

# KAM-DEC-2AES

KAMELEON SERIES MODULES

Instruction Manual

SOFTWARE VERSION 4.0.3

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*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		

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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 *Kameleon 2000 Series Frames Instruction Manual*).



# *KAM-DEC-2AES Kameleon Series Module*

## **Introduction**

This manual provides installation, operation and configuration information for the KAM-DEC-2AES Kameleon Series module.

The KAM-DEC-2AES modules provides broadcast quality NTSC/PAL to serial digital video conversion supporting balanced or unbalanced 2 channel AES I/O.

This module features:

- NTSC/PAL video conversion to broadcast quality serial digital,
- Two 48 kHz AES digital audio input and output streams (balanced or unbalanced),
- 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-2AES 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 3 on page 11](#)).

# Installation

To install the Kameleon modules, perform the following steps:

1. Place the KAM-AES-R passive rear module in a rear frame slot and tighten the screws on each side of the rear module.
2. 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.

## System Requirements

For proper operation of the KAM-DEC-2AES 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-2AES Module set	12	4



## Module Placement in the 2000T3NG Kameleon Frame

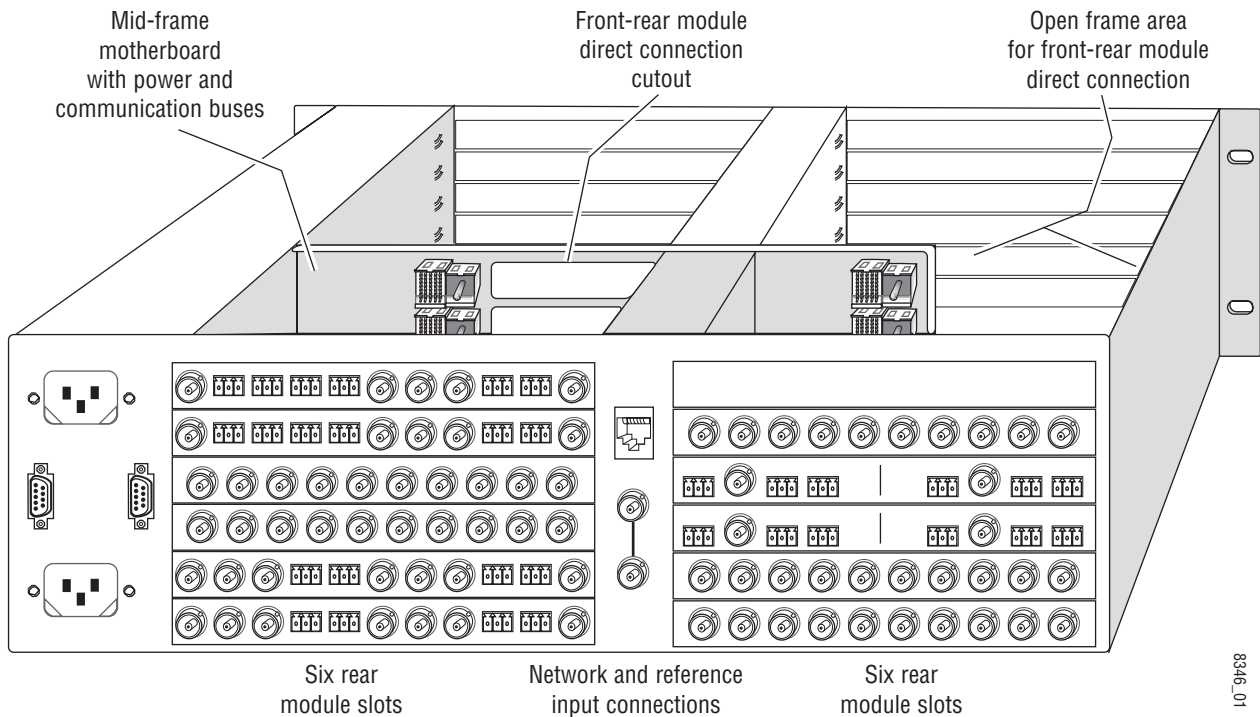
There are twelve slot locations in both the front and rear of a 3 RU frame to accommodate 2000 and Kameleon Series media modules (audio/video signal handling modules). The Kameleon media modules consist of a two-module set with a front processing media module and a passive rear module that can be plugged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

### Installing the Front and Rear Modules

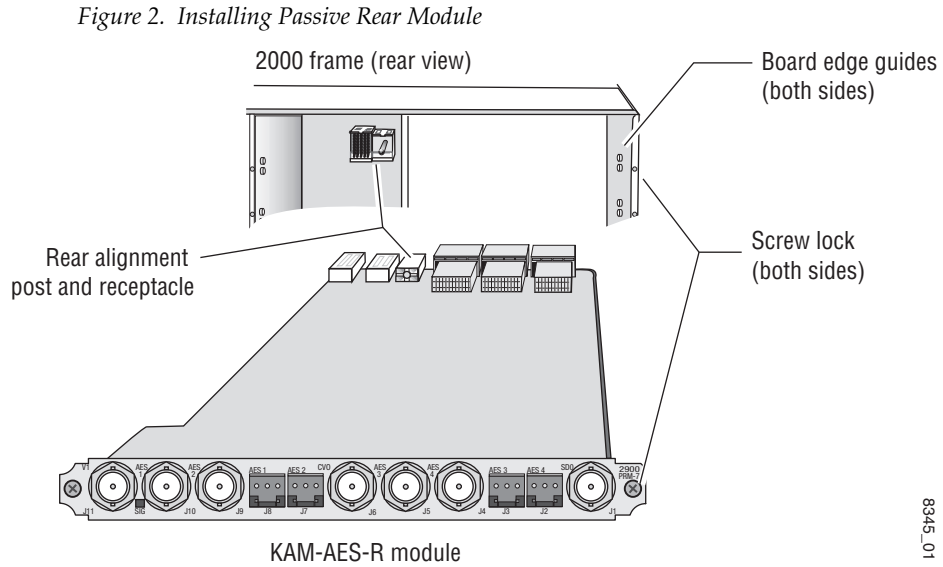
To install a KAM-DEC-2AES module set in the 2000 Series frame:

