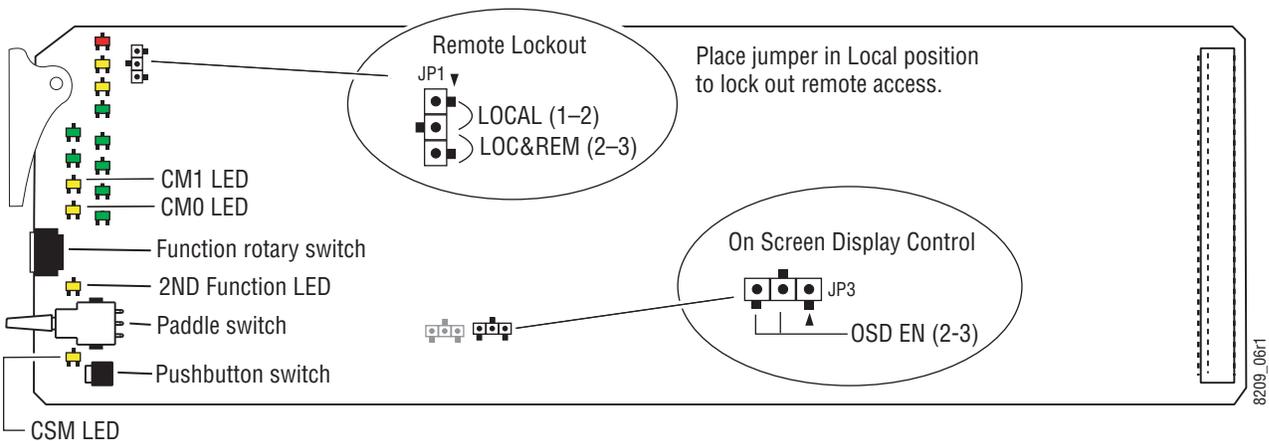
Two onboard jumpers must be set for the following:

- Jumper JP1 allows (LOC&REM position) or locks out (LOCAL position) 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. You may also set this jumper to disable the OSD completely after the module is configured to prevent the OSD information from being put on-air.

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 10. Module Configuration Switches and LEDs



8964ENC 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 10) to either disabled, pins 1-2, or enabled, OSD_EN (pins 2-3). 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 57](#)).

To make a configuration setting:

1. Select the channel to be adjusted by pressing pushbutton SW2 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 5 on page 28](#) for reading LED states.
2. When the desired channel is active, use pushbutton SW2 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 6 on page 31](#)).

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 6. 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)						
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: xxxxxxxxx	
	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	Add setup to active video	1:2 Add Setup (525 only)	
	3	–	–	Not used		
	4	Increase	Decrease	Adjust output video gain (% relative to 1 V p-p)	1:4 Output video gain	
	5	Increase	Decrease	Adjust contrast/Y gain	1:5 Contrast/Y Gain	
	6	Increase	Decrease	Adjust brightness/Y offset	1:6 Brightness/Y Offset	
	7	Increase	Decrease	Adjust saturation/chroma gain	1:7 Sat/Chroma Gain	
	8	Increase	Decrease	Adjust hue/chroma phase	1:8 Hue/Chroma Phase	
	9	–	–	Not used		
	A	On	Off	Turn Burst on or off	1:A Burst	
	B	On	Off	Turn Chroma Kill on and off	1:B Chroma Kill	
	C	On	Off	Turn output test signal generator on or off	1:C Test Signal	
	D	–	–	Not used		
	E	>2s Learn	Recall	Hold paddle for more than 2 seconds to learn current channel settings into E-MEM register. Select down to Recall.	1:E EMEM	
	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 or 625). See Table 4 on page 23 .	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 blanking on or off (all VBI lines).	2:4 VBI Blank	
	5	On	Off	Turn VBI setup on for off (all VBI lines)	2:5 Add VBI Setup (525 only)	
	6–9	–	–	Not used		
	A	Increase	Decrease	Adjust fine phase of output signal	2:A Fine Phase Timing	
	B	Increase	Decrease	Adjust horizontal timing	2:B Horizontal Timing	
	These controls (2C – 2F) active for the 8964ENC -FS only					
	C	Increase	Decrease	Adjust vertical timing	2:C Vertical Timing	
	D	AutoBlue	Field 1	Select Freeze mode	2:D Frz Mode	
	E	Field 2	Frame	Select Freeze mode	2:E Frz Mode	
	F	AutoFrz	AutoBlue	Select Freeze mode: AutoFreeze	2:F Frz Mode: AutoFrz	

Table 6. 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)					
Bank 3 (2ND LED flashing)	0	–	–	Default position for normal operation (parked).	3:0 (parked position information)
	1 – 7	Not used			
	8	Enable	Disable	Enable or disable noise reducer process	3:8 NR Process:
	9	Increase	Decrease	Adjust noise reducer level	3:9 NR Level:
	A	Increase	Decrease	Adjust noise threshold level	3:A NR Threshold:
	B	Disable	Bypass	Bypass Picture Enhancer circuitry	3:B PE Process:
	C	Enable	Disable	Enable or disable Picture Enhancer process	3:C PE Process:
	D	On	Off	Turn split screen on or off	3:D PE Split Scrn:
	E	Increase	Decrease	Adjust Picture Enhancer detail level	3:E PE Detail Level:
F	Increase	Decrease	Adjust Picture Enhancer overshoot protection	3:F PE Overshoot Protect:	

Remote Configuration

The 8964ENC and 8964ENC-FS configuration and monitoring can also be performed remotely using a web browser interface or a networked Newton Control Panel with an 8900NET Network Interface module present in the GeckoFlex frame (8900FFN). Each of these interfaces is described below. A summary table of all module parameters including defaults, ranges, and Newton Control Panel controls is given in [Table 8 on page 67](#).

8900NET Module Information

Refer to the *8900NET Network Interface Module Instruction Manual* (software version 4.3.0) for information on the 8900NET Network Interface Module and setting up and operating the GeckoFlex 8900 frame network.

Note Upgrade software and instructions for the 8900NET can be downloaded from the Grass Valley web site. Refer to *Contacting Grass Valley on page 4*.

Newton Control Panel Configuration

A Newton Control Panel (hard or soft version) can be interfaced to the GeckoFlex frame over the local network. Refer to the documentation that accompanies the Newton Modular Control System for installation, configuration, and operation information.

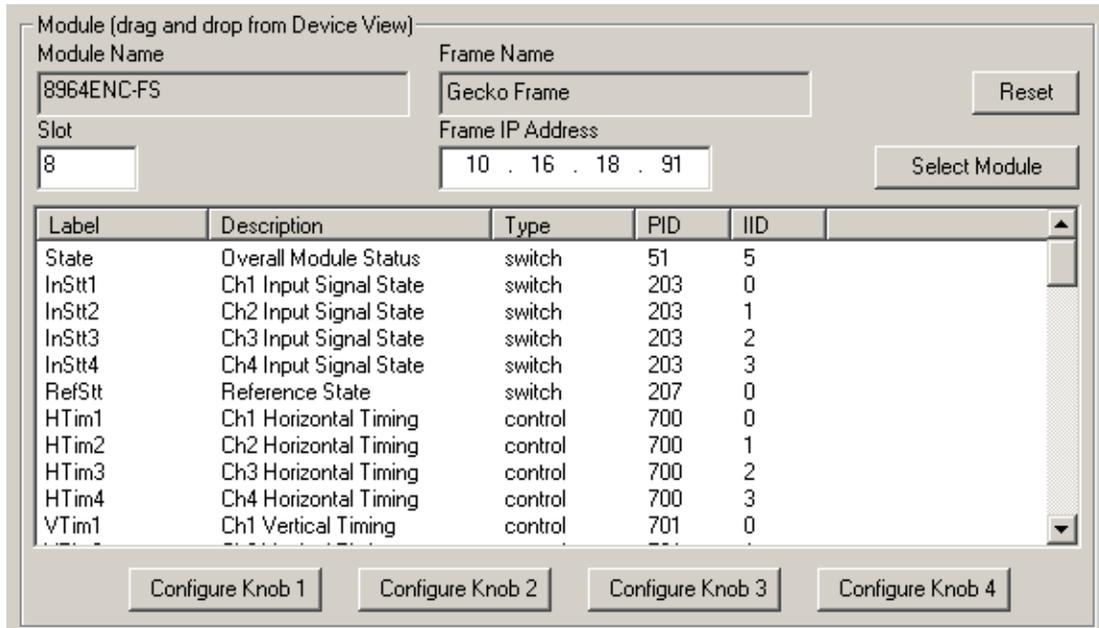
Control panel access offers the following considerations for module configuration and monitoring:

