

KAM-ENC-4DAC

KAMELEON SERIES MODULES

Instruction Manual

SOFTWARE VERSION 4.0.1

071835300
DECEMBER 2004

the most watched worldwide

Contacting Grass Valley

Region	Voice	Fax	Address	Web Site
North America	(800) 547-8949 Support: 530-478-4148	Sales: (530) 478-3347 Support: (530) 478-3181	Grass Valley P.O. Box 599000 Nevada City, CA 95959-7900 USA	www.thomsongrassvalley.com
Pacific Operations	+852-2585-6688 Support: 852-2585-6579	+852-2802-2996		
U.K., Asia, Middle East	+44 1753 218 777	+44 1753 218 757		
France	+33 1 45 29 73 00			
Germany, Europe	+49 6150 104 782	+49 6150 104 223		

Copyright © Thomson Broadcast and Media Solutions All rights reserved.

Grass Valley Web Site

The www.thomsongrassvalley.com web site offers the following:

Online User Documentation — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

FAQ Database — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

Software Downloads — Software updates, drivers, and patches can be downloaded.

Contents

Preface..... 5
 About This Manual..... 5

KAM-ENC-4DAC Kameleon Series Module

Introduction..... 7
Installation..... 8
 System Requirements..... 8
 Frame Capacity..... 8
 Module Placement in the 2000T3NG Kameleon Frame..... 9
 Kameleon Audio Submodule..... 9
 Installing the Front and Rear Modules..... 10
Cabling..... 12
 SDI Video In..... 12
 AES Inputs..... 12
 Analog Audio Outputs..... 12
 Composite Video Out..... 12
Power Up..... 13
 Operation Indicator LEDs..... 14
Configuration and Adjustments..... 15
 Configuration Summary..... 15
 Newton Control Panel Configuration..... 19
 Web Browser Interface..... 20
 Web Page Operations and Functional Elements..... 22
 Status and Identification Header..... 22
Initial Configuration Process Overview..... 23
KAM-ENC-4DAC Links and Web Pages..... 24
 Status Web Page..... 25
 Color-coded Status Indicators and Links..... 25
 Status/Front Module Properties..... 25
 Submodule Properties..... 25
 Warning/Fault Summary..... 27
 Input/Output Configuration Web Page..... 28
 I/O Config Web Page Elements..... 29
 Functional View Web Page..... 31
 SDI In Web Page..... 32
 Video Input Select Web Page..... 34
 View Selection..... 35
 Video Selection Settings..... 35
 Output Timing Selection..... 35
 Advanced VBI Configuration..... 36
 Frame Sync Web Page..... 38
 Timing Adjustment..... 38
 Freeze Mode Selection..... 38

Contents

Video Processing Web Page	40
Video Processing Controls	40
Clipping Controls	42
Reset To Default	42
VBI Encode For Composite Output	44
Composite Out Web Page	46
Output Video Adjustments	46
AES Inputs Web Page	49
Audio Channel Pairing Web Page	50
Audio Sync Web Page	51
Enable Auto Track	51
Delay Adjustments	51
Audio Processing Web Page	53
Audio Gain	53
Output Processing	53
Analog Audio Outputs Web Page	55
E-MEM Configuration Web Page	56
File Operations	58
Slot Configuration	61
Slot Identification	61
Locate Module	61
Slot Memory	61
Frame Heath Reporting	63
Hardware Switch Controls	63
Slot SNMP Trap Reports	63
Software Update Web Page	64
Specifications	65
Service	69
Troubleshooting	69
Index	71

Preface

About This Manual

This manual describes the features of the Kameleon multi-function modules that are part of the Kameleon Media Processing System. As part of this module family, it is subject to Safety and Regulatory Compliance described in the Kameleon/2000 Series frame and power supply documentation (see the *Kameleon 2000 Series Frames Instruction Manual*).

KAM-ENC-4DAC Kameleon Series Module

Introduction

This manual provides installation, operation and configuration information for the KAM-ENC-4DAC Kameleon Series module.

The Kameleon KAM-ENC-4DAC multifunction module provides broadcast quality conversion of SD video to NTSC/PAL analog composite video. Two AES digital audio inputs (balanced or unbalanced) are converted to four balanced analog audio outputs.

This module features:

- SD conversion to broadcast quality NTSC/PAL analog video,
- Two external 48 kHz AES digital audio streams (balanced or unbalanced inputs) converted to four balanced analog audio outputs,
- Audio and video delay, synchronization and processing amplifier,
- Powerful line-by-line VBI processing including user-configuration of active video lines for carrying data,
- 4x4 audio router for mapping audio channels to specific AES streams,
- Audio and video test generators,
- Hot swappable,
- 5 user-programmable E-MEM registers,
- Save/load module configuration files to a networked PC,
- SNMP monitoring capability,
- Web browser GUI (graphical user interface), and
- Support for Newton Control System and NetConfig Network Configuration application.

Note KAM-ENC-4DAC operation requires 2000NET Network Interface Module hardware revision 01A1 or greater with software version 3.2.2 or greater. Systems installed in the 2000T3N frame require the 2000FAN fan sled (refer to [Figure 4 on page 11](#)).

Installation

To install the Kameleon modules, perform the following steps:

1. Place the KAM-MIX-R passive rear module in a rear frame slot and tighten the screws on each side of the rear module.
2. Install the audio submodule on KAM-ENC-4DAC module (if required) and place the front module in the corresponding front slot.
3. Cable the signal ports.

All Kameleon modules can be inserted and removed from a 2000 Series Kameleon Frame with power on.

Note Remove the front processing module before removing the rear I/O module.

Audio submodules must be installed or removed with the front module removed from the frame (front module powered down).

System Requirements

For proper operation of the KAM-ENC-4DAC modules, the frame must be a 2000T1DNG or 2000T3NG which include the following components:

- 2000NET module (software version 3.2.2 or later recommended for full functionality)
- 2000GEN module
- Dual 130W power supplies in the 2000T1DNG frame
- Single 240W power supply and 2000FAN in the 2000T3NG frame

Frame Capacity

The 1 RU 2000T1DNG (with dual 130W power supplies, 2000NET and 2000GEN modules) frames have no Kameleon module capacity limitations.

The 3 RU 2000T3NG (single 240W p/s, 2000FAN, 2000NET and 2000GEN modules) frame can be fully populated with Kameleon modules when the 2000FAN fan sled and two power sleds are installed.

Table 1 provides the maximum Kameleon module count for frame types.

Table 1. Power, Cooling, and Module Capacity of 2000 Series Kameleon Frames

Item	2000T3NG Kameleon Frame Capacity	2000T1DNG Kameleon Frame Capacity
KAM-ENC-4DAC Module set	12	4

Module Placement in the 2000T3NG Kameleon Frame

There are twelve slot locations in both the front and rear of a 3 RU frame to accommodate 2000 and Kameleon Series media modules (audio/video signal handling modules). The Kameleon media modules consist of a two-module set with a front processing media module and a KAM-DAC-S submodule, and a passive rear module that can be plugged into any of the 12 frame slot pairs. The rear modules provide the input and output interface connectors.

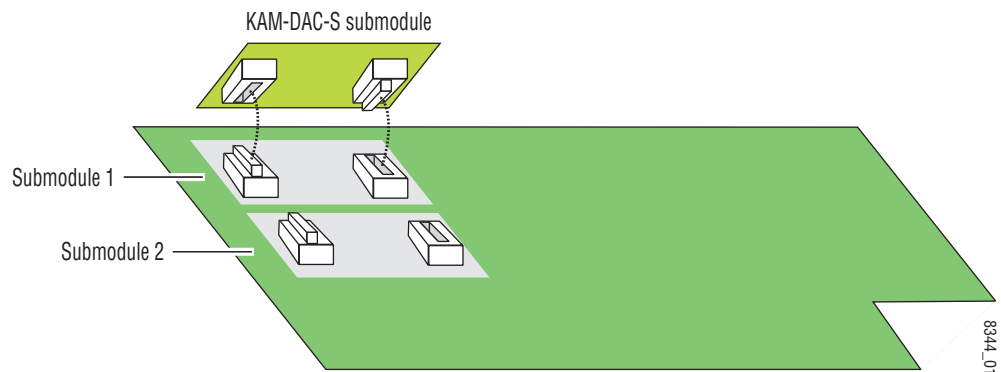
Kameleon Audio Submodule

The KAM-ENC-4DAC module requires a KAM-DAC-S submodule installed in the Submodule 1 position. The submodule will be provided with the front processing media module. The Submodule 2 position is not supported in this application.

If the submodule needs to be installed, line up the connectors on the bottom of the submodule with the correct submodule position on the top of the media module circuit board (Figure 1). Press firmly to seat the submodule.

After power-up, installation status of the submodule will be reported on the Status web page as described in [Status Web Page](#) on page 25.

Figure 1. Kameleon Submodule Installation

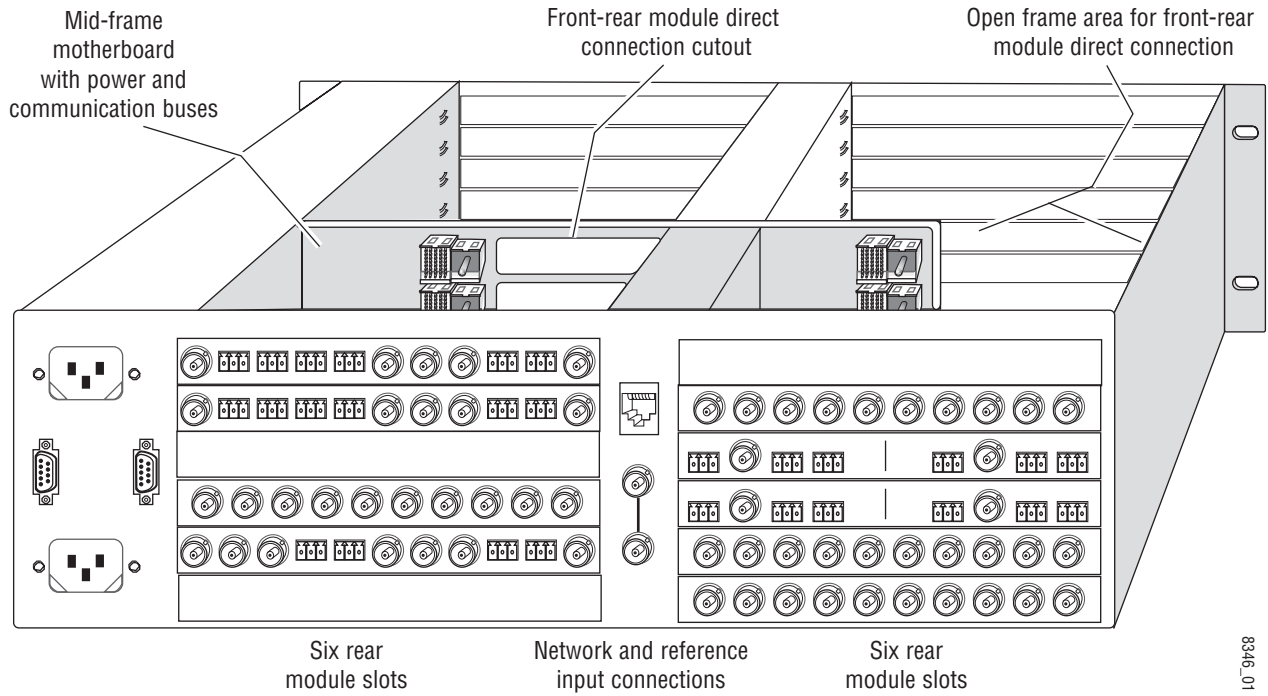


Installing the Front and Rear Modules

To install a KAM-ENC-4DAC module set in the 2000 Series frame:

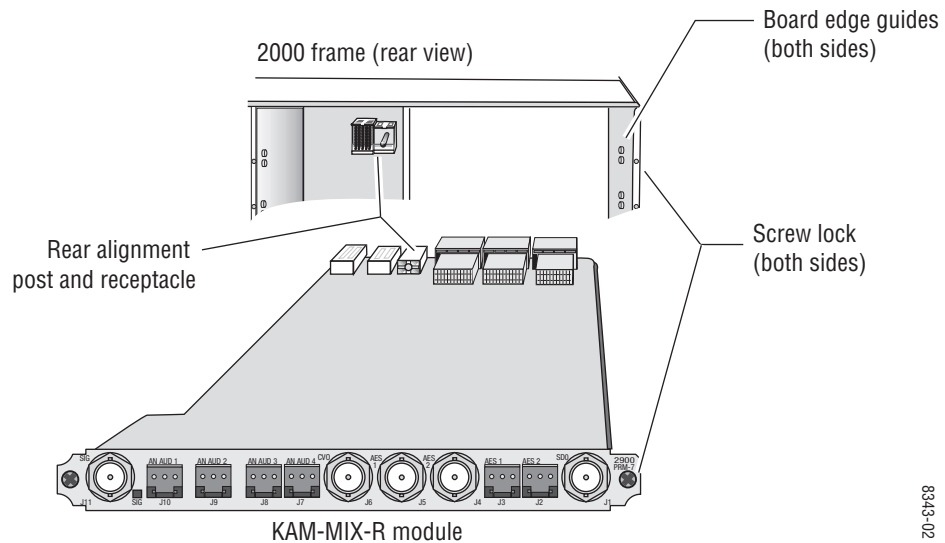
1. Locate a vacant slot in the rear of the 3 RU frame (Figure 2).

Figure 2. 2000T3NG Kameleon Frame, Rear View (Top Cover Removed)



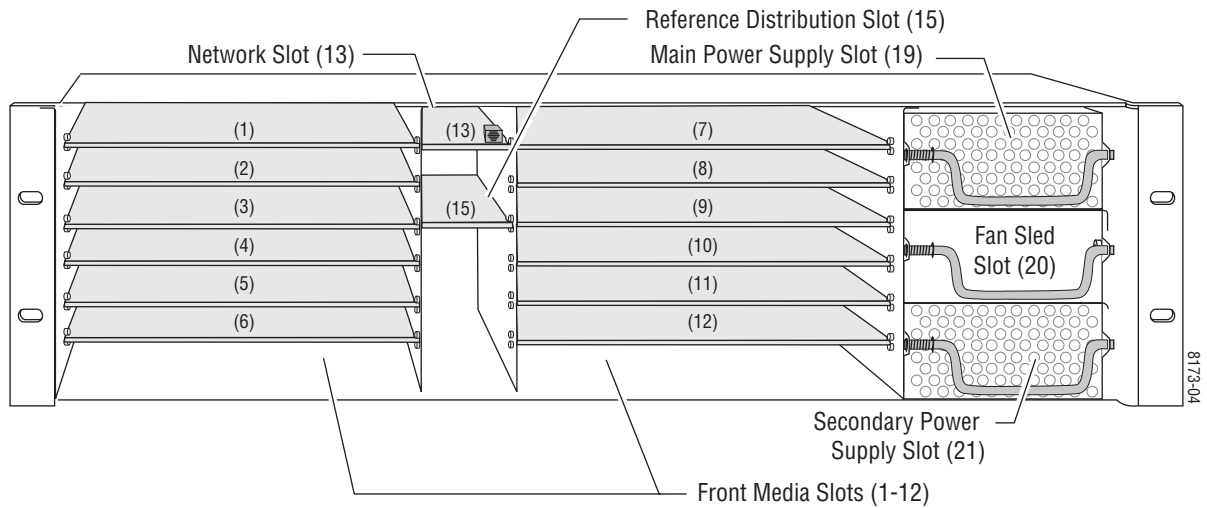
2. Insert the KAM-MIX-R passive rear module into the vacant rear slot of the frame as illustrated in Figure 3.