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

Figure 1. 2000T3NG Kameleon Frame, Rear View



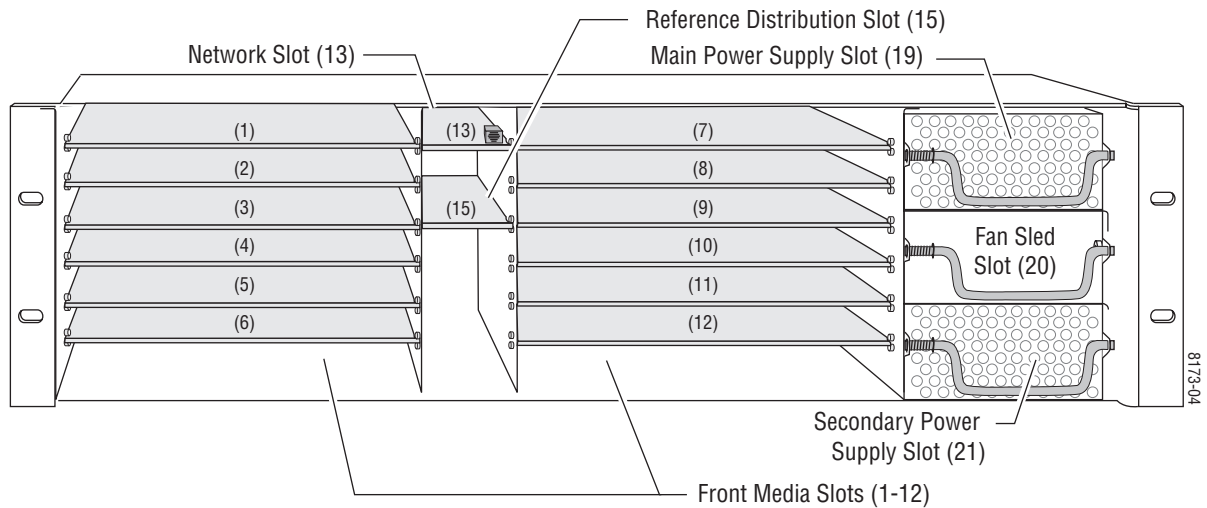
2. Insert the KAM-AES-R passive rear module into the vacant rear slot of the frame as illustrated in Figure 2.



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.

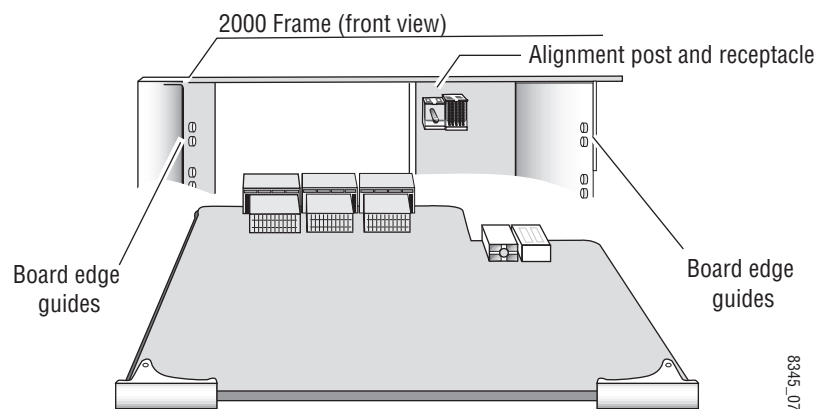
5. Locate the corresponding front media slot (1 -12) in the frame. The 3 RU frame front view is illustrated in [Figure 3](#).

Figure 3. 2000T3NG Kameleon Frame, Front Slots



6. With the component side up, insert the processing module in the corresponding front slot (see [Figure 4](#)).
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 4. Installing Front Media Module



## Cabling

All cabling to the module is done on the KAM-AES-R passive rear module shown in [Figure 5](#).

### Composite Video In

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

### AES Audio Inputs

Two unbalanced AES audio inputs are available at connectors J9 and J10 or two balanced AES audio inputs are available at connectors J7 and J8. Input type must be selected as explained on the [Input/Output Configuration Web Page on page 27](#). Connect balanced or unbalanced AES audio to the correct type of audio connectors.

### AES Audio Outputs

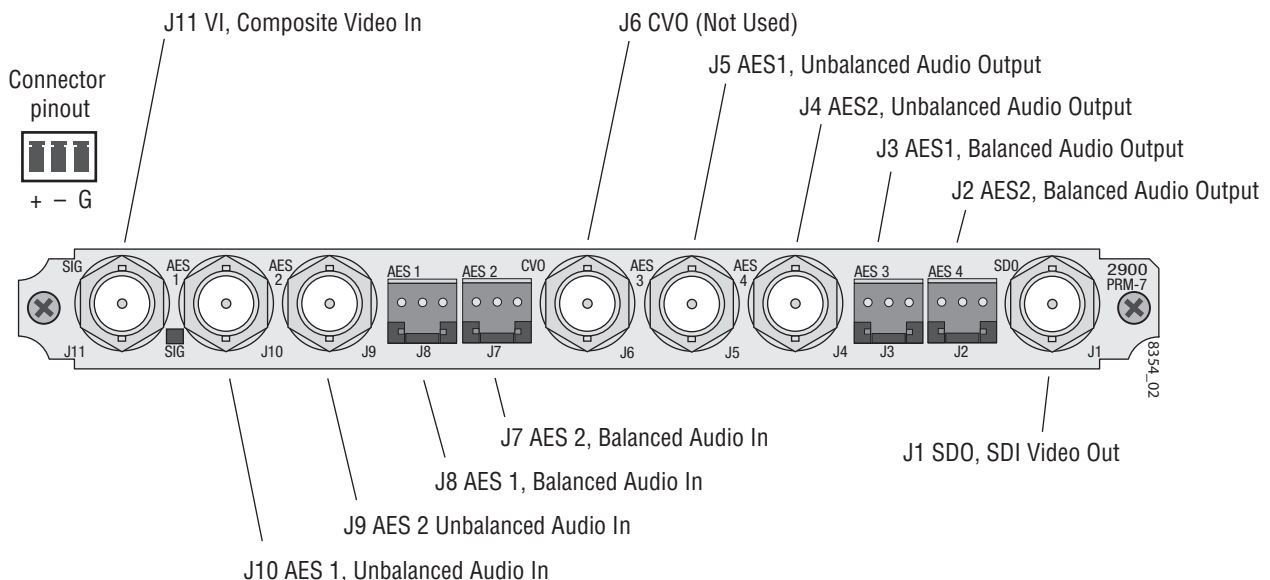
Two AES audio outputs are available at unbalanced BNC connectors J4 and J5 or balanced 3-pin connectors J2 and J3. The choice between balanced or unbalanced outputs must be made on the [Input/Output Configuration Web Page on page 27](#).

Connect balanced audio to the 3-pin connector as shown in the connector pinout.

