

8981NR

270 MB/S SDI NOISE REDUCER MODULE

Instruction Manual

SOFTWARE VERSION 1.0

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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*).

8981NR 270 Mb/s SDI Noise Reducer

Introduction

The 8981NR module is a 270 Mb/s SDI component digital noise reducer module. The module incorporates two different noise reduction methods, targeted at different sources of noise. A recursive filter is effective for low levels of wide-band (random) variations that have no frame-to-frame correlation and a horizontal median filter is very effective for impulse noise.

Typical applications include reduction of random noise generated during analog transmission or digital processing. Signals from various sources with varying amounts of noise resulting from poor transmission and processing will benefit by the reduction of bandwidth required later during the MPEG compression process.

The 8981NR features:

- 10-bit signal processing,
- Automatic 525/625 line standard selection based on input,
- Recursion filter for random noise reduction,
- Horizontal median filter for impulse noise reduction,
- Split screen mode with internal noise generator for setup purposes,
- Video processing adjustments including video gain and black level,
- Setting storage in non-volatile memory,
- Output EDH generated,
- VANC pass or blank selection,
- Set blanking width (line 20 or line 21) in 525 mode,
- Passes all HANC data, and
- Remote control lockout jumper disables remote control capability.

Installation

Installation of the 8981NR module is a process of:

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

The 8981NR 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 8981NR 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
8981NR Modules	5	10	10

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

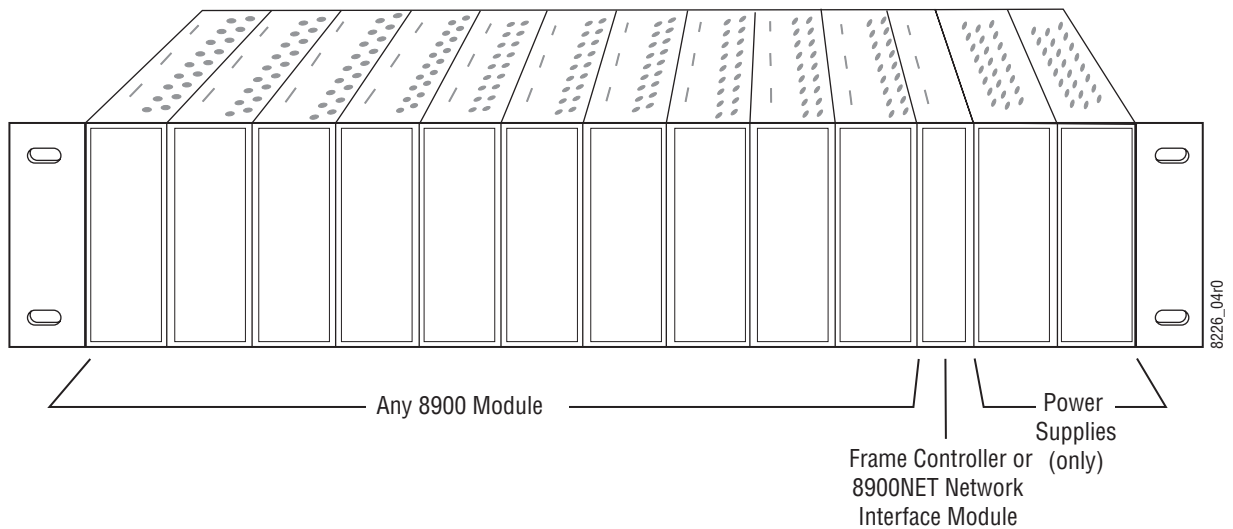
Module Placement in the Gecko 8900 Video Frame

There are ten cell locations in the video 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.

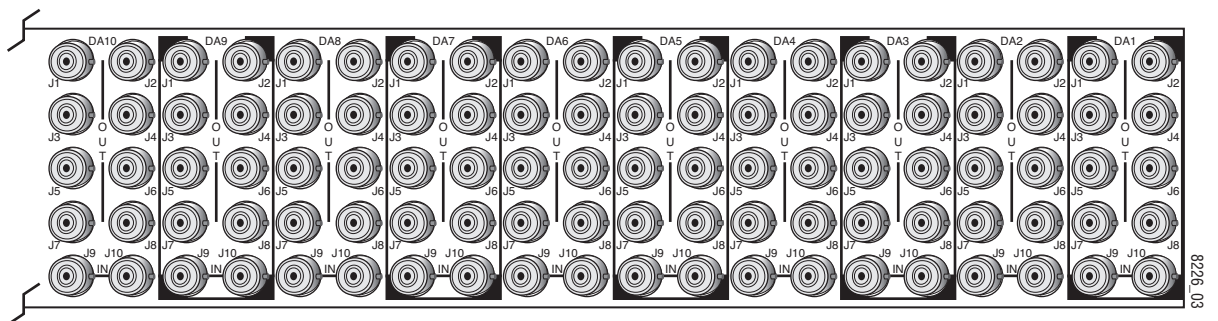
The third cell from the right is allocated for the Frame Monitor or 8900NET Network Interface module. These modules provide health monitoring and control options.