Figure 3. Installing Passive Rear Module



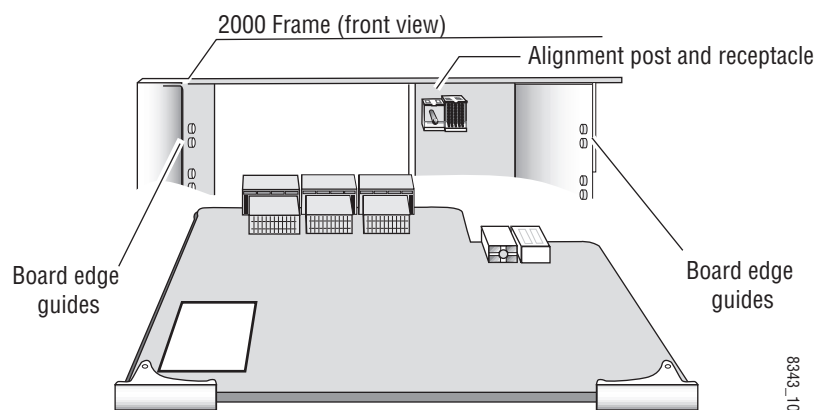
3. Verify that the module connector seats properly against the midplane.
4. Using a crossblade screwdriver, tighten the two screw locks to secure the module in the frame.
5. Locate the corresponding front media slot (1 -12) in the frame. The 3 RU frame front view is illustrated in [Figure 4](#).

Figure 4. 2000T3NG Kameleon Frame, Front Slots



6. With the component side up, insert the processing module in the corresponding front slot (see [Figure 5](#)).
7. Verify that the module connector seats properly against the midplane and rear module connector.
8. Press firmly on both ejector tabs to seat the module.

Figure 5. Installing Front Media Module



Cabling

All cabling to the module is done on the KAM-MIX-R passive rear module shown in [Figure 6](#).

SDI Video In

Connect the SDI video to be encoded to connector J11, labeled **V1**.

AES Inputs

Two AES digital audio inputs are available at unbalanced connectors J4 and J5 or at balanced connectors J2 and J3. Choice of balanced or unbalanced inputs is made on the I/O Config web page as described on [page 28](#).

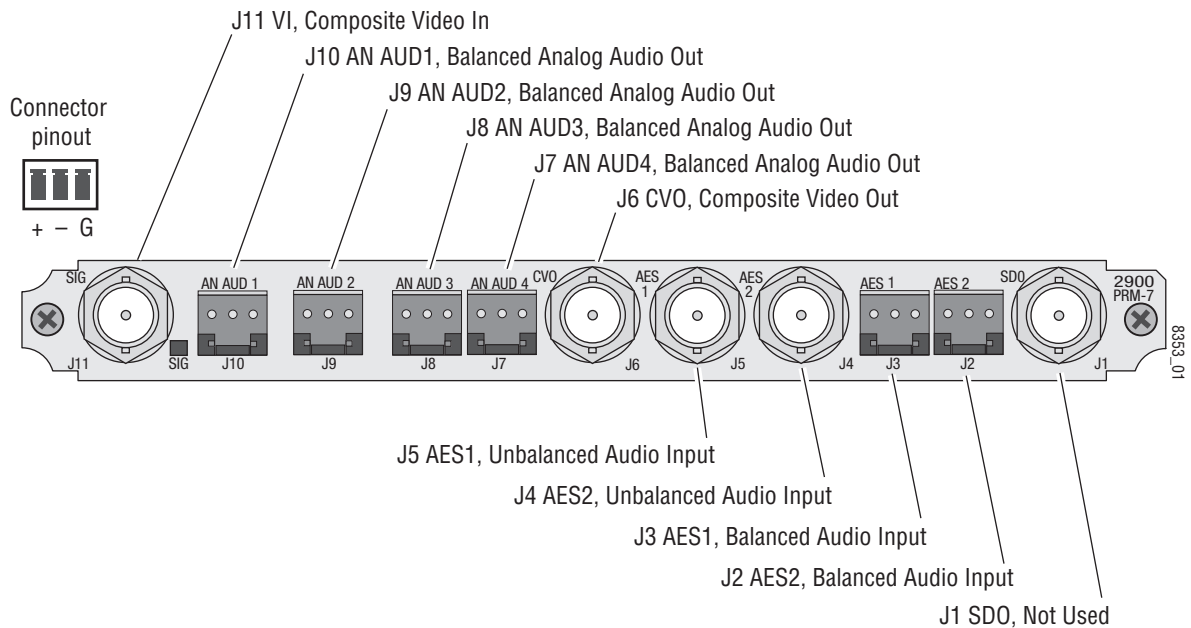
Analog Audio Outputs

Four balanced analog audio outputs are available at connectors J7, J8, J9, and J10 (AN AUD1-4). Connect analog audio as shown in the connector pinout at left of [Figure 6](#).

Composite Video Out

The Composite video is output at BNC connector J1, labeled **SD0**.

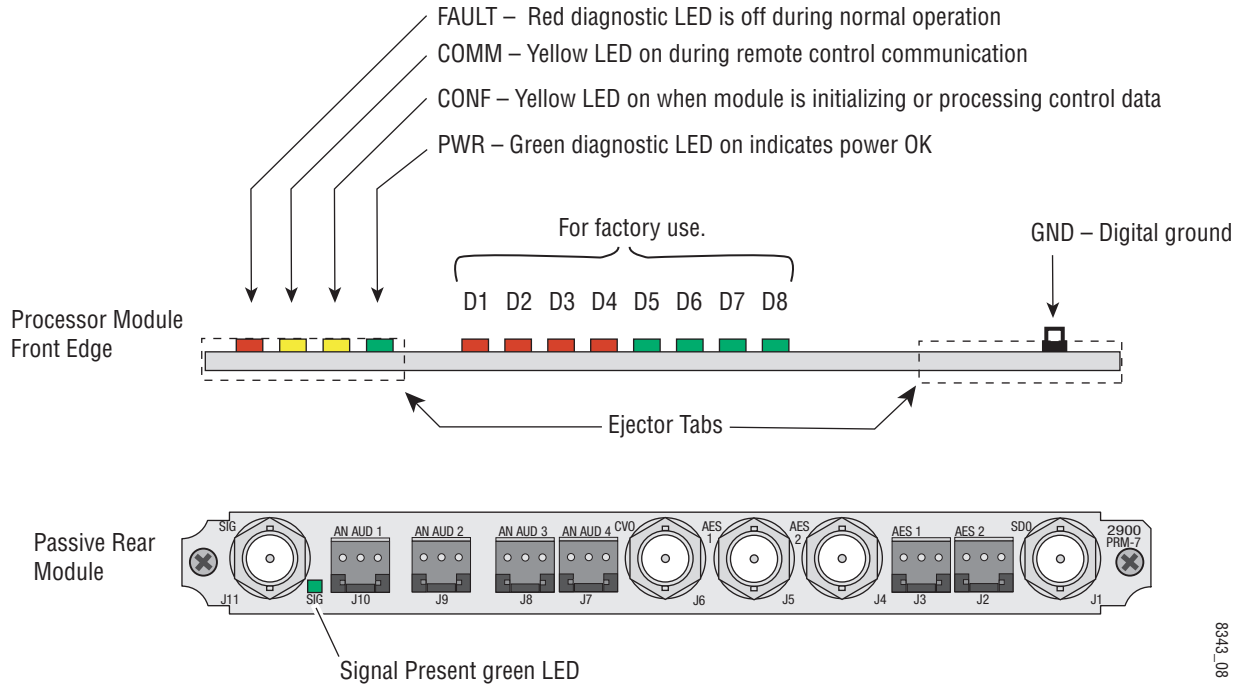
Figure 6. KAM-MIX-R Input/Output Connectors



Power Up

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

Figure 7. Front and Rear Module Indicator LEDs



8343_08

A green Signal Present LED can be seen on the Passive Rear Module (PRM) when a valid input signal is present.

Operation Indicator LEDs

Table 2 provides a complete list of possible operating conditions and the resulting indicator status.

A red FAULT LED indicates an error situation. Table 2 describes signal output and LED indications for the various input/reference combinations and user settings.

Table 2. Indicator LEDs and Conditions Indicated

LED	Indication	Condition
FAULT (red)	Off	Normal operation
	On continuously	Module has detected internal fault
	Long flash	One of the inputs is missing or is wrong standard
	Short flash	Errors present in SDI and/or AES/EBU input
COMM (yellow)	Off	No activity on frame communication bus
	Three flash/off pattern	Module Location command received from a remote control system
	Short flash	Activity present on the frame communication bus
CONF (yellow)	Off	Module is in normal operating mode
	Three flash/off pattern	Module Location command received from a remote control system
	On continuously	Module is initializing, changing operating modes or updating firmware. (When solid on along with Fault LED on, board has failed to load data.)
PWR (green)	Off	No power to module or module's DC/DC converter failed
	On continuously	Normal operation, module is powered

Note The yellow **COMM** and **CONF** LEDs are used for the module location function that is enabled using the 2000NET GUI. The module location function causes these LEDs to repeatedly flash concurrently three times followed by an off state of 900 ms duration (see [Slot Configuration on page 61](#)).

Configuration and Adjustments

KAM-ENC-4DAC configuration and monitoring can be performed using a web browser GUI interface or a networked Newton Control Panel. This section provides an overview of each of these controls along with the configuration parameters available with each type of control device.

Configuration Summary

The configuration parameters and monitoring functions available with the web browser interface and the Newton Control Panel are summarized in [Table 3](#). The parameter defaults, choices, ranges, and resolution are provided for each function

Table 3. Summary of KAM-ENC-4DAC Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
Set KAM-MIX-R rear module AES audio input type	Unbalanced	Unbalanced or Balanced	I/O Config/ Unbalanced or Balanced radio button	N/A
SDI In web page view selection	Summary	Summary or Detail	SDI In/ Summary or Detail radio button	N/A
Set EDH and Feed Forward error reporting for SDI input video	Enabled	Enabled or Disabled	SDI In/Detail View/ Check or uncheck error checkboxes	N/A
Input video status reporting	Report	Report or No Report	Video Input Select/ Input Status Loss of Signal checkbox	N/A
Select video line rate	Auto	525, 625, or Auto	Video Input Select/ Video Line Rate radio button	N/A
Frame Reference status	Report	Report or No Report	Video Input Select/ Frame Reference Report Loss of Signal checkbox	N/A
SDI Input Error Warning status	Warn SDI Errors	Warn SDI Errors or No Warning	Video Input Select/ SDI Input Errors Warn SDI Errors Warn SDI Errors checkbox	N/A
Select output timing source	Video In	Video In or Internal Frame Reference	Video Input Select/ Output Timing Selection radio buttons	N/A
Define VBI data lines	None	525: None, 21/284, 22/285, 23/286 or 24/287 625: None, 24/337, 25/338, 26/339 or 27/340 or 28/341	Video Input Select/ Advanced (VBI Config) radio button VBI/Data Lines Last Data Line radio button	N/A
Main video horizontal timing adjustment	0	525: 0 to 857.5 pixels 625: 0 to 863.5 (0.5 pixel steps)	Frame Sync/ HTiming control (pixels)	HTiming
Main video vertical timing adjustment	0	525: 0 to 524 lines 625: 0 to 624 lines (1 line steps)	Frame Sync/ VTiming control (Lines)	VTiming
Freeze mode selection (Video In timing source)	None	None, Field 1, Field 2, or Frame	Frame Sync/ Freeze Mode Selection radio buttons	N/A
Freeze mode selection (Internal timing source)	None	None, AutoBlack, AutoFreeze, Field 1, Field 2, or Frame	Frame Sync/ Freeze Mode Selection radio buttons	N/A

Table 3. Summary of KAM-ENC-4DAC Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
Enable video processing	Enable	Disable, Enable, or Color Bars	Video Proc/ Video Processing radio buttons	N/A
Video gain lock (Video Proc)	Off	On or Off	Video Proc/ Video Gain Lock radio buttons	N/A
Main video contrast/Y gain	100%	50 to 149.6% (0.4% steps)	Video Proc/Standard View Y Gain control (%)	YGain
Main video chroma gain	100%	50 to 149.6% (0.4% steps)	Video Proc/Standard View Chroma Gain control (%)	ChroGain
Enable Clip controls	Disable	Enable or Disable	Video Proc/Standard View Clip Settings radio buttons	N/A
Apply clips to VBI	Off	On or Off	Video Proc/Standard View Apply Clips to VBI checkbox or VBI Encode/ Apply Clips to VBI checkbox	N/A
Main video soft/Y black clip	-6.8%	-6.8 to 109% (0.1% steps)	Video Proc/Standard View Soft/Y Black Clip control (%)	YBClip
Main video hard/video black clip	-37.3% (525) -30.0% (625)	-37.3 to -7.3% (525) -30.0 to 0% (625) (0.1% steps)	Video Proc/Standard View Hard/Video Black Clip control (%)	VBClip
Main video soft/Y white clip	109%	-6.8 to 109% (0.1% steps)	Video Proc/Standard View Soft/Y Clip control (%)	YWCclip
Main video hard/video white clip	138.7%	-6.8 to 138.7% (0.1% steps)	Video Proc/Standard View Hard/Video Clip control (%)	VidWClip
Main video brightness/Y offset	0%	-3.55 to 3.44% (0.11% steps)	Video Proc/Advanced View Brightness/Y Offset control (%)	YOffset
Main video hue/chroma phase	0.0	± 89.8 degrees (0.1 degree steps)	Video Proc/Advanced View Hue/Phase control (degrees)	ChroPhs
Main video B-Y gain	100%	50 to 149.6% (0.4% steps)	Video Proc/Advanced View B-Y Gain control (%)	BYGain
Main video B-Y balance/offset	0.0	-3.55 to 3.44% (0.11% steps)	Video Proc/Advanced View B-Y Balance/Offset control (%)	N/A
Main video R-Y gain	100%	50 to 149.6% (0.4% steps)	Video Proc/Advanced View R-Y Gain control (%)	RYGain
Main video R-Y balance/offset	0.0	-3.55 to 3.44% (0.11% steps)	Video Proc/Advanced View R-Y Balance/Offset control (%)	N/A
VBI encoding blank lines	Pass	Pass or Blank	VBI Encode/ Check corresponding line Blank checkbox	N/A
VBI encoding add setup (525 only)	Add	Setup or No Setup	VBI Encode/ Check corresponding line Setup checkbox	N/A
Add setup to composite output	Setup	Setup or No Setup	Composite Out/ Setup or No Setup radio button	N/A
Cross Color Removal (composite out)	Disable	Enable or Disable	Composite Out/ Cross Color Removal Disable or Enable radio button	N/A