### SDI Video Out

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

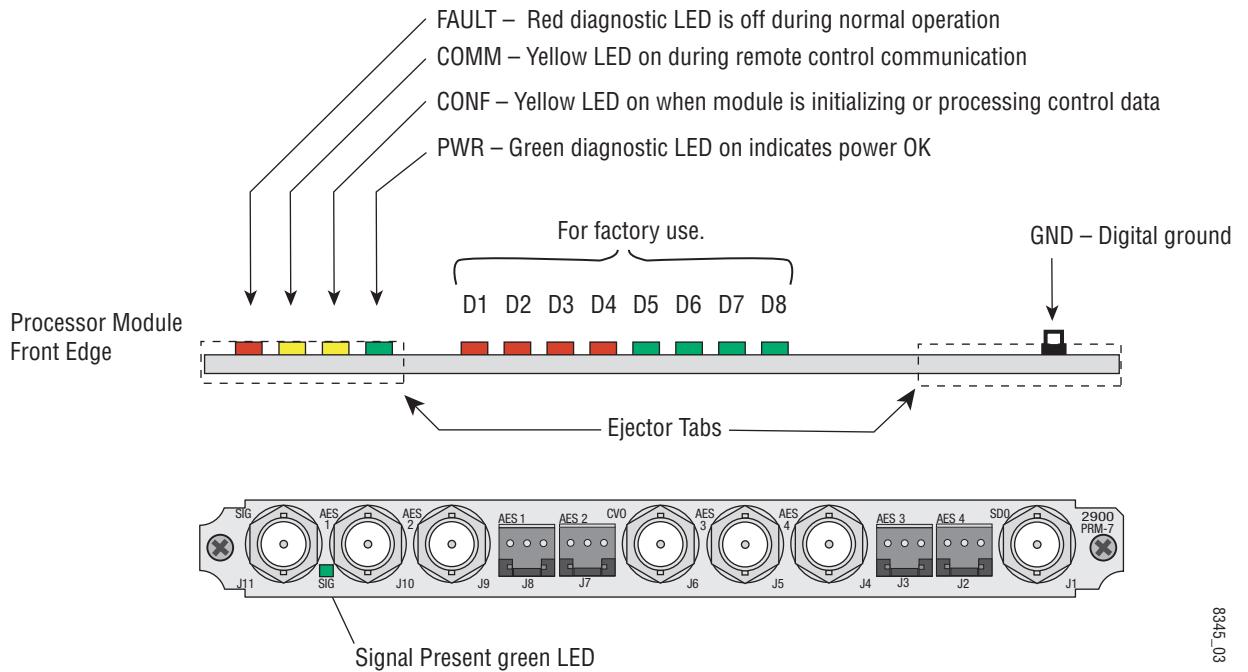
Figure 5. KAM-AES-R Input/Output Connectors



# Power Up

The front LED indicators are illustrated in [Figure 6](#).

Figure 6. 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
<b>Fault (red)</b>	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
<b>COMM (yellow)</b>	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
<b>CONF (yellow)</b>	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.)
<b>PWR (green)</b>	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-2AES 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-DEC-2AES Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
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 pull-down	DecMode
Blank 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
Input status loss of signal report	Enable	Enable or Disable	Video Input Select/ Input Status Report 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
Flywheel video decoder	Off	On or Off	Video Input Select/ Flywheel video decoder checkbox	N/A
Frame reference loss of signal report	Enable	Enable or Disable	Video Input Select/ Frame Reference Loss of Signal 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

Table 3. Summary of KAM-DEC-2AES Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
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
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 (%)	YWClip
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
AES input sample rate	Disable	Enable or Disable	AES Inputs/ Sample Rate Convert disable radio button	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



Table 3. Summary of KAM-DEC-2AES Configuration Controls

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
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
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
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
Set output resolution for Pair channels	20 bit	20 bit or 24 bit	Audio Proc/ Pair 1 and Pair 2 Ch a and Ch B 20 bit or 24 bit radio button	N/A
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

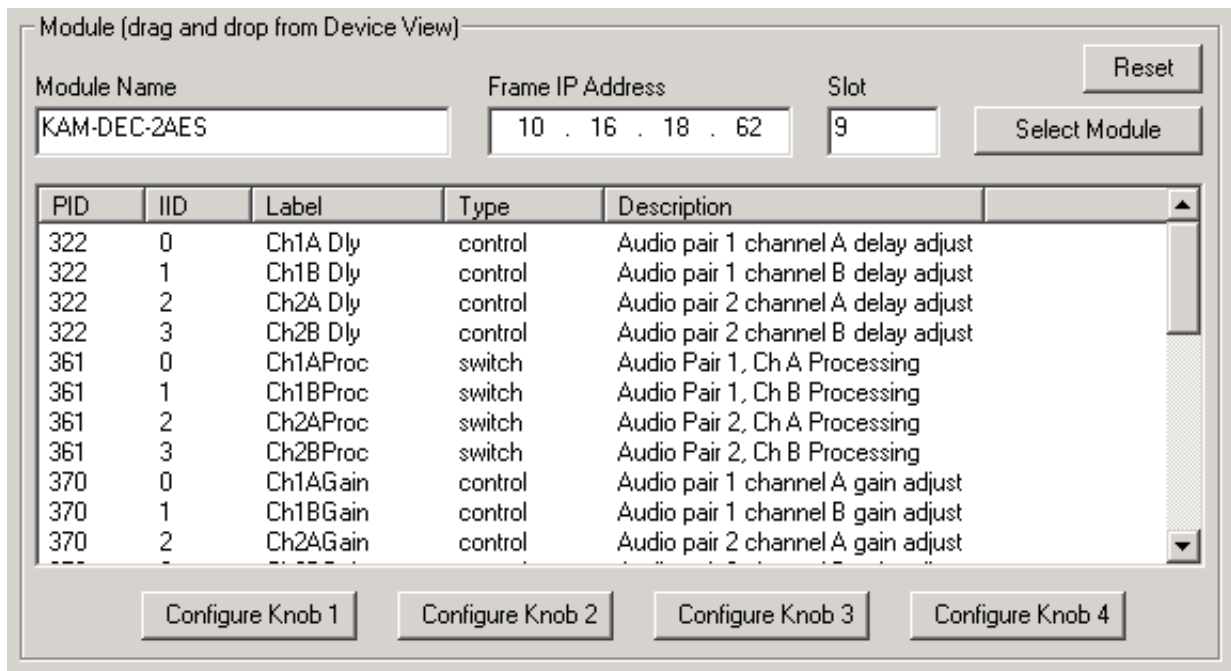
A Newton Control Panel (hard or soft version) can be interfaced to the Kameleon 2000 Series frame over the local network. Control panel access offers the following considerations for module configuration and monitoring:

- 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 7](#).

