

KAM-DEC-2AES-MUX

KAMELEON SERIES MODULES

Instruction Manual

SOFTWARE VERSION 1.0.4

071834501
NOVEMBER 2008



Affiliate with the N.V. KEMA in The Netherlands

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KAM-DEC-2AES-MUX

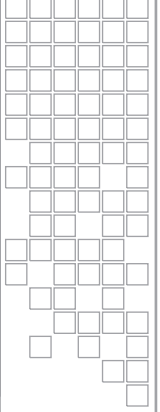
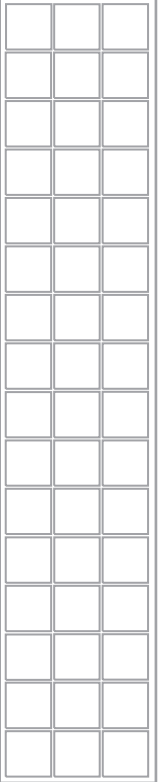
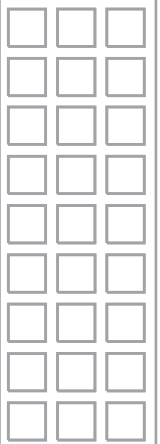
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Preface

About This Manual

This manual describes the features of a specific Kameleon Series module in the Kameleon Media Processing System. As part of this module family, it is subject to Safety and Regulatory Compliance described in the 2000 Series frame and power supply documentation (see the *Kameleon Frames 2000T1 and 2000T3 Models Instruction Manual*).

This manual and all other Modular documentation can be found on-line in PDF format at this URL:

www.thomsongrassvalley.com/docs/modular

KAM-DEC-2AES-MUX

Kameleon Series Module

Introduction

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

The KAM-DEC-2AES-MUX modules provides broadcast quality NTSC/PAL to serial digital video conversion. Two external AES audio channels can be multiplexed into the SDI output video.

This module features:

- NTSC/PAL video conversion to broadcast quality serial digital,
- Two 48 kHz AES digital audio input streams (balanced or unbalanced) that can be multiplexed into the SDI output stream,
- 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-MUX operation requires 2000NET Network Interface Module hardware revision 01A1 or greater with software version 3.2.2 or greater. Systems installed in the 2000T3N frame require the 2000FAN fan sled (refer to [Figure 4 on page 12](#)).

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-MUX modules, the frame must be a 2000T1DNG or 2000T3NG which include the following components:

- 2000NET module (with latest software version is 4.0.2, recommended for full frame 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.

Note When installing only one power supply sled in a 3 RU frame, install it in the top (main) power sled slot (Slot 18 as shown in [Figure 4 on page 12](#).)

[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-MUX Module set	12	4

Module Placement in the Kameleon Frame

There are twelve slot locations in both the front and rear of a 3 RU frame and four slot locations in a 1 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 processing module and a passive rear module that can be plugged into any of the frame slot pairs. The rear modules provide the input and output interface connectors.

To install a Kameleon module set in a 2000 Series frame:

1. Locate a vacant slot in the rear of the 3 RU frame ([Figure 1](#)) or the 2000T1DNG frame ([Figure 2](#)).

Figure 1. 2000T3NG Frame, Rear View

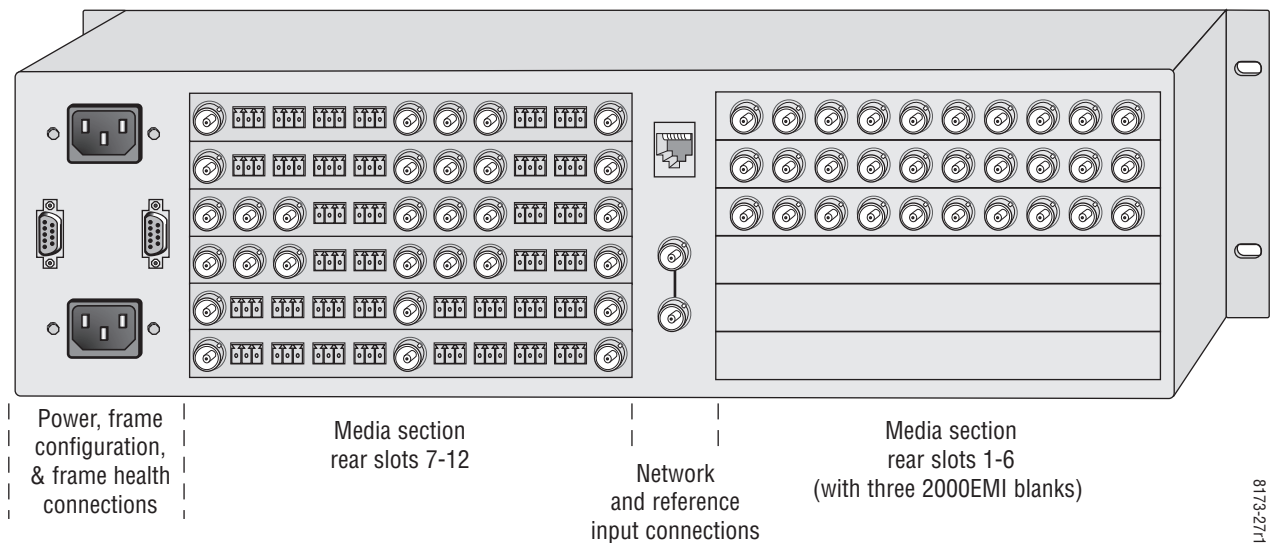
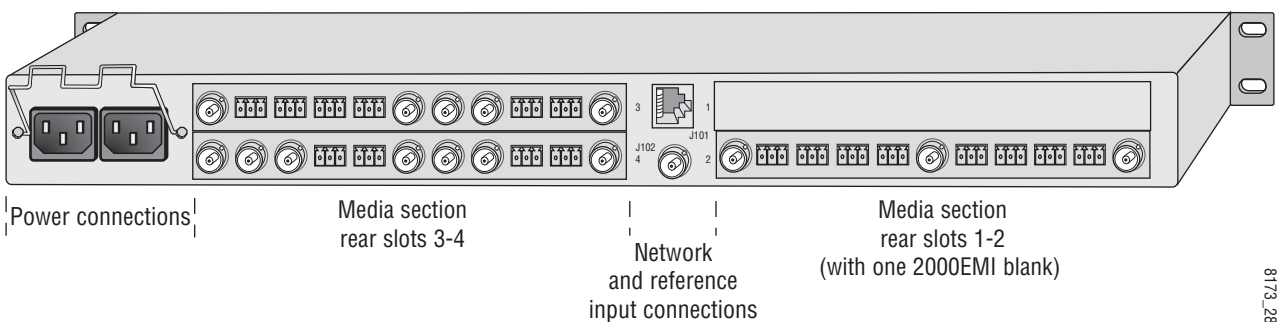
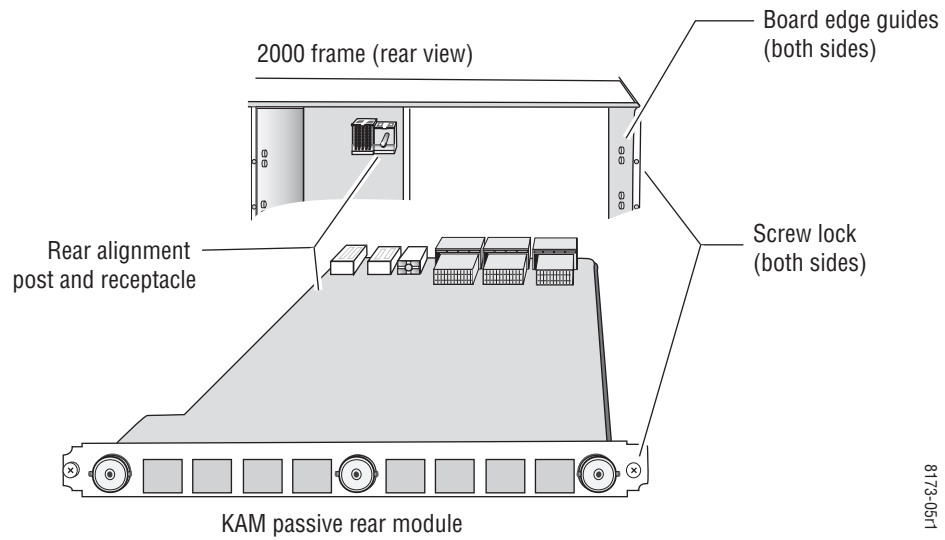


Figure 2. 2000T1DNG Frame, Rear View



2. Insert the passive rear module into the vacant rear slot of the frame as illustrated in [Figure 3 on page 12](#).

Figure 3. Installing Passive Rear Module



3. Verify that the module connector seats properly against the midplane.
4. Using a crossblade screwdriver, tighten the two screw locks to secure the module in the frame.
5. Locate the corresponding front media slot (1 -12) in the 3 RU frame (Figure 4) or front media slot (1-4) in the 1 RU frame (Figure 5 on page 13).

Figure 4. 2000T3NG Kameleon Frame, Front Slots

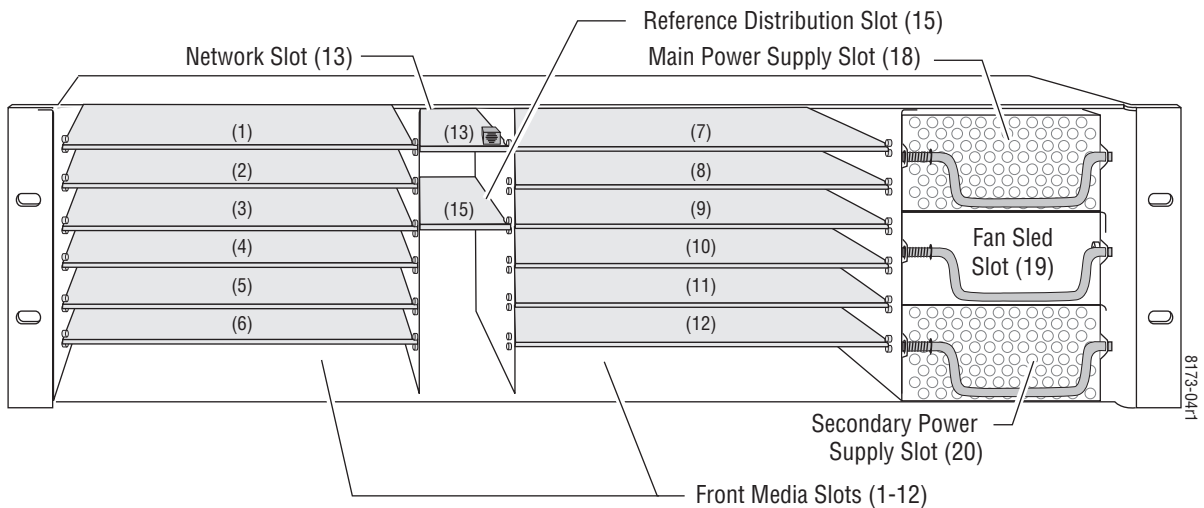
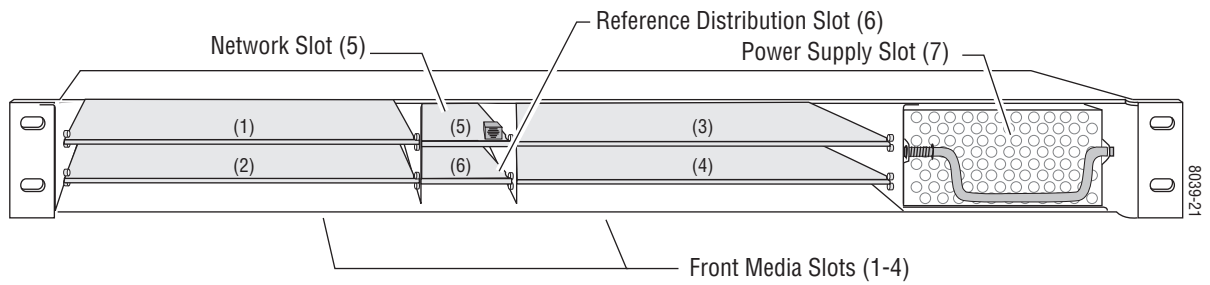
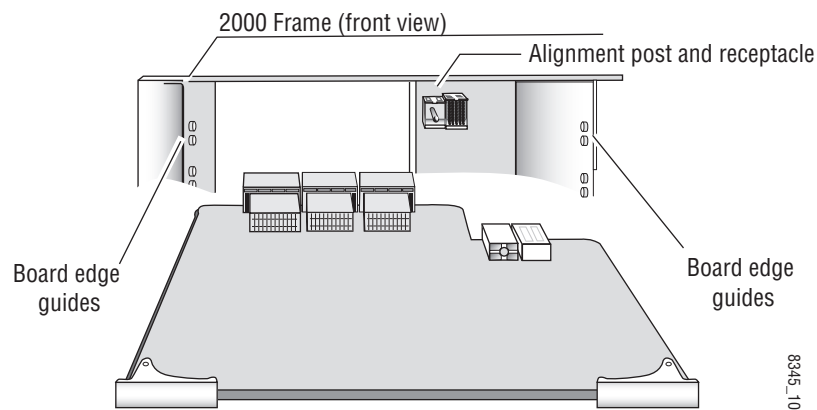