Table 3. Summary of KAM-ENC-4DAC Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
Chrominance Signal (composite out)	Enable	Enable or Disable	Composite Out/ Chrominance Signal Disable or Enable radio button	N/A
Burst Signal (composite out)	Enable	Enable or Disable	Composite Out/ Burst Signal Disable or Enable radio button	N/A
Adjust Coarse Video Delay (composite out)	0	0 to 4095.5 pixels (0.5 pixel steps)	Composite Out/ Delay Coarse (pixels)	N/A
Adjust Fine Video Delay (composite out)	0	0 to 100% (1% steps)	Composite Out/ Delay Fine (%)	N/A
Composite Out video gain	100%	61 to 138.5% (0.5% steps)	Composite Out/ Output Video Gain (%)	OVIDGain
Output Video Adjustment	Calibrated	Calibrated or User adjustable	Composite Out/ Calibrated or User Adjustable radio button	N/A
Adjust Composite Out luma gain	100%	50 to 150% (1% steps)	Composite Out/User Adjustable view Luma Gain (%)	N/A
Adjust Composite Out black level	0.0	-7.5 to + 15% (0.1% steps)	Composite Out/User Adjustable view Black Level (%)	N/A
Adjust Composite Out chroma gain	0.0	50 to 150% (1% steps)	Composite Out/User Adjustable view Chroma Gain (%)	N/A
Adjust Composite Out hue (525 only)	0.0	± 22.5 degrees (0.5 degree steps)	Composite Out/User Adjustable view Hue (deg)	N/A
AES input enable sample rate conversion	Enable	Enable or Disable	AES Inputs/ Sample Rate Conversion checkbox	N/A
AES input loss of signal report	Enable	Enable or Disable	AES Inputs/ Loss of Signal Report checkbox	N/A
AES input AES error warning	Enable	Enable or Disable	AES Inputs/ AES Error Warn checkbox	N/A
Audio Pair 1 and Pair 2 channel swap	–	–	Audio Channel Pairing/ Pair 1 and 2 Ch A and Ch B radio buttons	Pair1Swp Pair2Swp
Define audio Pair 1 and Pair 2 Ch A and Ch B audio streams	Pair1ChA= Str1.Ch1 Pair1ChB= Str1.Ch2 Pair2ChA= Str2.Ch1 Pair2ChB= Str2.Ch2	Str1.Ch1 Str1.Ch2 Str2.Ch1 Str2.Ch2 Silence	Audio Channel Pairing/ Pair 1 and 2 Ch A and Ch B radio buttons	Str1.Ch1 Str1.Ch2 Str2.Ch1 Str2.Ch2 Silence
Enable auto tracking for Pair 1 and 2 Ch A and Ch B	On	On or Off	Audio Sync/ Pair 1 and Pair 2 Ch A and Ch B Enable Auto Track On checkbox	N/A
Lock Pair 1 Ch A and Ch B delay adjustments and Pair 2 Ch A and Ch B delay adjustments	Locked	Locked or Unlocked	Audio Sync/ Pair 1 and Pair 2 Ch A and Ch B Channel Lock Locked checkbox	N/A
Audio Pair 1 Ch A delay adjust Audio Pair 1 Ch B delay adjust Audio Pair 2 Ch A delay adjust Audio Pair 2 Ch B delay adjust	0 ms	0 to 5180 ms (20 ms steps)	Audio Sync/ Pair 1 and Pair 2 Ch A and Ch B Delay controls (ms)	Ch1ADly Ch1BDly Ch2ADly Ch2BDly

Table 3. Summary of KAM-ENC-4DAC Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
Select audio processing option for Pair 1 Ch A' and Ch B' and Pair 2 Ch A' and Ch B'	Pass	Pass Invert, A+B A – B, -(A+B) 1 kHz 400 Hz Silence	Audio Proc/ Pair 1 and Pair 2 Ch A' and Ch B' Processing pulldowns	Ch1AProc Ch1BProc Ch2AProc Ch2BProc
Lock Pair 1 Ch A and Ch B gain adjustments and Pair 2 Ch A and Ch B gain adjustments	Unlocked	Lock or Unlocked	Audio Proc/ Pair 1 and Pair 2 Ch A and Ch B Gain Settings Locked checkbox	N/A
Audio Pair 1 Ch A gain adjust Audio Pair 1 Ch B gain adjust Audio Pair 2 Ch A gain adjust Audio Pair 2 Ch B gain adjust	0 dB	-40 to + 6 dB	Audio Proc/ Pair 1 and Pair 2 Ch A and Ch B Gain controls (dB)	Ch1AGain Ch1BGain Ch2AGain Ch2BGain
Assign analog audio pairs to output connectors	–	Audio Pairs	Analog Audio Outputs/ J10 & J9 and J8 & J7 radio buttons	N/A
Set maximum output audio level	+24 dBu	-2 to + 24 dBu	Analog Audio Outputs/ AA Out Ch 1 – Ch 4 (dBu)	N/A

Newton Control Panel Configuration

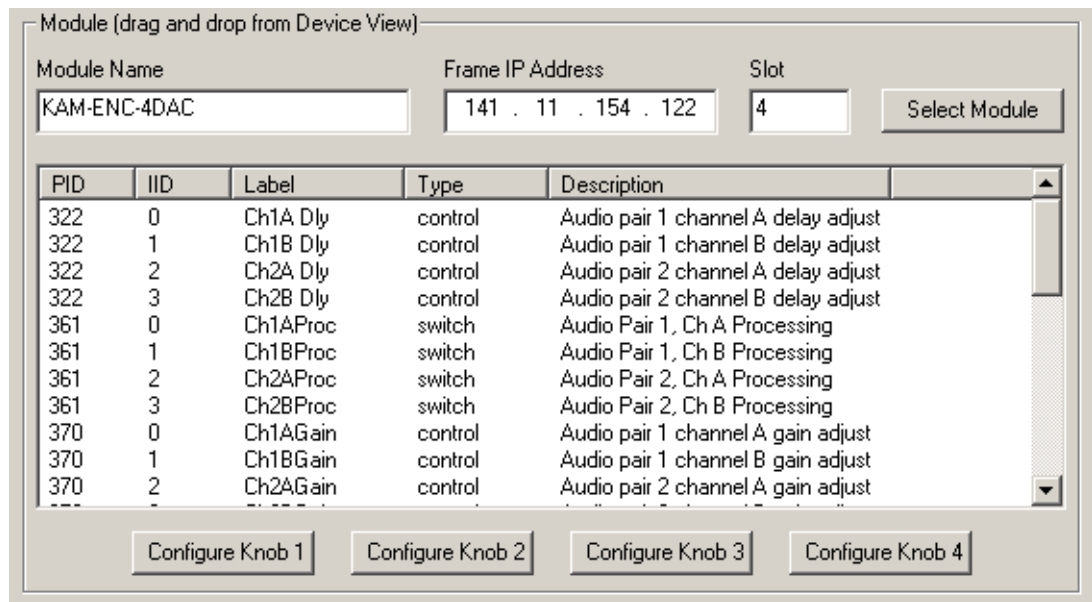
A Newton Control Panel (hard or soft version) can be interfaced to the Kameleon 2000 Series frame over the local network. Control panel access offers the following considerations for module configuration and monitoring:

- 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.
- Update software for applicable modules and assign frame and panel IP addresses with the NetConfig Networking application.
- 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 E-MEM and factory default recalls. The available control panel controls for the module are listed in [Table 3 on page 15](#).

An example of the Newton Configurator is shown in [Figure 8](#).

Figure 8. Newton Configurator Example



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

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:

- Provides complete access to all module status and configuration functions, including naming of inputs and outputs, factory parameter and name default recalls, E-MEM functions, slot configuration, and SNMP monitoring controls.
- Web access will require some normal network time delays for processing of information.
- Configuration parameter changes may require pressing the **Apply** button or **Enter**, upload processing time, and a manual screen refresh to become effective.
- Web interface recommended for setting up module signal and slot names, E-MEMS, and reporting status for SNMP and monitoring.

Refer to the Frame Status page shown in [Figure 9 on page 21](#). The Kameleon and 2000 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 2000NET 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 2000NET software installed in your system. This manual reflects 2000NET software version 3.2.2.

Figure 9. 2000NET GUI

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

Bay 1 QA 2000 T3

- [Status](#)
- [Configuration](#)
- [1 2040RDA-16 Optic Out](#)
- [2 Media Slot 2](#)
- [3 HD-FS-3](#)
- [4 KAM-ENC-4DAC](#)
- [5 2040RDA-16 Opt Input](#)
- [6 Media Slot 6](#)
- [7 KAM-AV Test](#)
- [8 HD-FS-8](#)
- [9 KAM-ENC-4DAC](#)
- [10 HD-FS-10](#)
- [11 Media Slot 11](#)
- [12 HD-FS-12](#)
- [13 2000NET](#)
- [15 2000GEN](#)
- [19 Power Sled 19](#)
- [20 Fan Sled 20](#)
- [21 Power Sled 21](#)

Status

Model: 2000T3N Description: Module Frame
 Frame Location: Modular Lab
 Frame Health Alarm **PASS** Temperature Status **Pass**
 Fan Status **PASS**

Empty	Net Card	Media Module	Power Sled
Media Module		Empty	
Media Module	Aux Card	Media Module	Empty
Empty		Empty	
Empty		Empty	Empty
Media Module		Empty	

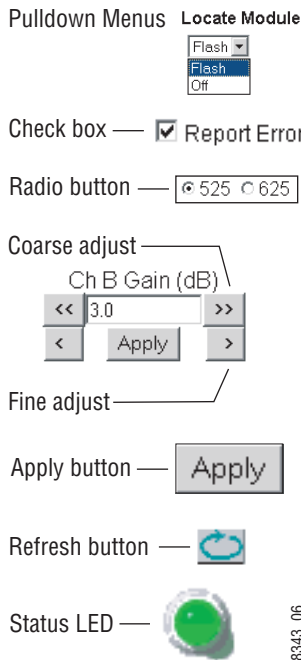
Properties

Vendor Thomson, Grass Valley Software Version 3.2.2
 Media Slots 13

8353_03

Web Page Operations and Functional Elements

The following conventions and functional elements (shown at left) are used in Kameleon web page operations. (The examples shown throughout this manual represent 2000NET software version 3.2.2 or later):



- Pulldown menus allow you to choose selections from a list.
- 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.
- Radio buttons are used to make a choice of one parameter in a group.
- Each numerical adjustment control has a **Coarse** adjust button (left and right top double arrows) and a **Fine** adjust button (left and right bottom single arrows).
- To change a value, use the arrow button controls or enter a value into the number field and select the **Apply** button. You may also enter a number into the number field from a keyboard and hit the **Enter** key to apply the value.
- A **Refresh** button (circular arrow) is provided for manual refresh of the web page to view recently changed parameters.
- The Status LED is explained below.

Status and Identification Header

Each configuration web page has a Status and Identification Header.

Figure 10. Typical Status/ID Header



Status LED icon

The Status LED icon reports communication status for the frame slot and is a link to the module Status web page where Warnings and Faults are displayed. LED colors indicate:

- Green = Pass – no problems detected
- Yellow = Configuration error warning
- Red = Fault condition detected

Variables:

- Model and Description are read-only generated by the module.
- Frame Location is entered in 2000 Series Kameleon Frame configuration.
- Slot number reports the module's location in the frame.
- Last Recalled E-MEM reports the last E-MEM configuration recalled from the module.

Initial Configuration Process Overview

To configure the Kameleon module proceed as follows:

1. Go to the **I/O Config** web page to setup and name inputs and outputs.
2. If not already connected, connect all input and output signals. Go to the module **Status** web page to verify component and signal presence and condition.
3. Go to the **Video Input Select** web page to configure the video source and output timing source.
4. Go to the **Functional View** web page to:
 - Verify the module's functional configuration is correct, and
 - Begin with the Input block links to configure each function in turn.

Note **Next**, **Functional View**, and **Back** links are provided to help you navigate through a logical configuration sequence.

5. Use **E-MEM** memory to store or recall configurations as necessary.

KAM-ENC-4DAC Links and Web Pages

The 2000 GUI provides the following links and web pages for the module (Figure 11):

- Status – reports input and reference signal status and module information (page 25),
- I/O Config – shows a graphic representation of inputs and outputs to the module and allows naming of each input (page 29),
- Functional View – shows a block diagram of the module with links to each configuration web page (page 31),
- Module Configuration web pages for setting up the module (beginning on page 32),
- E-MEM – provides a Standard view for Local Recall operations for up to 5 E-MEM registers (page 56) and an Advanced view providing additional **Save to** and **Load from** file operations (page 57),
- Slot Config – provides a Locate Module function, Slot Memory, and SNMP monitoring controls (page 61), and
- Software Update – allows updating of software from a CD-ROM or the web site (page 64).

Figure 11. KAM-ENC-4DAC Web Page Links

4 KAM-ENC-4DAC

[Status](#)

[I/O Config](#)

[Functional View](#)

- [SDI In](#)

- [Video Input Select](#)

- [Frame Sync](#)

- [Video Proc](#)

- [VBI Encode](#)

- [Composite Out](#)

- [AES Inputs](#)

- [Audio Channel Pairing](#)

- [Audio Sync](#)

- [Audio Proc](#)

- [Analog Audio Outputs](#)

[E-MEM@](#)

[Slot Config](#)

[Software Update](#)

Status Web Page

Use
this
link

[4 KAM-ENC-4DAC](#)
[Status](#)
[I/O Config](#)
[Functional View](#)
 - [SDI In](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)

The Status web page for the KAM-ENC-4DAC module (Figure 12 on page 26) provides an overall indication of the health of the system and links to web pages for the active components:

- Status Header – the same on all Kameleon configuration pages (see *Web Page Operations and Functional Elements* on page 22),
- Color-coded communication status for each component and path,
- Summary of all fault/warning conditions, and
- Textual module status, front module, and submodule properties.

Color-coded Status Indicators and Links

Each box represents a Kameleon module or submodule as indicated in Figure 12 on page 26. Arrows represent signal paths that may or may not be monitored. These elements act as links when their function is active (indicated by underlined function name).

Color code:

- Green = Pass – operating as expected.
- Yellow = Warning – signal is absent, has errors, or is misconfigured.
- Red = Fault – a component has failed.
- Grey = Not monitored.
- White = Not present.

Status/Front Module Properties

The Status/Front Module properties in the footer provide a textual summary of the color-coded module status. Front module properties provide hardware, firmware, software identification, and asset tag number for the KAM-ENC-4DAC module. Presence and status of any submodules is also reported.