Figure 7. 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 8 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 8. 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 2 QA 2000 Frame**

- [Status](#)
- [Configuration](#)
- [1 KAM-DEC-2AES](#)
- [2 Media Slot 2](#)
- [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 KAM-XM-UNC](#)
- [10 Media Slot 10](#)
- [11 Media Slot 11](#)
- [12 Media Slot 12](#)
- [13 2000NET](#)
- [15 Sync Slot](#)
- [19 Power Sled 19](#)
- [20 Fan Sled 20](#)
- [21 Power Sled 21](#)

**Status**

Model: 2000T3N Description: Module Frame  
 Frame Location: Mod Lab - Bay 2  
 Frame Health Alarm **ALARM** Temperature Status **Pass**  
 Fan Status **PASS**

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

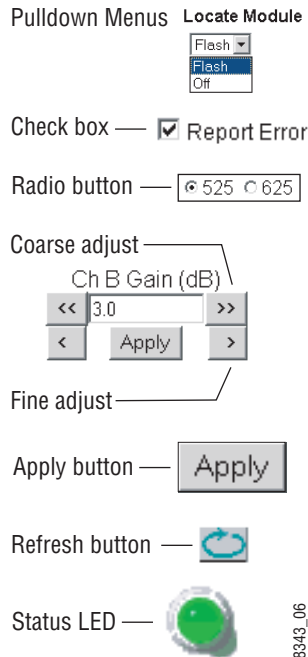
**Properties**

Vendor Thomson, Grass Valley Software Version 3.2.2  
 Media Slots 13

8354-04

## 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 9).

Figure 9. 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-2AES Links and Web Pages

The 2000 GUI provides the following links and web pages for the module (Figure 10):

- 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 10. KAM-DEC-2AES Web Page Links

## 1 KAM-DEC-2AES

Status

I/O Config

Functional View

- Composite In

- VBI Decode

- Video Input Select

- Frame Sync

- Video Proc

- AES Inputs

- Audio Channel Pairing

- Audio Sync

- Audio Proc

- AES Outputs

E-MEM®

Slot Config

Software Update

## Status Web Page

Use  
this  
link

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

The Status web page for the KAM-DEC-2AES module ([Figure 11 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 11 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 number for the KAM-DEC-2AES module.

### Submodule Properties

The Submodule properties in the footer provide a textual summary of the color-coded submodule status. Submodules are not supported in this module version.

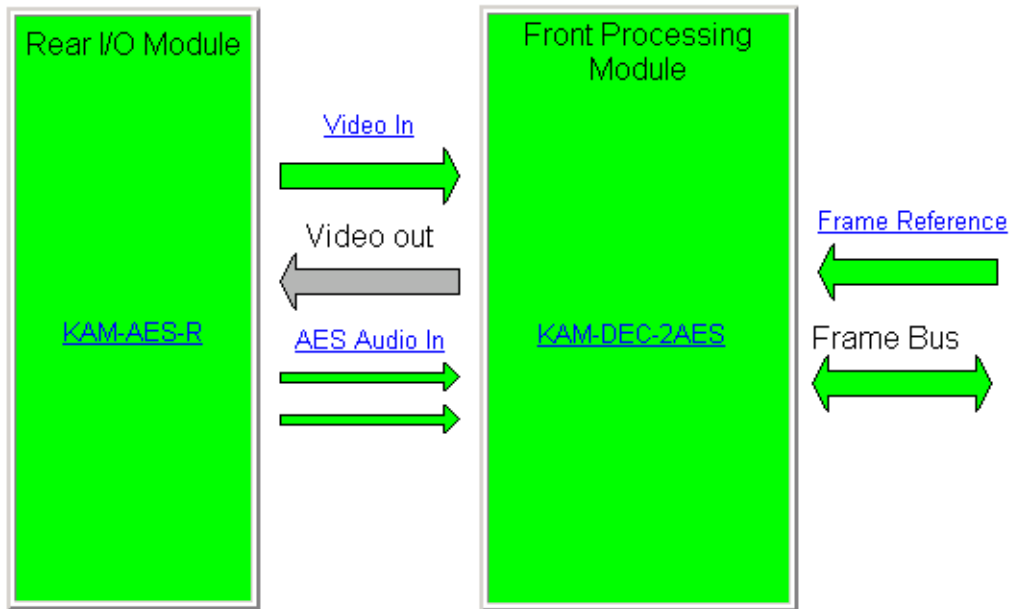


Figure 11. Module and Signal Status



Model: [KAM-DEC-2AES](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2AES](#)  
 Frame Location: [not assigned](#) , Slot: 1  
 Last Recalled E-MEM: [Factory Defaults](#)

**Kameleon Module Physical Structure**



**Status:**

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

**Front Module:**

Part Number: [671-6428](#)  
 Serial Number: [TT03477984](#)  
 Hardware Revision: [40A](#)  
 Firmware Version: [X1=2.2.55, X2=2.3.2](#)  
 Software Version: [4.0.3](#)  
 Asset Tag:

Warning and Fault summary section

## Warning/Fault Summary

The warnings and faults shown below are reported in the summary section of the Status web page (Figure 11 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. Warnings may possibly be corrected 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
- WARNING - 1 or more Audio Input signals have had AES stream errors
- Internal Error - Unknown submodule 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 /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

- 1 KAM-DEC-2AES
- 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,
- See signal status of inputs,
- Assign easily recognized signal names that will help later in the configuration process.

Figure 12 illustrates the I/O Config web page for the KAM-AES-R passive rear module required for the KAM-DEC-2AES front module with unbalanced audio inputs and outputs selected.

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

Figure 12. KAM-AES-R Rear Module Configuration Web Page (Unbalanced Audio In)

**I/O Config**

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

**KAM-AES-R Rear Module Configuration**

J11 VI Video In	J10 AES 1 Unbalanced Audio	J9 AES 2 Unbalanced Audio	J8 AES 1 Balanced Audio	J7 AES 2 Balanced Audio	J6 CVO	J5 AES 3 Unbalanced Audio	J4 AES 4 Unbalanced Audio	J3 AES 3 Balanced Audio	J2 AES 4 Balanced Audio	J1 SDO Serial Digital
Input	Input	Input	Output	Output	Output	Output	Output	Output	Output	Output
Video In	AES In 1 Unbal	AES In 2 Unbal	AES In 1 Bal	AES In 2 Bal		AES Out 1 Unbal	AES Out 2 Unbal	AES Out 1 Bal	AES Out 2 Bal	SD Output
Present	Present	Present	Not Avail	Not Avail	Unused	Not Monitored	Not Monitored	Not Avail	Not Avail	Not Monitored
	<input checked="" type="radio"/> Unbalanced <input type="radio"/> Balanced					<input checked="" type="radio"/> Unbalanced <input type="radio"/> Balanced				

**Legend:**

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

Select AES input type

Select AES output type

Figure 13 illustrates the I/O Config web page for the KAM-AES-R passive rear module required for the KAM-DEC-2AES front module with balanced audio inputs and outputs selected.