Figure 5. 2000T1DNG Kameleon Frame Front Slots



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



Cabling

All cabling to the module is done on the KAM-AES-R passive rear module shown in [Figure 7](#).

Composite Video In

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

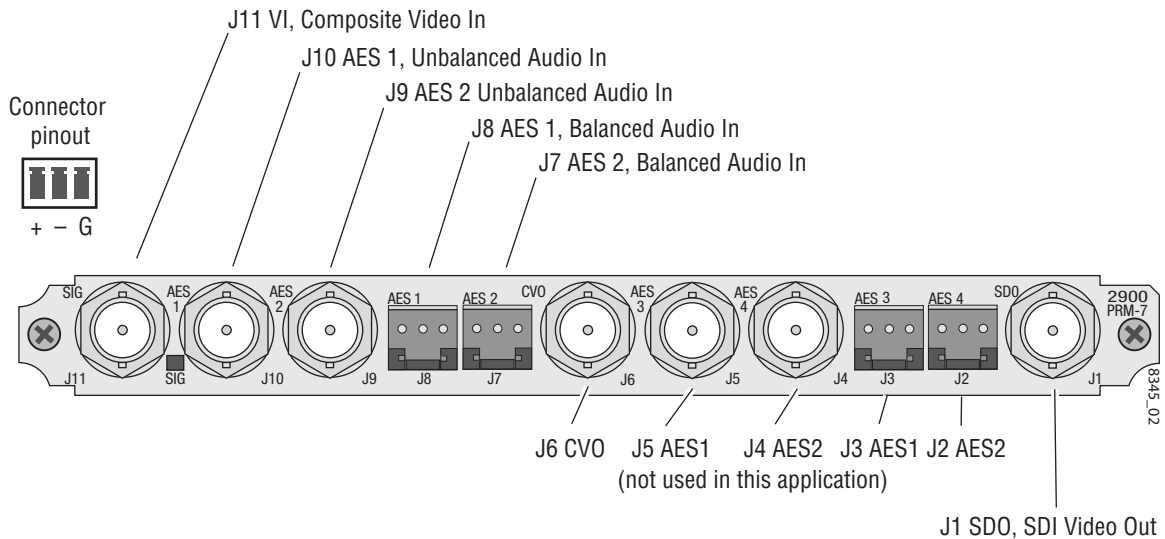
AES Audio Inputs

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 29](#). Connect balanced or unbalanced AES audio to the correct type of audio connectors shown in [Figure 7](#).