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 Video 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 8981NR connector functions.

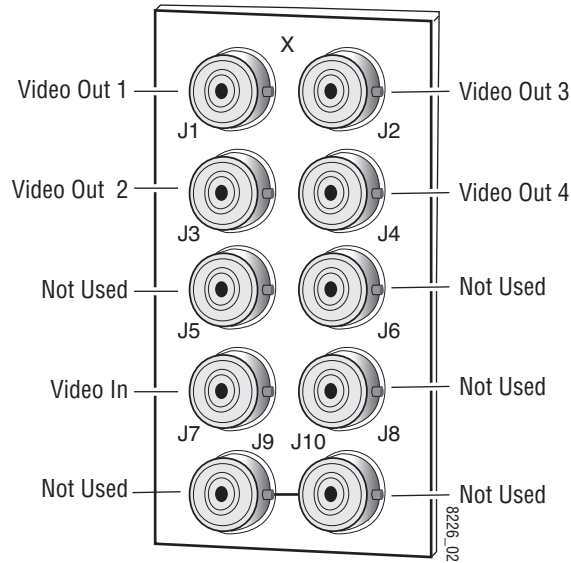
Inputs

One SDI input is provided at BNC J7. Line rate is indicated by 525 or 625 Present LED (Figure 4 on page 11).

Outputs

Four serial digital video outputs are provided at BNCs J1, J2, J3, and J4 as shown in Figure 3.

Figure 3. 8981NR 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).

Figure 4. LEDs and Configuration Switches

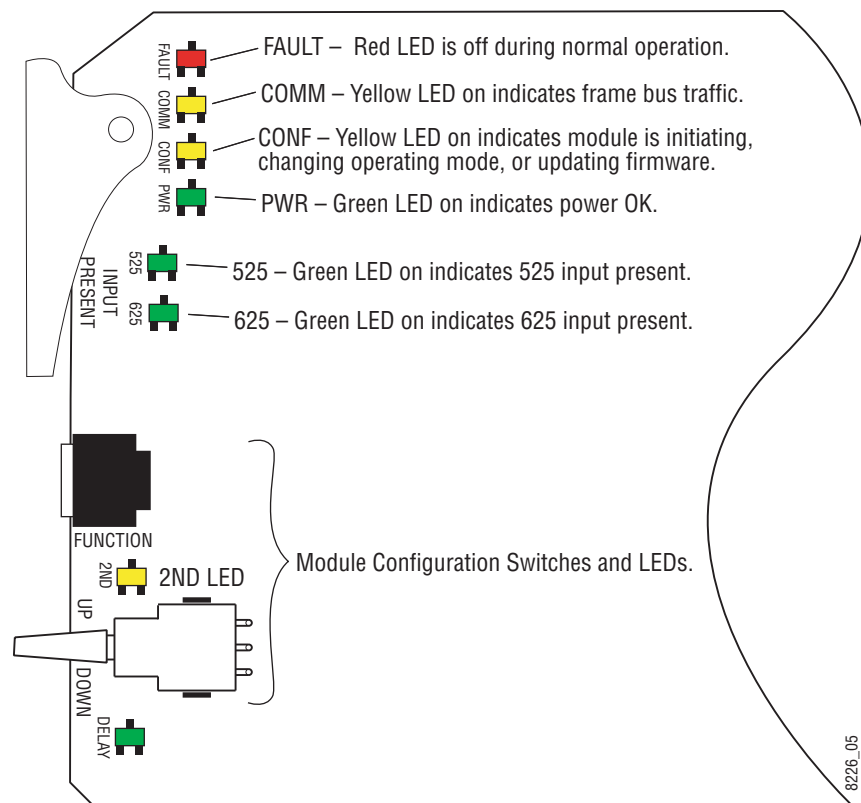


Table 2. Board Edge LED Names and Meaning

LED	Indication	Condition
FAULT (red)	Off	Normal operation.
	On continuously	Module has detected an internal fault. (Refer to Service on page 35.)
	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.
525 (green)	Off	Input signal standard is other than 525.
	On continuously	Valid 525 video signal is present
625 (green)	Off	Input signal standard is other than 625.
	On continuously	Valid 625 video signal is present
2ND (yellow)	Off	Rotary switch is addressing Bank 1 configuration functions
	On continuously	Rotary switch is addressing Bank 2 configuration functions
DELAY (green)	Off	Not Used
	On continuously	

Configuration

The 8981NR 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 17)
- Remote Control and Monitoring (page 20)
- Control Panel Configuration (page 33)

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 8981NR module. Table 3 on page 16 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.