Submodule Properties

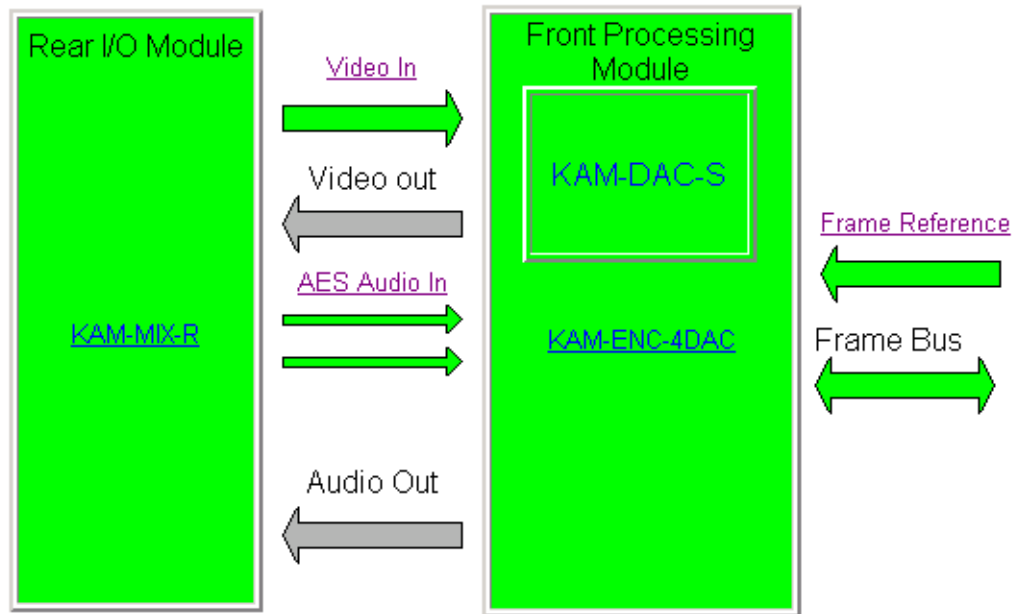
The Submodule properties in the footer provide a textual summary of the color-coded submodule status. Submodule properties provide part number, serial number, and hardware revision.

Figure 12. Module and Signal Status



Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)
Last Recalled E-MEM: [Factory Defaults](#)

Kameleon Module Physical Structure



WARNING - 1 or more Audio Input signals have had AES stream errors

Status:

Front Module: [PASS](#)
Rear Module: [PASS](#)
Sub Module 1: [PASS](#)
Sub Module 2: [NOT SUPPORTED](#)

Front Module:

Part Number: [671-6428](#)
Serial Number: [TT03467514](#)
Hardware Revision: [45A](#)
Firmware Version: [X1=2.2.55, X2=2.3.2](#)
Software Version: [4.0.1](#)
Asset Tag:

Sub Module 1:

Part Number: [671-6420](#) Serial Number: [vr02429275](#) Hardware Revision: [00C](#)

Warning/Fault Summary

The following warnings and faults are reported in the summary section (refer to [Figure 12 on page 26](#)). A **Fault** indicates a serious condition that prohibits proper operation. A **Warning** indicates a condition which may or may not adversely affect operating conditions, but should be noted. Usually warnings are something the user can correct by changing configuration, settings or input signals.

Warnings

- WARNING - Rear Module is not connected
- WARNING - Wrong Rear Module (incompatible with Kameleon)
- WARNING - Wrong Rear Module (no communication)
- WARNING - Wrong Rear Module (unknown type, incompatible)
- WARNING - Video Input is 625 and reference is 525 lines
- WARNING - Video Input is 525 and reference is 625 lines
- WARNING - Video Input is 625 but configuration is 525 lines
- WARNING - Video Input is 525 but configuration is 625 lines
- WARNING - Video Input Signal not detected
- WARNING - Frame Reference is not present
- WARNING - Frame Reference is not locked to input
- WARNING - Frame Reference is not present
- WARNING - No Video output - GenLock selected but not present
- WARNING - 1 or more Audio Input signals not detected
- Internal Error - Unknown sub module type

Faults

- FAULT - nnV power supply bad. (nn = variable: 24 V, 12.5 V, 5 V, 3.3 V, 1.5 V, -5 V, or -12.5 V)
- FAULT - A/D failed (A to D system measuring power supplies and bus levels)
- FAULT - Xilinx 1 failure (main video processor)
- FAULT - Xilinx 2 failure (main audio processor)
- FAULT - MFM (Multi-function module) EEPROM checksum fails
- FAULT - DS1803 not responding (digital potentiometer for video in adjustment)
- FAULT - TMC22051A not responding (composite input decoder)
- Internal Error - Unknown front module type

Input/Output Configuration Web Page

- Use this link
- 4 KAM-ENC-4DAC
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)

Use the I/O Config web page to:

- View a graphical overview of the currently installed rear module connectors and select balanced or unbalanced AES inputs,
- See signal status of inputs,
- Assign easily recognized signal names that will help later in the configuration process.

Figure 13 illustrates the I/O Config web page for the KAM-MIX-R passive rear module required for the KAM-ENC-4DAC front module set for unbalanced AES/EBU audio inputs. Figure 14 on page 29 shows the rear module set for Balanced AES audio inputs.

Note Only the selected AES inputs are valid. Unconfigured AES inputs are invalid and should not be used.

Figure 13. KAM-MIX-R Rear Module I/O Config Web Page (Unbalanced AES Inputs)

I/O Config

Model: KAM-ENC-4DAC Description: Frame Sync, Proc Amp, SD/2AES to AV/4AA
 Frame Location: Bay 1 QA 2000 Frame, Slot: 4
 Last Recalled E-MEM: Factory Defaults

KAM-MIX-R Rear Module Configuration

J11 VI Video In	J10 AN AUD1 Analog Audio	J9 AN AUD2 Analog Audio	J8 AN AUD3 Analog Audio	J7 AN AUD4 Analog Audio	J6 CVO	J5 AES 1 Unbalanced Audio	J4 AES 2 Unbalanced Audio	J3 AES 1 Balanced Audio	J2 AES 2 Balanced Audio	J1 SDO Serial Digital
Input	Output	Output	Output	Output	Output	Input	Input			
Video In	AA Out Ch1	AA Out Ch2	AA Out Ch3	AA Out Ch4	Comp Out	AES In 1 Unbal	AES In 2 Unbal	AES In 1 Bal	AES In 2 Bal	
Present	Not Monitored	Not Monitored	Not Monitored	Not Monitored	Not Monitored	Present	Present			Unused
						<input checked="" type="radio"/> Unbalanced <input type="radio"/> Balanced				

Legend:

- Present
- Not Present
- Not Monitored
- Not Available
- Unused

Select AES input type

Figure 14. KAM-MIX-R Rear Module I/O Config Web Page (Balanced AES Inputs)

I/O Config

Model: KAM-ENC-4DAC Description: Frame Sync, Proc Amp, SD/2AES to AV/4AA
 Frame Location: Bay 1 QA 2000 Frame, Slot: 4
 Last Recalled E-MEM: Factory Defaults

KAM-MIX-R Rear Module Configuration

J11 VI Video In	J10 AN AUD1 Analog Audio	J9 AN AUD2 Analog Audio	J8 AN AUD3 Analog Audio	J7 AN AUD4 Analog Audio	J6 CVO	J5 AES 1 Unbalanced Audio	J4 AES 2 Unbalanced Audio	J3 AES 1 Balanced Audio	J2 AES 2 Balanced Audio	J1 SDO Serial Digital
Input	Output	Output	Output	Output	Output			Input	Input	
Video In	AA Out Ch1	AA Out Ch2	AA Out Ch3	AA Out Ch4	Comp Out	AES In 1 Unbal	AES In 2 Unbal	AES In 1 Bal	AES In 2 Bal	
Present	Not Monitored	Not Monitored	Not Monitored	Not Monitored	Not Monitored			Present	Present	Unused
						<input type="radio"/> Unbalanced <input checked="" type="radio"/> Balanced				

Legend:

Present	Not Present	Not Monitored	Not Available	Unused
---------	-------------	---------------	---------------	--------

Select AES input type

I/O Config Web Page Elements

Header Row

The top header row provides the connector hardware physical label (J#) and the dedicated signal type for the connector. This information is determined by the type of rear module and front processor module installed (refer to the *Functional View Web Page* on page 31).

Connectors

The connector row illustrates connector type provided (BNC or 3-pin terminal) for each port. For this rear module, one serial digital video input, four analog audio outputs, and one composite video output are provided.

Input/Output Mode

I/O mode is either static read-only or an operational Input/Output selection (determined by the rear module used).

Signal Name

Enter a signal name (up to 15 characters) for each operational input/output. The name will be used to identify the signal in other configuration web pages. Factory default names are shown in [Figure 13](#) on page 28.

Status

Table 4 shows, by color and signal type, the signal status reports that may be displayed in the Status row for this module configuration:

Table 4. I/O Config Status Report Messages

Color	Video In	Analog Audio In	Analog Audio Out	Digital Audio In	Digital Audio Out	Video Out
Green	Present	None	None	Present	None	None
Yellow	Not present or 525/625 mismatch	None	None	Not Present	None	None
Light Grey	None	None	Not Monitored	None	None	Not Monitored
Medium Grey	None	None	None	None	None	None
Dark Grey	None	None	None	None	Unused	None

Functional View Web Page

- Use this link
- 4 KAM-ENC-4DAC
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)

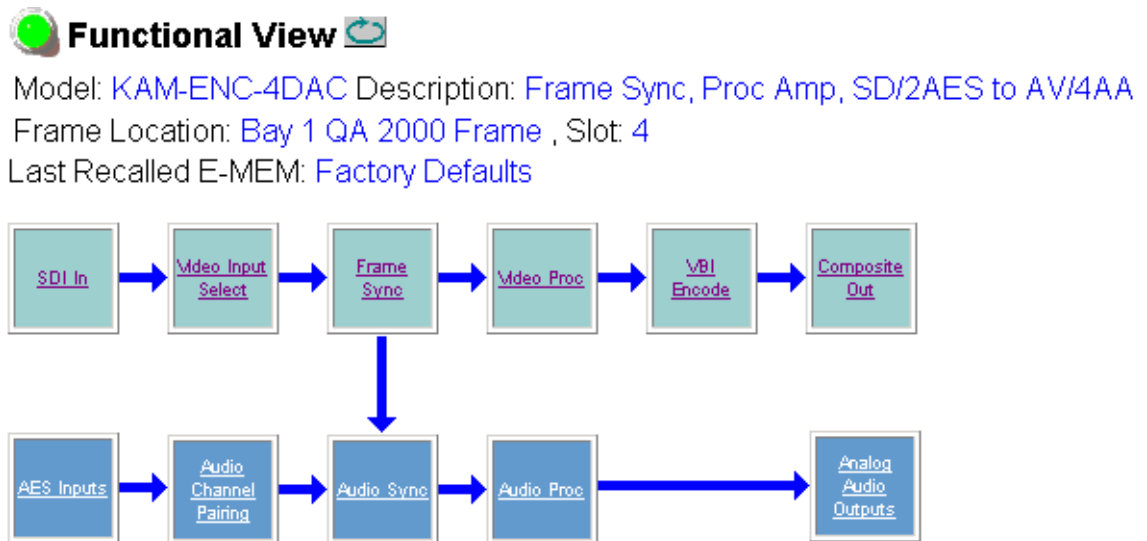
Use the Functional View web page (Figure 15) to:

- Monitor module functions and signal paths, and
- Navigate to web pages for configuring active functions.

The Functional View web page is a block diagram of the installed Kameleon module that reports the 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. Begin configuring with one of the input function blocks on the left.

Color coding indicates active functions and flow. Greyed components are inactive due to hardware and/or software constraints. Underlined module functions are links to the web page for that function. Return links and logical next step links are provided at the bottom of each configuration web page.

Figure 15. Functional View Web Page



SDI In Web Page

- Use this link
- 4 [KAM-ENC-4DAC](#)
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)

Use the SDI In web page to view the status of the SDI input signal in Summary view (Figure 16) or Detail view (Figure 17 on page 33):

- Select the **Summary** radio button to bring up the summary view shown in Figure 16.
- Use the **Clear All Status** button to clear and reset the status reporting.

Figure 16. SDI In Web Page (Summary View)

SDI In

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync](#), [Proc Amp](#), [SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Summary Detail

Input Signal Name	Video In
Input Signal State	Present
Input Signal Standard	525
Current State	No Error
Reported Errors	No Error

[Clear All Status](#)

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

To view a detailed view of the SDI input status, select the **Detail** radio button to bring up the view shown in Figure 17 on page 33.

This view provides input signal status for both EDH Error and Feed Forward status. Each status report can be disabled by deselecting the corresponding **Reporting** checkbox. Each status report can also be cleared and reset by selecting the corresponding **Clear Status** button.

Figure 17. SDI In Web Page (Detail View)



Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Summary Detail

Input Signal Name	Video In
Input Signal State	Present
Input Signal Standard	525
Current State	No Error
Reported Errors	No Error
<input type="button" value="Clear All Status"/>	

EDH Errors	Error Reporting	Status	
Full Frame EDH Error Detection	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
Active Picture EDH Error Detection	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
Feed Forward Status	Error Reporting	Status	
UES Full Field	<input checked="" type="checkbox"/> Report Unknown	Known	<input type="button" value="Clear Status"/>
EDH Full Field	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
IDH Full Field	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
EDA Full Field	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
IDA Full Field	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
UES Active Picture	<input checked="" type="checkbox"/> Report Unknown	Known	<input type="button" value="Clear Status"/>
EDH Active Picture	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
IDH Active Picture	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
EDA Active Picture	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
IDA Active Picture	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
UES Ancilliary Data	<input checked="" type="checkbox"/> Report Unknown	Known	<input type="button" value="Clear Status"/>
EDH Ancilliary Data	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
IDH Ancilliary Data	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
EDA Ancilliary Data	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>
IDA Ancilliary Data	<input checked="" type="checkbox"/> Report Error	No Error	<input type="button" value="Clear Status"/>

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

Video Input Select Web Page

- Use this link
- [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)
 - [VBI Encode](#)
 - [Composite Out](#)

Use the Video Input Select web page (Figure 18) to:

- Configure input video line rate,
- Enable or disable Loss of Signal reporting for the input signal and frame reference to the Status web page and SNMP monitoring (refer to the 2000NET manual for SNMP information),
- Enable or disable the SDI Error status warning,
- Configure Vertical Blanking Interval (in Advanced mode), and
- Select the output timing reference.