Figure 13. KAM-AES-R Rear Module Configuration Web Page (Balanced Audio In

**I/O Config**

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

**KAM-AES-R Rear Module Configuration**

J11 VI Video In	J10 AES 1 Unbalanced Audio	J9 AES 2 Unbalanced Audio	J8 AES 1 Balanced Audio	J7 AES 2 Balanced Audio	J6 CVO	J5 AES 3 Unbalanced Audio	J4 AES 4 Unbalanced Audio	J3 AES 3 Balanced Audio	J2 AES 4 Balanced Audio	J1 SDO Serial Digital
Input			Input	Input				Output	Output	Output
Video In	AES In 1 Unbal	AES In 2 Unbal	AES In 1 Bal	AES In 2 Bal		AES Out 1 Unbal	AES Out 2 Unbal	AES Out 1 Bal	AES Out 2 Bal	SD Output
Present	Not Avail	Not Avail	Present	Present	Unused	Not Avail	Not Avail	Not Monitored	Not Monitored	Not Monitored
	<input type="radio"/> Unbalanced <input checked="" type="radio"/> Balanced					<input type="radio"/> Unbalanced <input checked="" type="radio"/> Balanced				

Select AES input type

Select AES output type

**Legend:**

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

## 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 component video input, two balanced or unbalanced AES 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 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
<b>Green</b>	Present	None	None	Present	None	None
<b>Yellow</b>	Not present or 525/625 mismatch	None	None	Not Present	None	None
<b>Light Grey</b>	None	None	None	None	Not Monitored	Not Monitored
<b>Medium Grey</b>	None	None	None	Not Available	Not Available	None
<b>Dark Grey</b>	None	None	None	None	None	None

## Functional View Web Page

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

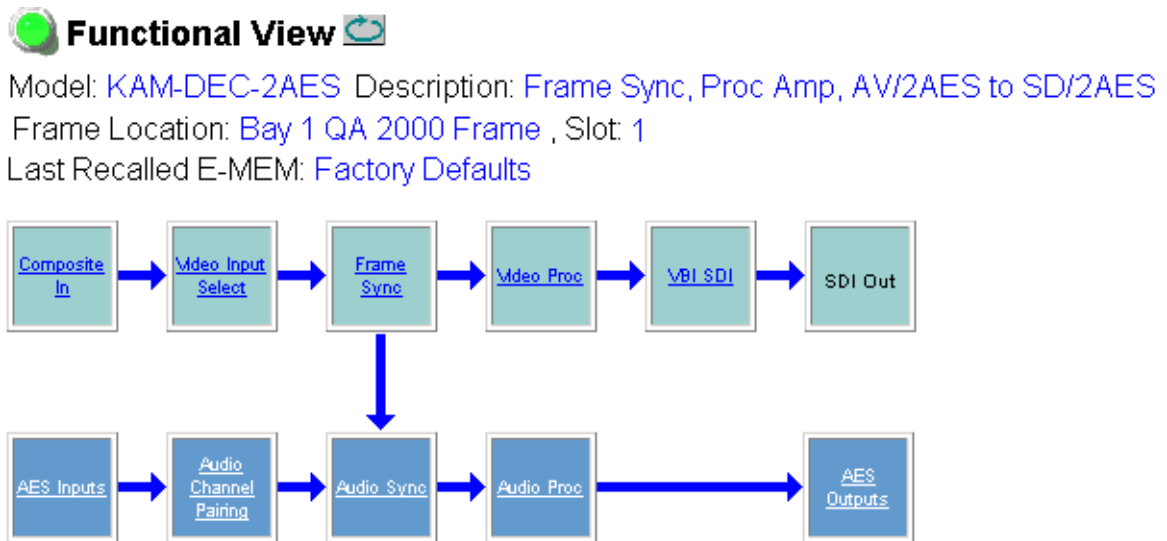
Use the Functional View web page (Figure 14) to:

- 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 14. Functional View Web Page



## Composite In Web Page

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

Use the Composite In web page (Figure 15 for 525 line rate, Figure 16 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 15. 525 Line Rate Composite In Web Page

### Composite In

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

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

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

#### Video Input Status

Input Signal Name	<a href="#">Video In</a>
Input Signal State	<a href="#">Present</a>
Input Detected Standard	<a href="#">525</a>

#### Settings for Standard: [525](#)

Input Video Gain (%) <input type="button" value="&lt;&lt;"/> <input type="text" value="100.0"/> <input type="button" value="&gt;&gt;"/> <input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/>	Black Level (%) <input type="button" value="&lt;&lt;"/> <input type="text" value="0.0"/> <input type="button" value="&gt;&gt;"/> <input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/>
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:	<a href="#">3-Line Low Adaptive Threshold</a> ▼

[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 16 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 16. 625 Line Rate Composite In Web Page

 **Composite In** 

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

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

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

**Video Input Status**

Input Signal Name	<a href="#">Video In</a>
Input Signal State	<a href="#">Present</a>
Input Detected Standard	<a href="#">625</a>

**Settings for Standard: [625](#)**

Input Video Gain (%) <input type="button" value="&lt;&lt;"/> <input type="text" value="100.0"/> <input type="button" value="&gt;&gt;"/> <input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/>	Black Level (%) <input type="button" value="&lt;&lt;"/> <input type="text" value="0.0"/> <input type="button" value="&gt;&gt;"/> <input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/>
Video Input Signal:	<a href="#">PAL-B</a>
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](#)
  - [AES Inputs](#)
  - [Audio Channel Pairing](#)

Use the VBI decode web page (Figure 17 for 525, Figure 18 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 greyed out. See [Advanced VBI Configuration on page 38](#).

Figure 17. VBI Decode Web Page – 525 Line Rate



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

### 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"/>				
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"/>				
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"/>				
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"/>				

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Figure 18. VBI Decode Web Page – 625 Line Rate

**VBI Decode**

Model: KAM-DEC-2AES Description: Frame Sync, Proc Amp, AV/2AES to SD/2AES  
 Frame Location: Bay 1 QA 2000 Frame , Slot: 1  
 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 type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input 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 type="radio"/>	<input type="radio"/>	<input type="radio"/>	

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## Video Input Select Web Page

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

Use the Video Input Select web page (Figure 19 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),
- 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 19 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 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 19. 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 19. Video Input Select – Standard View

 **Video Input Select** 


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

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

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

View Selection:  Standard  Advanced (VBI Config)

**Video Selection**

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

**Output Timing Selection**

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

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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 20).