Noise Filter Controls

Noise controls for two different noise reduction methods—recursive and median—targeted at different sources of noise, are provided on the module.

Recursive Filter

Recursive filtering is effective for low levels of wide-band (random) noise that have no frame-to-frame correlation. In this method of filtering, the input video data is mixed with a portion of the recursive filter output that is delayed by exactly one frame only if its value is with an adjustable noise threshold level of that output. The portion amount is set by the recursion coefficient from none to 100% (an output freeze).

When recursive filtering is enabled, two controls become available:

- Noise Threshold Level – adjustment should be made just slightly higher than the peak noise level.
- Noise Coefficient – adjustment should be made for minimum acceptable noise suppression.

Both of these adjustments should be set as low as acceptable to minimize motion blurring artifacts.

Median Filter

This filtering method acts to replace individual pixels with one of its neighboring pixels in the horizontal direction if it is not within the value range of the nearest neighboring pixels. This type of filtering is very effective for single pixel impulse noise where there is no horizontal (line) picture correlation.

The median filter is enabled with an On/Off control. This type of filter has a larger peak level than the random noise so it occurs before the recursive filter.

If no impulse noise is present in the signal, it is recommended to leave the median filter in the Off position, as high frequency horizontal resolution (sharpness) is reduced with its use.

Other Noise Filter Controls

The following controls are also included with the noise filtering to aid in making noise adjustments:

Display Bar – when enabled, a sliding horizontal white bar will indicate the relative value for noise threshold (top) and recursive coefficient (bottom) on a black background, indicating the full-scale position.

Split Screen – when enabled, allows the output to be split for comparing the unprocessed video data on the right to the processed video on the left.

Random Noise Generator – when enabled, pseudo-random, wide-band noise with no average DC value at a peak level of about 8 IRE will be added to the input. This level is at a practical limit for using recursive filtering and can be used for experimenting with the noise threshold and recursion coefficient controls. Most actual noise sources will be lower than with this generator and will require lower settings.

Impulse Noise Generator – when enabled, and the random noise generator is also enabled, positive, single pixel impulse of about 50 IRE are added to the noise generator output. This control is useful for testing the median filter.

Note When the module is powered down, upon restart the Display Bar, Split Screen, Random Noise Generator, and Impulse Noise Generator will be disabled and must be re-enabled using the local or remote controls.

Proc Amp Controls

When the video processor is enabled, the following independent adjustments can be made to the SDI video signal:

- Y, B-Y, and R-Y offset, and
- Y, B-Y, and R-Y gains.

When the Gain Lock control is enabled, all three channels will change gain by the same amount when any of the channel's gain settings are adjusted.

When disabled, all processing is bypassed and when re-enabled, the previous settings are in effect.

Vertical Ancillary Line Controls

The module provides controls for blanking all vertical ancillary data (Yes or No in remote or VANC Pass or VANC Blank in local mode). When blanking is enabled on all lines, in 525 mode only, the blanking width can be set to line 20 or line 21 (blank line 21 – Yes or No in remote or set blanking width to line 20 or line 21 in local mode).

All horizontal interval data is passed to the output without processing.

Recall or Save Settings

The current module settings can be saved or recalled into/from one of four memory registers. All controls, except the test modes, will be stored.

Table 3 provides a complete summary of the 8981NR processing functions and a comparison of the functionality available with each control type along with the ranges and default values for each parameter.

