

KAM-DEC-4ADC

KAMELEON SERIES MODULES

Instruction Manual

SOFTWARE VERSION 4.0.3

071835200
JANUARY 2005

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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 *2000 Series Frames Instruction Manual*).

KAM-DEC-4ADC Kameleon Series Module

Introduction

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

The KAM-DEC-4ADC modules provides broadcast quality NTSC/PAL to serial digital video conversion. Up to four analog audio channels are converted to two separate 48 kHz AES digital audio stream outputs.

This module features:

- NTSC/PAL video conversion to broadcast quality serial digital,
- Four channels of analog audio A-D conversion to two embedded 48 kHz AES digital audio output streams in balanced or unbalanced format,
- Audio and video delay, synchronization and processing amplifier,
- Powerful line-by-line VBI processing including user-configuration of active video lines for carrying data,
- Built-in 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-DEC-4ADC 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-DEC-4ADC 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-DEC-4ADC 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-DEC-4ADC 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-ADC-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.

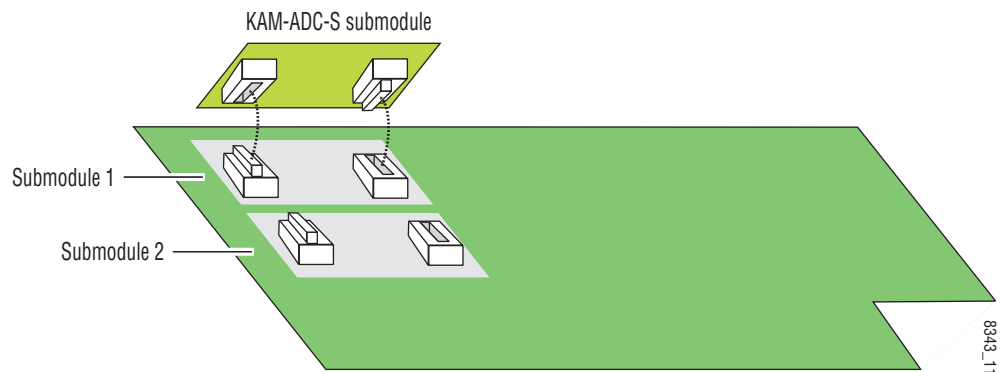
Kameleon Audio Submodule

The KAM-DEC-4ADC module requires a KAM-ADC-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 24.

Figure 1. Kameleon Submodule Installation

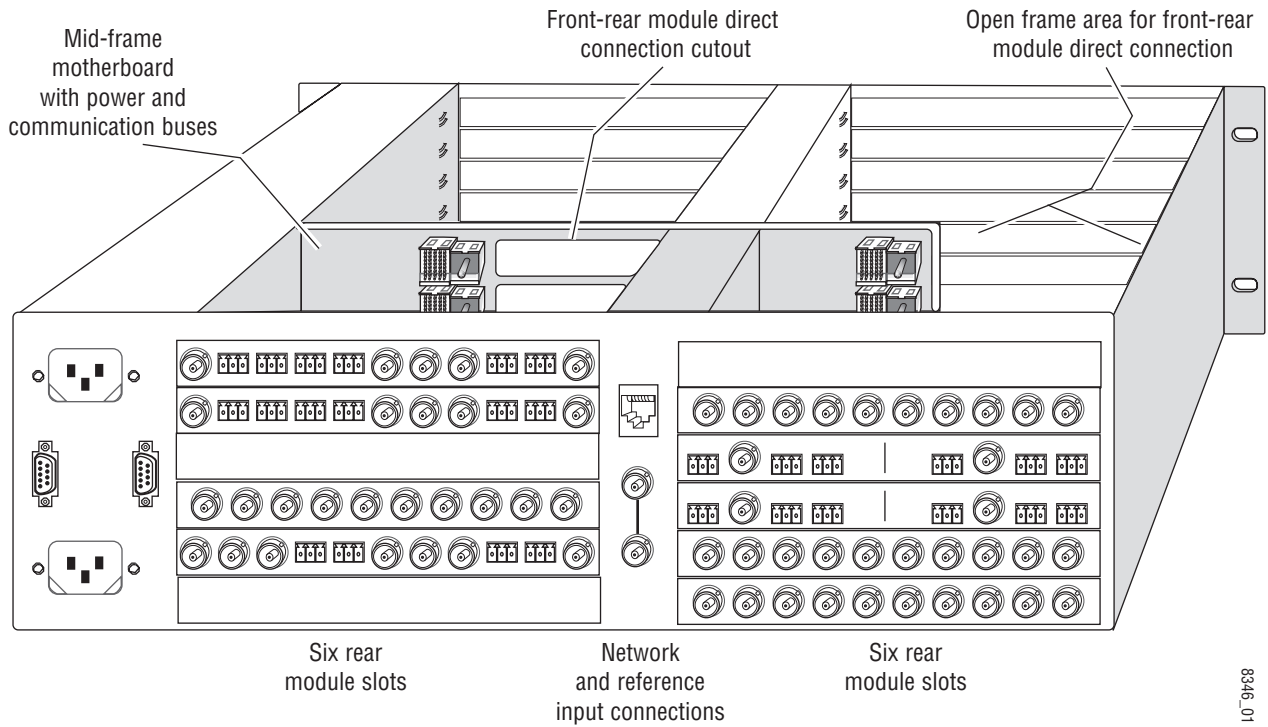


Installing the Front and Rear Modules

To install a KAM-DEC-4ADC module set in the 2000 Series frame:

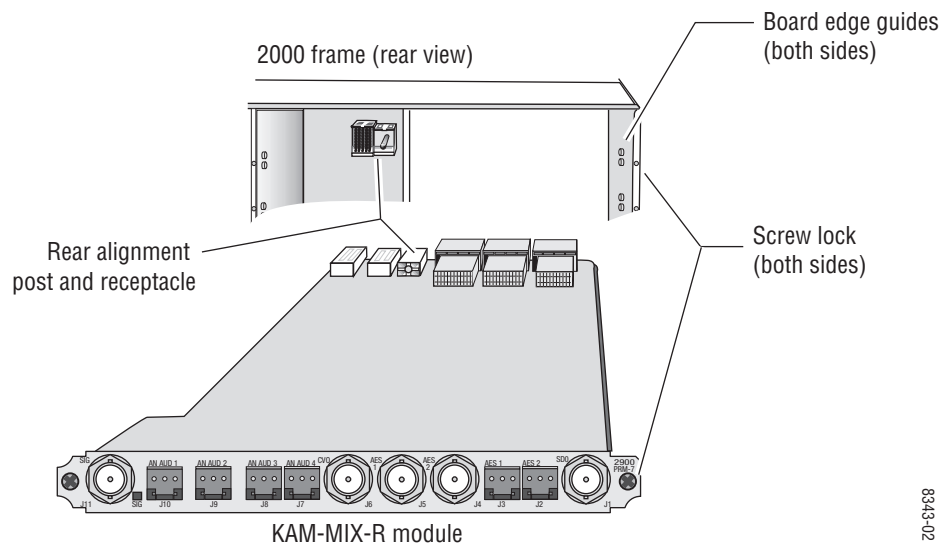
1. Locate a vacant slot in the rear of the 3 RU frame (Figure 2).