- Ability to separate system level tasks from operation ones, minimizing the potential for on-air mistakes.
- Ability to group modular products—regardless of their physical locations—into logical groups (channels) that you can easily manipulate with user-configured knobs.
- Recommended for real-time control of module configuration parameters, providing the fastest response time.

Note Not all module functions are available with the control panel, such as factory default recalls.

An example of the Newton Configurator is shown in [Figure 11](#).

Figure 11. Newton Configurator Example



Web Browser Interface

The web browser interface provides a graphical representation of module configuration and monitoring.

Use of the web interface offers the following considerations (some functions depend on individual module functionality):

- Provides complete access to all module status and configuration functions, including naming of inputs and outputs, factory parameter and name default recalls, Save/Load module configuration functions, slot configurations, and SNMP monitoring controls.
- Web access will require some normal network time delays for processing of information.
- Configuration parameter changes may require pressing **Apply** button or **Enter**, upload processing time. A manual screen refresh is recommended after changing parameters.
- Web interface recommended for setting up module signal and slot names, and reporting status for SNMP and monitoring.

Refer to the Status web page shown in [Figure 12 on page 35](#). 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 graphics 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. Web pages 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 an 8900NET module with software version 4.3.0, using Internet Explorer, the recommended web browser, and Windows XP operating system.

For information on module status, fault monitoring and reporting shown on the Status web page, refer to [Status Web Page on page 38](#).

Figure 12. Gecko 8900 Frame Status Web Page

The Links section lists the frame and its current modules. The selected link's Status page is first displayed and the sub-list of links for the selection is opened. The sub-list allows you to select a particular information page for the selected device.

Content display section displays the information page for the selected frame or module (frame slot icons are also active links).

Refresh button for manual update of page

Gecko Frame
[Status](#)
[Configuration](#)
[Connections](#)
[Frame Alarm Reporting](#)
[LED Reporting](#)
[SNMP Reporting](#)
[Power Supply/Demand](#)
 1 8920DMX
 2 8920DAC
 3 8990ARC
 4 8960ENC
 5 8960DEC
 6 8950ADC
 7 8921ADT
 8 8964ENC-FS
 9 Media Slot 9
 10 8910ADA-SR
 11 8900NET
 12 Power Supply 1
 13 Power Supply 2

Status

Model: 8900TFN Description: Module Frame
 Frame Location: Grass Valley
 Frame Health Alarm **ALARM** Temperature Status **PASS**
 Power Status **PASS**

Module	Net Card	Empty	Power Supply										
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	----------	-------	--------------

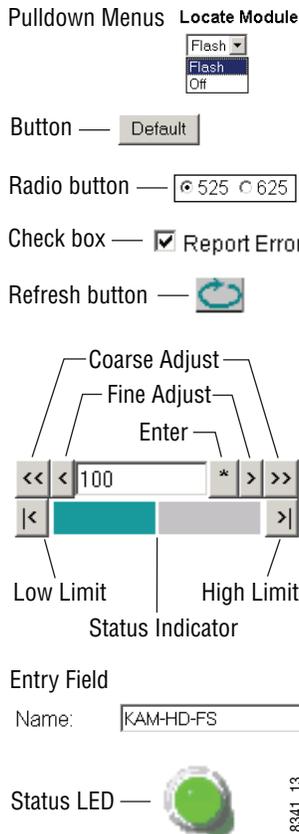
Front Cover No Cover

Properties
 Vendor Thomson, Grass Valley Software Version 4.3.0
 Media Slots 10 Network Config Network configuration stored on 8900NET

8208_09-3

Web Page Operations and Functional Elements

The following conventions and functional elements (shown at left) are used in web page operations. (The examples shown throughout this manual represent 8900NET software version 4.3.0):



- Pull-down menus allow you to choose selections from a list.
- Clicking on a button performs an immediate action such as recall of defaults, clearing of states, learning configurations, and selecting all or none of a selection.
- Radio buttons are used to make a choice of one parameter in a group.
- Check boxes are used when a selection can be enabled or included in a group. Multiple check box selections or enables can be made for some parameters.
- A **Refresh** button (circular arrow) is provided at the top of each web page for manual refresh to view recently changed parameters.
- Each numerical adjustment control has a **Coarse** adjust button (left and right top double arrows) which increases or decreases the step value by a factor of 10. The **Fine** adjust button (left and right inside single arrows) increases or decreases the step value by 1.

To change a value, use the arrow button controls or enter a value into the number field and select the **Enter** button (*) or use the **Enter** key on your keyboard. The Status Indicator bar will follow the value selected.

Use the **Low** and **High Limit** buttons to go directly to the lowest and highest limits for the parameter.

After a parameter has been changed, it will take approximately 10 seconds for the change to be entered into the module backup memory. Allow the module enough time to update the change before removing the module from its slot.

- An entry field allows naming of various module functions such as input or output signals, asset tag, and slot identification.
- The **Status** LED icon indicates module status and is a link to the module Status web page where status is reported.

LED colors indicate:

- Green = Pass – no problems detected
- Yellow = Configuration error warning
- Red = Fault condition detected (presence of at least one alarm)

8964ENC Links and Web Pages

The 8900 GUI provides the following links and web pages for the 8964ENC module (Figure 13):

- Status – reports input and reference signal status and module information (page 38),
- I/O Config – shows a graphic representation of inputs and outputs to the module and allows naming of each input (page 40),
- Functional View – shows a block diagram of the module with links to each configuration web pages (page 41),
- Module Configuration web pages for setting up the module (page 42),
- E-MEM – provides Learn and Recall functions for up to 5 E-MEM registers along with **Save to** and **Load from** file operations (page 53),
- OSD Control – provides controls to enable or disable the OSD for each channel (page 57), and
- Slot Config – provides a Locate Module function, Slot Identification, and Slot Memory in addition to links to the Frame Reporting, LED Reporting and SNMP Reporting web pages (page 58).

Figure 13. 8964ENC/-FS Web Page Links

<u>3 8964ENC</u>	<u>8 8964ENC-FS</u>
<u>Status</u>	<u>Status</u>
<u>I/O Config</u>	<u>I/O Config</u>
<u>Functional View</u>	<u>Functional View</u>
- <u>SDI In</u>	- <u>SDI In</u>
- <u>Timing</u>	- <u>Timing</u>
- <u>Picture Enhancer</u>	- <u>Picture Enhancer</u>
- <u>VBI</u>	- <u>VBI</u>
- <u>Video Proc</u>	- <u>Video Proc</u>
- <u>Noise Reducer</u>	- <u>Noise Reducer</u>
- <u>Composite Out</u>	- <u>Composite Out</u>
<u>E-MEM®</u>	<u>E-MEM®</u>
<u>OSD Control</u>	<u>OSD Control</u>
<u>Slot Config</u>	<u>Slot Config</u>

Status Web Page

Use
this
link

- [8 8964ENC-FS](#)
- [Status](#)
- [I/O Config](#)
- [Functional View](#)
- [SDI In](#)
- [Timing](#)
- [Picture Enhancer](#)
- [VBI](#)
- [Video Proc](#)
- [Noise Reducer](#)
- [Composite Out](#)
- [E-MEM@](#)
- [OSD Control](#)
- [Slot Config](#)

The Status web page ([Figure 14 on page 39](#)) shows the input signal status of each of the encoder channels and the reference input. Color coding of the display indicated the signal status. Refer to [8964ENC Fuse and Voltage Testpoint Locations on page 66](#) 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 57](#).