Table 3. Summary of 8981NR Configuration Functions

Control Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Rotary Switch Bank/Setting	Control Panel Mnemonic	Notes/ Conditions
Recursive filter	On	On/Off	Noise Filters/ Recursive Filter On/Off pulldown	2:3	RecrFilt	Recursive filter enabled
Noise threshold	50.2%	0–100% (0.4% steps)	Noise Filters/ Noise Threshold (%)	2:1	NoisThrh	
Noise recursion coefficient	75%	0–100% (0.8% steps)	Noise Filters/ Coefficient (%)	2:2	Coefient	
Median filter	Off	On/Off	Noise Filters/ Median Filter On/Off pulldown	2:4	MediFilt	–
Display bar	Off	On/Off	Noise Filters/ Display Bar pulldown	1:1	DispBar	–
Split screen	Off	On/Off	Noise Filters/ Split Screen pulldown	1:2	SplitScr	–
Random noise generator	Off	On/Off	Noise Filters/ Random Noise Gen pulldown	1:3	RanNsGen	–
Impulse noise generator	Off	On/Off	Noise Filters/ Impulse Noise Gen pulldown	1:4	ImpNsGen	Random noise gen must be on
Video proc amp	Off	On/Off	Proc Amp/ On/Off pulldown	2:5	ProcAmp	Video Proc enabled
Y offset	0%	–3.5 to 3.4% (0.11% steps)	Proc Amp/ Y Offset (%)	2:6	Y Offset	
B-Y offset	0%	–3.5 to 3.4% (0.11% steps)	Proc Amp/ B-Y Offset (%)	2:7	B-Y Ofst	
R-Y offset	0%	–3.5 to 3.4% (0.11% steps)	Proc Amp/ R-Y Offset (%)	2:8	R-Y Ofst	
Y gain	100%	59.4 to 140.6% (0.4% steps)	Proc Amp/ Y Gain (%)	2:9	Y Gain	
B-Y gain	100%	59.4 to 140.6% (0.4% steps)	Proc Amp/ B-Y Gain (%)	2:A	B-Y Gain	
R-Y gain	100%	59.4 to 140.6% (0.4% steps)	Proc Amp/ R-Y Gain (%)	2:B	R-Y Gain	
Gain lock	On	On/Off	Proc Amp/ Gain Lock pulldown	2:C	N/A	Locks all gain controls
Blank all vertical ancillary lines	No	Yes/No	Vertical Ancillary Lines/ Blank All Lines pulldown	2:E (Blank or Pass)	BlankAll	
Set blanking width in 525	Blank to line 20	Blank to line 20 Blank to line 21	Blank Line 21 pulldown	2:D (Line 20 or 21)	Blank21	Blank all must be yes
Save/Recall Registers 1–4	N/A	Registers 1–4	Recall or Save Settings/ Save Register # Recall or Save Settings/ Recall Register #	1:A (Save/Recall Reg 1) 1:B (Save/Recall Reg 2) 1:C (Save/Recall Reg 3) 1:D (Save/Recall Reg 4)	N/A	–

Local Onboard Module Configuration

The 8981NR 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

Refer to [Figure 5](#) for the following descriptions. Use the onboard configuration components as follows:

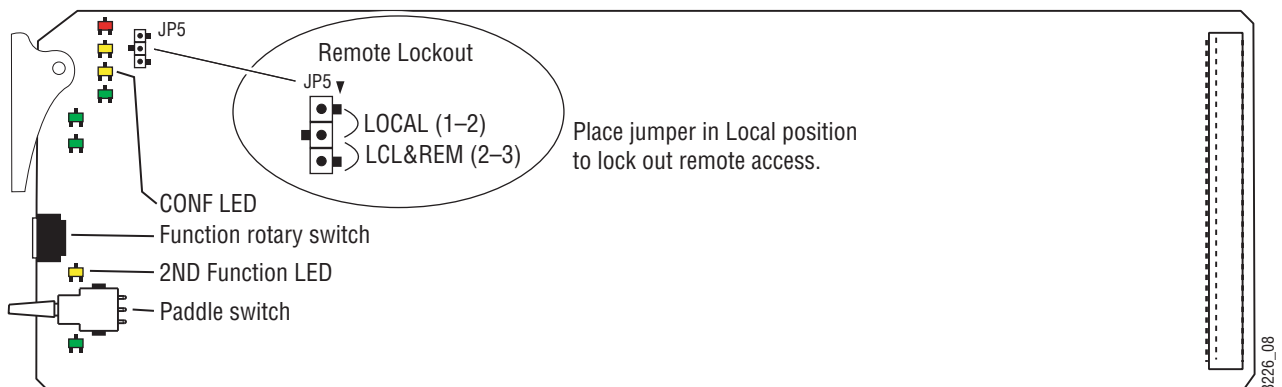
- Function (rotary) switch – this switch accesses a desired function for configuration (see [Table 4 on page 19](#)). The switch addresses two banks of functions; each bank has 16 possible positions (0 through 9 and A through F). Not all positions are used.

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 1 again. 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.
- Paddle switch – actuates or selects the desired setting for the selected function when the switch is held momentarily in either the up or down position.
- CONF (configuring) yellow LED – when on, indicates the module is initializing or processing configuration information.
- Jumper JP5 allows or locks out (Local) remote control.

Figure 5. Module Configuration Switches and LEDs



8981NR Module Onboard Configuration Settings

To make a configuration setting:

1. Rotate the Function switch to Bank 1 (2ND LED off) or Bank 2 (2ND LED on), then to the desired function within that bank.
2. Move the paddle switch to the up or down position and hold momentarily to set the desired function (refer to [Table 4](#)).

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.