Figure 2. 3 RU Frame, Rear View



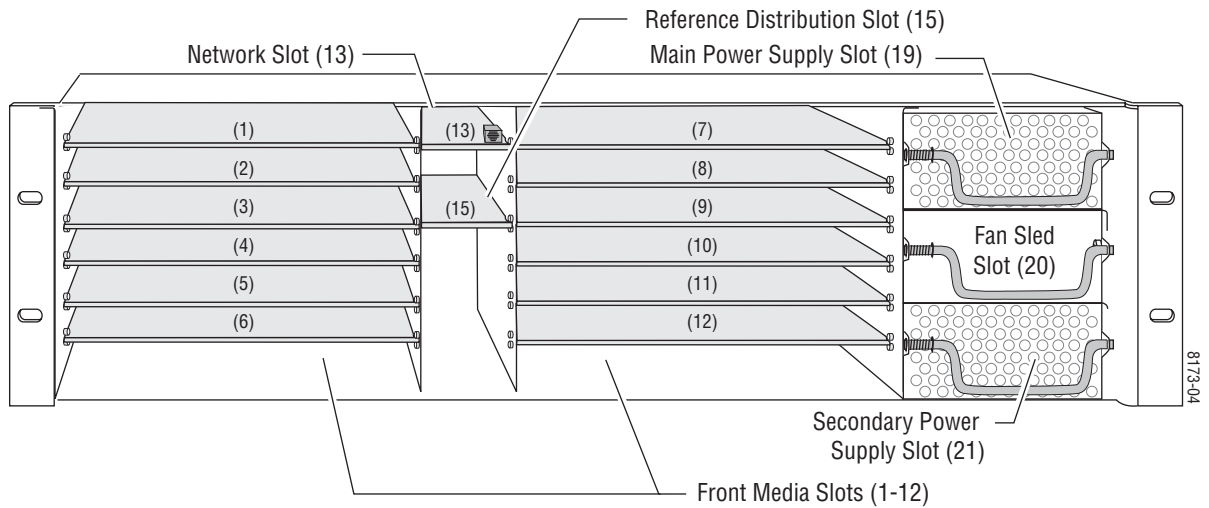
2. Insert the KAM-MIX-R passive rear module into the vacant rear slot of the frame as illustrated in Figure 3.

Figure 3. Installing Passive Rear Module



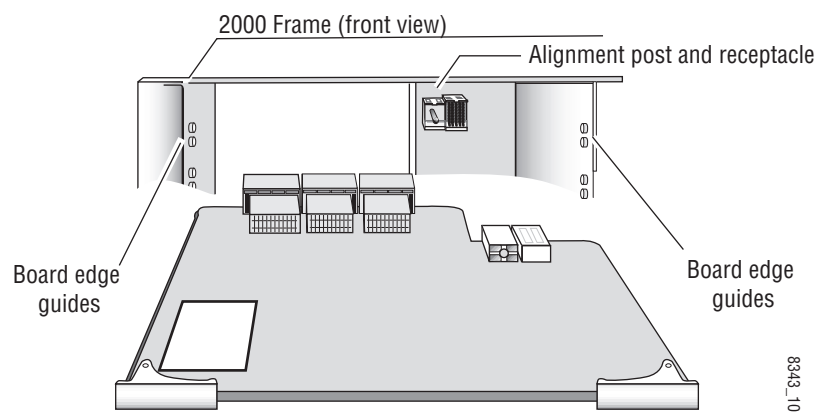
3. Verify that the module connector seats properly against the midplane.
4. Using a crossblade screwdriver, tighten the two screw locks to secure the module in the frame.
5. Locate the corresponding front media slot (1 -12) in the frame. The 3 RU frame front view is illustrated in [Figure 4](#).

Figure 4. 2000 T3N 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](#).

Composite Video In

Connect the NTSC or PAL composite video to be decoded to connector J11, labeled **V1**.

Analog Audio Inputs

Four balanced analog audio inputs 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](#).

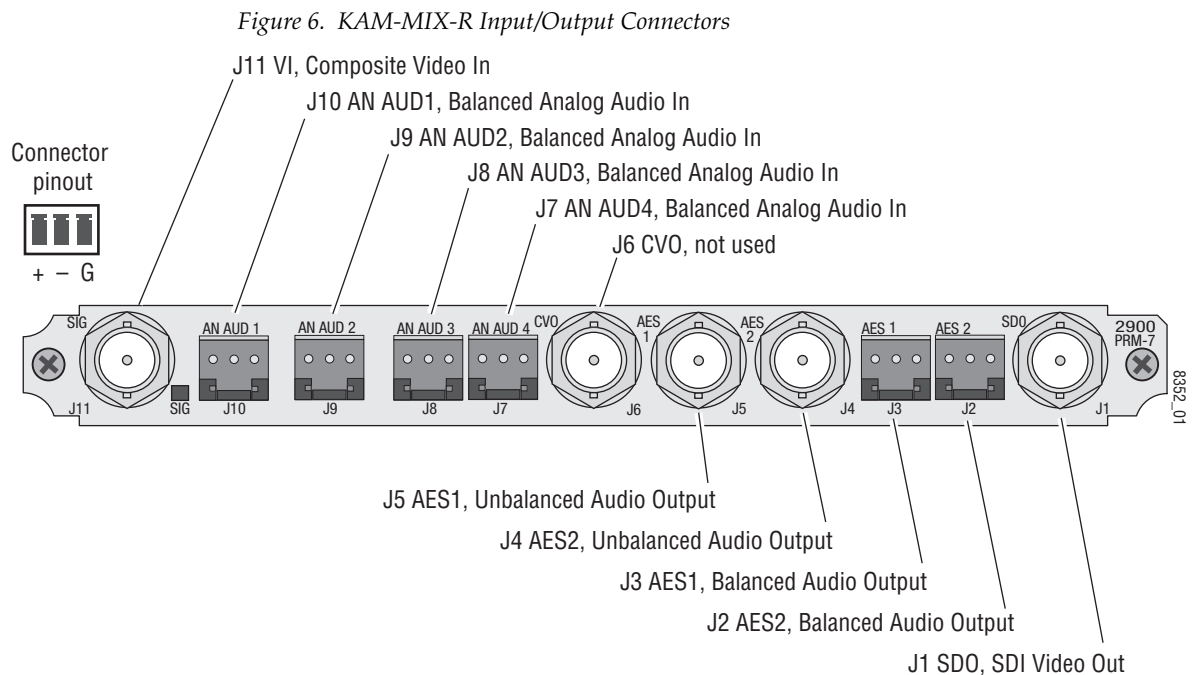
AES Audio Outputs

Two AES audio outputs are available at unbalanced BNC connectors J4 and J5 or balanced 3-pin connectors J2 and J3. The choice between balanced or unbalanced outputs must be made on the [Input/Output Configuration Web Page](#) on page 27.

Connect balanced audio to the 3-pin connector as shown in the connector pinout at left of [Figure 6](#)

SDI Video Out

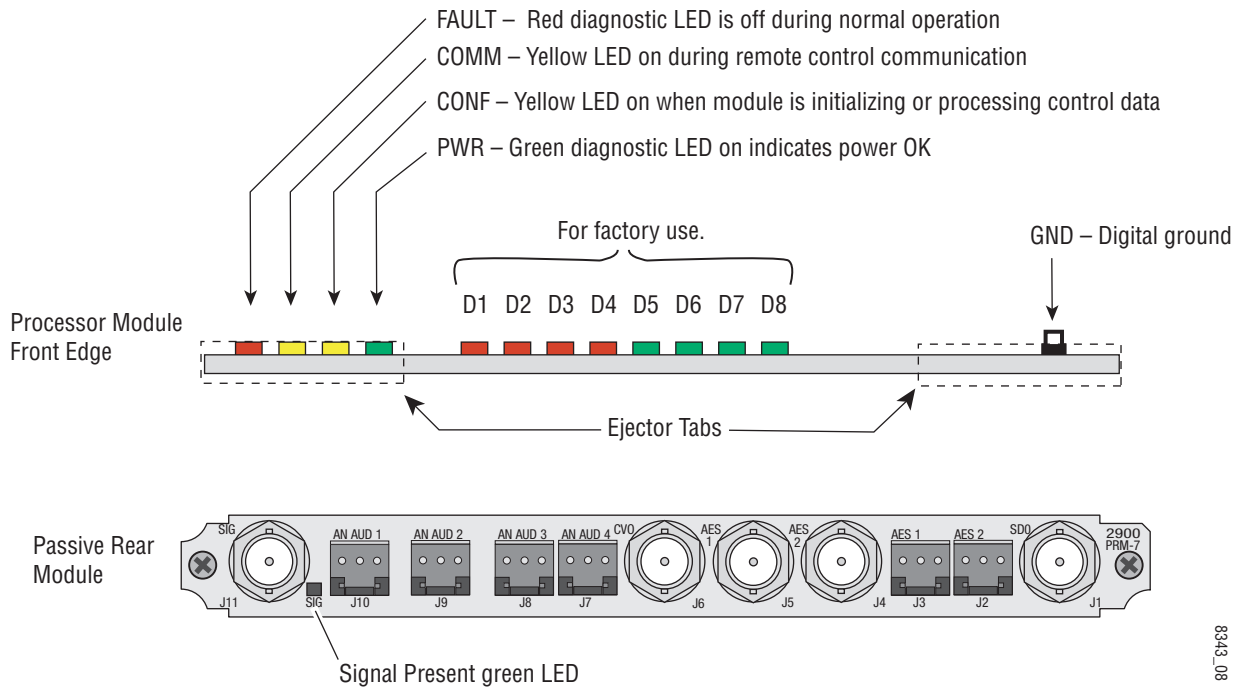
The SDI video is output at BNC connector J1, labeled **SDO**.