Figure 20. Standard and Advanced View Selection

### Video Input Select

Model: [KAM-DEC-2AES](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2AES](#)  
Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 1  
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 21 on page 39](#) for 525 line rate and [Figure 22 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 21 on page 39](#) and lines 24/337 and 25/338 in [Figure 22 on page 39](#). Lines not reserved for data will be greyed 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 21. 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]
<b>Last Data Line</b>	<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 22. 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]
<b>Last Data Line</b>	<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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Use the Frame Sync web page ([Figure 23 on page 41](#) and [Figure 24 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 23 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 24 on page 41](#)). AutoBlack outputs a black signal while AutoFreeze outputs the last complete video field.



Figure 23. Frame Synchronizer Web Page – Video In Reference

 **Frame Sync** 

Model: [KAM-DEC-2AES](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 1  
 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 24. Frame Synchronizer Web Page – Internal Frame Reference

 **Frame Sync** 

Model: [KAM-DEC-2AES](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 1  
 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 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 25 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 26 on page 45.

### Standard View

In Standard View (Figure 25 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 25. Video Processing Web Page – Standard View



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

View Selection:  Standard  Advanced

### Video Processing Controls

Video Processing:  Disable  Enable  Color Bars

Video Gain Lock:  On  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:  Disable  Enable

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 26 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 26 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 26. Video Processing Web Page – Advanced View



Model: [KAM-DEC-2AES](#) Description: [Frame Sync](#), [Proc Amp](#), [AV/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [1](#)  
 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 (%) << 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: <input checked="" type="radio"/> Disable <input type="radio"/> Enable	
<input type="checkbox"/> 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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## AES Inputs Web Page

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Use this link

Use the AES Inputs web page (Figure 27) 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 J9 and J10 as shown in the table. 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 27. AES Inputs Web Page

### AES Inputs

Model: [KAM-DEC-2AES](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 1  
 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	
J10	<a href="#">AES In 1 Unbal</a>	Present	48 kHz	---	Off	Off	Audio	Audio	<a href="#">Errors Detected</a>	<input type="button" value="Clear"/>
J9	<a href="#">AES In 2 Unbal</a>	Present	48 kHz	---	Off	Off	Audio	Audio	<a href="#">Errors Detected</a>	<input type="button" value="Clear"/>

#### Audio Stream Input reporting

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

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## Audio Channel Pairing Web Page

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The Audio Channel Pairing web page (Figure 28) 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).

The audio streams in the group are paired on the Audio Channel pairing web page. The pairs (Pair 1 Ch A and Ch B and Pair 2 Ch A and Ch B) can be output on the balanced or unbalanced AES audio output connectors on the KAM-AES-R rear module (see [Input/Output Configuration Web Page on page 27](#)).

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

Figure 28. Audio Channel Pairing Web Page



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

### Pair Input Audio Channels

Names	Pair 1 ChA	Pair 1 ChB	Pair 2 ChA	Pair 2 ChB	Streams
<a href="#">AES In 1 Unbal.Ch1</a>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Str1.Ch1
<a href="#">AES In 1 Unbal.Ch2</a>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Str1.Ch2
<a href="#">AES In 2 Unbal.Ch1</a>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Str2.Ch1
<a href="#">AES In 2 Unbal.Ch2</a>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Str2.Ch2
<a href="#">Silence</a>	<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 29 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 29. Audio Synchronizer Web Page

 **Audio Sync** 

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

Frame Location: [not assigned](#) , Slot: 1

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		Ch A	Ch B
Enable Auto Track	<input checked="" type="checkbox"/> On		Enable Auto Track	<input checked="" type="checkbox"/> On	
Auto Tracking Delay	0 mS		Auto Tracking Delay	0 mS	
Total Delay	0 mS	0 mS	Total Delay	0 mS	0 mS
Channel Lock	<input checked="" type="checkbox"/> Locked		Channel Lock	<input checked="" type="checkbox"/> Locked	
Ch A Delay Adjust (mS) <input type="button" value="&lt;&lt;"/> <input type="text" value="0"/> <input type="button" value="&gt;&gt;"/> <input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/>			Ch A Delay Adjust (mS) <input type="button" value="&lt;&lt;"/> <input type="text" value="0"/> <input type="button" value="&gt;&gt;"/> <input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/>		
Ch B Delay Adjust (mS) <input type="button" value="&lt;&lt;"/> <input type="text" value="0"/> <input type="button" value="&gt;&gt;"/> <input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/>			Ch B Delay Adjust (mS) <input type="button" value="&lt;&lt;"/> <input type="text" value="0"/> <input type="button" value="&gt;&gt;"/> <input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/>		

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## Audio Processing Web Page

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Use the Audio Processing web page ([Figure 30 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 pull-down 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 30 on page 51](#).

## Selecting Output Resolution

Select the AES output resolution for Pair 1 and Pair 2 with the **20 bit** or **24 bit** radio button.

Figure 30. Audio Processing Web Page



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

Pair 1		Pair 2	
Ch A	<a href="#">AES In 1 Unbal.Ch1</a>	Ch A	<a href="#">AES In 2 Unbal.Ch1</a>
Ch B	<a href="#">AES In 1 Unbal.Ch2</a>	Ch B	<a href="#">AES In 2 Unbal.Ch2</a>
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	<a href="#">True</a>	<a href="#">True</a>	
Clip	<a href="#">False</a>	<a href="#">False</a>	
Processing	<a href="#">Pass</a>	<a href="#">Pass</a>	
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 the AES Outputs web page (Figure 31) 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 on the web page.

Figure 31. AES Outputs Web Page

### AES Outputs

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

Audio Pairs	J5 AES 3 <a href="#">AES Out 1 Unbal</a>	J4 AES 4 <a href="#">AES Out 2 Unbal</a>	<a href="#">Output Resolution</a>
<a href="#">AES In 1 Unbal.Ch1 &amp; AES In 1 Unbal.Ch2</a>	●	●	20 bit
<a href="#">AES In 2 Unbal.Ch1 &amp; AES In 2 Unbal.Ch2</a>	○	○	20 bit
Balanced / Unbalanced	<a href="#">Unbalanced</a>	<a href="#">Unbalanced</a>	
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 32), 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-2AES. 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 33 on page 54).