3. Refer to [Configuration Summary on page 13](#) for an overview of each function. [Table 3 on page 16](#) also gives a summary of value ranges, step sizes, default values, etc. for each function

Table 4. Local Rotary and Paddle Switch Functions

	Function Switch Setting	Paddle Switch Up	Paddle Switch Down	Function Description
Bank 1 (2ND LED off)				
Bank 1 (2ND LED off)	0	–	–	Default position for normal operation (parked)
	1	On	Off	Turn display bar on or off
	2	On	Off	Turn split screen on or off
	3	On	Off	Turn random noise generator on or off
	4	On	Off	Turn impulse noise generator on or off
	5-9	Not used		
	A	Recall Register 1	Save Register 1	Save or recall settings to Register 1
	B	Recall Register 2	Save Register 2	Save or recall settings to Register 2
	C	Recall Register 3	Save Register 3	Save or recall settings to Register 3
	D	Recall Register 1	Save Register 1	Save or recall settings to Register 1
	E	Recall factory defaults	–	Recall defaults from Table 3 on page 16
F	Not used			
Bank 2 (2ND LED on)				
Bank 2 (2ND LED on)	0	–	–	Default position for normal operation (parked)
	1	Increase	Decrease	Adjust noise threshold setting (%)
	2	Increase	Decrease	Adjust noise recursion coefficient (%)
	3	On	Off	Turn recursive filter on or off
	4	On	Off	Turn median filter on or off
	5	On	Off	Turn video proc amp on or off
	6	Increase	Decrease	Adjust Y offset
	7	Increase	Decrease	Adjust B-Y offset
	8	Increase	Decrease	Adjust R-Y offset
	9	Increase	Decrease	Adjust Y gain
	A	Increase	Decrease	Adjust B-Y gain
	B	Increase	Decrease	Adjust R-Y gain
	C	On	Off	Turn video gain lock on or off
	D	Blank to 20	Blank to 21	Set blanking width to line 20 or line 21 in 525
	E	VANC pass	VANC blank	Pass or blank all vertical ancillary data
	F	Not used		

Remote Configuration and Monitoring

8981NR configuration and monitoring can be performed using a web browser GUI interface 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 remote access, make sure the jumper block on the module is set for both Local and Remote access ([Figure 5 on page 17](#)).

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.

Refer to the Frame Status page shown in [Figure 6 on page 21](#). 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.

Use the **Refresh** button to update the display (available with 8900NET software version 3.0 and later).

The **Online Manual Link** button can be set up to link to the documentation in pdf format. Link configuration is done on the Frame Configuration page.

For information on status and fault monitoring and reporting shown on the Status page, refer to [Status Monitoring on page 36](#).

Figure 6. Frame Status 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

Online Manual Link

Modular QA Bay 1

- [Status](#)
- [Configuration](#)
- [1 Media Slot 1](#)
- [2 8960DEC](#)
- [3 Media Slot 3](#)
- [4 8920DMX](#)
- [5 Media Slot 5](#)
- [6 Media Slot 6](#)
- [7 Media Slot 7](#)
- [8 Media Slot 8](#)
- [9 Media Slot 9](#)
- [10 Media Slot 10](#)
- [11 8900NET](#)
- [12 Power Supply 1](#)
- [13 Power Supply 2](#)

Status

Model: 8900TFN Description: Module Frame

Frame Location: 8900: QA Bay 1

Temperature Status [Pass](#)

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

Front Cover [No Cover](#)

Properties

Vendor	Thomson, Grass Valley	Software Version	3.0
Media Slots	10	Network Config	Network configuration stored on 8900NET module

8038_08

8981NR Links and Web Pages

The 8900 GUI provides the following links and web pages for the 8981NR module (Figure 7):

- Status – reports input and reference signal status and module information (page 23),
- Noise Filters – turn on recursive and median noise filters and enable/disable Display Bar, Split Screen, Random Noise Generator and Impulse Noise Generator (page 24),
- Proc Amp – enable or disable Proc Amp and make video processing adjustments (page 26),
- Vertical Ancillary Lines – select to pass or blank vertical ancillary lines (page 28),
- Recall or Save Settings – save or recall module settings to registers (page 29),
- Slot Config – provides a Locate Module function and Slot Memory (page 30), and
- Software Update – allows updating of software (page 32).

Figure 7. 8981NR Web Page Links

[8 8981NR](#)
[Status](#)
[Noise Filters](#)
[Proc Amp](#)
[Vertical Ancillary Lines](#)
[Recall Or Save Settings](#)
[Slot Config](#)
[Software Update](#)

Status Page

Use this link — [8 8981NR](#)
[Status](#)
[Noise Filters](#)
[Proc Amp](#)
[Vertical Ancillary Lines](#)
[Recall Or Save Settings](#)
[Slot Config](#)
[Software Update](#)

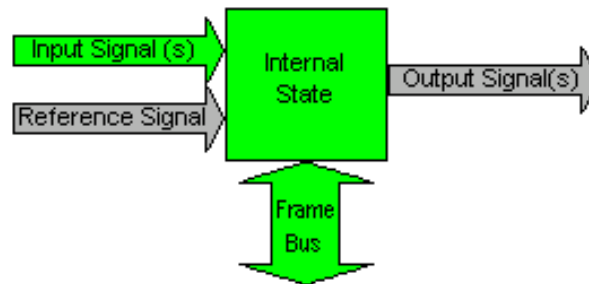
The Status page (Figure 8) shows the status of the input signal. Color coding of the display indicated the signal status. Refer to *Status Monitoring on page 36* for an explanation of the color coding.