Figure 18. Video Input Select Web Page – Standard View

Video Input Select

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Standard Advanced (VBI Config)

Video Selection

	Current	Selection
Input Name	Video In	
Input Status	Present	<input checked="" type="checkbox"/> Report Loss of Signal
Video Format	SDI	SDI
Video Line Rate	525	<input type="radio"/> 525 <input type="radio"/> 625 <input checked="" type="radio"/> Auto
Frame Reference	Present	<input checked="" type="checkbox"/> Report Loss of Signal
SDI Input Errors	Clear	<input checked="" type="checkbox"/> Warn SDI Errors
Frame Sync / Delay	Frame Delay	

Output Timing Selection

	Source	Status	Mode	GenLock	Audio Framing
Internal Frame Reference	<input type="radio"/>	Present	-	-	-
Video In	<input checked="" type="radio"/>	Present	525	-	-

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

View Selection

In the View Selection display, choose the **Standard** radio button to display the standard settings shown in [Figure 18 on page 34](#). Use the **Advanced** view for configuring the Vertical Blanking Interval for selecting active video lines to carry data (see [Advanced VBI Configuration on page 36](#)).

Video Selection Settings

The following functions are provided in the Video Selection section in both the Standard and Advanced views:

- Input Name – (read-only) signal name is entered on the **I/O Config** web page
- Input Status –
 - Signal presence reported
 - Enable/disable Loss of Signal report to both Kameleon status web pages and SNMP monitoring devices.

Note The disabling of video and reference Loss of Signal reports and SDI Input Error warnings allow you to filter reports from higher level Kameleon status displays and SNMP monitoring. They will still be reported on this web page.

- Video Format – current input video format reported.
- Video Line Rate – select 525 or 625 line rate or enable automatic line rate detection
- Frame Reference –
 - 2000GEN frame reference signal presence reported,
 - Enable/disable Loss of Signal report to both Kameleon status web pages and SNMP monitoring devices.
- SDI Input Errors –
 - Input signal errors reported, and
 - Enable/disable SDI error warning report to both Kameleon status web pages and SNMP monitoring devices.
- Frame Sync/Delay – (read-only) Frame Sync mode is reported when Output Timing Selection is **Internal Frame Reference** and timing is provided from the 2000GEN module. Frame Delay mode is reported when the input signal (**Video In**) is used for timing reference.

Output Timing Selection

The 2000GEN reference module must be installed in the frame and for the Kameleon to work as a frame synchronizer, set the output timing source to **Internal Frame Reference**. Otherwise, set the output timing source to **Video In**.

Advanced VBI Configuration

Advanced VBI configuration allows you extend VBI into the active picture range for special data insertion requirements. Active video lines that are used to carry data are referred to as Data Lines.

To add Data Lines to VBI:

1. Choose **Advanced (VBI Config)** on the Video Input Select web page (Figure 19).

Figure 19. Standard and Advanced View Selection

Video Input Select

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)

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

View Selection:	<input type="radio"/> Standard	<input checked="" type="radio"/> Advanced (VBI Config)
-----------------	--------------------------------	--

The **VBI/Data Lines** panel will appear at the bottom of the web page (see [Figure 20 on page 37](#) for 525 line rate and [Figure 21 on page 37](#) for 625 line rate).

2. Select the last line (includes all previous active video lines) that will be used for data.

Selected active video lines will be shown in the **Reserved for Data** section of the web page as shown for lines 21/284 and 22/285 in [Figure 20](#) and lines 24/337 and 25/338 in [Figure 21](#). Lines not reserved for data will be greyed out on the VBI Decode web page ([VBI Encode For Composite Output on page 44](#)).

Active video lines that can be made available for data insertion are:

- For 525, lines 21 – 24 in Field 1, lines 284 – 287 in Field 2
- For 625, lines 24 – 28 in Field 1, lines 337 – 341 in Field 2

Figure 20. Advanced VBI Configuration – 525 Line Rate

Current Line Rate	525					
View Selection:	<input checked="" type="radio"/> 525 <input type="radio"/> 625					

VBI / Data Lines

Field 1 Lines	1-20	21	22	23	24	25-263
VBI Lines	[Blue Bar]					
Reserved for Data		[Blue Bar]	[Blue Bar]			
Picture Lines				[Blue Bar]	[Blue Bar]	[Blue Bar]
Field 2 Lines	264-283	284	285	286	287	288-525
VBI Lines	[Blue Bar]					
Reserved for Data		[Blue Bar]	[Blue Bar]			
Picture Lines				[Blue Bar]	[Blue Bar]	[Blue Bar]
Last Data Line	<input type="radio"/> none <input type="radio"/> 21/284 <input checked="" type="radio"/> 22/285 <input type="radio"/> 23/286 <input type="radio"/> 24/287					

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

Figure 21. Advanced VBI Configuration – 625 Line Rate

Current Line Rate	625					
View Selection:	<input type="radio"/> 525 <input checked="" type="radio"/> 625					

VBI / Data Lines

Field 1 Lines	624-23	24	25	26	27	28	29-310
VBI Lines	[Blue Bar]						
Reserved for Data		[Blue Bar]	[Blue Bar]				
Picture Lines				[Blue Bar]	[Blue Bar]	[Blue Bar]	[Blue Bar]
Field 2 Lines	311-336	337	338	339	340	341	342-623
VBI Lines	[Blue Bar]						
Reserved for Data		[Blue Bar]	[Blue Bar]				
Picture Lines				[Blue Bar]	[Blue Bar]	[Blue Bar]	[Blue Bar]
Last Data Line	<input type="radio"/> none <input type="radio"/> 24/337 <input checked="" type="radio"/> 25/338 <input type="radio"/> 26/339 <input type="radio"/> 27/340 <input type="radio"/> 28/341						

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

Frame Sync Web Page

- Use this link
- [I/O Config Functional View](#)
 - [SDI In](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)
 - [VBI Encode](#)

Use the Frame Sync web pages ([Figure 23 on page 39](#) and [Figure 22 on page 39](#)) to:

- Adjust horizontal and vertical timing, and
- Freeze the current output or, if using a 2000GEN reference signal, select an automatic freeze mode for output when the signal is lost.

Timing Adjustment

[Table 5](#) shows the ranges of timing for 525 and 625 signal formats.

Table 5. Timing Adjustment Ranges

Line Rate	Max Horizontal Adjustment	Max Vertical Adjustment
525/NTSC	857.5 pixels	524 lines
625/PAL	863.5 pixels	624 lines

Freeze Mode Selection

The Freeze mode controls available depend on the output timing reference selected on the [Video Input Select Web Page on page 34](#).

When set to Frame Delay mode (using the **Video In** output timing reference), Freeze Mode allows you to manually freeze the output using **Field 1**, **Field 2**, or one **Frame** ([Figure 22 on page 39](#)). 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 two fields can cause motion artifacts.

Frame Sync mode (using the 2000GEN **Internal Frame Reference** as the output timing reference) provides the manual activation selections plus **AutoBlack** and **AutoFreeze** modes to be used when the video signal is lost ([Figure 23 on page 39](#)). AutoBlack outputs a black signal while AutoFreeze outputs the last complete video field.

Figure 22. Frame Synchronizer Web Page – Video In Reference

 **Frame Sync** 

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4

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

Timing Adjustment


H Timing (pixels)			V Timing (lines)		
<<	0.0	>>	<<	0	>>
<	Apply	>	<	Apply	>

Freeze Mode Selection

Freeze Mode	<input checked="" type="radio"/> None	<input type="radio"/> Field 1	<input type="radio"/> Field 2	<input type="radio"/> Frame
-------------	---------------------------------------	-------------------------------	-------------------------------	-----------------------------

[Back](#) [Functional View](#) [Next \(Video\)](#)
[Next \(Audio\)](#)

Figure 23. Frame Synchronizer Web Page – Internal Frame Reference

 **Frame Sync** 

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4

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

Timing Adjustment

H Timing (pixels)			V Timing (lines)		
<<	15.0	>>	<<	16	>>
<	Apply	>	<	Apply	>

Freeze Mode Selection

Freeze Mode	<input checked="" type="radio"/> None	<input type="radio"/> AutoBlack	<input type="radio"/> AutoFreeze	<input type="radio"/> Field 1	<input type="radio"/> Field 2	<input type="radio"/> Frame
-------------	---------------------------------------	---------------------------------	----------------------------------	-------------------------------	-------------------------------	-----------------------------

[Back](#) [Functional View](#) [Next \(Video\)](#)
[Next \(Audio\)](#)

Video Processing Web Page

- Use
this
link
- [I/O Config](#)
 - [Functional View](#)
 - [SDI In](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)
 - [VBI Encode](#)
 - [Composite Out](#)
 - [AES Inputs](#)

Use the Video Proc web page to:

- Enable/disable Standard or Advanced video processing,
- Turn on Color Bars test signal,
- Enable/disable video gain lock,
- Adjust component video gain (Y, B-Y, R-Y),
- Adjust component video DC Offset (Y, B-Y, R-Y),
- Enable/disable soft and hard clipping controls, and
- Apply selected clip settings to VBI.

Video Processing Controls

Video Processing Enable

To bypass Video Processing on the SDI signal select **Disable** (Figure 24 on page 41). To make video processing adjustments to the SDI signal select **Enable** or select **Color Bars** to use the internally generated 100% vertical color bars test signal.

Two modes of video processing are available, Standard or Advanced. With **Standard** selected, only the Y Channel Video Processing controls on the left will be visible along with the clipping controls.

When **Advanced** is selected, the B-Y and R-Y Gain and Balance/Offset controls will also be displayed as shown in Figure 25 on page 43.

Standard View

In Standard View (Figure 24 on page 41), adjust the following for the Y Channel:

- Contrast/Y Gain – adjust the percentage of luminance relative to white (50 to 149.6%).
- Saturation/Chroma Gain – adjust the percentage of saturation and chroma gain relative to 100% saturation (50 to 149.6%).
- Brightness/Y Offset – adjust the amount of brightness/Y offset in mV (-3.55 to 3.44%)
- Hue/Chroma Phase – adjust the hue/chroma phase in degrees (-89.8 to 89.8 degrees).

Figure 24. Video Processing Web Page – Standard View

 **Video Proc** 

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4

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

View Selection: Standard Advanced

Video Processing Controls

Video Processing: <input type="radio"/> Disable <input checked="" type="radio"/> Enable <input type="radio"/> Color Bars	
Video Gain Lock: <input type="radio"/> On <input checked="" type="radio"/> Off	
Contrast/Y Gain (%) <input type="text" value="100.0"/> <input type="button" value="Apply"/>	Saturation/Chroma Gain (%) <input type="text" value="100.0"/> <input type="button" value="Apply"/>
Brightness/Y Offset (%) <input type="text" value="0.00"/> <input type="button" value="Apply"/>	Hue/Chroma Phase (Deg) <input type="text" value="0.0"/> <input type="button" value="Apply"/>

Clipping Controls

Clip Settings: <input checked="" type="radio"/> Disable <input type="radio"/> Enable	
<input type="checkbox"/> Apply clips to VBI	
Soft/Y White Clip (%) <input type="text" value="109.0"/> <input type="button" value="Apply"/>	Hard/Video White Clip (%) <input type="text" value="138.7"/> <input type="button" value="Apply"/>
Soft/Y Black Clip (%) <input type="text" value="-6.8"/> <input type="button" value="Apply"/>	Hard/Video Black Clip (%) <input type="text" value="-37.3"/> <input type="button" value="Apply"/>

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

Advanced View

In Advanced View (Figure 25 on page 43), adjust the following for the B-Y and R-Y Channels:

Note To adjust gain for all channels simultaneously, set **Video Gain Lock** to **On**. This locks Y, B-Y, and R-Y adjustments together. Adjustment of one gain setting changes all gain values (Y, B-Y, R-Y) the same amount.

- B-Y/R-Y Gain – adjust the percentage of B-Y and R-Y gain relative to 100% (50 to 149.6%).
- B-Y/R-Y Balance/Offset – adjust the amount of B-Y and R-Y DC offset in mV (-3.55 to 3.44%)

Clipping Controls

Clipping controls are provided that affect the luminance (soft/Y) and overall saturation (hard/video) levels of the output signal.

Refer to Figure 25 on page 43. To enable the clip controls select the **Enable** radio button. You may also apply the clip levels to the vertical blanking interval by checking the **Apply clips to VBI** box.

Use the following clipping controls to adjust levels on the composite output:

- Use the **Soft/Y White Clip** control to set the clipping level for the top end (white) of the luminance signal (positive excursions).
- Use the **Soft/Y Black Clip** control to set the clipping level for the bottom end (black) of the luminance signal (negative spikes and Super Black).
- Use the **Hard/Video White Clip** control to set the clipping level for the top end (white) of the overall video signal (clips white and reduces overall saturation level to fit within clip).
- Use the **Hard/Video Black Clip** control to set the clipping level for the bottom end (black) of the overall video signal (clips black and reduces overall saturation level to fit within clip).

Reset To Default

Select the **Reset To Default** button on the bottom of the screen to return all values to the factory defaults.

Figure 25. Video Processing Web Page – Advanced View



Model: KAM-ENC-4DAC Description: [Frame Sync](#), [Proc Amp](#), [SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Standard Advanced

Video Processing Controls

Video Processing: Disable Enable Color Bars

Video Gain Lock: <input type="radio"/> On <input checked="" type="radio"/> Off			
Contrast/Y Gain (%) << 97.3 >> < Apply >	Saturation/Chroma Gain (%) << 102.3 >> < Apply >	B-Y Gain (%) << 102.3 >> < Apply >	R-Y Gain (%) << 102.3 >> < Apply >
Brightness/Y Offset (%) << 0.00 >> < Apply >	Hue/Chroma Phase (Deg) << 0.0 >> < Apply >	B-Y Balance/Offset (%) << 0.00 >> < Apply >	R-Y Balance/Offset (%) << 0.00 >> < Apply >

Clipping Controls

Clip Settings: Disable Enable

Apply clips to VBI

Soft/Y White Clip (%) << 109.0 >> < Apply >	Hard/Video White Clip (%) << 138.7 >> < Apply >
Soft/Y Black Clip (%) << 0.5 >> < Apply >	Hard/Video Black Clip (%) << -37.3 >> < Apply >

Reset to Default

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

VBI Encode For Composite Output

Use
this
link

- [SDI In](#)
- [Video Input Select](#)
- [Frame Sync](#)
- [Video Proc](#)
- [VBI Encode](#)
- [Composite Out](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)

Use the VBI Encode web page (Figure 26 for 525, Figure 27 on page 45 for 625 line rate) to configure the VBI and Data Line encoding for the composite output signal.

The currently detected line rate will be reported. Use the View Selection to view the web page at the correct line rate with the **525** or **625** radio button.



This web page allows you to do the following on a line-by-line basis:

- Remove black level setup (in NTSC or PAL-M video)
- Blank existing VBI and Data Line information

You may also apply clips to all VBI lines by checking the **Apply clips to VBI** checkbox.

Note The data lines not reserved for carrying data on the Video Input Select web page will appear greyed out. See *Advanced VBI Configuration* on page 36.