SDI Video Out

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

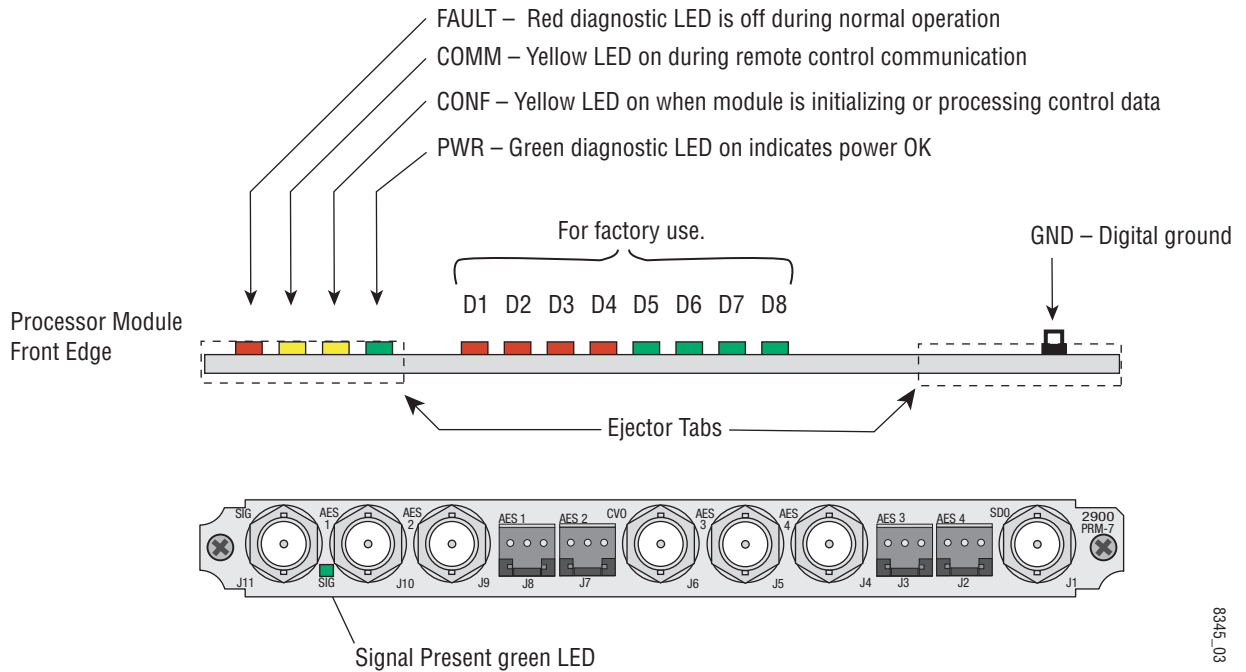
Figure 7. KAM-AES-R Input/Output Connectors



Power Up

The front LED indicators are illustrated in [Figure 8](#).

Figure 8. Front and Rear Module Indicator LEDs



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

Operation Indicator LEDs

[Table 2](#) provides a complete list of possible operating conditions and the resulting indicator status.

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

Table 2. Indicator LEDs and Conditions Indicated

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

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

Configuration and Adjustments

KAM-DEC-2AES-MUX 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-MUX 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
Decode mode	3-Line Low Adaptive Threshold	3-Line Low Adaptive Threshold or 3-Line High Adaptive Threshold	Composite In/ Decode Mode pulldown	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
Frame reference loss of signal report	Enable	Enable or Disable	Video Input Select/ Frame Reference Loss of Signal checkbox	N/A
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
Select output timing source	Video In	Video In or Internal Frame Reference	Video Input Select/ Output Timing Selection radio buttons	N/A
Define VBI data lines	None	525: None, 21/284, 22/285, 23/286 or 24/287 625: None, 24/337, 25/338, 26/339 or 27/340 or 28/341	Video Input Select/ Advanced (VBI Config) radio button VBI/Data Lines Last Data Line radio button	N/A
Main video horizontal timing adjustment	0	525: 0 to 857.5 pixels 625: 0 to 863.5 (0.5 pixel steps)	Frame Sync/ HTiming control (pixels)	HTiming
Main video vertical timing adjustment	0	525: 0 to 524 lines 625: 0 to 624 lines (1 line steps)	Frame Sync/ VTiming control (Lines)	VTiming
Freeze mode selection (Video In timing source)	None	None, Field 1, Field 2, or Frame	Frame Sync/ Freeze Mode Selection radio buttons	N/A

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

Function	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Panel
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
Mux group insert to Stream A and B	No Insert	Insert or No insert	MUX/ Group Insertion Insert checkboxes	N/A
Mux group number for insertion	Group 1	Group 1 to Group 4	MUX/ Group number radio buttons	N/A
Mux Bits/Sample rate	20 Bits	20 or 24 bits	MUX/ 20 or 24 Bit radio buttons	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-MUX 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

Newton Control Panel Configuration

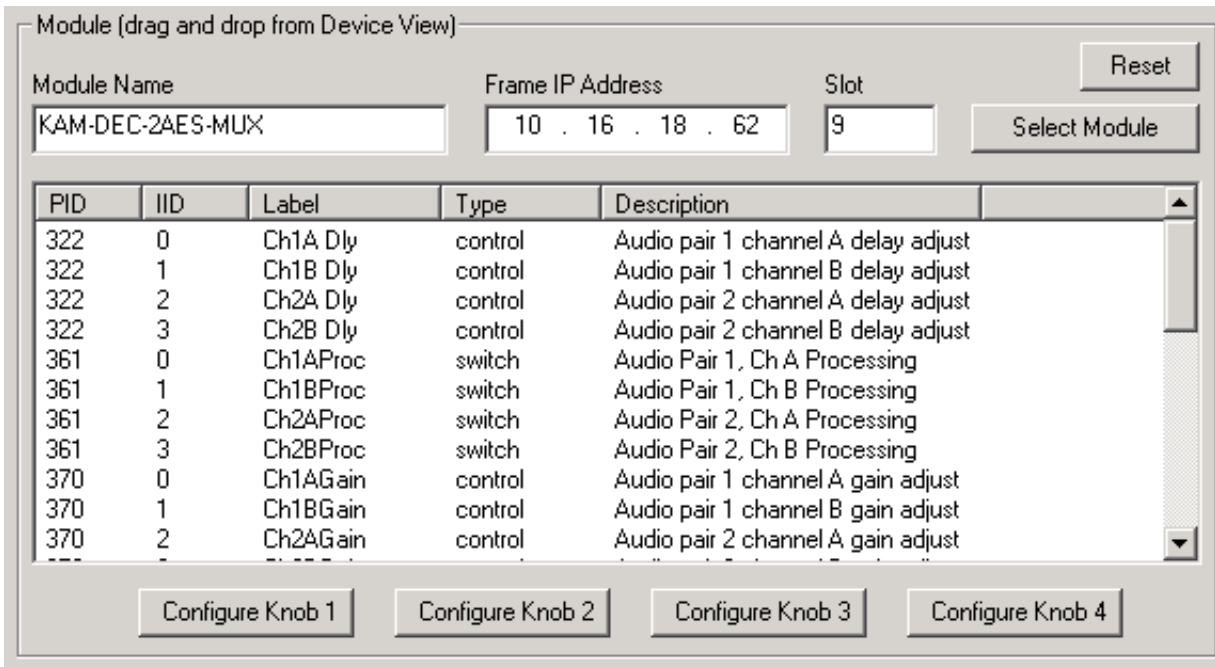
A Newton Control Panel (hard or soft version) can be interfaced to the Kameleon 2000 Series frame over the local network. Control panel access offers the following considerations for module configuration and monitoring:

- 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 17](#).