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 58](#)).

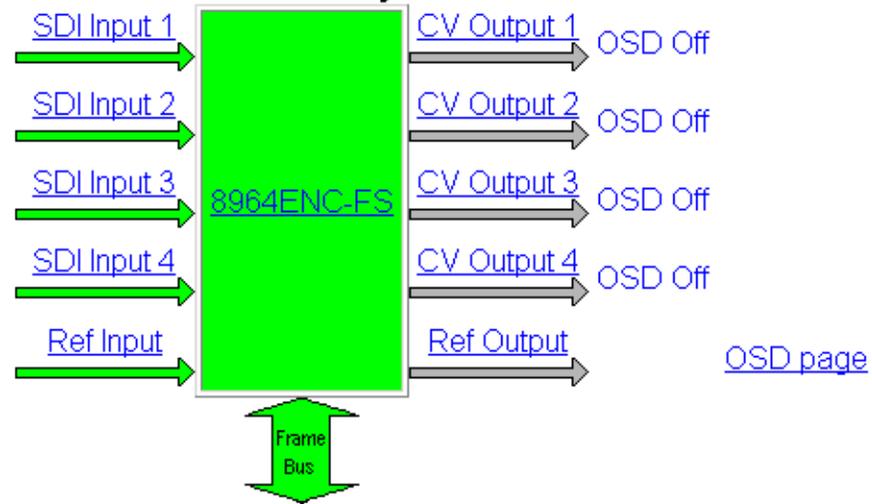
Clicking on the model number in the center box will take you to the Functional View web page illustrating a block diagram overview of the module with links to each of the configuration web pages.

Figure 14. 8964ENC-FS Status Web Page

 **Status** 

Model: [8964ENC-FS](#) Description: [4 Channel SDI to NTSC/PAL Encoder](#)
 Frame Location: [Factory](#), Slot: [8](#)
 Last Recalled E-MEM: [Factory Defaults](#)

Multi-Channel Module Physical Structure



Part Number: 671-6477	Installed Options
Serial Number: VT1234567	Frame Sync
Hardware Revision: A 1	
Firmware Version: 2	
Software Version: 1.2.2	
Asset Tag:	

I/O Config Web Page

- Use this link
- [8 8964ENC-FS](#)
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [Timing](#)
 - [Picture Enhancer](#)
 - [VBI](#)
 - [Video Proc](#)
 - [Noise Reducer](#)
 - [Composite Out](#)
 - [E-MEM@](#)
 - [OSD Control](#)
 - [Slot Config](#)

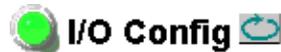
The I/O Config web page (Figure 15) shows the rear input and output connections to the module and allows you to name each input. Type the desired input name (up to 11 characters) into the corresponding box. The status of each input is indicated by the color of the display.

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. You may disable reporting for channels not being used if desired. The **Reporting** column is also used when an SNMP monitoring application such as NetCentral is installed.

Refer to *8964ENC Fuse and Voltage Testpoint Locations on page 66* for an explanation of the color coding and using an SNMP monitoring application.

Figure 15. 8964ENC I/O Config Web Page



Model: [8964ENC](#) Description: [4 Channel SDI to NTSC/PAL Encoder](#)
 Frame Location: [8900 Frame](#) , Slot: [5](#)
 Last Recalled E-MEM: [Factory Defaults](#)

Rear Connections

Signal Names	Reporting				
<input type="text" value="Input 1"/>	<input checked="" type="checkbox"/> Enabled	J1 SDI Input 1			J2 CV Output 1
<input type="text" value="Input 2"/>	<input checked="" type="checkbox"/> Enabled	J3 SDI Input 2			J4 CV Output 2
<input type="text" value="Input 3"/>	<input checked="" type="checkbox"/> Enabled	J5 SDI Input 3			J6 CV Output 3
<input type="text" value="Input 4"/>	<input checked="" type="checkbox"/> Enabled	J7 SDI Input 4			J8 CV Output 4
<input type="text" value="Ref Input"/>		J9 Ref Input			J10 Ref Output

Functional View Web Page

- Use this link
- 8 8964ENC-FS
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [Timing](#)
 - [Picture Enhancer](#)
 - [VBI](#)
 - [Video Proc](#)
 - [Noise Reducer](#)
 - [Composite Out](#)
 - [E-MEM@](#)
 - [OSD Control](#)
 - [Slot Config](#)

The Functional View web page (Figure 16) illustrates a block diagram of the 8964ENC module showing module functions and signal paths that are active or inactive in the current configuration. 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 8964ENC module in the order of the signal flow. Refer to each of the module configuration web pages given in the next section.

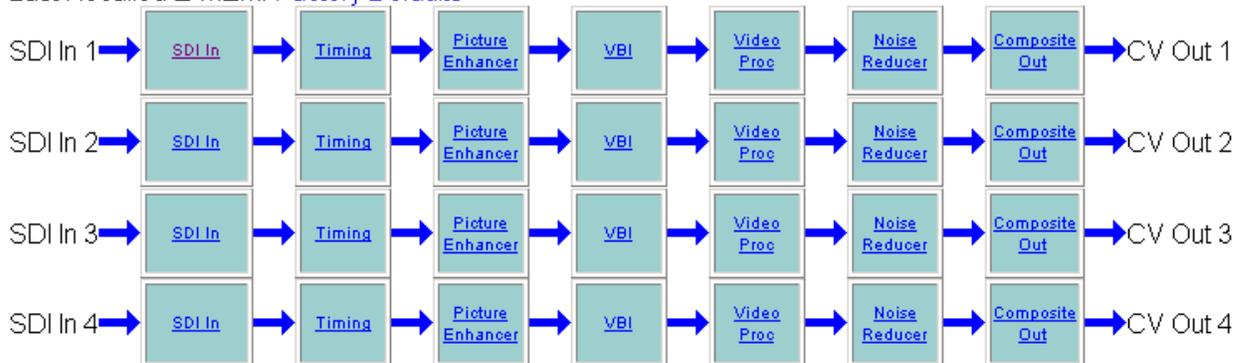
Figure 16. 8964ENC Functional View Web Page

Functional View

Model: 8964ENC Description: 4 Channel SDI to NTSC/PAL Encoder

Frame Location: 8900 Frame , Slot: 5

Last Recalled E-MEM: Factory Defaults



Module Configuration Pages

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

- SDI In ([page 43](#))
- Timing ([page 44](#))
- Picture Enhancer ([page 47](#))
- VBI ([page 47](#))
- Video Proc ([page 49](#))
- Noise Reducer ([page 51](#))
- Composite Out ([page 52](#))

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. Each channel will show the signal reference type (NTSC or PAL).

After making a parameter value change, click on **Apply** to activate settings in each selection. Each of the four encoder 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.

Click on the **Refresh** button at the top of the display to update the entire display.