Figure 26. VBI Encode Web Page – 525 Line Rate

 **VBI Encode** 

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)
 Last Recalled E-MEM: [Factory Defaults](#)

Current Line Rate	525
View Selection:	<input checked="" type="radio"/> 525 <input type="radio"/> 625

Field 1 Line Blanking

	VBI Lines										Data Lines				
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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"/>				
Setup	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				

Field 2 Line Blanking

	VBI Lines										Data Lines				
	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"/>				
Setup	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				

Apply clips to VBI

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

Figure 27. VBI Encode Web Page – 625 Line Rate

 **VBI Encode** 

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4

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

Current Line Rate	625
View Selection:	<input type="radio"/> 525 <input checked="" type="radio"/> 625

Field 1 Line Blanking

	VBI Lines																		Data Lines				
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Field 2 Line Blanking

	VBI Lines																		Data Lines				
	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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply clips to VBI

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

Composite Out Web Page

Use
this
link

- [Video Input Select](#)
- [Frame Sync](#)
- [Video Proc](#)
- [VBI Encode](#)
- [Composite Out](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)

Use the Composite Out web page ([Figure 28 on page 47](#) for calibrated adjustment and [Figure 29 on page 48](#) for user adjustment) to set parameters for the composite video output on the module as listed below:

- Select the **Setup** or **No Setup** radio button to add or not add setup on the 525 composite outputs,
- Enable or disable the following by selecting the corresponding radio button:
 - **Cross Color Removal**– enabling this control filters out unwanted luminance and chrominance artifacts produced during encoding.
 - **Chrominance Signal** – enable this control to completely remove the chrominance portion of the composite output signal.
 - **Burst Signal** – enable this control to completely remove the burst portion of the composite output signal.

Output Video Adjustments

The following output video adjustments can be made for gain and coarse/fine delay of the composite output signal when the **Calibrated** radio button is selected ([Figure 28 on page 47](#)). The delay settings are independent of the Frame Sync controls.

- **Delay Coarse** – adjusts the output delay in coarse steps of 5 pixels (double arrows) or 0.5 pixels (single arrows). The coarse delay range is from 0 to 4095 pixels.
- **Delay Fine** – adjusts the percent of output delay in fine steps of 10 percent (double arrows) or 1.0 percent (single arrows). The fine delay range is from 0 to 100% (100% = 37-38 ns)
- **Output Video Gain** – adjusts the output video gain in steps of 5 percent (double arrows) or 0.5 percent (single arrows). The output gain range is approximately 61 to 138.5 percent.

Figure 28. Composite Out Web Page (Calibrated)

 **Composite Out** 

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4

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

Output Signal Name	Comp Out
Video Output Standard:	525
Signal Setup:	<input checked="" type="radio"/> Setup <input type="radio"/> No Setup
Cross Color Removal:	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Chrominance Signal:	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Burst Signal:	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Output Video Adjustment:	<input checked="" type="radio"/> Calibrated <input type="radio"/> User Adjustable

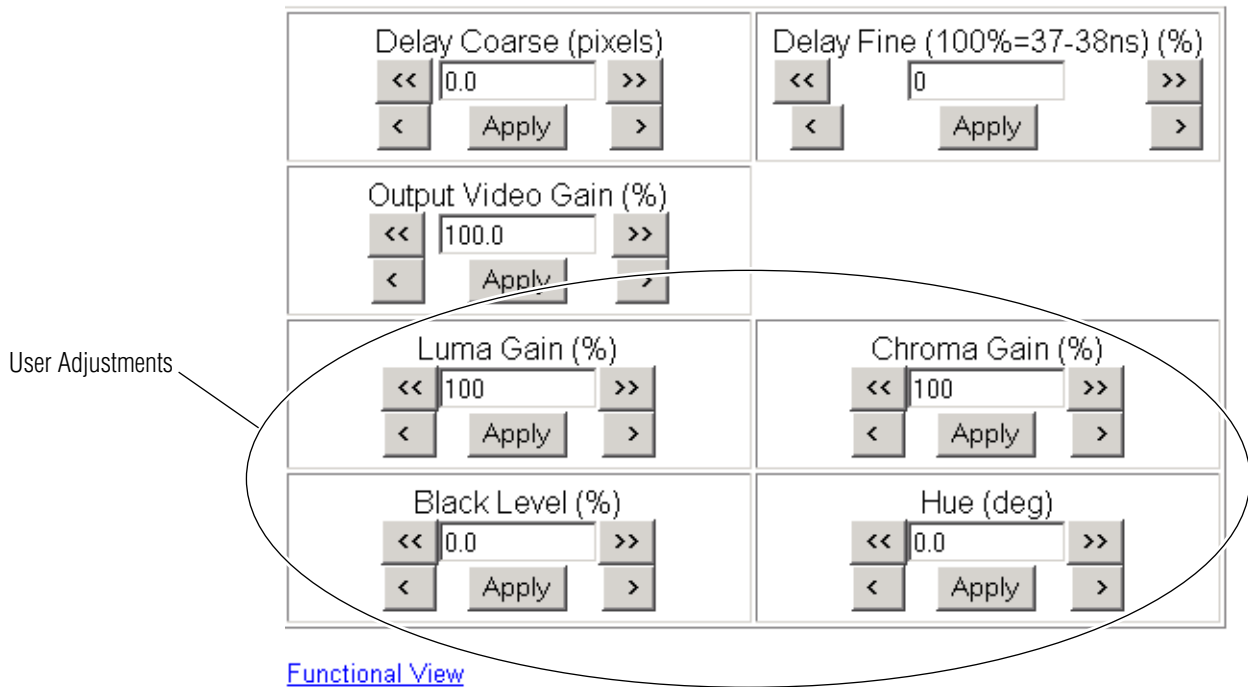
Delay Coarse (pixels) <input type="button" value="<<"/> <input type="text" value="0.0"/> <input type="button" value=">>"/> <input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/>	Delay Fine (100%=37-38ns) (%) <input type="button" value="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/> <input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/>
Output Video Gain (%) <input type="button" value="<<"/> <input type="text" value="100.0"/> <input type="button" value=">>"/> <input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/>	

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

When the **User Adjustable** radio button is selected the following controls are also made available for adjustment of the composite output (**Figure 29**):

- Luma Gain – adjust percentage of luma (brightness) relative to 100%.
- Chroma Gain – adjust the percentage of color saturation relative to 100%.
- Black Level – adjust the percentage of black level relative to 0%.
- Hue – (control appears in 525 only) adjust the hue of the output signal in degrees.

Figure 29. Composite Out Web Page (User Adjustments)



AES Inputs Web Page

- Use this link
- [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)
 - [VBI Encode](#)
 - [Composite Out](#)
 - [AES Inputs](#)
 - [Audio Channel Pairing](#)
 - [Audio Sync](#)

Use the AES Inputs web page (Figure 30) to check the status of the AES audio inputs. The following information is reported for each input:

- **AES Input characteristics** – reports the audio characteristics for input J2 and J3 (Balanced inputs selected) or J4 and J5 (Unbalanced inputs selected) as shown in Figure 30. Use the **Clear** button to reset the error detection.
- **Audio Stream Input reporting** – allows the user to enable or disable the following reporting items with the corresponding checkbox:
 - Sample Rate Conversion
 - Loss of Signal (to both Kameleon Status web page and SNMP monitoring devices)
 - AES Errors

Figure 30. AES Inputs Web Page

AES Inputs

Model: KAM-ENC-4DAC Description: [Frame Sync](#), [Proc Amp](#), [SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4

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

AES Input characteristics

Input	Name	Signal State	Sample Rate	Mode	Ch1 Emphasis	Ch2 Emphasis	Ch1 Data	Ch2 Data	AES Errors Detected	
J5	AES In 1 Unbal	Present	48 kHz	---	Off	Off	Audio	Audio	Errors Detected	<input type="button" value="Clear"/>
J4	AES In 2 Unbal	Present	48 kHz	---	Off	Off	Audio	Audio	Errors Detected	<input type="button" value="Clear"/>

Audio Stream Input reporting

Name	Signal State	Sample Rate Convert	Loss of Signal	Reporting	AES Errors
AES In 1 Unbal	Present	<input type="checkbox"/> Disable	<input checked="" type="checkbox"/> Report	Present	<input checked="" type="checkbox"/> Warn
AES In 2 Unbal	Present	<input type="checkbox"/> Disable	<input checked="" type="checkbox"/> Report	Present	<input checked="" type="checkbox"/> Warn

[Functional View](#)

[Next](#)

Audio Channel Pairing Web Page

- [Frame Sync](#)
 - [Video Proc](#)
 - [VBI Encode](#)
 - [Composite Out](#)
 - [AES Inputs](#)
 - [Audio Channel Pairing](#)
 - [Audio Sync](#)
 - [Audio Proc](#)
- Use this link

The Audio Channel Pairing web page (Figure 31) allows the input audio streams to be arbitrarily recombined into new pairs and swapped or set to **Silence**. The rows represent the audio input streams and the columns represent the audio output channels. The columns are grouped together into two different analog audio pairs (Pair 1 Ch A and Ch B and Pair 2 Ch A and Ch B).

Note Audio input names are assigned using the **I/O Config** web page.

Figure 31. Audio Channel Pairing Web Page



Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)
 Last Recalled E-MEM: [Factory Defaults](#)

Pair Input Audio Channels

Names	Pair 1 ChA	Pair 1 ChB	Pair 2 ChA	Pair 2 ChB	Streams
AES In 1 Unbal.Ch1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Str1.Ch1
AES In 1 Unbal.Ch2	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Str1.Ch2
AES In 2 Unbal.Ch1	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Str2.Ch1
AES In 2 Unbal.Ch2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Str2.Ch2
Silence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Silence

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

Audio Sync Web Page

Use
this
link

- [VBI Encode](#)
- [Composite Out](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)
- [Audio Proc](#)
- [Analog Audio Outputs](#)

Use the Audio Sync web page ([Figure 32 on page 52](#)) to:

- Synchronize the two audio channel pairs to video Frame Sync, and/or
- Add audio delay using the delay adjust controls to add delay to each channel or lock the channels together as a pair and adjust delay.

Enable Auto Track

Select the **On** checkbox to enable auto tracking to synchronize the audio pair to the video frame sync. The amount of auto tracking applied is shown in the Auto Tracking Delay read-only display.

The total amount of delay is reported in the Total Delay read-only display for each channel.

Delay Adjustments

Each audio channel can be adjusted for delay separately or in pairs. Use the following adjustments for audio delay:

- To lock the two channels in a pair together, select the **Channel Lock** checkbox for Pair 1 or Pair 2.
- Adjust the delay for each channel with the Ch A Delay Adjust and Ch B Delay adjust controls for each pair. If the pair is locked, adjusting either control will set the delay to the same value for each channel in the pair.

Figure 32. Audio Synchronizer Web Page

 **Audio Sync** 

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)

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

Pair 1		Pair 2	
Ch A	AES In 1 Unbal.Ch1	Ch A	AES In 2 Unbal.Ch1
Ch B	AES In 1 Unbal.Ch2	Ch B	AES In 2 Unbal.Ch2
	Ch A	Ch B	
Enable Auto Track	<input checked="" type="checkbox"/> On		
Auto Tracking Delay	0 mS		
Total Delay	0 mS	0 mS	
Channel Lock	<input checked="" type="checkbox"/> Locked		
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Ch A Delay Adjust (mS)</p> <p><input type="button" value="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/></p> <p><input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/></p> </div> <div style="width: 45%;"> <p>Ch B Delay Adjust (mS)</p> <p><input type="button" value="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/></p> <p><input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/></p> </div> </div>			
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Ch A Delay Adjust (mS)</p> <p><input type="button" value="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/></p> <p><input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/></p> </div> <div style="width: 45%;"> <p>Ch B Delay Adjust (mS)</p> <p><input type="button" value="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/></p> <p><input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/></p> </div> </div>			

[Back \(Video\)](#) [Functional View](#) [Next](#)
[Back \(Audio\)](#)

Audio Processing Web Page

Use
this
link

- [Composite Out](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)
- [Audio Proc](#)
- [Analog Audio Outputs](#)
- [E-MEM®](#)
- [Slot Config](#)

Use the Audio Proc web page ([Figure 33 on page 54](#)) to adjust the following for each audio pair:

- Adjust audio signal gain for each individual channel or the two audio pairs,
- Lock gain settings for simultaneous channel A/channel B adjustment, and
- Select a processing option for each channel.

Audio Gain

Each audio channel can be adjusted for gain separately or in pairs. Use the following adjustments for audio gain:

- To lock the two channels in a pair together, select the Gain Settings **Locked** checkbox for Pair 1 and/or Pair 2.
- Adjust the gain (-40 to +6 dB) for each channel with the Ch A Gain Adjust and Ch B Gain adjust controls for each pair. If the pair is locked, adjusting either control will set the gain to the same value for each channel in the pair.

Note After gain has been adjusted, a straight quote mark (') will be added to Ch A' and Ch B' to indicate the status of the channels after gain.

Output Processing

Set the output processing for each channel with the Processing pulldown to one of the following:

- Pass
- Invert
- A+B
- A-B
- -(A+B)
- 1 kHz (test tone)
- 400 Hz (test tone)
- Silence

The Presence and Clipping status of each audio channel is reported as **True** or **False** in the read-only displays. If the audio is > -40 dBFS, it will be reported as **True**. If clipping is < 0.5 dBFS, it will be reported as **False** as shown in [Figure 33 on page 54](#).

Figure 33. Audio Processing Web Page

 **Audio Proc** 

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)

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

Pair 1		Pair 2	
Ch A	AES In 1 Unbal.Ch1	Ch A	AES In 2 Unbal.Ch1
Ch B	AES In 1 Unbal.Ch2	Ch B	AES In 2 Unbal.Ch2
Gain Settings	<input type="checkbox"/> Locked	Gain Settings	<input type="checkbox"/> Locked
Ch A Gain (dB) <input type="text" value="0.0"/> <input type="button" value="Apply"/> Ch B Gain (dB) <input type="text" value="0.0"/> <input type="button" value="Apply"/>		Ch A Gain (dB) <input type="text" value="0.0"/> <input type="button" value="Apply"/> Ch B Gain (dB) <input type="text" value="0.0"/> <input type="button" value="Apply"/>	
	Ch A'	Ch B'	
Presence	False	False	
Clip	False	False	
Processing	<input type="button" value="Pass"/>	<input type="button" value="Pass"/>	

Note: Presence = > -40 dBFS, Clip = > -0.5 dBFS

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

Analog Audio Outputs Web Page

- [Composite Out](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)
- [Audio Proc](#)
- [Analog Audio Outputs](#)
- [E-MEM®](#)
- [Slot Config](#)
- [Software Update](#)

Use this link

Use the Analog Audio Outputs web page (Figure 34) to do the following:

- Select audio pairs for output to the assigned analog audio connectors (refer to *Input/Output Configuration Web Page* on page 28 for connector information and audio signal name assignment).
- Adjust the maximum output level for each analog audio channel (adjustable -6.0 to +24 dBu).