An example of the Newton Configurator is shown in [Figure 9](#).

Figure 9. 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 pages shown in [Figure 10](#) (1 RU 2000 Frame) [Figure 11 on page 22](#) (3 RU 2000 Frame). 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 the use of Windows XP with a version 4.0.2 2000NET module.

Figure 10. 1 RU 2000 Frame Status Web Page

grass valley

Frame

- [Status](#)
- [Configuration](#)
- [Connections](#)
- [LED Reporting](#)
- [SNMP Reporting](#)
- [Power Supply/Demand](#)
- [1 Media Slot 1](#)
- [2 KAM-DEC-2AES-MUX](#)
- [3 Media Slot 3](#)
- [4 Media Slot 4](#)
- [5 2000NET](#)
- [6 Sync Slot](#)
- [7 Power Sled 7](#)

Status

Model: 2000T1N Description: Module Frame
 Frame Location: not assigned
 Temperature Status **PASS** Power Status **PASS**
 Fan Status **PASS**

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

Properties

Vendor **Thomson, Grass Valley** Software Version **4.0.2**
 Media Slots **5**

Figure 11. 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

2000 Frame
[Status](#)
[Configuration](#)
[Connections](#)
[Frame Alarm Reporting](#)
[LED Reporting](#)
[SNMP Reporting](#)
[Power Supply/Demand](#)
[1 KAM-SD](#)
[2 KAM-SD-2AES](#)
[3 KAM-SD-2AES](#)
[4 KAM-SD](#)
[5 KAM-SD](#)
[6 KAM-AV](#)
[7 KAM-DEC-2AES-MUX](#)
[8 KAM-AV](#)
[9 KAM-AV](#)
[10 KAM-AV](#)
[11 KAM-AV](#)
[12 KAM-AV](#)
[13 2000NET](#)
[15 2000GEN](#)
[18 Power Sled 18](#)
[19 Fan Sled 19](#)
[20 Power Sled 20](#)

Status

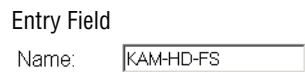
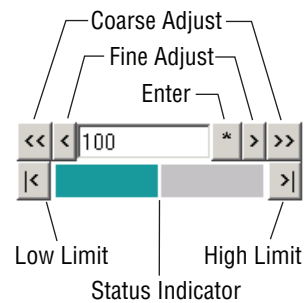
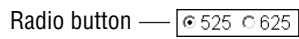
Model: 2000T3N Description: Module Frame
 Frame Location: not assigned
 Frame Health Alarm ALARM Temperature Status PASS
 Power Status PASS Fan Status PASS

Media Module	Net Card	Media Module	Power Sled
Media Module		Media Module	
Media Module	Aux Card	Media Module	Fan Sled
Media Module		Media Module	
Media Module		Media Module	Power Sled
Media Module		Media Module	

Properties
 Vendor Thomson, Grass Valley Software Version 4.0.2
 Media Slots 13

8173_3214

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 4.0.2):

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

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

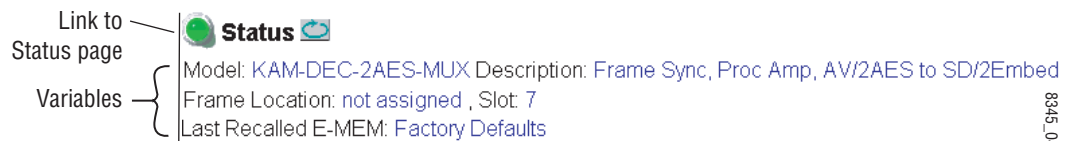
Use the **Low** and **High Limit** buttons to go directly to the lowest and highest limits for the parameter.

- An entry field allows naming of various module functions such as input or output signals, asset tag, and slot identification.
- The Status LED is explained in [Status LED icon on page 24](#).

Status and Identification Header

Each configuration web page has a Status and Identification Header.

Figure 12. 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 **MUX** web page if you are multiplexing audio into the output video signal.
5. 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.

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

KAM-DEC-2AES-MUX Links and Web Pages

The 2000 GUI provides the following links and web pages for the module (Figure 13):

- Status – reports input and reference signal status and module information (page 26),
- I/O Config – shows a graphic representation of inputs and outputs to the module and allows naming of each input (page 29),
- Functional View – shows a block diagram of the module with links to each configuration web page (page 32),
- Module Configuration web pages for setting up the module (beginning on page 33),
- E-MEM – provides a Standard view for Local Recall operations for up to 5 E-MEM registers (page 56) and an Advanced view providing additional **Save to** and **Load from** file operations (page 57), and
- Slot Config – provides a Locate Module function, slot configuration, and Slot Memory, along with links to Frame Health Reporting (2000T3 Frame only), LED Report, and SNMP Trap Reporting web pages (page 61).