SDI In Web Page

- Use this link
- [8 8964ENC-FS](#)
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [- Timing](#)
 - [- Picture Enhancer](#)
 - [- VBI](#)
 - [- Video Proc](#)
 - [- Noise Reducer](#)
 - [- Composite Out](#)
 - [E-MEM@](#)
 - [OSD Control](#)
 - [Slot Config](#)

The SDI In web page (Figure 17) provides the following status information on each of the SDI video inputs:

- Input Signal State (**Present** or **Not Present**)
- Input Signal Line Rate
- Detected EDH Errors

Press the **Clear Errors** button for each channel to reset the error counter and begin a new error counting sequence or the **Clear All Errors** button to clear all channel counters.

Errors are also reset when the module is removed and re-installed.

Figure 17. 8964ENC SDI In Web Page

SDI In

Model: 8964ENC Description: 4 Channel SDI to NTSC/PAL Encoder
 Frame Location: 8900 Frame , Slot: 5
 Last Recalled E-MEM: Factory Defaults
 Current Line Rate: 525

Channel 1:	Input 1
Input Signal State	Present
Input Signal Line Rate	525
Detected Errors	0
<input type="button" value="Clear Errors"/>	Channel 1 Next
Channel 2:	Input 2
Input Signal State	Not Present
Input Signal Line Rate	-
Detected Errors	No Error Info
<input type="button" value="Clear Errors"/>	Channel 2 Next
Channel 3:	Input 3
Input Signal State	Present
Input Signal Line Rate	525
Detected Errors	0
<input type="button" value="Clear Errors"/>	Channel 3 Next
Channel 4:	Input 4
Input Signal State	Present
Input Signal Line Rate	525
Detected Errors	0
<input type="button" value="Clear Errors"/>	Channel 4 Next
<input type="button" value="Clear All Errors"/>	

[Back](#) [Functional View](#) [Next](#)

Timing Web Page

- Use this link
- 8 8964ENC-FS
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [Timing](#)
 - [Picture Enhancer](#)
 - [VBI](#)
 - [Video Proc](#)
 - [Noise Reducer](#)
 - [Composite Out](#)
 - [E-MEM@](#)
 - [OSD Control](#)
 - [Slot Config](#)

Horizontal timing adjustments are provided on all models of the 8964ENC. When no Frame Sync option is enabled, the Timing web page will display Line Sync adjustments for horizontal timing and fine phase control. When Frame Sync is enabled (8964ENC-FS), the Timing web page will include horizontal, fine phase, and vertical timing as well as freeze controls. [Table 8 on page 67](#) gives a summary of controls, defaults, and parameter ranges.

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

For the 8964ENC model with Line Sync ([Figure 18](#)), adjust the following controls:

- Horizontal Timing – adjust the correct timing output (in pixels) for each channel.
- Fine Phase Adjustment – adjust the percentage of fine horizontal phase for each channel.

Figure 18. 8964ENC Line Sync Timing Web Page



Model: [8964ENC](#) Description: [4 Channel SDI to NTSC/PAL Encoder](#)

Frame Location: [Factory](#), Slot: [8](#)

Last Recalled E-MEM: [Factory Defaults](#)

Current Line Rate:

Channel 1	Channel 2	Channel 3	Channel 4
Input 1	Input 2	Input 3	Input 4
Fine Phase Adjustment (%) <input type="text" value="0"/>		Horizontal Timing (pixels) <input type="text" value="0.0"/>	
Apply Settings To: Channel 2 Channel 3 Channel 4 All		Reset Defaults For: Current Channel All Channels	

[Back](#)

[Functional View](#)

[Next](#)

When the Frame Sync option is enabled (8964ENC-FS), the Timing 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)
- Fine Phase (in percent relative to input sync)
- Vertical Timing (in lines)

Select one of the following buttons from Freeze Mode:

- **AutoFrz** – 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. 8964ENC-FS Timing With Frame Sync and Freeze Controls

 **Timing** 

Model: 8964ENC-FS Description: 4 Channel SDI to NTSC/PAL Encoder

Frame Location: Factory, Slot: 8

Last Recalled E-MEM: Factory Defaults

Current Line Rate: Not Present

Channel 1	Channel 2	Channel 3	Channel 4
Input 1	Input 2	Input 3	Input 4
Fine Phase Adjustment (%) << < 0 * > >> < >		Horizontal Timing (pixels) << < 0.0 * > >> < >	
Vertical Timing (lines) << < 0 * > >> < >			
Freeze Mode <input checked="" type="radio"/> AutoBlue <input type="radio"/> AutoFrz <input type="radio"/> Field 1 <input type="radio"/> Field 2 <input type="radio"/> Frame			
Apply Settings To: Channel 2 Channel 3 Channel 4 All			
Reset Defaults For: Current Channel All Channels			

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Picture Enhancer Web Page

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The Picture Enhancer function (Figure 20) can be enabled to adjust picture detail or can be bypassed or disabled for each channel.

Select the channel to be adjusted from the **Channel 1 – 4** buttons. Set the following adjustments with this web page:

- Select the **Bypass** button to bypass the Picture Enhancement circuitry (for less delay through the module).
- Select the **Disable** button to turn off picture enhancement.
- Use the Detail Enhancer Level control to adjust the amount of detail enhancement on the channel output.
- Adjust the Overshoot Protection control to minimize overshoot.

Figure 20. 8964ENC Picture Enhancer Web Page

Picture Enhancer

Model: 8964ENC-FS Description: 4 Channel SDI to NTSC/PAL Encoder
 Frame Location: Factory, Slot: 8
 Last Recalled E-MEM: Factory Defaults

Current Line Rate: Not Present

Channel 1	Channel 2	Channel 3	Channel 4
Input 1	Input 2	Input 3	Input 4
Input Video: Not Present		<input type="checkbox"/> Split Screen	
Picture Enhancer: <input type="radio"/> Bypass <input type="radio"/> Enable <input checked="" type="radio"/> Disable			
Detail Enhancer Level << < 128 * > >> < [Progress Bar] >		Overshoot Protection << < 0 * > >> < [Progress Bar] >	
Apply Settings To: Channel 2 Channel 3 Channel 4 All			
Reset Defaults For: Current Channel All Channels			

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VBI Web Page

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Use the VBI web page ([Figure 21 on page 48](#) for 525 line rate or [Figure 22 on page 48](#) for 625 line rate) to configure the programmable line pairs in the vertical blanking interval of each channel. Refer to [Vertical Blanking Interval Controls on page 22](#) for information on VBI lines. [Table 8 on page 67](#) gives a summary of controls, defaults, and parameter ranges.

Select the channel to be adjusted from the **Channel 1 – 4** buttons. The line rate for the selected channel (525 or 625) 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:

- Blank – select to blank the Field 1/Field 2 line pair. Select the **Blank All** button to blank data on all line pairs or the **Pass All** button to pass data on all line pairs.
- 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.
- VBI Setup – in 525 mode, turn VBI setup On or Off for all VBI lines.

Note This checkbox will only be active when the Active Video Setup **Add** checkbox has been selected on the [Composite Out Web Page on page 52](#). If setup has not been added, this selection will appear as a read-only N/A condition.

Figure 21. 8964ENC VBI web Page in 525 Line Rate

VBI
 Model: 8964ENC-FS Description: 4 Channel SDI to NTSC/PAL Encoder
 Frame Location: Factory, Slot: 8
 Last Recalled E-MEM: Factory Defaults
 Current Line Rate: 525

Channel 1	Channel 2				Channel 3				Channel 4										
Input 1	Input 2				Input 3				Input 4										
	VBI Line												Data Line						
Field 1	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
Field 2	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287				
Blank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
Reserved for Data	<input checked="" type="radio"/> none <input type="radio"/> 21/284 <input type="radio"/> 22/285 <input type="radio"/> 23/286 <input type="radio"/> 24/287																		
VBI Setup: <input type="checkbox"/> On				Blank All				Pass All											
Apply Settings To:				Channel 2				Channel 3				Channel 4				All			
Reset Defaults For:				Current Channel				All Channels											

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Active Video Setup Add checkbox is enabled on Composite Out web page

Refer to Figure 22 for the web page display in 625 line rate.