Figure 34. Analog Audio Outputs Web Page

Analog Audio Outputs

Model: KAM-ENC-4DAC Description: [Frame Sync](#), [Proc Amp](#), [SD/2AES to AV/4AA](#)

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4

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

Audio Pairs	J10 & J9 ANA AUD1 & ANA AUD2 AA Out Ch1 & AA Out Ch2	J8 & J7 ANA AUD3 & ANA AUD4 AA Out Ch3 & AA Out Ch4
AES In 1 Unbal.Ch1 & AES In 1 Unbal.Ch2	⦿	⦿
AES In 2 Unbal.Ch1 & AES In 2 Unbal.Ch2	○	○

Current Input	Output: Max Level
AES In 1 Unbal.Ch1	AA Out Ch1 (dBu) << 24.0 >> < Apply >
AES In 1 Unbal.Ch2	AA Out Ch2 (dBu) << 24.0 >> < Apply >
AES In 1 Unbal.Ch1	AA Out Ch3 (dBu) << 24.0 >> < Apply >
AES In 1 Unbal.Ch2	AA Out Ch4 (dBu) << 24.0 >> < Apply >

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

E-MEM Configuration Web Page

Use
this
link

- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)
- [Audio Proc](#)
- [Analog Audio Outputs](#)
- [E-MEM®](#)
- [Slot Config](#)
- [Software Update](#)

The E-MEM page provides local operations for learning and recalling configurations into five 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 35), 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 the entire module into that E-MEM into the KAM-ENC-4DAC. 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 36 on page 57).

Figure 35. E-MEM Web Page (Standard View)



Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Standard Advanced

E-MEM®

Local Operations		
<input type="button" value="Recall"/>	E-MEM 1:	<input type="text" value="test"/>
<input type="button" value="Recall"/>	E-MEM 2:	<input type="text"/>
<input type="button" value="Recall"/>	E-MEM 3:	<input type="text"/>
<input type="button" value="Recall"/>	E-MEM 4:	<input type="text"/>
<input type="button" value="Recall"/>	E-MEM 5:	<input type="text"/>

Restore factory settings

Restore factory names

The Advanced View (Figure 36) 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 36. E-MEM Web Page (Advanced View)



Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Standard Advanced

E-MEM®

Local Operations			File Operations		
<input type="button" value="Recall"/>	E-MEM 1:	<input type="text" value="Studio 1"/>	<input type="button" value="Learn"/>	<input type="button" value="Save to..."/>	<input type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 2:	<input type="text"/>	<input type="button" value="Learn"/>	<input type="button" value="Save to..."/>	<input type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 3:	<input type="text"/>	<input type="button" value="Learn"/>	<input type="button" value="Save to..."/>	<input type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 4:	<input type="text"/>	<input type="button" value="Learn"/>	<input type="button" value="Save to..."/>	<input type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 5:	<input type="text"/>	<input type="button" value="Learn"/>	<input type="button" value="Save to..."/>	<input type="button" value="Load from..."/>

Restore factory settings

Restore factory names

File Operations

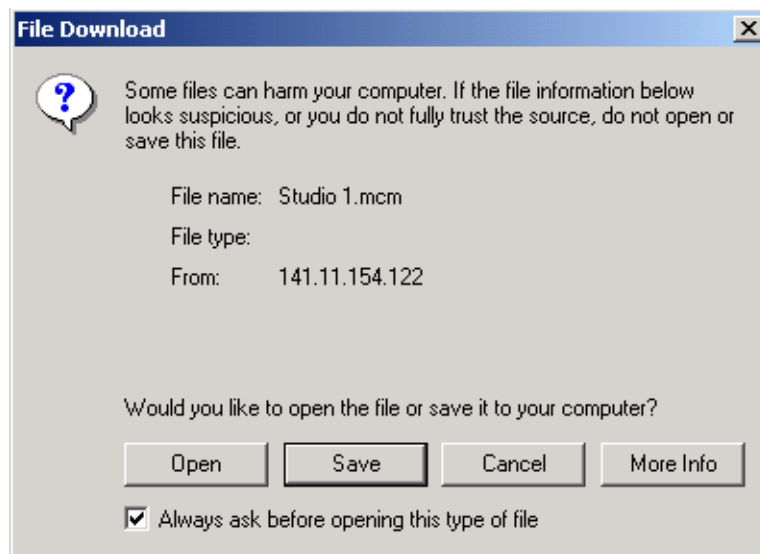
Save File

File operations allow you to save learned configurations to a computer hard drive or other accessible media for later recall to the onboard E-MEM registers of any Kameleon module in your system.

To save to a file, first make sure you have learned the configuration, then press the **Save To...** button.

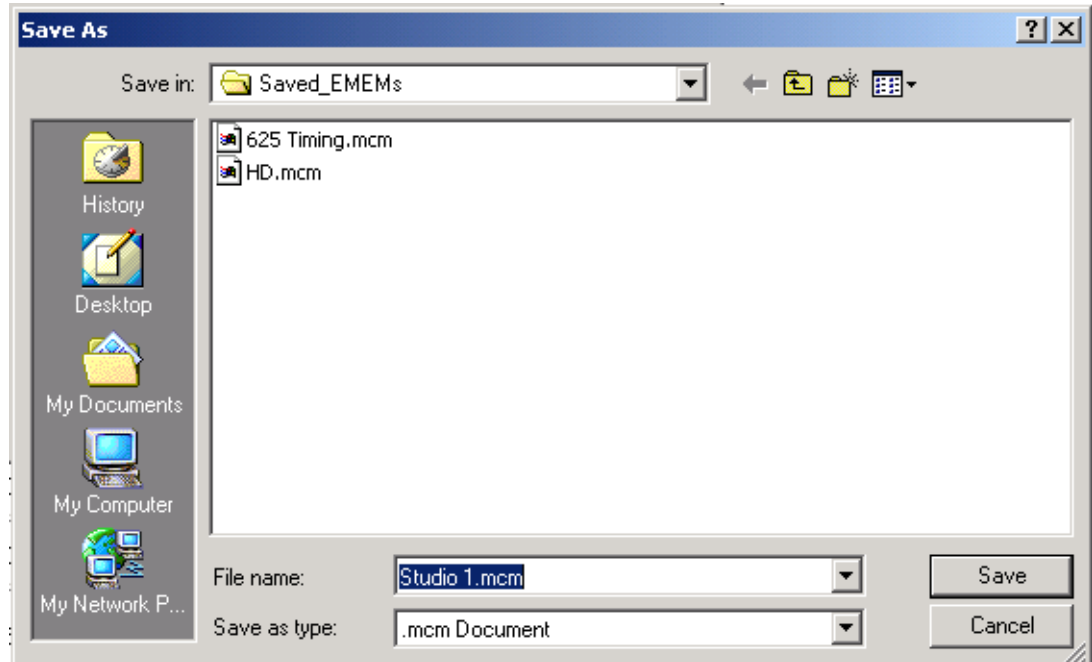
This will bring up a File Download screen similar to [Figure 37](#). Select **Save**.

Figure 37. File Download Screen



This will bring up the Save As screen as shown in [Figure 38](#). Locate or create a directory for storing the E-MEMs and select **Save**. This E-MEM register is now saved to the selected location and may be recalled as described below.

Figure 38. Save As Screen



Load File

A file may be loaded from a saved directory to a register on the E-MEM web page by selecting the **Load From...** button in the associated E-MEM register in the Advanced view. This will bring up the Load E-MEM web page ([Figure 39](#)).

Figure 39. Load E-MEM Web Page

Load E-MEM 1

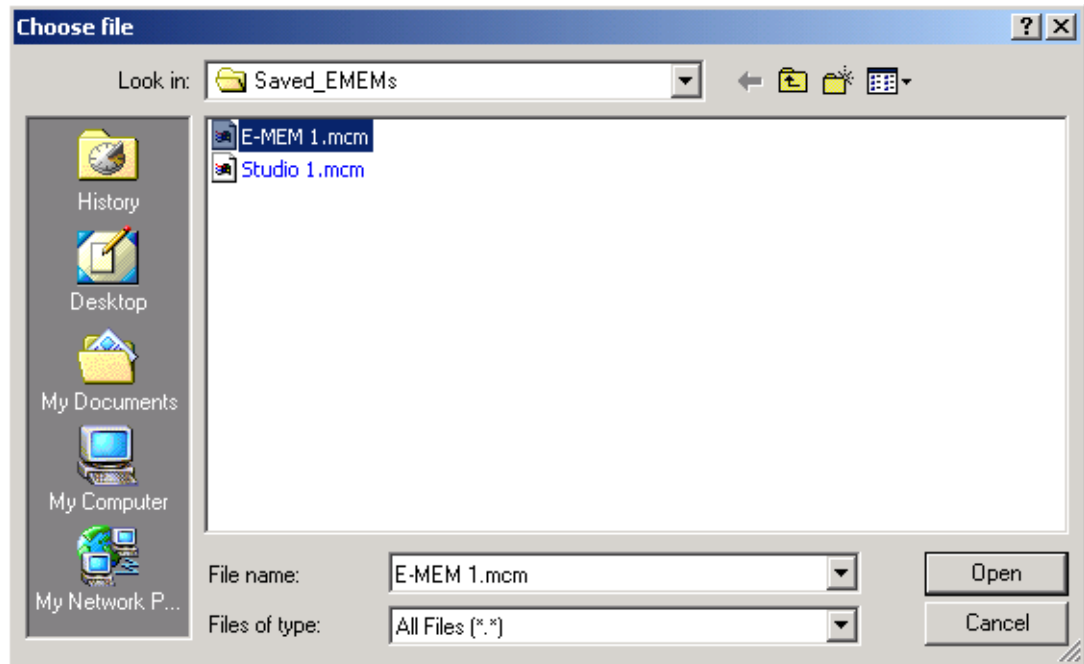
Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 4

Load file into E-MEM 1...

Enter filename:

Enter a path and filename or use the **Browse** button to locate your saved E-MEM files. Browse to the Choose File screen (Figure 40), select the E-MEM file to download and select **Open**.

Figure 40. Choose File Screen



This will place the path and filename in the Load E-MEM screen (Figure 39 on page 59). If this is the correct file, select **Load**. Continue to load files or select **Cancel** to return to the main E-MEM web page. Loaded files will now be entered in the associated E-MEM registers.

Select the associated **Recall** button for each E-MEM register to load the configuration to the module.

Slot Configuration

Use
this
link

- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)
- [Audio Proc](#)
- [Analog Audio Outputs](#)
- [E-MEM@](#)
- [Slot Config](#)
- [Software Update](#)

Use the Slot Config web page ([Figure 41 on page 62](#)) to:

- Assign an appropriate name to the module slot,
- Assign an Asset Tag identification,
- Enable/disable the **Locate Module** function,
- Save module configuration and enable slot memory,
- Check SNMP related 2000NET module switch settings, and
- Enable/disable SNMP reporting for the specific Kameleon slot.

Slot Identification

You may identify the module by typing a specific name in the **Name** field. The assigned name is stored on the 2000NET module and travels with the 2000NET 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.

Locate Module

When enabled by selecting the **Flash** pulldown, the **Locate Module** function flashes the yellow COMM and CONF LEDs on the front of the module to make it easy to locate in the frame (see [Operation Indicator LEDs on page 14](#)).

Slot Memory

The slot configuration for each media module is automatically saved periodically to the 2000NET 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 2000NET module. If the 2000NET 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 2000NET module will be downloaded to the new module. The box must be checked before the current module with the saved configuration is removed.

Figure 41. Slot Configuration Web Page

Slot Config

Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)

Slot Identification

Name:

Asset Tag:

Locate Module

Slot Memory

Restore upon Install

Frame Health Reporting

	Slot Fault	Signal Loss	Reference Loss
Enabled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

Frame Health Reporting

The reporting of Slot Fault, Signal Loss, and Reference Loss can be enabled or disabled to the Frame Health connector on the rear of the Kameleon frame by selecting or deselecting the corresponding checkbox.

Hardware Switch Controls

This section is a read-only status report of 2000NET 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

This section is displayed only when the SNMP Agent software has been installed on the 2000NET module (refer to the 2000NET Instruction Manual for installation instructions). Slot SNMP traps can be enabled only when the hardware switches for Module Fault reporting and Asynchronous Status reporting are enabled on the 2000NET 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 2000NET configuration. Trap severity is read-only hard-coded information that is interpreted and responded to by the SNMP Manager software configuration.

Software Update Web Page

- [Audio Sync](#)
- [Audio Proc](#)
- [Analog Audio Outputs](#)
- [E-MEM®](#)
- [Slot Config](#)
- [Software Update](#)

Use
this
link

The Software Update web page (Figure 42) allows you to download new software versions for the module using the FTP server method described in the 2000NET Instruction Manual available on-line.

Software may also be updated using the NetConfig Networking Application PC option available with Modular and other Grass Valley products as described in the documentation that accompanies the option.

Refer to the latest module Release Notes for complete details on how to obtain and install the latest software for this module.

Figure 42. Software Update Web Page



Model: [KAM-ENC-4DAC](#) Description: [Frame Sync, Proc Amp, SD/2AES to AV/4AA](#)
Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [4](#)
Software Version: [4.0.1](#) Firmware Version: [X1=2.2.55, X2=2.3.2](#)
[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"/>	

Specifications

Note Specifications are subject to change without notice.