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.

Figure 8. 8981NR Status Page



Model: [8981NR](#) Description: [SDI Noise Reducer](#)
 Frame Location: [8900: QA Bay 1](#) , Slot: [6](#)
 Input Signal Name: [not assigned](#)
 8981NR Status: [PASSED](#)



Properties

Hardware Revision [10A](#) Serial Number [VR03292396](#)
 Software Version [1.0.1](#) Part Number [671-5023-10A](#)
 Firmware Version [1](#)

Noise Filters

Use
this
link

- [8 8981NR](#)
- [Status](#)
- [Noise Filters](#)
- [Proc Amp](#)
- [Vertical Ancillary Lines](#)
- [Recall Or Save Settings](#)
- [Slot Config](#)
- [Software Update](#)

The Noise Filters page ([Figure 9 on page 25](#)) provides the controls for turning on and adjusting noise filtering and enabling the display bar and split screen and the impulse and random noise generators.

Refer to [Configuration Summary on page 13](#) for an overview of each function and when to use each filtering type. [Table 3 on page 16](#) also gives a summary of value ranges, step sizes, default values, etc. for each function.

- **Recursive Filter** pulldown – turn recursive filtering on or off.

With recursive filtering on, the following recursive noise controls can be set:

- **Noise Threshold** – set the amount of noise threshold in percent.
- **Coefficient** – set the noise recursive coefficient.

These controls will be grayed out when the Recursive Filter is off.

- **Median Filter** pulldown – turn median filtering on or off.

The following controls can be enabled for use with the noise filters:

- **Display Bar** – enables a sliding horizontal white bar to indicate the relative value for noise threshold (top) and recursive coefficient (bottom) on a black background.
- **Split Screen** – allows the output to be split for comparing the unprocessed video data on the right to the processed video on the left.
- **Random Noise Generator** – adds a pseudo-random, wide-band noise to the input. Can be used for experimenting with the noise threshold and recursion coefficient controls. Most actual noise sources will be lower than with this generator and will require lower settings.
- **Impulse Noise Generator** – adds a positive, single pixel impulse to the noise generator output. The random noise generator must also be enabled. Useful for testing the median filter.

Proc Amp Page

Use
this
link

- [8 8981NR](#)
- [Status](#)
- [Noise Filters](#)
- [Proc Amp](#)
- [Vertical Ancillary Lines](#)
- [Recall Or Save Settings](#)
- [Slot Config](#)
- [Software Update](#)

The Proc Amp page ([Figure 10 on page 27](#)) provides access to processing amplifier controls. Refer to [Table 3 on page 16](#) for a summary of controls, defaults, parameter ranges and what lines of video are affected by each control.

- Proc Amp— enable or disable (On/Off) processing amplifier for the SDI signal.



When the Proc Amp is enabled, the following controls will be active:

- Y Gain – adjusts the percentage of luminance relative to white.
- B-Y Gain – adjusts the percentage of B-Y gain.
- R-Y Gain – adjusts the percentage of R-Y gain.

Set the **Gain Lock** control to **On** to adjust the gain of all three channels together with any of the gain controls above.

- Y Offset – adjusts percentage of Y offset.
- B-Y Offset – adjusts percentage of B-Y offset.
- R-Y Offset – adjusts percentage of R-Y offset.

Figure 10. 8981NR Proc Amp Page

 **Proc Amp** 

Model: [8981NR](#) Description: [SDI Noise Reducer](#)
 Frame Location: [8900: QA Bay 1](#) , Slot: [8](#)

selection current setting

Proc Amp: On

Y Gain (%)		Y Offset (%)	
<<	<input type="text" value="100.0"/>	>>	<<
	<input type="text" value="0.00"/>		>>
<	<input type="button" value="Apply"/>	>	<
	<input type="button" value="Apply"/>		>
B-Y Gain (%)		B-Y Offset (%)	
<<	<input type="text" value="100.0"/>	>>	<<
	<input type="text" value="0.00"/>		>>
<	<input type="button" value="Apply"/>	>	<
	<input type="button" value="Apply"/>		>
R-Y Gain (%)		R-Y Offset (%)	
<<	<input type="text" value="100.0"/>	>>	<<
	<input type="text" value="0.00"/>		>>
<	<input type="button" value="Apply"/>	>	<
	<input type="button" value="Apply"/>		>