Figure 22. 8964ENC VBI Web Page for 625 Line Rate

VBI
 Model: 8964ENC-FS Description: 4 Channel SDI to NTSC/PAL Encoder
 Frame Location: Factory, Slot: 8
 Last Recalled E-MEM: Factory Defaults
 Current Line Rate: 625

Channel 1	Channel 2				Channel 3				Channel 4														
Input 1	Input 2				Input 3				Input 4														
	VBI Line												Data Line										
Field 1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Field 2	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
Blank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Reserved for Data	<input checked="" type="radio"/> none <input type="radio"/> 24/337 <input type="radio"/> 25/338 <input type="radio"/> 26/339 <input type="radio"/> 27/340 <input type="radio"/> 28/341																						
				Blank All				Pass All															
Apply Settings To:				Channel 2				Channel 3				Channel 4				All							
Reset Defaults For:				Current Channel				All Channels															

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Use the Video Proc web page ([Figure 23 on page 50](#)) to adjust the composite output of each channel. Select the channel to be adjusted from the **Channel 1 – 4** buttons.

Make the following video processing adjustments on this web page:

- Enable a color bars test signal to the channel output by selecting the **Color Bars** radio button in the Test Signal Generator control.
Select the **Disable** button for normal operation.
- Check the **Chroma Kill** checkbox to shut off chroma for a black and white picture on the channel output.
- Set the amount of Black Clip level with one of the radio buttons. Select **None** for no black clipping.
- Turn Burst off or on (default) by checking or unchecking the **Burst** checkbox.

The Video Processing section provides the following controls:

- Contrast/Y Gain – adjusts the percentage of luminance relative to white.
- Saturation/Chroma Gain – adjust the percentage of saturation and chroma gain relative to 100% saturation.
- Brightness/Y Offset – adjusts amount of brightness/Y offset in percent.
- 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 23. 8964ENC Video Proc Web Page

Video Proc 

Model: [8964ENC-FS](#) Description: [4 Channel SDI to NTSC/PAL Encoder](#)
 Frame Location: [Factory](#), Slot: [8](#)
 Last Recalled E-MEM: [Factory Defaults](#)

Current Line Rate: [Not Present](#)

Channel 1	Channel 2	Channel 3	Channel 4
Input 1	Input 2	Input 3	Input 4
Test Signal Generator: <input checked="" type="radio"/> Disable <input type="radio"/> Color Bars			Burst: <input checked="" type="checkbox"/> On
Chroma: <input type="checkbox"/> Kill	Black Clip: <input checked="" type="radio"/> None <input type="radio"/> -11% <input type="radio"/> -6% <input type="radio"/> -1.5%		
Contrast/Y Gain (%) << < 100.0 * > >> < [] >		Saturation/Chroma Gain (%) << < 100.0 * > >> < [] >	
Brightness/Y Offset (%) << < 0.00 * > >> < [] >		Hue/Chroma Phase (Deg) << < 0.0 * > >> < [] >	
Apply Settings To:	Channel 2	Channel 3	Channel 4 All
Reset Defaults For:	Current Channel	All Channels	

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Noise Reducer Web Page

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Use this link

The Noise Reducer function (Figure 24) can be enabled to adjust picture detail or can be bypassed or disabled for each channel.

Select the channel to be adjusted from the **Channel 1 – 4** buttons. Set the following adjustments with this web page:

- Check the **Enable Noise Reducer** checkbox to turn on noise reduction.
- Select the type of noise filter from the **Filter Select** radio buttons.
- Use the Level control to adjust the amount of noise reduction on the channel output.
- Adjust the Threshold control for whatever signal amplitude the Noise Reducer will work on. The higher the threshold number the more noise is reduced but more video distortion will occur.

Figure 24. 8964ENC Noise Reducer Web Page

Noise Reducer

Model: 8964ENC-FS Description: 4 Channel SDI to NTSC/PAL Encoder
 Frame Location: Factory, Slot: 8
 Last Recalled E-MEM: Factory Defaults

Current Line Rate: Not Present

Channel 1	Channel 2	Channel 3	Channel 4
Input 1	Input 2	Input 3	Input 4
Input Video: Not Present		<input type="checkbox"/> Enable Noise Reducer	
Filter Select: <ul style="list-style-type: none"> <input type="radio"/> 3.5 MHz Low Pass <input type="radio"/> 4.2 MHz Notch <input checked="" type="radio"/> 3.5 MHz Notch <input type="radio"/> 2.8 MHz Notch 			
Level << < 0 * > >> < >		Threshold << < 0 * > >> < >	
Apply Settings To: Channel 2 Channel 3 Channel 4 All			
Reset Defaults For: Current Channel All Channels			

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Use this link

Use the Composite Out web page (Figure 25) to make final adjustments to the composite output video. Select the channel to be adjusted from the **Channel 1– 4** buttons.

Set the following adjustments with this web page:

- In 525 mode, check the **Add** button in the **Active Video Setup** checkbox to add setup to the active output video.

Note The VBI setup on the [VBI Web Page on page 47](#) follows the state of this control.

- Adjust the percent of Output Video Gain on each channel.

Figure 25. 8964ENC Composite Out Web Page

Composite Out

Model: 8964ENC-FS Description: 4 Channel SDI to NTSC/PAL Encoder
 Frame Location: Factory, Slot: 8
 Last Recalled E-MEM: Factory Defaults

Current Line Rate: Not Present

Channel 1	Channel 2	Channel 3	Channel 4
Input 1	Input 2	Input 3	Input 4
Input Video: Not Present		Active Video Setup: <input checked="" type="checkbox"/> Add	

Output Video Gain (%)

Apply Settings To: Channel 2 Channel 3 Channel 4 All

Reset Defaults For: Current Channel All Channels

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Use this link

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 26), 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 8964ENC. 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 27 on page 54).

Figure 26. 8964ENC E-MEM Web Page (Standard View)

E-MEM®

Model: 8964ENC-FS Description: 4 Channel SDI to NTSC/PAL Encoder
 Frame Location: Factory, Slot: 8
 Last Recalled E-MEM: Factory Defaults

Current Line Rate: 525

View Selection: Standard Advanced

Local Operations	
E-MEM 1:	VBI Saved Params <input type="button" value="Recall"/>
E-MEM 2:	SETUP ON <input type="button" value="Recall"/>
E-MEM 3:	Picture Enhancer <input type="button" value="Recall"/>
E-MEM 4:	Timing <input type="button" value="Recall"/>
E-MEM 5:	<input type="button" value="Recall"/>

Recall factory settings Recall factory names

The Advanced View (Figure 27) 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 27. E-MEM Web Page (Advanced View)

E-MEM®

Model: 8964ENC-FS Description: 4 Channel SDI to NTSC/PAL Encoder
 Frame Location: Factory, Slot: 8
 Last Recalled E-MEM: Factory Defaults