Table 6. SDI Input Specifications

Parameter	Value
SDI Input	
Signal type	Serial digital video conforming to SMPTE259M 10-bit 4:2:2 component digital signal
Input impedance	75 Ω
Connector type	75 Ω BNC on rear module
Input return loss	>15 dB to 270 MHz
Common mode rejection ratio	2 V p-p to 60 Hz
Equalization	Up to 250 meters of Belden 1694A

Table 7. Composite Output Specifications

Parameter	Value
Composite output	
Number of outputs	1
Signal type	Composite analog video conforming to SMPTE170M for NTSC and CCIR624 for PAL-B
Signal level	600 mV to 1.4 V p-p adjustable, 1 V p-p default
Output clamping level	0 VDC \pm 20 mV
Output impedance	75 Ohm
Connector type	75 Ohm BNC on rear module
Output return loss	> 40 dB to 5.5 MHz
Output isolation	> 46 dB to 5.5 MHz
Composite Output Performance	
Response	\pm 0.1 dB to 5.0 MHz
Differential phase	< 0.5 degrees
Differential gain	< 0.9%
Group delay	<10 ns to 5.5 MHz
RMS signal-to-noise	> 59 dB to 5.5 MHz
Resolution	10 bits
Accuracy	9.2 bits
Subcarrier jitter	< 1 degree when input clock jitter spec is met
Blanking start/end	SMPTE170M or CCIR624, non-adjustable
Composite Output Control Parameters	
Overall video gain	61% to 138% in 0.5% steps, 100% default
Black range	-7.5% to +15% of luma full-scale in 0.1% steps, 0 default
Luma gain	50 – 150% in 1% steps, 100% default

Table 7. Composite Output Specifications - (continued)

Parameter	Value
Chroma gain	50 – 150% in 1% steps, 100% default
Hue range	± 22.5 degree 0.5 degree steps, 0 degree default (525 only)
Setup processing in vertical	Line by line on/off (525 only)
Vertical blanking processing	Line by line blank/unblank
Prefiltering	Cross-color & luma reduction 2D filtering on/off

Table 8. Frame Sync/Timing Specifications

Parameter	Value
Video Frame Sync Timing Control Parameters	
Delay adjustment (main)	0 to 1 frame in 37 ns steps
Additional delay, composite out	0 to 151µs in 37 ns steps
Fine phase delay, composite out	0 to 37 ns in 100 steps
Additional delay, SDI out	0 to 151 µs in 37 ns steps

Table 9. Main Video Processing Specifications

Parameter	Value
Main Video Frame Processing Control Parameters	
Y gain	±50% in 0.4% steps, 100% default
Y offset	±3.5% of 100% white in 0.11% steps, 0% default
B-Y gain	±50% in 0.4% steps, 100% default
B-Y offset	±3.5% of 100% white in 0.11% steps, 0% default
R-Y gain	±50% in 0.4% steps, 100% default
R-Y offset	±3.5% of 100% white in 0.11% steps, 0% default
Color bars	On/off

Table 10. AES/EBU Input Specifications

Parameter	Value	
	Balanced (AES3-1992)	Unbalanced (AES3id 2001)
AES/EBU Input		
Common mode range	+10/-10 V, 50 Hz to 20 kHz	NA
Differential voltage range	200 mV p-p to 12 V p-p	200 mV p-p to 2 V p-p
Input return loss	>25 dB (100 kHz to 6 MHz)	>15 dB (100 kHz to 6 MHz)
Sample rate	32 – 96 kHz	32 – 96 kHz
Performance		
Static withstand	5 kV (330 Ω, 150 pF)	

Table 11. Audio Processing Specifications

Parameter	Value
Audio Processing	
Number of channels supported	4
Sample Rate Conversion	All audio inputs retimed to output timing reference (either input video or frame reference)
Fixed Delay	0 – 5.2 sec in 20 ms steps, individual setting for each channel
Delay Tracking	Delay can be set to automatically track delay through video frame sync with fixed offset
Gain	+6 to -40dB in 0.1dB steps, individual setting for each channel.
Other processing	Selectable: Invert; L + R; L-R; -(L-R); 1 kHz; 400 Hz; Silence Individual setting for each channel.
Re-pairing	Complete flexibility to swap or recombine any input channel with any other

Table 12. Audio DAC Specifications

Parameter	Value
Analog Audio Output (DAC)	
Number of outputs	4 per submodule
Signal type	-2 dB to +24 dBu, adjustable in 0.1 dBu steps
Output impedance	100 Ω balanced
Drive capability maximum	+24 dBu balanced @ 10 K Ω load
Differential DC	0.25 V maximum
Connector type	Multi-pin (receptacle)
Analog Audio Output Performance (48 kHz sampling rate)	
Signal/noise ratio	> 102 dB, 20 Hz to 20 kHz > 105 dB, "A" weighted
THD+noise, swept 20 Hz-20 kHz	< -75 dB, 20 Hz to 20 kHz, @ +24 dBu
Interchannel crosstalk	< -80 dB, 20 Hz to 20 kHz
Intermodulation distortion	< -80 dB CCIF two-tone test, 19 & 20 kHz tones
Interchannel gain mismatch	0.1 dB
Frequency response	\pm 0.2 dB, relative to 1 kHz, 20 Hz to 20 kHz @ +24 dBu
DC offset	\pm 50 mV
Output resolution	24 bits
Effective number of bits	18
Static withstand	5 kV (330 Ω , 150 pF) any input or output

Table 13. Electrical Length Specifications

Parameter	Value
Electrical Length	
SDI In to Composite Out	1 line + 16 μ s
AES/EBU to Analog Audio	2.5 ms @ 48 kHz

Table 14. Environmental/Power Specifications

Parameter	Value
Environmental	
Frame temperature range	0 to 40 degrees C ambient
Operating humidity range	0 to 90% non-condensing
Non-operating temperature	-10 to +70 degrees C
Mechanical	
Frame type	2000T1DNG Kameleon Frame or 2000T3NG Kameleon Frame
Power	
Consumption	16 Watts typical

Service

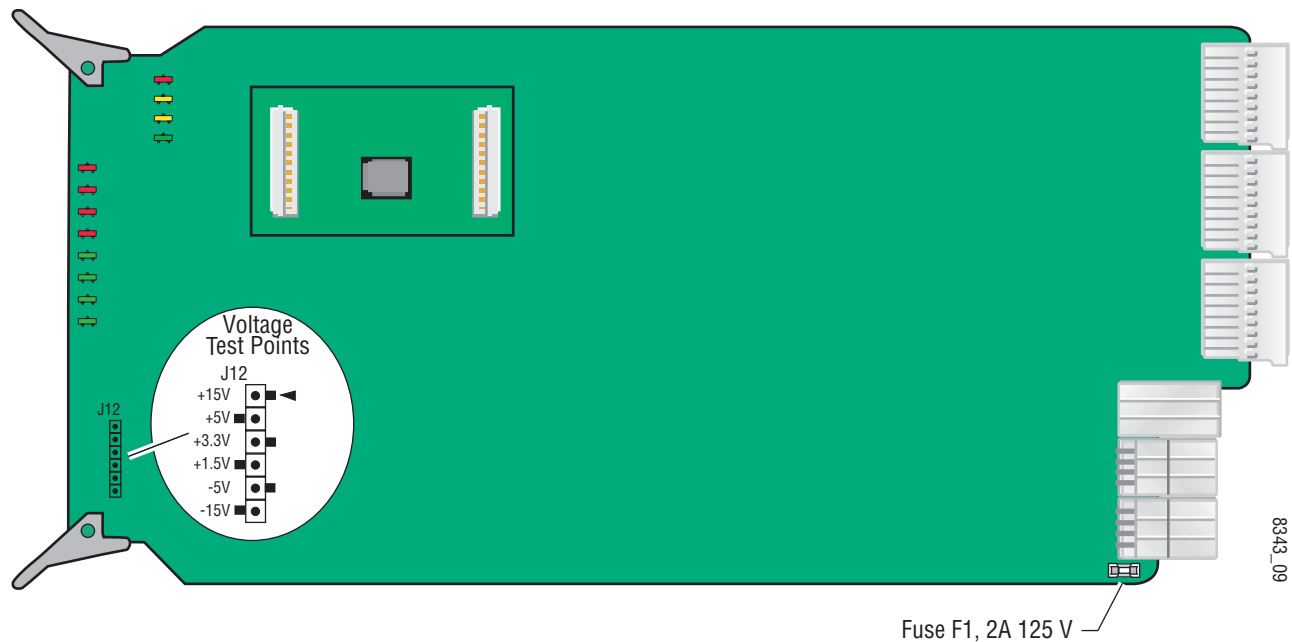
The Kameleon modules make extensive use of surface-mount technology and programmed parts to achieve compact size and adherence to demanding technical specifications. Circuit modules should not be serviced in the field except to check and replace fuses.

Troubleshooting

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

- Check frame and module power at the front edge testpoints (Figure 43).
- If power is not present, check the fuse on the +24 V input (Figure 43).
- Check for presence and quality of input signals.
- Verify that source equipment is operating correctly.
- Check cable connections.

Figure 43. Location of Module Fuse and Voltage Testpoints



Refer to [Figure 7 on page 13](#) for the location of PWR LED and [Table 2 on page 14](#) 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 Support Information number.

Index

Numerics

- 2000GEN module
 - for output timing 35
 - requirement 8
- 2000NET module
 - hardware requirements 7
 - software requirement 8
 - switch settings 61

A

- AES audio inputs 49
 - AES errors 49
 - cabling 12
 - status reporting 49
- AES Inputs web page 49
- analog audio outputs
 - cabling 12
 - naming 28
 - specifications 67
- Analog Audio Outputs web page 55
- Apply button 22
- Asset Tag
 - assigning 61
 - Status web page 25
- audio
 - channel pairing
 - summary table 17
 - web page control 55
 - channel swap
 - summary table 17
 - web page control 50
 - delay
 - channel lock 17, 51
 - summary table 17
 - web page controls 51
 - gain
 - summary table 18
 - web page controls 53
 - processing
 - summary table 18
 - web page controls 53

- silence 50
- synchronization 51
- Audio Channel Pairing web page 50
- Audio Proc web page 53
- Audio Sync web page 51
- auto tracking (audio)
 - summary table 17
 - web page control 51

B

- balanced AES audio inputs 15, 28
- balanced analog audio outputs 28
- black level (composite out)
 - summary table 17
 - web page controls 48
- burst signal (composite out)
 - summary table 17
 - web page control 46
- B-Y gain
 - summary table 16
 - web page control 42
- B-Y offset (balance)
 - summary table 16
 - web page control 42

C

- chroma gain (composite out)
 - summary table 17
 - web page controls 48
- chroma gain (saturation)
 - summary table 16
 - web page control 40
- chrominance signal (composite out)
 - summary table 17
 - web page control 46
- clipping controls
 - summary table 16
 - video 42
- clipping indicator
 - audio 53

- Coarse adjust button
 - overview [22](#)
- coarse delay (composite out)
 - summary table [17](#)
 - web page control [46](#)
- color code
 - functional view page [31](#)
- COMM LED [14](#)
- compatible network software [7](#)
- composite out
 - adjustments
 - summary table [17](#)
 - web page controls [46](#)
 - cabling [12](#)
 - specifications [65](#)
- Composite Out web page [46](#)
- CONF LED [14](#)
- configuration
 - overview [23](#)
 - Remote, GUI [15](#)
 - summary table [15](#)
- control panel [19](#)
 - mneumonics [15](#)
- cooling [8](#)
- cross color removal (composite out)
 - summary table [16](#)
 - web page control [46](#)

D

- data lines [35](#)
- delay
 - audio [51](#)
 - composite output signal [46](#)
- documentation online [2](#)

E

- EDH errors [32](#)
- E-MEM
 - Advanced view [57](#)
 - description [56](#)
 - load file [59](#)
 - save file [58](#)
 - standard view [56](#)
 - web page [56](#)

F

- factory defaults
 - recall factory defaults [56](#)
 - summary table [15](#)
 - video processor [42](#)
- Factory names
 - recall [56](#)
- fan [8](#)
- FAQ database [2](#)
- FAULT LED [14](#)
- fault messages [27](#)
- Feed Forward errors [32](#)
- Fine adjust button
 - overview [22](#)
- fine delay (composite out)
 - summary table [17](#)
 - web page control [46](#)
- frame capacity [8](#)
- Frame Health Reporting
 - enabling and disabling [63](#)
- frame reference
 - selecting
 - summary table [15](#)
- Frame Sync web page [38](#)
- frame sync/delay
 - summary table [15](#)
 - web page control [34](#)
- freeze modes
 - summary table [15](#)
 - web page controls [38](#)
- frequently asked questions [2](#)
- front media module
 - installation [11](#)
- Functional View web page [31](#)
- fuse [69](#)

G

- graphical user interface (GUI) [24](#)
- Grass Valley web site [2](#)

H

- Hard/Video Black Clip
 - summary table [16](#)

- web page control 42
- Hard/Video White Clip
 - summary table 16
 - web page control 42
- hardware requirement 7
- hardware switches 61
- horizontal timing
 - summary table 15
 - web page control 38
- hue (chroma phase)
 - summary table 16
 - web page control 40
- hue (composite out, 525)
 - summary table 17
 - web page control 48

I

- I/O Config web page 28
- inserting modules 8

K

- KAM-DAC-S submodule
 - installation 9
- KAM-ENC-4DAC module
 - features 7
- KAM-MIX-R rear module
 - cabling 12
 - installation 8, 10

L

- LEDs
 - front edge 14
- line rate 34
- locate module 14, 61
- loss of signal reporting
 - AES inputs 17
 - audio input 49
 - SNMP traps 63
 - video input 34
- luma gain (composite out)
 - summary table 17
 - web page controls 48

M

- midplane 11
- module location function 14, 61
- module slot identification 61

N

- naming module slots 61
- NetConfig
 - updating software 64
- Network Interface Module
 - version 7
- Newton Control Panel
 - overview 19
 - summary table 15

O

- online documentation 2
- output levels (analog audio)
 - summary table 18
 - web page control 55
- output timing source
 - selecting 34
 - summary table 15
 - web page control 35

P

- power requirements 68
- PWR LED 14

R

- Refresh button 22
- removing modules 8
- repair depot 69
- R-Y gain
 - summary table 16
 - web page control 42
- R-Y offset (balance)
 - summary table 16
 - web page control 42

S

- sample rate conversion
 - disable 49
 - on AES inputs 17
- SDI In web page 32
- SDI Input errors
 - EDH and Feed Forward 15, 32
 - summary table 15
 - web page control 35
- SDI video in
 - cabling 12
 - specifications 65
 - status and error reporting 32
- service 69
- setup (composite out)
 - summary table 16
 - web page control 46
- setup (VBI)
 - summary table 16
 - web page control 44
- signal names 28, 29
- signal status
 - rear module LED 13
 - web page view 28
- slot
 - configuration (saving) 61
 - memory 61
 - names 61
- Slot Config web page 61
- SNMP trap reports
 - enabling and disabling 63
- Soft/Y Black Clip
 - summary table 16
 - web page control 42
- Soft/Y White Clip
 - summary table 16
 - web page control 42
- software
 - requirement 7
 - update 64
- software download from web 2
- specifications 65
- status indicators
 - color codes 25
 - meanings 25
 - Status LEDs 22

- Status web page 25
- submodules
 - installation 9
 - requirement 9
- system requirements 8

T

- test signals
 - audio 53
 - color bars (video) 40
 - summary table 16
 - web page control 40
- troubleshooting 69

U

- unbalanced AES audio inputs 15, 28

V

- VBI configuration
 - advanced view 35, 36
 - apply clips
 - summary table 16
 - blanking 44
 - remove setup 44
 - setup enable/disable 44
 - summary table 15
- VBI data lines
 - reserved for data 36
- VBI Encode web page 44
- VBI encoding
 - summary table 16
 - web page controls 44
- vertical blanking interval (VBI) 35
- vertical timing
 - summary table 15
 - web page control 38
- video
 - input format 34
 - input select 34
 - line rate 34
 - timing 38
- video gain (composite out)
 - summary table 17
 - web page control 46

Video Input Select web page 34

video line rate

selecting 34

summary table 15

web page control 35

Video Proc web page 40

video processing

clipping controls 42

locking gains 16, 42

summary table 16

web page controls 40

W

warning messages 27

web site

documentation 2

FAQ database 2

Grass Valley 2

software download 2

Y

Y Gain (contrast)

summary table 16

web page control 40

Y Offset (brightness)

summary table 16

web page control 40