selection current setting

Gain Lock: Off

Vertical Ancillary Lines Page

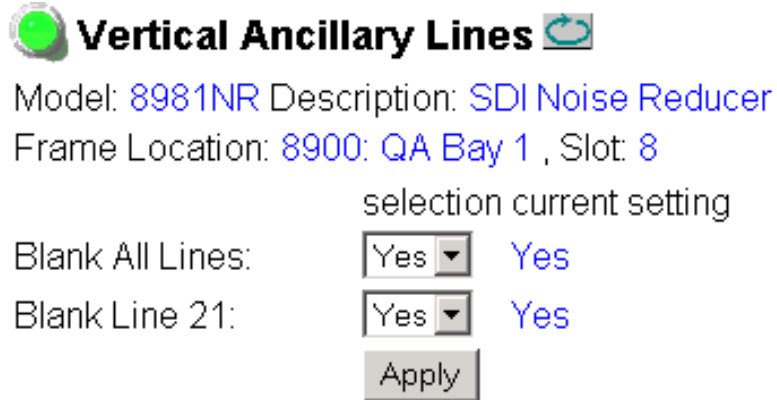
Use
this
link


- [8 8981NR](#)
- [Status](#)
- [Noise Filters](#)
- [Proc Amp](#)
- [Vertical Ancillary Lines](#)
- [Recall Or Save Settings](#)
- [Slot Config](#)
- [Software Update](#)

Use the Vertical Ancillary Lines page (Figure 11) to set the module for the following functions:

- **Blank All Lines** – set to No to pass all lines or blank all lines (Yes).
- **Blank Line 21** – In 525 mode, when vertical ancillary lines are blanked, set to Yes to blank or No to pass line 21.

Figure 11. 8981NR VBI Page in 525 Line Rate



Vertical Ancillary Lines 

Model: [8981NR](#) Description: [SDI Noise Reducer](#)
Frame Location: [8900: QA Bay 1](#) , Slot: [8](#)

	selection	current setting
Blank All Lines:	<input type="text" value="Yes"/>	Yes
Blank Line 21:	<input type="text" value="Yes"/>	Yes

Recall or Save Settings Page

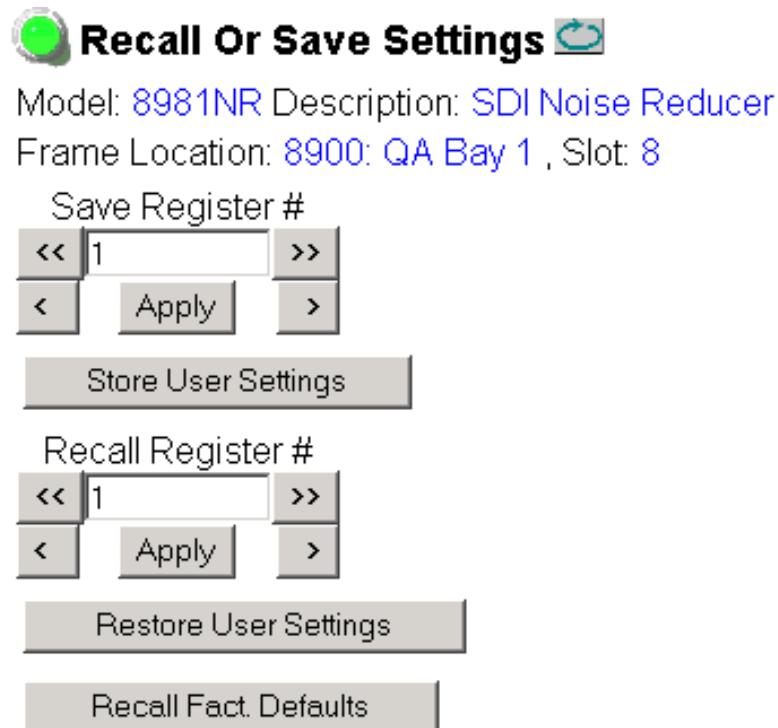
Use this link

- [8 8981NR](#)
- [Status](#)
- [Noise Filters](#)
- [Proc. Amp](#)
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Four storage registers are accessible on the module for saving and recalling module settings. Enter a register number or use the arrow buttons to bring up a specific register.

- Set up the desired module parameters and enter a register number (1-4) in the **Save Register #** field to store the setup and select the **Apply** button. Select the **Store User Settings** button to save the current module configuration.
- Recall the register by entering the number (1-4) in the **Recall Register #** field and selecting the **Apply** button then the **Restore User Settings** button.
- **Recall Fact Defaults** – select this button to recall the factory defaults listed in [Table 3 on page 16](#).