Power Up

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

Figure 7. Front and Rear Module Indicator LEDs



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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 58](#)).

Configuration and Adjustments

KAM-DEC-4ADC 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.

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-DEC-4ADC Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
Set KAM-MIX-R rear module AES audio output type	Unbalanced	Unbalanced or Balanced	I/O Config/ Unbalanced or Balanced radio button	N/A
Composite In video gain	100%	44 to 219.5% (0.5% steps)	Composite In/ Input Video Gain (%)	IVidGain
Composite In black level	0.0	-21.6 to + 22.4 (0.1% steps)	Composite In/ Black Level (%)	Black LVL
Set video standard (525 only)	NTSC	NTSC or PAL-M	Composite In/ Video Input Standard Select radio buttons	N/A
Input signal setup (525 only)	On	On or Off	Composite In/ Input Signal Setup radio buttons	N/A
Decode mode	3-Line Low Adaptive Threshold	3-Line Low Adaptive Threshold or 3-Line High Adaptive Threshold	Composite In/ Decode Mode pulldown	DecMode
Configure VBI lines (Field 1 and Field 2)	Pass Through	Blanking, Notch Decode, Pass Through, and Remove setup (525 mode)	VBI Decode/ VBI Line radio buttons	N/A
Select video line rate	Auto	525, 625, or Auto	Video Input Select/ Video Line Rate radio button	N/A
Flywheel video decoder	Off	On or Off	Video Input Select/ Flywheel Video Decoder 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-DEC-4ADC 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	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	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 (%)	VidWCclip
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
Set analog audio input levels (Ch 1–Ch 4)	24.0 dBu	-2 to 28 dBu (0.1 dBu steps)	Analog Audio Inputs Max Input Level (dBu) Ch1-4	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	Off	On or Off	Audio Sync/ Pair 1 and Pair 2 Ch A and Ch B Enable Auto Track On checkbox	N/A

Table 3. Summary of KAM-DEC-4ADC Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
Lock Pair 1 Ch A and Ch B delay adjustments and Pair 2 Ch A and Ch B delay adjustments	Unlocked	Lock 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	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
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
AES Output Resolution	20 bit	20 or 24 bit	Audio Proc/ AES Output Resolution Pair 1 and Pair 2 20 or 24 bit radio buttons	N/A
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 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 AES pairs to output connectors	–	Audio Pairs	AES Outputs/ J4 & J5 (Unbalanced) and J2 & J3 (Balanced) radio buttons	N/A

Newton Control Panel Configuration

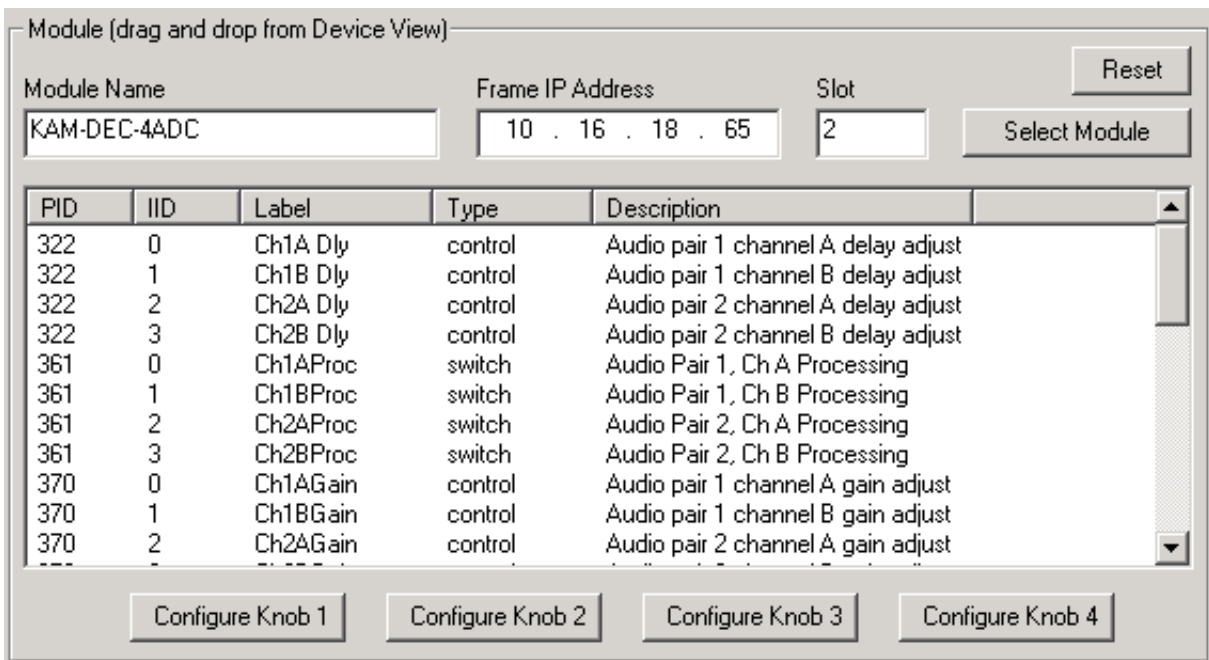
A Newton Control Panel (hard or soft version) can be interfaced to the Kameleon 2000 Series frame over the local network. Control panel access offers the following considerations for module configuration and monitoring:

- 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 20](#). 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 9 QA 2000 T3

- [Status](#)
- [Configuration](#)
- [1 Media Slot 1](#)
- [2 KAM-DEC-4ADC](#)
- [3 Media Slot 3](#)
- [4 Media Slot 4](#)
- [5 Media Slot 5](#)
- [6 Media Slot 6](#)
- [7 Media Slot 7](#)
- [8 Media Slot 8](#)
- [9 Media Slot 9](#)
- [10 Media Slot 10](#)
- [11 Media Slot 11](#)
- [12 Media Slot 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: Bay 9 QA 2000 Frame
 Frame Health Alarm **PASS** Temperature Status **Pass**
 Fan Status **PASS**

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

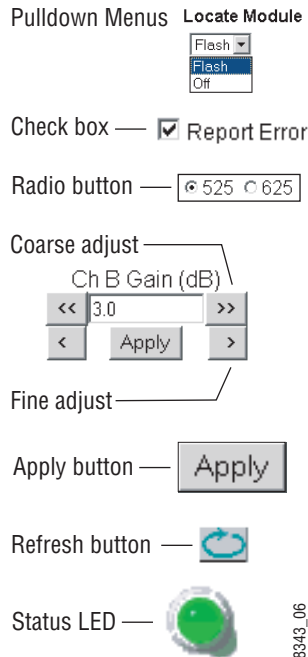
Properties

Vendor Thomson, Grass Valley Software Version 3.2.2
 Media Slots 13

8352_02

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):



- Pull-down 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-DEC-4ADC 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 24),
- I/O Config – shows a graphic representation of inputs and outputs to the module and allows naming of each input (page 27),
- Functional View – shows a block diagram of the module with links to each configuration web page (page 30),
- Module Configuration web pages for setting up the module (beginning on page 31),
- E-MEM – provides a Standard view for Local Recall operations for up to 5 E-MEM registers (page 53) and an Advanced view providing additional **Save to** and **Load from** file operations (page 54),
- Slot Config – provides a Locate Module function and Slot Memory (page 58), and
- Software Update – allows updating of software from a CD-ROM or the web site (page 61).