Figure 13. KAM-DEC-2AES-MUX Web Page Links

7 KAM-DEC-2AES-MUX

Status

I/O Config

Functional View

- Composite In

- VBI Decode

- Video Input Select

- Frame Sync

- Video Proc

- MUX

- AES Inputs

- Audio Channel Pairing

- Audio Sync

- Audio Proc

E-MEM@

Slot Config

Status Web Page

Use
this
link

7 KAM-DEC-2AES-MUX
[Status](#)
[I/O Config](#)
[Functional View](#)
 - [Composite In](#)
 - [VBI Decode](#)
 - [Video Input Select](#)
 - [Frame Sync](#)
 - [Video Proc](#)
 - [MUX](#)
 - [AES Inputs](#)
 - [Audio Channel Pairing](#)

The Status web page for the KAM-DEC-2AES-MUX module ([Figure 14 on page 27](#)) 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 23](#)),
- 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 14 on page 27](#). 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-MUX module.

Submodule Properties

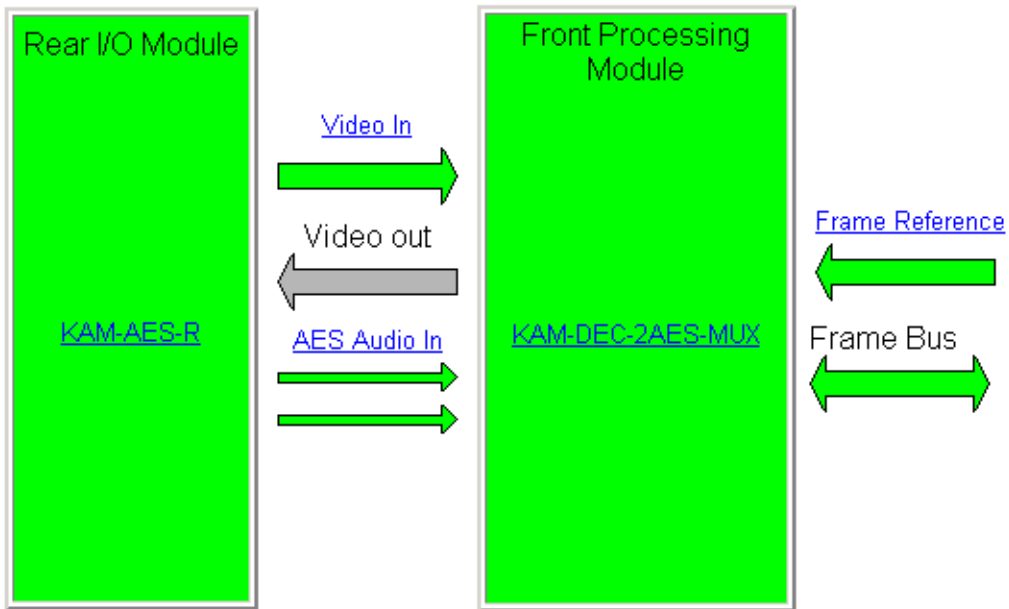
The Submodule properties in the footer provide a textual summary of the color-coded submodule status. Submodules are not supported in this module version.

Figure 14. Module and Signal Status



Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 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: [42A](#)
 Firmware Version: [X1=48, X2=1.0.51](#)
 Software Version: [1.0.4](#)
 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 14 on page 27](#)). 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

- 7 KAM-DEC-2AES-MUX
- 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 15 illustrates the I/O Config web page for the KAM-AES-R passive rear module required for the KAM-DEC-2AES-MUX front module with unbalanced audio inputs selected.

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

Figure 15. KAM-AES-R Rear Module Configuration Web Page (Unbalanced Audio In)

I/O Config

Model: KAM-DEC-2AES-MUX Description: Frame Sync, Proc Amp, AV/2AES to SD/2Embed
 Frame Location: not assigned, Slot: 7
 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
Video In	AES In 1 Unbal	AES In 2 Unbal	AES In 1 Bal	AES In 2 Bal						SD Output
Present	Present	Present	Not Avail	Not Avail	Unused	Unused	Unused	Unused	Unused	Not Monitored
			<input checked="" type="radio"/> Unbalanced <input type="radio"/> Balanced							

Select AES input type

Legend:

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

Figure 16 illustrates the I/O Config web page for the KAM-AES-R passive rear module required for the KAM-DEC-2AES-MUX front module with balanced audio inputs selected.

Figure 16. KAM-AES-R Rear Module Configuration Web Page (Balanced Audio In)

I/O Config

Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync](#), [Proc Amp](#), [AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 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
<input type="text" value="Video In"/>	<input type="text" value="AES In 1 Unbal"/>	<input type="text" value="AES In 2 Unbal"/>	<input type="text" value="AES In 1 Bal"/>	<input type="text" value="AES In 2 Bal"/>						<input type="text" value="SD Output"/>
Present	Not Avail	Not Avail	Present	Present	Unused	Unused	Unused	Unused	Unused	Not Monitored
	<input type="radio"/> Unbalanced <input checked="" type="radio"/> Balanced									

Select AES input 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 32](#)).

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 16 on page 30](#).

Status

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

Table 4. I/O Config Status Report Messages

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

Functional View Web Page

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

Use the Functional View web page (Figure 17) to:

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

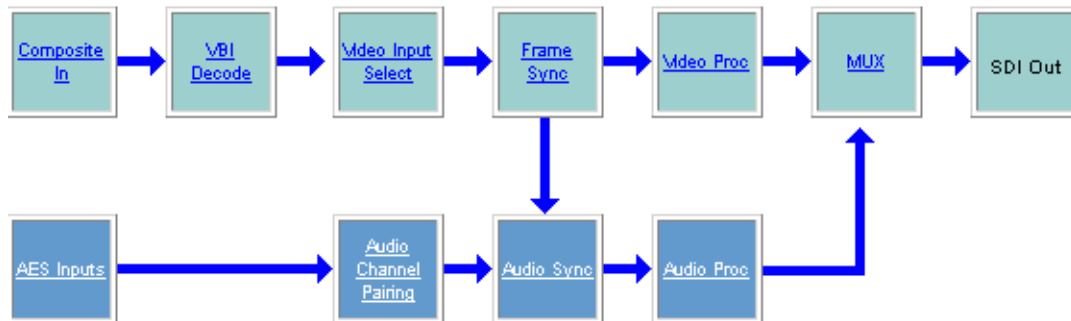
The Functional View web page is a block diagram of the installed Kameleon module that reports the module functions and signal paths that are active or inactive in the current configuration. It can be used as a link map for configuring module functions. Begin configuring with one of the input function 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 17. Functional View Web Page