Current Line Rate: 525

View Selection: Standard Advanced

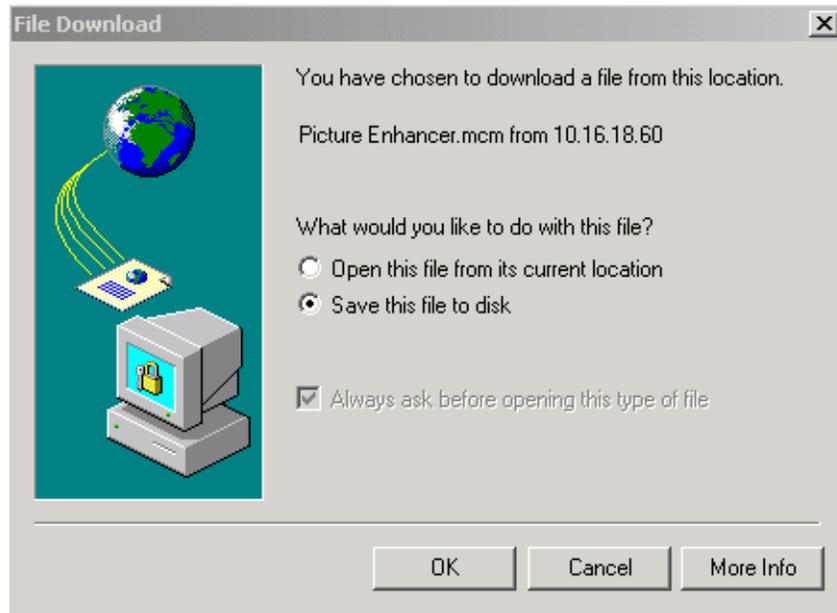
	Local Operations		File Operations	
E-MEM 1:	VBI Saved Params	Recall	Learn	Save to... Load from...
E-MEM 2:	SETUP ON	Recall	Learn	Save to... Load from...
E-MEM 3:	Picture Enhancer	Recall	Learn	Save to... Load from...
E-MEM 4:	Timing	Recall	Learn	Save to... Load from...
E-MEM 5:		Recall	Learn	Save to... Load from...

Recall factory settings Recall factory names

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 28).
3. Select the **Save this file to disk** button and **OK**.

Figure 28. E-MEM Save to Operation



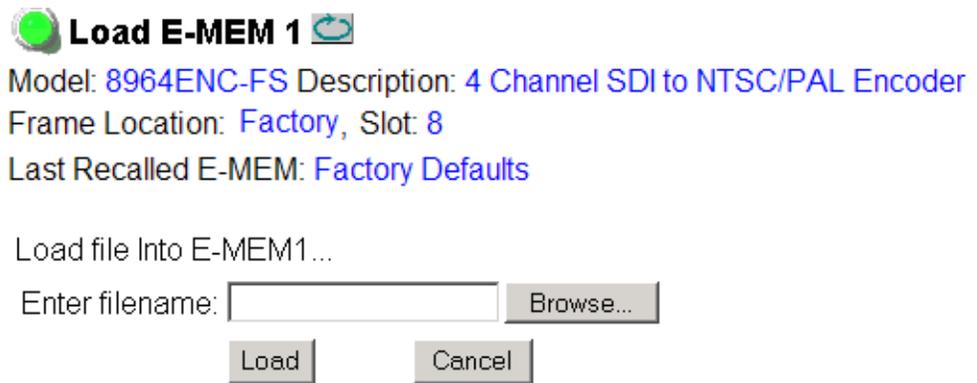
4. In the resulting Save As dialog box, the file name default to the E-MEM name. Browse to the folder where you want to save the configuration and select **Save**. The file saves as a .mcm file type.

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 29](#)).
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 web 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 29. Load E-MEM Web Page



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The OSD Control web page (Figure 30) allows enabling and disabling of the OSD image on any of the four channel outputs. It also displays the status of the onboard OSD jumper, JP3 (see *8964ENC Module Onboard Configuration Settings on page 30*). 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.

After module configuration, set the jumper to disable the OSD and prevent it from being put on-air inadvertently.

Figure 30. 8964ENC OSD Control Web Page



Model: [8964ENC-FS](#) Description: [4 Channel SDI to NTSC/PAL Encoder](#)
 Frame Location: [Factory](#), Slot: [8](#)
 Last Recalled E-MEM: [Factory Defaults](#)

On Screen Display

OSD Jumper Status:	Enabled
Channel 1 OSD:	<input type="radio"/> Off <input checked="" type="radio"/> On
Channel 2 OSD:	<input type="radio"/> Off <input checked="" type="radio"/> On
Channel 3 OSD:	<input type="radio"/> Off <input checked="" type="radio"/> On
Channel 4 OSD:	<input type="radio"/> Off <input checked="" type="radio"/> On

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Use
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Use the Slot Config web page (Figure 31) to perform the following functions on the module:

- Locate Module
- Slot Identification
- Slot Memory
- Frame Health Reports link
- LED Reports link
- SNMP Trap Reports link

Note This web page reflects an 8900NET module running version 4.3.0 in the frame with the NetCentral monitoring application installed on the 8900NET (Net Card) module. Other 8900NET versions will vary in the appearance of this web page.

Figure 31. Slot Config Web Page



Model: [8964ENC-FS](#) Description: [4 Channel SDI to NTSC/PAL Encoder](#)
Frame Location: [Factory](#), Slot: [8](#)

Locate Module

Slot Identification

Name:

Asset Tag:

Slot Memory

Restore upon Install

[Frame Health Reports](#)

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[SNMP Trap Reports](#)

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 identification may be entered in the **Asset Tag** field. This will appear on the module Status web page and in the NetConfig inventory report.

Slot Memory

The slot configuration for each media module is automatically polled and refreshed periodically (about every 50 minutes) by the 8900NET module when the **Always Slot Refresh** checkbox on the 8900NET Configuration web page (with 4.3.0 software) and/or the **Restore upon Install** checkbox on any media module Slot Config web page is selected.

When the **Restore upon Install** checkbox on any media module Slot Config web page has been selected, the current configuration from that module is saved in slot memory on the 8900NET module. This allows the current module to be removed and when another module of the same part number, and software version is installed, the configuration saved to the 8900NET module will be downloaded to the installed module. The **Restore upon Install** checkbox must be selected before the current module with the saved configuration is removed.

Note Make sure all modules of the same model type are running the same software version and have the same part number silk-screened on the printed circuit board. Downloading a configuration to a module with a different software version or part number can produce unexpected results.

If a different type of module is installed in this slot, a warning message will state that the original module type has been replaced with another module type. In this case, a **Clear** button will appear allowing you to clear the stored configuration from the previous module.

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 no **Restore upon Install** checkboxes on any of the media module Slot Config web pages are selected and the **Always Slot Refresh** checkbox on the 8900NET Configuration web page is unchecked, the slot refresh polling function on the 8900NET module will be disabled. See the **Always Slot Refresh** checkbox description in the *8900NET (Net Card) Network Interface Module Instruction Manual* for more details.

Note Uncheck the **Restore Upon Install** button before downloading new software.

Frame Health Reporting

This web page allows configuration of the alarms and warnings that are reported to the external Frame Health Alarm connector on the rear of the GeckoFlex frame. Refer to *8900NET Instruction Manual* for more details.

LED Reports

This link appears when the 8900NET module has software version 4.0.2 or later installed. When the link is selected, a read-only status report of the 8900NET Hardware Switch state is given. In the LED Reporting section of the web page, LED Reporting can be enabled or disabled as desired.

SNMP Trap Reports

Select the SNMP Trap Reports link to open the 8900NET SNMP Reporting web page. This link will only be present when SNMP Agent software, such as NetCentral, has been installed on the 8900NET module. This web page allows configuration of which alarms and warnings that are reported to the SNMP management software.

Refer to *8900NET Instruction Manual* for more details on the links to the 8900NET module.

Module Option Upgrade

The 8964ENC 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.

Software Updating

Software updating any of the 8964ENC/-FS modules is done using the Net-Config Networking Application PC option. The NetConfig application is available free of charge from the Grass Valley web site.

The procedure for updating software is given in the specific 8943RDA Release Notes when software updates become available for field updating. Check the Grass Valley web site for update information. Refer to *Contacting Grass Valley on page 4* for more information.