Figure 11. KAM-DEC-4ADC Web Page Links

2 KAM-DEC-4ADC

Status

I/O Config

Functional View

- Composite In

- VBI Decode

- Video Input Select

- Frame Sync

- Video Proc

- Analog Audio Inputs

- Audio Channel Pairing

- Audio Sync

- Audio Proc

- AES Outputs

E-MEM@

Slot Config

Software Update

Status Web Page

Use
this
link

- [2 KAM-DEC-4ADC](#)
- [Status](#)
- [I/O Config](#)
- [Functional View](#)
- [Composite In](#)
- [VBI Decode](#)
- [Video Input Select](#)
- [Frame Sync](#)

The Status web page for the KAM-DEC-4ADC module (Figure 12 on page 25) 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 21),
- 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 25. 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 identification for the KAM-DEC-4ADC module. Presence and status of any submodules is also reported.

Submodule Properties

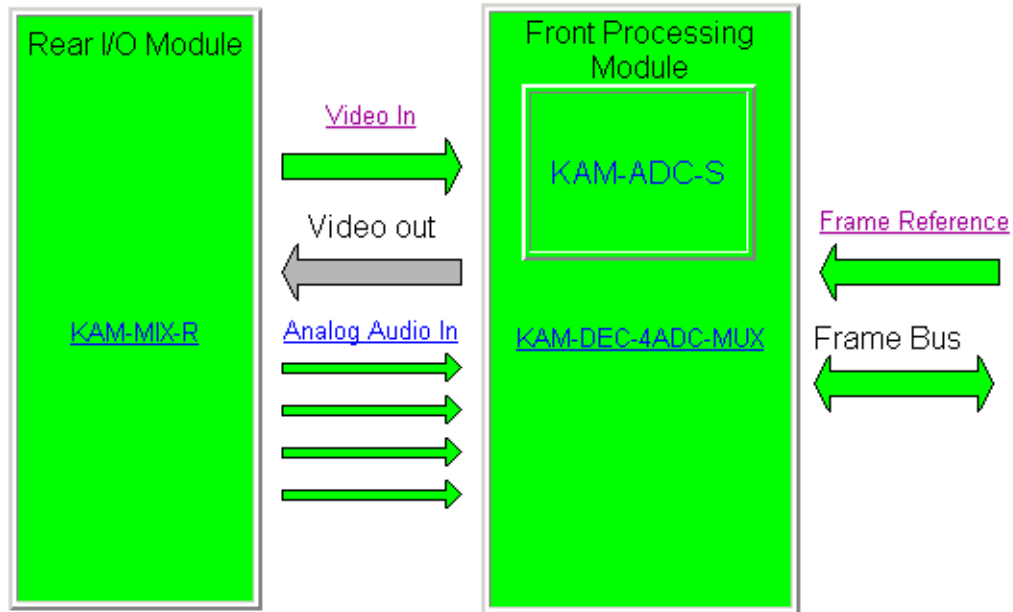
The Submodule properties in the footer provide a textual summary of the color-coded submodule status. Submodule properties provide part number, serial number, and hardware revision.

Figure 12. Module and Signal Status

Status 

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

Kameleon Module Physical Structure



Status:

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

Front Module:

Part Number: [671-6428](#)
 Serial Number: [VR02494110](#)
 Hardware Revision: [41A](#)
 Firmware Version: [X1=2.2.55, X2=2.3.2](#)
 Software Version: [4.0.3](#)

[Warning and Fault summary section](#)

Sub Module 1:

Part Number: [671-6419](#) Serial Number: [VR02180741](#) Hardware Revision: [00C](#)

Warning/Fault Summary

The following warnings and faults are reported in the summary section (refer to [Figure 12 on page 25](#)). 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
- [2 KAM-DEC-4ADC](#)
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [Composite In](#)
 - [VBI Decode](#)
 - [Video Input Select](#)
 - [Frame Sync](#)

Use the I/O Config web page to:

- View a graphical overview of the currently installed rear module connectors and select AES output type,
- 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-DEC-4ADC front module set for unbalanced AES/EBU audio outputs. Figure 14 shows the rear module set for Balanced outputs.

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

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

I/O Config

Model: KAM-DEC-4ADC Description: Frame Sync, Proc Amp, AV/4AA to SD/2AES
 Frame Location: Bay 1 QA 2000 Frame , Slot: 2
 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	Input	Input	Input	Input		Output	Output			Output
Video In	AA In Ch1	AA In Ch2	AA In Ch3	AA In Ch4		AES Out 1 Unbal	AES Out 2 Unbal	AES Out 1 Bal	AES Out 2 Bal	SD Output
Present	Silent	Present	Silent	Silent	Unused	Not Monitored	Not Monitored	Not Monitored	Not Monitored	Not Monitored
						<input checked="" type="radio"/> Unbalanced <input type="radio"/> Balanced				

Legend:

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

Select AES output type

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

I/O Config

Model: KAM-DEC-4ADC Description: Frame Sync, Proc Amp, AV/4AA to SD/2AES
 Frame Location: Bay 1 QA 2000 Frame, Slot: 2
 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	Input	Input	Input	Input				Output	Output	Output
Video In	AA In Ch1	AA In Ch2	AA In Ch3	AA In Ch4		AES Out 1 Unbal	AES Out 2 Unbal	AES Out 1 Bal	AES Out 2 Bal	SD Output
Present	Silent	Silent	Silent	Present	Unused	Unbalanced	Unbalanced	Not Monitored	Not Monitored	Not Monitored
						<input type="radio"/> Unbalanced <input checked="" type="radio"/> Balanced				

Legend:

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

Select AES output type

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 30).

Connectors

The connector row illustrates connector type provided (BNC or 3-pin terminal) for each port. For this rear module, one video input, four analog audio inputs, and one serial digital 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 27.

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	Present	None	None	None	None
Yellow	Not present or 525/625 mismatch	None	None	None	None	None
Light Grey	None	Silent	None	None	Not Monitored	Not Monitored
Medium Grey	None	Not Available	None	None	Not Available	None
Dark Grey	None	None	None	Unused	None	None

Functional View Web Page

- Use this link
- 2 KAM-DEC-4ADC
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [Composite In](#)
 - [VBI Decode](#)
 - [Video Input Select](#)
 - [Frame Sync](#)

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. Grayed 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.