Functional View

Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 Last Recalled E-MEM: [Factory Defaults](#)



Composite In Web Page

Use this link

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

Use the Composite In web page ([Figure 18](#) for 525 line rate, [Figure 19 on page 35](#) 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 18. 525 Line Rate Composite In Web Page

Composite In

Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync](#), [Proc Amp](#), [AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 Last Recalled E-MEM: [Factory Defaults](#)

Video Input Status

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

Settings for Standard: [525](#)

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

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

Video Input Status

The Input Status section is read-only. The Input Signal name is the one assigned on the [Input/Output Configuration Web Page on page 29](#). Input

Standard can be affected by settings on the 2000GEN module (if present) and the [Video Input Select Web Page on page 38](#).

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 19 on page 35](#)).

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 19. 625 Line Rate Composite In Web Page

 **Composite In** 

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

Frame Location: [not assigned](#) , Slot: [7](#)

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

Video Input Status

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

Settings for Standard: [625](#)

Input Video Gain (%) <input type="text" value="100.0"/> <input type="button" value="Apply"/>	Black Level (%) <input type="text" value="0.0"/> <input type="button" value="Apply"/>
Video Input Signal:	PAL-B
Decode Mode:	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](#)
- [MUX](#)
- [AES Inputs](#)

Use the VBI decode web page ([Figure 20](#) for 525, [Figure 21 on page 37](#) 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 40](#).

Figure 20. VBI Decode Web Page – 525 Line Rate

VBI Decode

Model: KAM-DEC-2AES-MUX Description: [Frame Sync](#), [Proc Amp](#), [AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 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"/>				

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

Figure 21. VBI Decode Web Page – 625 Line Rate

VBI Decode

Model: KAM-DEC-2AES-MUX Description: Frame Sync, Proc Amp, AV/2AES to SD/2Embed
 Frame Location: not assigned , Slot: 7
 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"/>			
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"/>			
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"/>			

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"/>				
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"/>				
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"/>				

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Video Input Select Web Page

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Use the Video Input Select web page ([Figure 22 on page 39](#)) to:

- Configure input video line rate,
- Enable or disable Loss of Signal reporting to the Status web page and SNMP monitoring (refer to the 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 22](#). Use the **Advanced** view for configuring the Vertical Blanking Interval for selecting active video lines to carry data (see [Advanced VBI Configuration on page 40](#)).

Video Selection Settings

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

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

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

- Video Format –
 - Current input video format reported.
- Video Line Rate – select 525 or 625 line rate or enable automatic line rate detection
- 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**.

Figure 22. Video Input Select – Standard View

Video Input Select

Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Standard Advanced (VBI Config)

Video Selection

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

Output Timing Selection

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

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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 23. Standard and Advanced View Selection

Video Input Select

Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
Frame Location: [not assigned](#) , Slot: [7](#)
Last Recalled E-MEM: [Factory Defaults](#)

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

The **VBI/Data Lines** panel will appear at the bottom of the web page (see [Figure 24 on page 41](#) for 525 line rate and [Figure 25 on page 41](#) 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 24](#) and lines 24/337 and 25/338 in [Figure 25](#). Lines not reserved for data will be greyed out on the VBI Decode web page ([VBI Decode for Composite Input on page 36](#)).

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 24. Advanced VBI Configuration – 525 Line Rate

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

VBI / Data Lines

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

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Figure 25. Advanced VBI Configuration – 625 Line Rate

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

VBI / Data Lines

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

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Frame Sync Web Page

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Use the Frame Sync web page ([Figure 26 on page 43](#) and [Figure 27 on page 43](#)) 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 38](#).

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 26 on page 43](#)). 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 27 on page 43](#)). AutoBlack outputs a black signal while AutoFreeze outputs the last complete video field.

Figure 26. Frame Synchronizer Web Page – Video In Reference

Frame Sync

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

Frame Location: [not assigned](#) , Slot: [7](#)

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

Timing Adjustment

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

Freeze Mode Selection

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

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Figure 27. Frame Synchronizer Web Page – Internal Frame Reference

Frame Sync

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

Frame Location: [not assigned](#) , Slot: [7](#)

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

Timing Adjustment

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

Freeze Mode Selection

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

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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 28 on page 45). 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 29 on page 47.

Standard View

In Standard View (Figure 28 on page 45), 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 28. Video Processing Web Page – Standard View


Video Proc

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

Frame Location: [not assigned](#) , Slot: [7](#)

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

View Selection: Standard Advanced

Video Processing Controls

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

Clipping Controls

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

Advanced View

In Advanced View ([Figure 29 on page 47](#)), 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 29 on page 47](#). 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 29. Video Processing Web Page – Advanced View



Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
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 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Standard Advanced

Video Processing Controls

Video Processing: Disable Enable Color Bars

Video Gain Lock: <input type="radio"/> On <input checked="" type="radio"/> Off			
Contrast/Y Gain (%) << 100.0 >> < Apply >	Saturation/Chroma Gain (%) << 100.0 >> < Apply >	B-Y Gain (%) << 100.0 >> < Apply >	R-Y Gain (%) << 100.0 >> < Apply >
Brightness/Y Offset (%) << 0.00 >> < Apply >	Hue/Chroma Phase (Deg) << 0.0 >> < Apply >	B-Y Balance/Offset (%) << 0.00 >> < Apply >	R-Y Balance/Offset (%) << 0.00 >> < Apply >

Clipping Controls

Clip Settings: Disable Enable

Apply clips to VBI

Soft/Y White Clip (%) << 109.0 >> < Apply >	Hard/Video White Clip (%) << 138.7 >> < Apply >
Soft/Y Black Clip (%) << -6.8 >> < Apply >	Hard/Video Black Clip (%) << -37.3 >> < Apply >

Reset to Default

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Use the Mux (multiplex) web page ([Figure 30](#)) to:

- Insert audio groups into the SDI output video signal.