All modular product documentation can be found in PDF format on the Grass Valley web site at this link:

www.grassvalley.com/docs/modular

Specifications

Table 7. 8964ENC/-FS Specifications

Parameter	Value
SDI Input (per channel)	
Number of inputs	4, one for each encoder
Signal type	SMPTE 259M, 10-bit 270 Mb/s serial component digital
Signal source	75 ohm terminating BNC on rear of frame
Return loss	> 15 dB, 5 to 270 MHz
Error checking	EDH monitored
Reference Input	
Number of inputs	One
Signal type	Color black, SMPTE170M, 140 mV to 560 mV, 525 or 625
Connector type	75 ohm BNC loop-through
Return Loss	> 40 dB to 5.0 MHz
Signal to noise requirement	> 40 dB
Composite Output (per channel)	
Number of outputs	4, one for each encoder
Signal type	Composite analog video conforming to SMPTE170M for NTSC and CCIR624 for PAL
Connector type	75 ohm BNC
Signal level	1 V p-p nominal, adjustable in ± 3 dB range
Output return loss	> 40 dB to 5.0 MHz
Signal to noise	> 70 dB to 6 MHz
Field time distortion	< 0.5%
Line time distortion	< 0.5%
K-2T	< 1%
K-PB	< 1%
Frequency response	± 0.1 dB to 5 MHz
Differential phase	< 0.5 degrees
Differential gain	< 0.7%
Chroma luma delay	< 10 ns
Chroma luma gain	< 1%
Timing	
Range – Line Sync (PAL and NTSC)	1 line
Range – Frame Sync (PAL and NTSC)	1 frame
Delay from reference, all timing controls set to 0 line sync (PAL and NTSC)	2 lines
Group delay PAL NTSC	4 lines + 16.65 μ sec 4 lines + 16.58 μ sec
Delay from reference, all timing controls set to 0 frame sync PAL NTSC	4 lines + 16.65 μ sec 4 lines + 16.58 μ sec

Table 7. 8964ENC/-FS Specifications

Parameter	Value
Performance	
Quantization	10-bit
Accuracy	9.2-bit EDH detection
Output phasing	Full frame with frame synchronizer firmware
Cable length	300M of 1694A cable
Environmental	
Frame temperature range	Refer to the Gecko Frames or GeckoFlex Frames 8900FX/FF/FFN Signal Processing Systems Instruction Manual at www.grassvalley.com/docs/modular
Operating humidity range	
Non-operating temperature	
Mechanical	
Frame type	Gecko 8900 Video or GeckoFlex with 8900V-R rear module
Rear Retainer clip screw torque (GeckoFlex frame)	4-5 inch-lb./0.45-0.6Nm
Power Requirements	
Supply voltage	+12V
Power consumption	< 8.5 W (2 A fast blow fuse)

Status Monitoring

There are a number of ways to monitor frame and module status. These methods are summarized here. For more detailed information, refer to the *8900NET (Net Card) Network Interface Module Instruction Manual* and the *8900 Gecko* or *8900 GeckoFlex Frame Instruction Manuals*.

All modular product documentation is available on-line in PDF format at this link:

www.grassvalley.com/docs/modular

The main status monitoring methods include the following:

- External frame alarm output on the rear of the 8900 frame with reporting from the Module Health Bus and other frame status alarm reports,
- LEDs on the Frame, 8900NET module, and individual frame media modules,
- Web browser status reporting for each frame component, and
- SNMP traps, captured by Grass Valley's NetCentral or another SNMP Manager Application.

Note SNMP trap information is only available when an SNMP Agent has been installed and configured.

External Frame Alarm

An external Frame Alarm output is available on pins 8 and 9 of the RS-232 connector on the rear of the frame. The Frame Alarm outputs a voltage level indicating there is an alarm condition on the Module Health Bus or one of the other frame components reported to the Frame Monitor module in a Gecko 8900TF or GeckoFlex 8900FF frame or the 8900NET module in an 8900TFN and GeckoFlex 8900FFN frame.

- The Module Health bus is a separate line on the frame motherboard that provides a means for older or less capable modules (such as DAs with no microprocessor) that cannot communicate over the Frame (serial) bus to report warning and alarm conditions to the external Frame Alarm. All media modules in the frame report a voltage level to this line when a warning condition occurs on the module. The specific warning or module location is not reported, only an indication that an warning condition has occurred.
- Frame alarm reporting from other frame components can be enabled and disabled using DIP switches on the Frame Monitor and 8900NET module. For frames with an 8900NET module, the Frame Alarm Reporting web page allows configuration of the alarms and warnings that are reported to this external Frame Health Alarm.

LED Reporting

LEDs on the front of media modules, the Frame Monitor or 8900NET modules, and the front covers of the 8900TF/TFN and GeckoFlex FF/FFN frames indicate status of the frame and the installed power supplies, fans in the front covers, and module status. (The 8900TX-V/A and GeckoFlex 8900FX frames have no LED indicators on the front cover.)

- LED reporting from the modules in the frame to the 8900NET module is configurable using the 8900NET LED Reporting web page.
- The Status LEDs for this module are described in *Operation Indicator LEDs* on page 18. LEDs for the 8900NET module are described in the *8900NET (Net Card) Network Interface Instruction Manual*.

Web Browser Interface

The 8900NET module controls a web browser GUI that indicates frame and module status on the following web pages:

- Frame Status web page – reports overall frame and module status in colored graphical and text formats. Refer to [Figure 12 on page 35](#) for an example.
- Module Status web page ([Figure 14 on page 39](#)) – shows specific input and reference signal configuration error status to the module along with module status and information (part number, serial number, hardware version, software/firmware/boot versions, and Asset number (as assigned on the Slot Config web page)).
- A Status LED icon on each web page reflects the module status on the module Status web page where warnings and faults are displayed and is a link to the module Status web page.

SNMP Reporting

The GeckoFlex 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.

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.

Service

The 8964ENC 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:

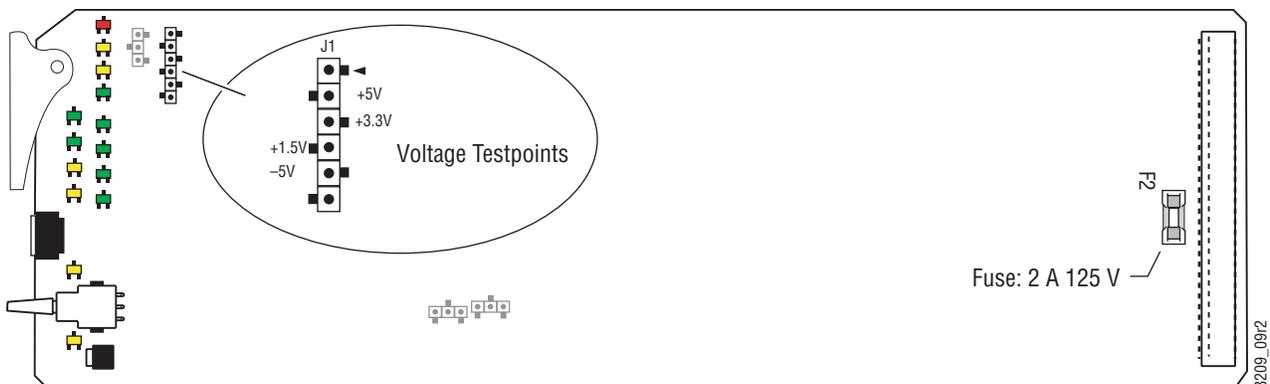
- Check frame and module power and signal present LEDs.
- Verify power at the voltage testpoints (see [Figure 32](#)) and check Fuse if no voltage is detected.
- Check for presence and quality of input signals.
- Verify that source equipment is operating correctly.
- Check cable connections.
- Check output connections for correct I/O mapping (correct input connector is used for the corresponding channel output).