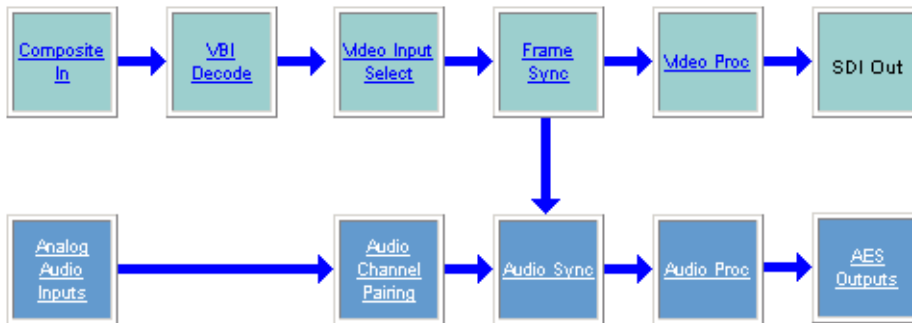
Figure 15. Functional View Web Page

Functional View

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

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 2

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



Composite In Web Page

- Use this link
- 2 [KAM-DEC-4ADC](#)
 - [Status](#)
 - [I/O Config](#)
 - [Functional View](#)
 - [Composite In](#)
 - [VBI Decode](#)
 - [Video Input Select](#)
 - [Frame Sync](#)

Use the Composite In web page (Figure 16 for 525 line rate, Figure 17 on page 33 for 625 line rate) to set parameters for the composite video input on the module as listed below:

- Adjust composite input signal gain and black level,
- Select video input signal format in 525 for NTSC or PAL-M,
- Include or omit black level Setup for 525 line mode, and
- Select high or low adaptive threshold for decoding.

Figure 16. 525 Line Rate Composite In Web Page

Composite In

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

Video Input Status

Input Signal Name	Video In
Input Signal State	Present
Input Detected Standard	525

Settings for Standard: [525](#)

Input Video Gain (%) <input type="text" value="100.0"/> <input type="button" value="Apply"/>	Black Level (%) <input type="text" value="0.0"/> <input type="button" value="Apply"/>
Video Input Signal Standard:	<input checked="" type="radio"/> NTSC <input type="radio"/> PAL-M
Input Signal Setup:	<input type="radio"/> No Setup <input checked="" type="radio"/> Setup
Decode Mode:	<input type="text" value="3-Line Low Adaptive Threshold"/>

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

Video Input Status

The Input Status section is read-only. The Input Signal name is the one assigned on the [Input/Output Configuration Web Page on page 27](#). Input Standard can be affected by settings on the 2000GEN module (if present) and the [Video Input Select Web Page on page 36](#).

Settings

The Video Composite signal may be adjusted as required before decoding by using the controls on this web page. 625 line rate settings do not require and do not show Video Input Signal Option or Input Signal Setup (see [Figure 17 on page 33](#)).

Input Video Gain

Percentage of Input Video signal gain can be adjusted approximately 50 to 200%.

Black Level

Black level can be adjusted $\pm 20\%$ of peak black-to-white amplitude. With a video input at nominal level, 1% equals 7 mV in PAL-B and 0.93 IRE in NTSC.

Video Input Signal Standard

For 525 line rate, select the input signal standard, either **NTSC** or **PAL-M**.

Input Signal Setup

For 525 line rate, if the composite input to the module includes setup, click on the **Setup** radio button. The setup will be removed from the video signal as part of the conversion process.

Decode Mode

Choose between **3-line High** and **3-line Low Adaptive Threshold** decoding mode. The decode mode affects how both vertical and horizontal picture content differences are handled.

Figure 17. 625 Line Rate Composite In Web Page

 **Composite In** 

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

Video Input Status

Input Signal Name	Video In
Input Signal State	Present
Input Detected Standard	625

Settings for Standard: [625](#)

Input 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=">"/>	Black Level (%) <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=">"/>
Video Input Signal:	PAL-B
Decode Mode:	<input type="text" value="3-Line Low Adaptive Threshold"/> ▾

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

VBI Decode for Composite Input

- Use this link
- [Functional View](#)
 - [Composite In](#)
 - [VBI Decode](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)
 - [Analog Audio Inputs](#)
 - [Audio Channel Pairing](#)

Use the VBI decode web page (Figure 18 for 525, Figure 19 on page 35 for 625 line rate) to configure the VBI and Data Line decoding of the composite input 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.

On a line-by-line basis you can remove black level setup (in NTSC or PAL-M video) and select one of the following three decoding options:

- Blank existing VBI and Data Line information,
- Select Notch Decoding of the composite signal, or
- Pass through decoded VBI and Data Lines (active video lines) information as is.

Note The data lines not reserved for carrying data on the Video Input Select web page will appear grayed out. See [Advanced VBI Configuration on page 38](#).

Figure 18. VBI Decode Web Page – 525 Line Rate

 **VBI Decode** 

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

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

Field 1

	VBI Line										Data Line				
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Remove Setup	<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"/>
Blanking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notch Decode	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pass Through	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Field 2

	VBI Line												Data Line			
	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	
Remove Setup	<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"/>	
Blanking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Notch Decode	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Pass Through	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	

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Figure 19. VBI Decode Web Page – 625 Line Rate



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

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 2

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

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

Field 1

	VBI Line																		Data Line				
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Blanking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notch Decode	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pass Through	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Field 2

	VBI Line																		Data Line				
	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
Blanking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notch Decode	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pass Through	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

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Video Input Select Web Page

- Use this link
- [Functional View](#)
 - [Composite In](#)
 - [YBI Decode](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)
 - [Analog Audio Inputs](#)
 - [Audio Channel Pairing](#)

Use the Video Input Select web page (Figure 20 on page 37) to:

- Configure input video line rate,
- Enable or disable Loss of Signal reporting to the Status web page and SNMP monitoring (refer to 2000NET manual for SNMP information),
- Use the Flywheel Video Decoder to optimize noisy signal inputs if required,
- Configure Vertical Blanking Interval (in Advanced mode), and
- Select the output timing reference.

View Selection

In the View Selection display, choose the **Standard** radio button to display the standard settings shown in Figure 20 on page 37. Use the **Advanced** view for configuring the Vertical Blanking Interval for selecting active video lines to carry data (see *Advanced VBI Configuration* on page 38).

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 these 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
- Flywheel Video Decoder – use of the Flywheel Video Decoder is recommended when working with noisy input signals, such as satellite feeds. Once the optimum input signal has been acquired, turn the Flywheel Video Decoder off during normal operation.

For best results, turn the Flywheel Video Decoder on by selecting the **On** checkbox and set the Output Timing Selection source to **Video In**. Locate the optimum video input signal, then turn the flywheel off.

When the Flywheel Video Decoder is turned on, a caution will appear as shown in Figure 20. Since the Flywheel decoder generates its own video timing for the incoming video stream to deal with noise and interruptions, leaving it on during normal operation may cause undesirable resynchronization delays if the source changes or is lost.


Figure 20. Video Input Select – Standard View

 **Video Input Select** 

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

View Selection: Standard Advanced (VBI Config)

Video Selection

	Current	Selection
Input Name	Video In	
Input Status	Present	<input type="checkbox"/> Report Loss of Signal
Video Format	Composite	Composite
Video Line Rate	625	<input type="radio"/> 525 <input checked="" type="radio"/> 625 <input type="radio"/> Auto
Flywheel Video Decoder  Flywheel Video Decoder mode should only be ON during signal adjustment. Turn OFF once signal has been properly adjusted to resume normal module operation		<input checked="" type="checkbox"/> On
Frame Reference	Present	<input type="checkbox"/> Report Loss of Signal
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	-	-	-

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- Frame Reference –
 - 2000GEN frame reference signal presence reported,
 - Enable/disable Loss of Signal 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 21).

Figure 21. Standard and Advanced View Selection

Video Input Select

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

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 2

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 22 on page 39](#) for 525 line rate and [Figure 23 on page 39](#) 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 22 on page 39](#) and lines 24/337 and 25/338 in [Figure 23 on page 39](#). Lines not reserved for data will be grayed out on the VBI Decode web page ([VBI Decode for Composite Input on page 34](#)).

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 22. 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					

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Figure 23. 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						

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Frame Sync Web Page

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 - [Video Proc](#)
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Use the Frame Sync web page ([Figure 24 on page 41](#) and [Figure 25 on page 41](#)) 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 adjustment 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 36](#).

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 24 on page 41](#)). 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 25 on page 41](#)). AutoBlack outputs a black signal while AutoFreeze outputs the last complete video field.