Figure 32. E-MEM Web Page (Standard View)



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



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

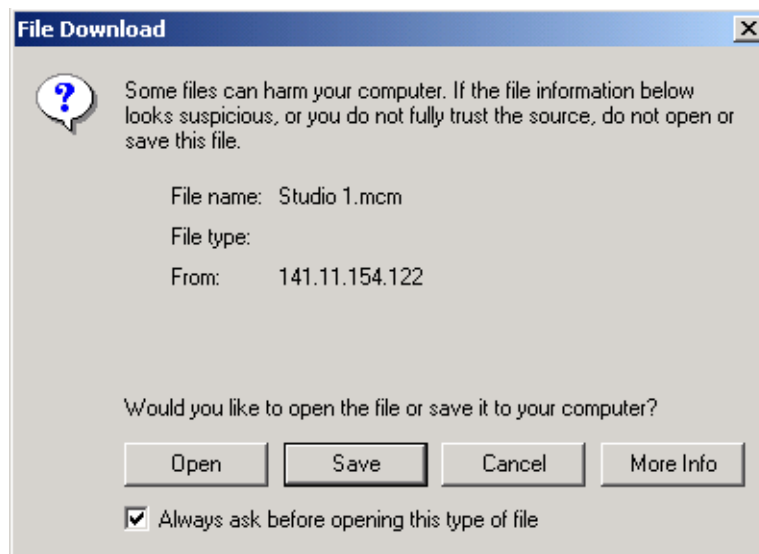
### Save File

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.

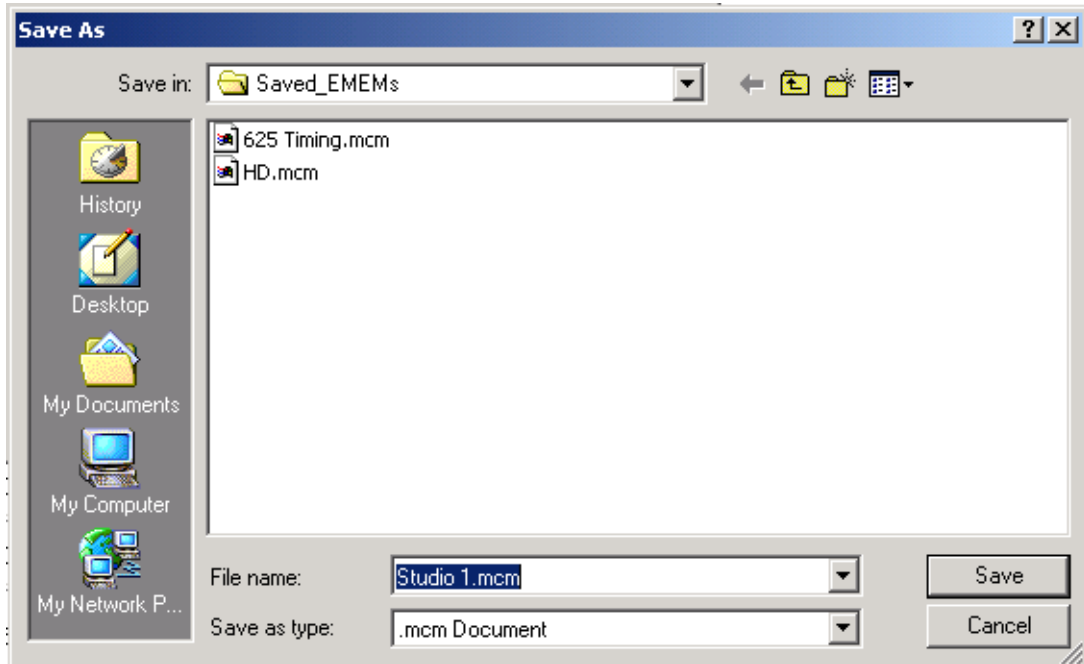
This will bring up a File Download screen similar to [Figure 34](#). Select **Save**.

Figure 34. File Download Screen



This will bring up the Save As screen as shown in Figure 35. 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 35. 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 36).

Figure 36. Load E-MEM Web Page

### Load E-MEM 1

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

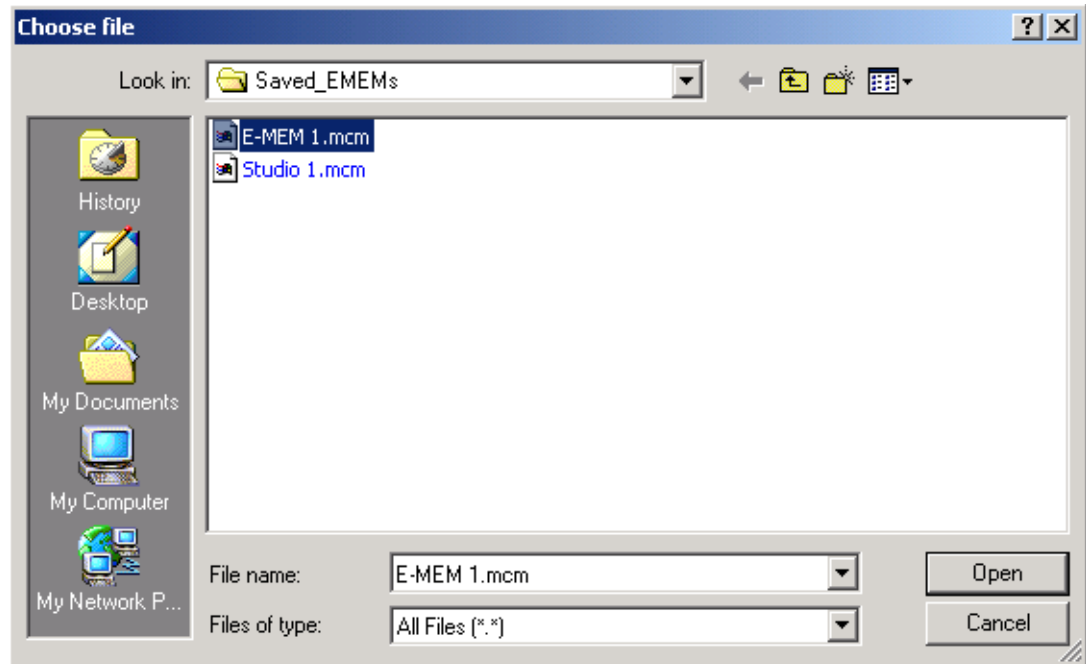
Load file into E-MEM 1...