Figure 12. 8981NR Timing with Line Sync



Slot Config Page

Use
this
link →

- [8 8981NR](#)
- [Status](#)
- [Noise Filters](#)
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Use the Slot Config page (Figure 13 on page 31) to perform the following functions on the 8981NR module:

- **Locate Module** – selecting the On 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.
- **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.
- **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 7 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 13. 8981NR Slot Config Page

 **Slot Config** 

Model: [8981NR](#) Description: [SDI Noise Reducer](#)

Frame Location: [8900: QA Bay 1](#) , Slot: [8](#)

Locate Module

Flash Off

Slot Identification

Name:

Input Signal Name:

Slot Memory

Restore upon Install

Hardware Switch Controls

Module Status Reporting: [Enabled](#) Asynchronous Status Reporting: [Enabled](#)

Slot SNMP Trap Reports

	Slot Fault	Module Removed	Signal Loss	Reference Loss
Enabled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trap Severity	Alarm	Warning	Warning	Warning

Software Update Page

- [8 8981NR](#)
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- Use this link

The Software Update page (Figure 14) 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 8981NR Release Notes that accompany the software update for complete details.

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

Figure 14. 8981NR Software Update Page

Software Update

Model: [8981NR](#) Description: [SDI Noise Reducer](#)

Frame Location: [8900: QA Bay 1](#) , Slot: [8](#)

Software Version: [0.0.0X](#) Firmware Version: [1](#)

[Enter Username, Password and File to Initiate Update](#)

	selection	current setting
FTP Server Address:	<input type="text" value="192.158.211.31"/>	192.158.211.31
File Path:	<input type="text" value="Enter Filename Here"/>	Enter Filename Here
FTP UserName:	<input type="text"/>	
FTP Password:	<input type="password"/>	
	<input type="button" value="Apply"/>	

Control Panel Configuration

An external control panel is available to interface over the network to the 8981NR module. The configuration functions available with the Grass Valley Newton Control System are summarized in [Table 3 on page 16](#). In addition, the control panel mnemonics that will appear with each available function are given in the table.

Note Not all configuration parameters may be available with the control panel.

Installation, configuration, and operation of the Newton Modular Control System is provided in a separate manual provided with option.

Specifications

Table 5. 8981NR Specifications

Parameter	Value
SDI Input	
Number of inputs	One, BNC
Signal type	SMPTE 259M serial 10-bit 4:2:2 component video
Input impedance	75 Ω terminating
Return loss	> 15 dB up to 270 MHz
SDI Outputs	
Number of outputs	4, BNC
Signal type	SMPTE259M 10-bit 4 2:2 component video
Output impedance	75 Ω
Return loss	> 15 dB, 5 to 270 MHz
Error checking	EDH embedded
Delay through module	2.8 μ s
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	< 4.5 W (2 A slow blow fuse)

Service

The 8981NR 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:

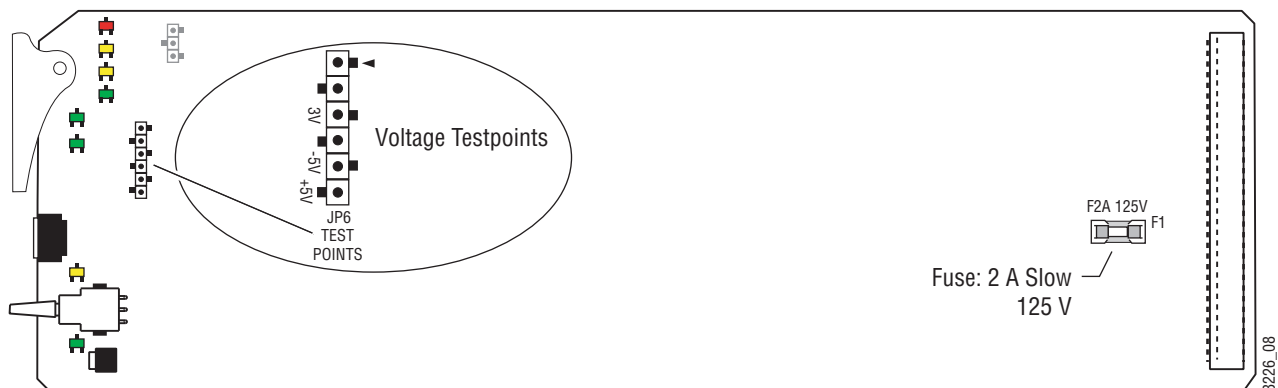
- Check frame and module power and signal present LEDs.
- Verify power at the voltage testpoints (see [Figure 15](#)) and check Fuse F1 if no voltage is detected.
- Check for presence and quality of input signals.
- Verify that source equipment is operating correctly.
- Check cable connections.

Refer to [Figure 4](#) 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 15. 8981NR 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 page – reports overall frame and module status in graphical and text formats.
- Module Status 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 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 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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