Figure 24. Frame Synchronizer Web Page – Video In Reference

 **Frame Sync** 

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

Timing Adjustment



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

Freeze Mode Selection

Freeze Mode None Field 1 Field 2 Frame

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Figure 25. Frame Synchronizer Web Page – Internal Frame Reference

 **Frame Sync** 

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

Timing Adjustment

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

Freeze Mode Selection

Freeze Mode None AutoBlack AutoFreeze Field 1 Field 2 Frame

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Video Processing Web Page

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Use
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link

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),
- Adjust component video chroma phase (hue),
- 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 26 on page 43). 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 27 on page 45.

Standard View

In Standard View (Figure 26 on page 43), 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 26. Video Processing Web Page – Standard View

 **Video Proc** 

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

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 2

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"/>

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Advanced View

In Advanced View (Figure 27 on page 45), 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 27 on page 45. 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 27. Video Processing Web Page – Advanced View



Model: [KAM-DEC-4ADC](#) Description: [Frame Sync, Proc Amp, AV/4AA to SD/2AES](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [2](#)
 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 (%) << 100.0 >> < Apply >	Saturation/Chroma Gain (%) << 100.0 >> < Apply >	B-Y Gain (%) << 100.0 >> < Apply >	R-Y Gain (%) << 100.0 >> < 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 (%) << -6.8 >> < Apply >	Hard/Video Black Clip (%) << -37.3 >> < Apply >

Reset to Default

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Analog Audio Inputs Web Page

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Use the Analog Audio Inputs web page (Figure 28) to set maximum analog audio input levels.

- **Signal Present** is reported if the incoming signal is greater than -40 dBFS.
- **Clipping** is reported for incoming signals in excess of approximately 0.5 dB of maximum level.
- **Maximum Input Level** is adjustable -2.0 to +28 dBu for each analog audio input. Kameleon uses this value to adjust the signal level into the A-to-D converter for the best signal-to-noise and dynamic range.

Figure 28. Analog Audio Inputs Web Page

Analog Audio Inputs

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

Analog Audio Inputs

Input	Name	Max Input level	Signal Present > -40dBFS	Clipping
J10	AA In Ch1	Max Input Level (dBu) << 24.0 >> < Apply >	Signal Present	Not Clipping
J9	AA In Ch2	Max Input Level (dBu) << 24.0 >> < Apply >	Signal Present	Not Clipping
J8	AA In Ch3	Max Input Level (dBu) << 24.0 >> < Apply >	Signal Present	Not Clipping
J7	AA In Ch4	Max Input Level (dBu) << 24.0 >> < Apply >	Signal Present	Not Clipping

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Audio Channel Pairing Web Page

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Use
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The channel pairing web page (Figure 29) allows the input audio channels to be arbitrarily recombined into new pairs and swapped or set to **Silence**. The rows represent the audio input channels and the columns represent the audio output channels. The columns are grouped together into two different 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 29. Audio Channel Pairing Web Page

Audio Channel Pairing

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

Pair Input Audio Channels

Names	Pair 1 ChA	Pair 1 ChB	Pair 2 ChA	Pair 2 ChB	Streams
AA In Ch1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Str1.Ch1
AA In Ch2	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Str1.Ch2
AA In Ch3	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Str2.Ch1
AA In Ch4	<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

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Audio Sync Web Page

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Use the Audio Sync web page ([Figure 30 on page 49](#)) 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 30. Audio Synchronizer Web Page

 **Audio Sync** 

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

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 2

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

Pair 1			Pair 2		
Ch A	AA In Ch1		Ch A	AA In Ch3	
Ch B	AA In Ch2		Ch B	AA In Ch4	
	Ch A	Ch B		Ch A	Ch B
Enable Auto Track	<input checked="" type="checkbox"/> On		Enable Auto Track	<input checked="" type="checkbox"/> On	
Auto Tracking Delay	30 mS		Auto Tracking Delay	30 mS	
Total Delay	30 mS	30 mS	Total Delay	30 mS	30 mS
Channel Lock	<input checked="" type="checkbox"/> Locked		Channel Lock	<input checked="" type="checkbox"/> Locked	
Ch A Delay Adjust (mS) <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=">"/>			Ch A Delay Adjust (mS) <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=">"/>		
Ch B Delay Adjust (mS) <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=">"/>			Ch B Delay Adjust (mS) <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=">"/>		

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Audio Processing Web Page

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Use the Audio Processing web page ([Figure 31 on page 51](#)) 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 31 on page 51](#).

Figure 31. Audio Processing Web Page



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

Pair 1		Pair 2	
Ch A	AA In Ch1	Ch A	AA In Ch3
Ch B	AA In Ch2	Ch B	AA In Ch4
Gain Settings	<input type="checkbox"/> Locked	Gain Settings	<input type="checkbox"/> Locked
Ch A Gain (dB) << 0.0 >> < Apply >		Ch A Gain (dB) << 0.0 >> < Apply >	
Ch B Gain (dB) << 0.0 >> < Apply >		Ch B Gain (dB) << 0.0 >> < Apply >	
	Ch A'	Ch B'	
Presence	True	True	
Clip	False	False	
Processing	Pass ▾	Pass ▾	
AES output resolution	<input type="radio"/> 20 bit <input checked="" type="radio"/> 24 bit		AES output resolution
	<input type="radio"/> 20 bit <input checked="" type="radio"/> 24 bit		

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

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AES Outputs Web Page

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Use
this
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Use the AES Outputs web page (Figure 32) to do the following:

- Select audio pairs for output to the assigned audio connectors (refer to *Input/Output Configuration Web Page on page 27* for connector information and audio signal name assignment).
- Status reporting on this page will show the following:
 - Whether **Unbalanced** or **Balanced** audio outputs are enabled (set on *Input/Output Configuration Web Page on page 27*),
 - Output Sample Rate for the AES outputs,
 - Output resolution as selected on the *Audio Processing Web Page on page 50*. A link to this page is provided.

Figure 32. AES Outputs Web Page

AES Outputs

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

Audio Pairs	J3 AES 1 AES Out 1 Bal	J2 AES 2 AES Out 2 Bal	Output Resolution
AA In Ch1 & AA In Ch2	<input checked="" type="radio"/>	<input type="radio"/>	20 bit
AA In Ch3 & AA In Ch4	<input type="radio"/>	<input checked="" type="radio"/>	20 bit
Balanced / Unbalanced	Balanced	Balanced	
Output Sample Rate	48 kHz	48 kHz	

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E-MEM Configuration Web Page

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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 33), 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-DEC-4ADC. 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 34 on page 54).

Figure 33. E-MEM Web Page (Standard View)



Model: [KAM-DEC-4ADC](#) Description: [Frame Sync, Proc Amp, AV/4AA to SD/2AES](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [2](#)
 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"/>
<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 34) 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 34. E-MEM Web Page (Advanced View)



Model: [KAM-DEC-4ADC](#) Description: [Frame Sync, Proc Amp, AV/4AA to SD/2AES](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [2](#)
 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"/>	<input type="button" value="Learn"/>	<input data-bbox="998 1224 1149 1262" type="button" value="Save to..."/>	<input data-bbox="1209 1224 1360 1262" type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 2:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="998 1297 1149 1335" type="button" value="Save to..."/>	<input data-bbox="1209 1297 1360 1335" type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 3:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="998 1371 1149 1409" type="button" value="Save to..."/>	<input data-bbox="1209 1371 1360 1409" type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 4:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="998 1444 1149 1482" type="button" value="Save to..."/>	<input data-bbox="1209 1444 1360 1482" type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 5:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="998 1518 1149 1556" type="button" value="Save to..."/>	<input data-bbox="1209 1518 1360 1556" type="button" value="Load from..."/>