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

Figure 37. Choose File Screen



This will place the path and filename in the Load E-MEM screen (Figure 36 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

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

Use the Slot Config web page ([Figure 38 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 38. Slot Configuration Web Page



## Slot Config

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

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

### Slot Identification

Name:

Asset Tag:

### Locate Module

▼

### Slot Memory

Restore upon Inst:

### 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	<a href="#">Alarm</a>	<a href="#">Warning</a>	<a href="#">Warning</a>	<a href="#">Warning</a>

## 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](#)
  - [AES Outputs](#)
  - [E-MEM®](#)
  - [Slot Config](#)
  - [Software Update](#)
- Use this link ↘

The Software Update web page (Figure 39) 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 39. Software Update Web Page

### **Software Update**

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

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

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"/>	<a href="#">10.16.4.103</a>
File Path:	<input type="text" value="Enter Filename Here"/>	<a href="#">Enter Filename Here</a>
FTP UserName:	<input type="text"/>	
FTP Password:	<input type="text"/>	
	<input type="button" value="Apply"/>	

# Specifications

**Note** Specifications are subject to change without notice.

Table 6. SDI Output Specifications

Parameter	Value
<b>SDI Output</b>	
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 $\Omega$
Connector type	75 $\Omega$ BNC on rear module
DC offset	< 0.5 V when terminated into 75 $\Omega$
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)
<b>SDI I/O Control Parameters</b>	
Vertical blanking processing	Line by line blank

Table 7. Composite Input Specifications

Parameter	Value
<b>Composite Input</b>	
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 $\Omega$ terminating
Signal source	75 $\Omega$ 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
<b>Composite In Performance</b>	
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
<b>Composite In Control</b>	
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. Frame Sync/Timing Specifications

Parameter	Value
<b>Video Frame Sync Timing Control Parameters</b>	
Delay adjustment (main)	0 to 1 frame in 37 ns steps
Additional delay, SDI out	0 to 151 µs in 37 ns steps

Table 9. Main Video Processing Specifications

Parameter	Value
<b>Main Video Frame Processing Control Parameters</b>	
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)
<b>AES/EBU Input</b>		
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
<b>Performance</b>		
Static withstand	5 kV (330 $\Omega$ , 150 pF)	

Table 11. AES/EBU Output Specifications

Parameter	Value	
	Balanced (AES3-1992)	Unbalanced (AES3id 2001)
<b>AES/EBU Output</b>		
Signal type	AES3 1992, 110 $\Omega$	AES3id 2001, 75 $\Omega$
Signal levels	3 V p-p $\pm$ 0.2 V @ 110 $\Omega$	1 V p-p $\pm$ 0.2 V @ 75 $\Omega$
Rise/fall time	5 ns to 30 ns, 110 $\Omega$ load	37 ns $\pm$ 7 ns, 75 $\Omega$ 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
<b>AES/EBU Performance</b>		
Static withstand	5 kV (330 $\Omega$ , 150 pF)	

Table 12. Audio Processing Specifications

Parameter	Value
<b>Audio Processing</b>	
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 13. Electrical Length Specifications

Parameter	Value
<b>Electrical Length</b>	
Composite In to SDI Out	1 line + 10 $\mu$ s
AES/EBU to AES/EBU	2.0 ms @ 48 kHz

Table 14. Environmental/Power Specifications

Parameter	Value
<b>Environmental</b>	
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
<b>Mechanical</b>	
Frame type	2000T1DNG Kameleon Frame or 2000T3NG Kameleon Frame
<b>Power</b>	
Consumption	14 Watts typical

# Service

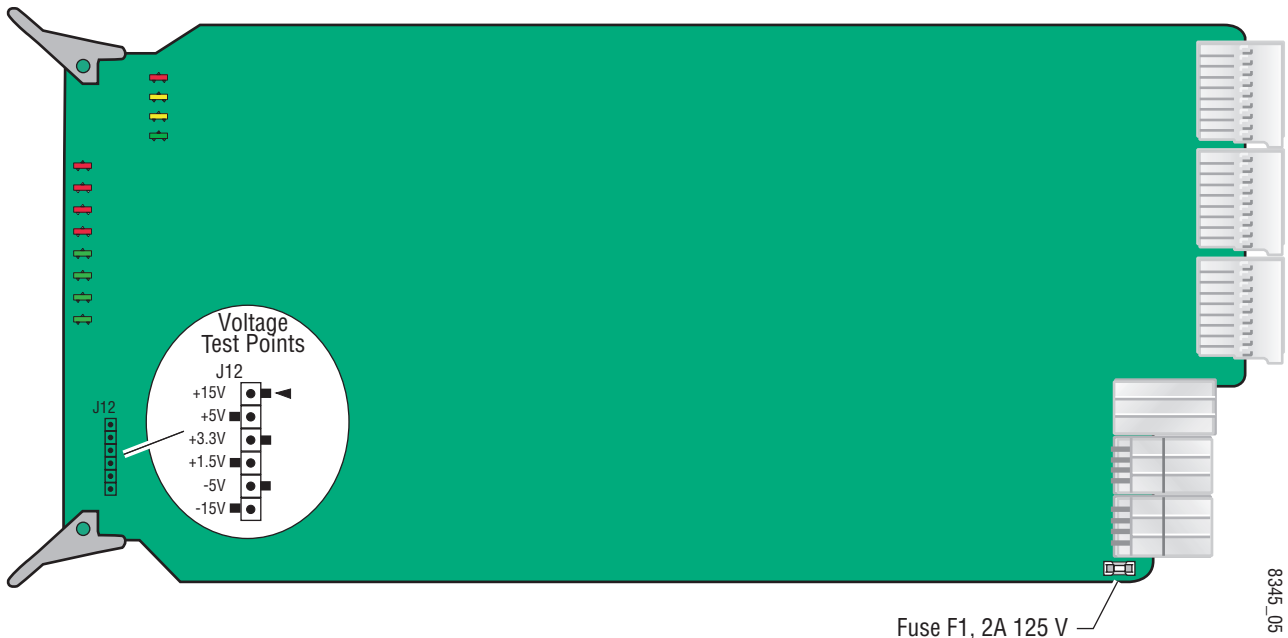
The Kameleon modules make extensive use of surface-mount technology and programmed parts to achieve compact size and adherence to demanding technical specifications. Circuit modules should not be serviced in the field except to check and replace fuses.

## Troubleshooting

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

- Check frame and module power at the front edge testpoints (Figure 40).
- If power is not present, check the fuse on the +24 V input (Figure 40).
- Check for presence and quality of input signals.
- Verify that source equipment is operating correctly.
- Check cable connections.

Figure 40. Location of Module Fuse and Voltage Testpoints



Refer to [Figure 6 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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