Refer to [Figure 7](#) for the location of PWR LED and [Table 2 on page 19](#) 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 on page 4](#) at the front of this document for the Grass Valley Customer Service Information number.

Figure 32. 8964ENC Fuse and Voltage Testpoint Locations

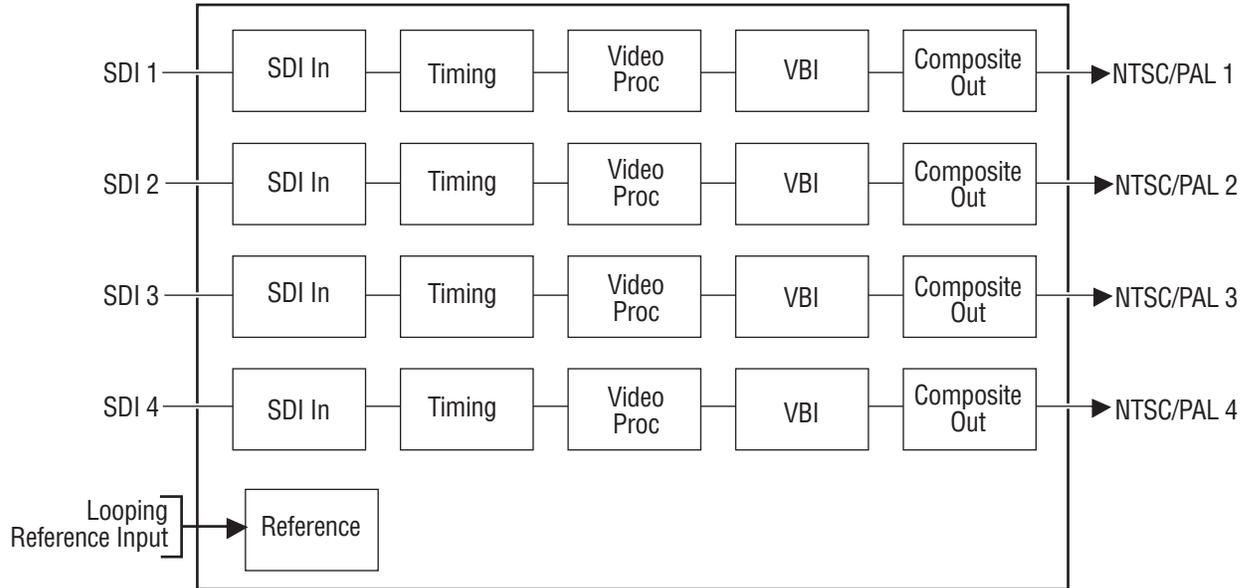


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Functional Description

A block diagram of the 8964ENC front module is shown in [Figure 33](#).

Figure 33. 8964ENC Front Module Block Diagram



Configuration Summary

Table 8 provides a complete summary of the 8964ENC functions and a comparison of the functionality available with each control type along with the ranges and default values for each parameter.

Table 8. Summary of 8964ENC/-FS Configuration Functions

Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Function Switch Bank/Setting	Control Panel Mnemonic	Notes/ Conditions
OSD (On Screen Display)	Off	On/Off	OSD Control/ On Screen Display	1:1	N/A	Jumper JP3 must be enabled on module.
Horizontal Timing	0	0 - 857.5 pixels (525) 0 - 863.5 pixels (625) (0.5 pixel steps)	Timing/ Horizontal Timing (pixels)	2:B	HTim 1-4	8964ENC or 8964ENC-FS
Fine Phase	0	0-100 (1% steps)	Timing/ Fine Phase Adjustment (%)	2:A	FPhase1-4	
Vertical Timing	0	0 - 524 lines (525) 0 - 624 lines (625) (1line steps)	Timing/ Vertical Timing (lines)	2:C	VTim1-4	8964ENC-FS only.
Freeze Type	AutoBlue	AutoFrz, AutoBlue Field 1, Field 2, or Frame	Timing/Freeze Mode Select AutoFrz, AutoBlue, Field 1, Field 2, or Frame radio button	2:D 2:E 2:F	Frez1-4	
Test Signal Generator	Off	On/Off	Video Proc/ Select Enable or Color Bars radio button	1:C	Tst1-4	Video processing controls
Chroma Kill	Off	On/Off	Video Proc/ Chroma Kill checkbox	1:B	Chroma1-4	
Black Clip control	None	None, -11%, -6% or -1.5%	Video Proc/ Select None, -11%, -6% or - 1.5% radio button	No local control	BlkClip1-4	
Saturation/Chroma Gain	100	50-150% (0.8% steps)	Video Proc/ Saturation/Chroma Gain (%)	1:8	ChroGn1-4	
Hue/Chroma Phase	0	± 22.3 degrees (0.2 degree steps)	Video Proc/ Hue/Chroma Phase (deg)	1:9	ChroPhs1-4	
Brightness/Y Offset	0	± 7.5% (0.5% steps)	Video Proc/ Brightness/Y Offset (mV)	1:7	YOff1-4	
Contrast/Y Gain	100	50-149.6% (0.4% steps)	Video Proc/ Contrast/Y Gain (%)	1:6	YGn1-4	
Burst disable	On	On or Off	Video Proc/ Burst checkbox	1:D	Burst1-4	
Output Video Gain	100	61-138.5% (0.5% steps)	Composite Out/ Output Video Gain	1:4	OutGn1-4	
Add setup to active video	On	On/Off	Composite Out/ Add setup to active video check- box	1:2	N/A	
Reserve VBI lines for data	None	See VBI Web Page on page 47	VBI/ Select data line pair buttons	2:1/2:2/2:3 See Table 6 on page 31	N/A	See Table 4 on page 23 for line choices

Configuration Summary

Table 8. Summary of 8964ENC/-FS Configuration Functions

Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Function Switch Bank/Setting	Control Panel Mnemonic	Notes/ Conditions
Blank VBI Lines	On	On/Off	VBI/ Blank VBI/Data Line Pair or use Blank All or Pass All button	2:4	N/A	Line selectable in Remote. Global in Local.
Add VBI Setup (525 only)	On	On/Off	VBI/ VBI Setup checkbox (grayed out when Active Video Setup is off)	2:5	N/A	Active Video Setup in Composite Out must be enabled.
Picture Enhancer process	Disable	Bypass/Disable/Enable	Picture Enhancer/ Select Bypass/Disable or Enable button	3:B Disable/Bypass 3:C Enable/Disable	PicEnh1-4	Picture Enhancer enabled
Picture Enhancer split screen	Off	On/Off	Picture Enhancer/ Select Split Screen checkbox	3:D	N/A	
PE Detail Enhancer Level	0	0-255	Picture Enhancer/ Detail Enhancer Level	3:E	N/A	
PE Overshoot Protection	0	0-7	Picture Enhancer/ Overshoot Protection	3:F	N/A	
Noise Reducer process	Off	On/Off	Noise Reducer/ Select Enable Noise Reducer checkbox	3:8	N/A	Noise Reducer enabled
Noise Reducer filter select	3.5 MHz Notch	3.5 MHz Low Pass 4.2 MHz Notch 3.5 MHz Notch 2.8 MHz Notch	Noise Reducer/ Select Filter Select button	No local control	N/A	
Noise Reducer level	0	0-8 (1.0 steps)	Noise Reducer/ Level	3:9	N/A	
Noise Reducer threshold	0	0-10 (1.0 steps)	Noise Reducer/ Threshold	3:A	N/A	
Learn/Recall E-MEM	N/A	E-MEM 1-5	E-MEM/ Standard View: Recall 1-5 Advanced View: Recall/Learn /Save to/Load from	1:E	N/A	E-MEM functions
Recall factory defaults	N/A	See Defaults column	E-MEM/ Recall factory settings button	1:F	N/A	

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