Restore factory settings

Restore factory names

File Operations

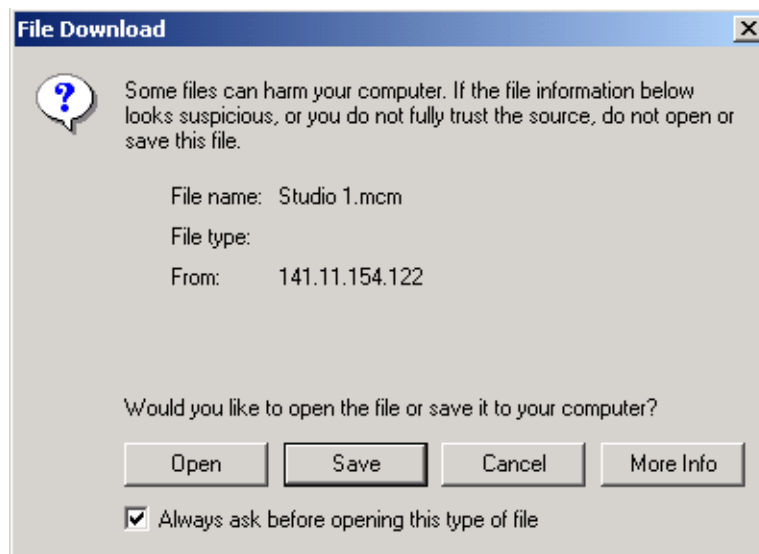
Save File

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.

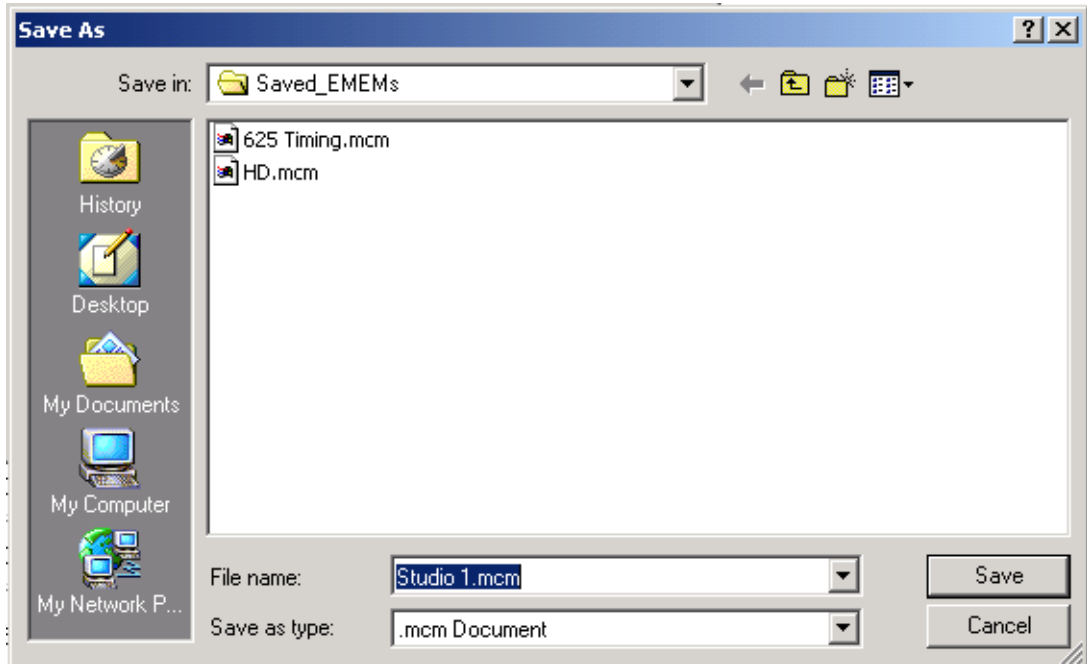
This will bring up a File Download screen similar to [Figure 35](#). Select **Save**.

Figure 35. File Download Screen



This will bring up the Save As screen as shown in Figure 36. 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 36. 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 37).

Figure 37. Load E-MEM Web Page

Load E-MEM 1

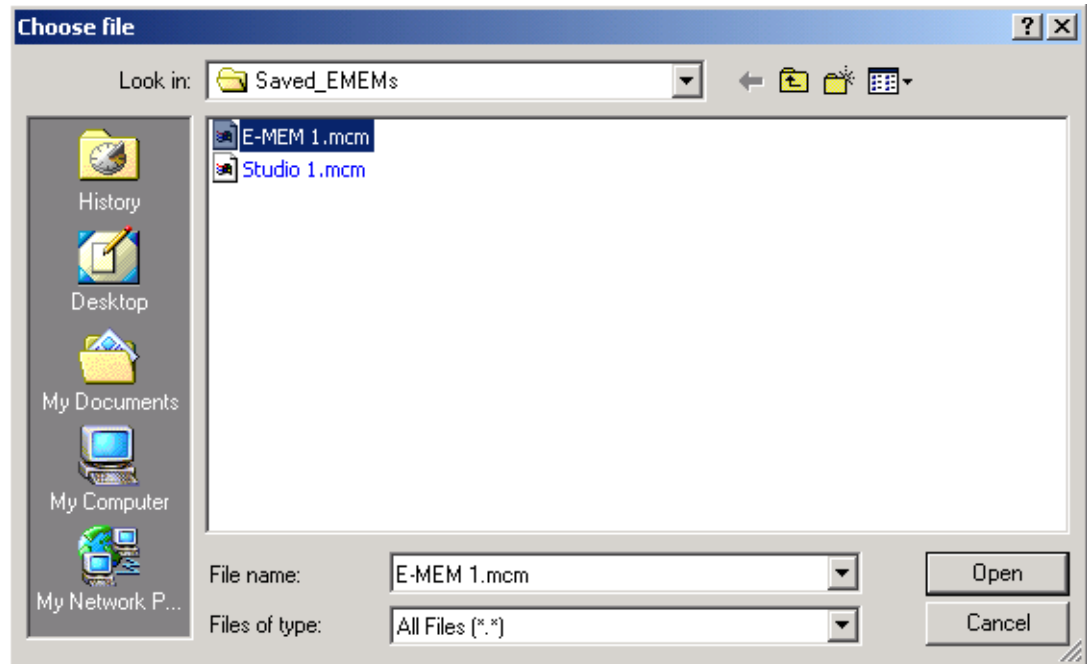
Model: [KAM-DEC-4ADC](#) Description: [Frame Sync, Proc Amp, AV/4AA to SD/2AES](#)
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 2

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 38), select the E-MEM file to download and select **Open**.

Figure 38. Choose File Screen



This will place the path and filename in the Load E-MEM screen (Figure 37 on page 56). 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 —

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

Use the Slot Config web page (Figure 39 on page 59) 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 39. Slot Configuration Web Page

Slot Config

Model: [KAM-DEC-4ADC](#) Description: [Frame Sync, Proc Amp, AV/4AA to SD/2AES](#)
 Frame Location: [Bay 9 QA 2000 Frame](#) , Slot: 2

Slot Identification

Name:

Asset Tag:

Locate Module

▼

Slot Memory

Restore upon Install

Frame Health Reporting

	Slot Fault	Signal Loss	Reference Loss
Enabled	☑	☑	☑

Hardware Switch Controls

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

Slot SNMP Trap Reports

	Slot Fault	Module Removed	Signal Loss	Reference Loss
Enabled	☑	☑	☑	☑
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

Use
this
link

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

The Software Update web page (Figure 40) 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 40. Software Update Web Page

Software Update

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

Frame Location: [Bay 9 QA 2000 Frame](#) , Slot: [2](#)

Software Version: [4.0.3](#) 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="10.16.4.103"/>	10.16.4.103
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 Output Specifications

Parameter	Value
SDI Output	
Number of outputs	1
Signal type	Serial digital video conforming to SMPTE259M 10-bit 4:2:2 component digital signal
Signal level	800 mV \pm 10%
Output impedance	75 Ω
Connector type	75 Ω BNC on rear module
DC offset	< 0.5 V when terminated into 75 Ω
Output return loss	> 15 dB up to 270 MHz
Jitter	Conforms to SMPTE17.12/002 <400 ps above 1 KHz
Rise/fall time	700 – 900 ps (20 – 80% amplitude)
SDI I/O Control Parameters	
Vertical blanking processing	Line by line blank

Table 7. Composite Input Specifications

Parameter	Value
Composite Input	
Signal types	Composite analog video conforming to: NTSC (525/59.9) SMPTE170M PAL-B/PAL-I (625/50) CCIR 624-4 PAL-M (525/59.9) CCIR 624-4 (note, PAL-M input not supported by 2000GEN)
Level	0.5 V p-p to 2 V p-p, 1 V p-p nominal
Impedance	75 Ω terminating
Signal source	75 Ω BNC on rear module or internal signal
Return loss	> 40 dB to 5.75 MHz
Common mode rejection ratio	> 60 dB to 60 Hz
HUM peak	< 4.5 V p-p
Composite In Performance	
Sampling	27 MHz (2x oversampling)
Input quantization	12 bits
Overall processing accuracy	10 bits
Luma frequency response	\pm 0.1 dB to 5.5 MHz
Chroma (R-Y,B-Y) response	-1.5 dB @ 1.3 MHz
Group delay error	< 5 ns to 5.5 MHz
Chroma/luma delay	< 10 ns
Luma non-linearity	< 0.15%
K factor (2T)	< 0.5%

Table 7. Composite Input Specifications

Parameter	Value
Line tilt	< 0.5%
Field tilt	< 0.5%
Differential phase	< 1 degree
Differential gain	< 1%
Signal/noise ratio (CCIR410 or EIA RS-250B)	> 60 dB to 5.5 MHz
Phasing	None
Picture centering error	0.0 ±20 ns non-adjustable
Decoding modes	Three-line adaptive with two pre-programmed adaption threshold levels high/low
Blanking start/end	SMPTE170M or CCIR624, non-adjustable
Composite In Control	
Overall video gain range	44% to 219% in 0.5% steps, 100% default
Black range	-21.5% to +22% of luma full-scale in 0.1% steps, 0 default
Hue range	-180 to + 179 degrees in 0.1 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/notch decode/pass

Table 8. Audio ADC Specifications

Parameter	Value
Analog Input (ADC)	
Number of inputs	4 per submodule
Level for full-scale output	-2 dB to +28 dBu, adjustable in 0.1 dBu steps
Input impedance	> 22 k Ω
Common mode input voltage	20 V maximum
Differential DC	0.25 V maximum
Common mode rejection ratio	> 72 dB, 20 Hz to 20 kHz
Connector type	Multi-pin (receptacle)
Analog Audio Input Conversion Performance	
Signal-to-noise ratio	> 102 dB, 20 Hz to 20 kHz > 105 dB, "A" weighted
THD+noise, swept 20 Hz-20 kHz	< -75 dB, 20 to 20 kHz, @ +28 dBu
Interchannel crosstalk	< -95 dB, 20 Hz to 20 kHz
Intermodulation distortion	< -100 dB CCIF two-tone test, 19 & 20 kHz tones
Interchannel gain mismatch	0.1 dB
Frequency response	± 0.1 dB, relative to 1 kHz, 20 Hz to 20 kHz
DC offset	± 1 mV
Emphasis	Not selectable
Output resolution	24 bits
Effective number of bits	18
Static withstand	5 kV (330 Ω , 150 pF) any input or output

Table 9. 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, SDI out	0 to 151 μ s in 37 ns steps

Table 10. Main Video Processing Specifications

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

Table 11. Audio Processing Specifications

Parameter	Value
Audio Processing	
Number of channels supported	4
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. AES/EBU Output Specifications

Parameter	Value	
AES/EBU Output	Balanced (AES3-1992)	Unbalanced (AES3id 2001)
Signal type	AES3 1992, 110 Ω	AES3id 2001, 75 Ω
Signal level	3 V p-p ± 0.2 V @ 110 Ω	1 V p-p ± 0.2 V @ 75 Ω
Rise/fall time	5 ns to 30 ns, 110 Ω load	37 ns ± 7 ns, 75 Ω load
Output return loss	> 25 dB (100 kHz to 6 MHz)	>15 dB (100 kHz to 6 MHz)
DC offset	< 50 mV	< 50 mV
Sample rate	48 kHz	48 kHz
Bits/sample	20/24 bits/sample, selectable	20/24 bits/sample, selectable
AES/EBU Performance		
Static withstand	5 kV (330 Ω , 150 pF)	

Table 13. Electrical Length Specifications

Parameter	Value
Electrical Length	
Composite In to SDI Out	1 line + 10 μ s
Analog Audio to AES/EBU	1.2 ms

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

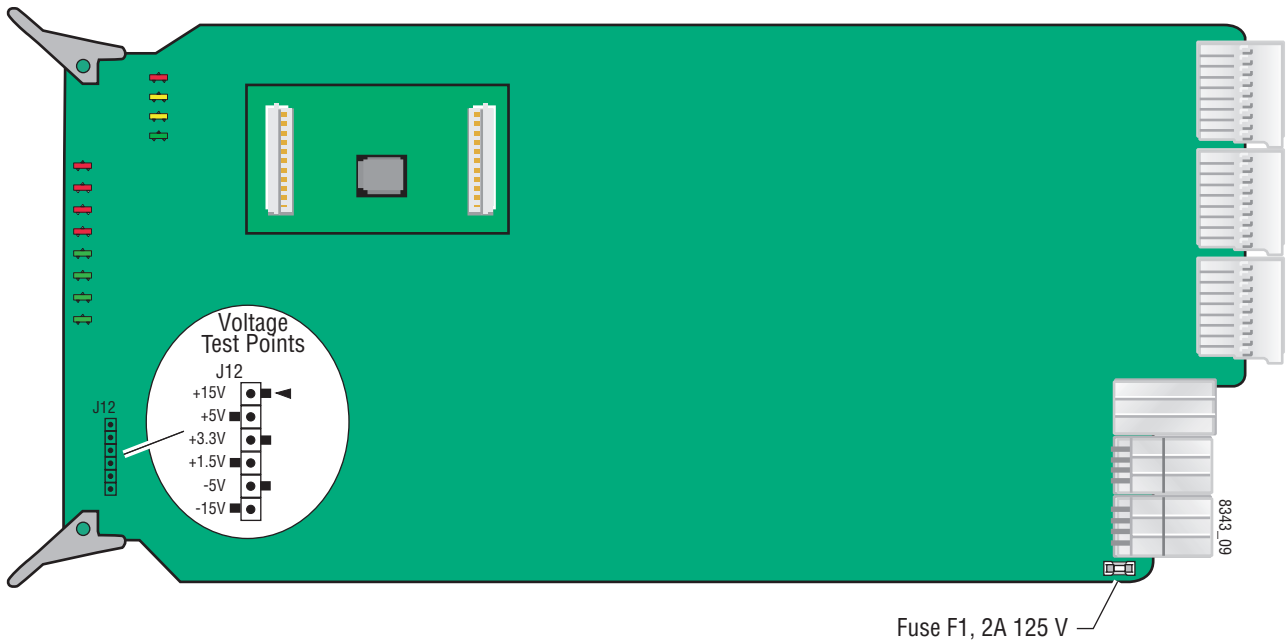
The Kameleon modules make extensive use of surface-mount technology and programmed parts to achieve compact size and adherence to demanding technical specifications. Circuit modules should not be serviced in the field except to check and replace fuses.

Troubleshooting

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

- Check frame and module power at the front edge testpoints (Figure 41).
- If power is not present, check the fuse on the +24 V input (Figure 41).
- Check for presence and quality of input signals.
- Verify that source equipment is operating correctly.
- Check cable connections.

Figure 41. 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.

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