Note The audio channel pairs available to the Mux Group below are determined by the Audio Channel Pairing web page (see [page 51](#)).

Figure 30. Multiplex Web Page.



Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
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Group insertion

Mux Group	Insert	Group	Bits/Sample
Pair 1:			
AES In 1 Unbal.Ch1 & AES In 1 Unbal.Ch2	<input type="checkbox"/> Stream A	<input checked="" type="radio"/> Group 1 <input type="radio"/> Group 2 <input type="radio"/> Group 3 <input type="radio"/> Group 4	<input checked="" type="radio"/> 20 bits <input type="radio"/> 24 bits
Pair 2:			
AES In 2 Unbal.Ch1 & AES In 2 Unbal.Ch2	<input type="checkbox"/> Stream B		

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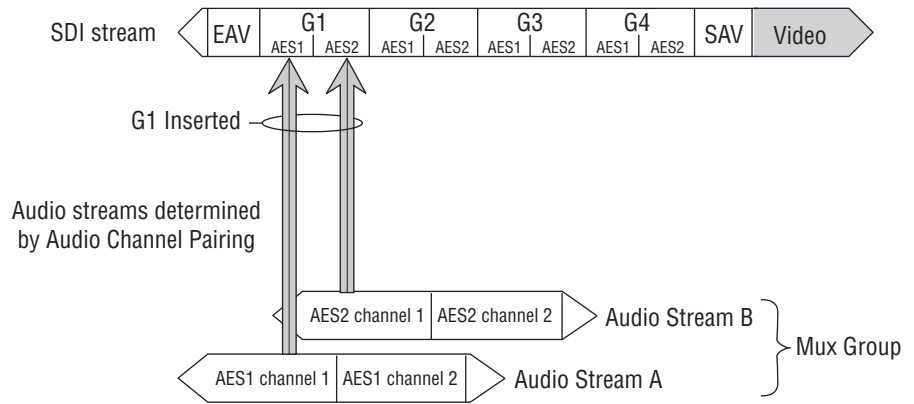
Group Insertion

The Group Insertion function allows the insertion of two streams (determined on the [Audio Channel Pairing Web Page on page 51](#)) into any Group (1-4) in the SDI signal output with the following controls:

- Select the **Stream A** and/or **Stream B** checkboxes in the Insert column to insert Pair 1 and/or Pair 2 into the SDI output steam.
- Select the audio Group number in the SDI stream into which to insert (embed) the streams.
- Select the output sample rate for the inserted audio as **20 bits** or **24 bits**.

[Figure 31 on page 49](#) depicts the resulting actions from the settings shown in the Mux web page in [Figure 30](#).

Figure 31. Multiplexing into the SDI Stream



One audio Group = two streams (A & B) max.
 One stream = two channels (1 & 2) max.

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AES Inputs Web Page

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Use the AES Inputs web page ([Figure 32](#)) 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 32. AES Inputs Web Page

AES Inputs

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AES Input characteristics

Input	Name	Signal State	Sample Rate	Mode	Ch1 Emphasis	Ch2 Emphasis	Ch1 Data	Ch2 Data	AES Errors Detected	
J10	AES In 1 Unbal	Present	48 kHz	---	Off	Off	Audio	Audio	Errors Detected	<input type="button" value="Clear"/>
J9	AES In 2 Unbal	Present	48 kHz	---	Off	Off	Audio	Audio	Errors Detected	<input type="button" value="Clear"/>

Audio Stream Input reporting

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

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The Audio Channel Pairing web page (Figure 33) 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 streams in each pair are grouped together into a Mux group on the Mux web page. Then Stream A or Stream B or both can be inserted into the SDI output video (see [MUX Web Page on page 48](#)).

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

Figure 33. Audio Channel Pairing Web Page

Audio Channel Pairing

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Pair Input Audio Channels

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

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Audio Sync Web Page

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Use the Audio Sync web page ([Figure 34 on page 53](#)) 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 34. Audio Synchronizer Web Page

 **Audio Sync** 

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

Frame Location: [not assigned](#) , Slot: [7](#)

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="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/> <input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/>			Ch A Delay Adjust (mS) <input type="button" value="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/> <input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/>		
Ch B Delay Adjust (mS) <input type="button" value="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/> <input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/>			Ch B Delay Adjust (mS) <input type="button" value="<<"/> <input type="text" value="0"/> <input type="button" value=">>"/> <input type="button" value="<"/> <input type="button" value="Apply"/> <input type="button" value=">"/>		

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Use the Audio Processing web page ([Figure 35 on page 55](#)) to adjust the following for each audio pair:

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

Audio Gain

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

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

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

Output Processing

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

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

The Presence and Clipping status of each audio channel is reported as **True** or **False** in the read-only displays. If the audio is > -40 dBFS, it will be reported as **True**. If clipping is < 0.5 dBFS, it will be reported as **False** as shown in [Figure 35 on page 55](#).

Figure 35. Audio Processing Web Page



Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 Last Recalled E-MEM: [Factory Defaults](#)

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

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

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

E-MEM Configuration Web Page

- [MUX](#)
 - [AES Inputs](#)
 - [Audio Channel Pairing](#)
 - [Audio Sync](#)
 - [Audio Proc](#)
 - [E-MEM®](#)
 - [Slot Config](#)
- Use this link →

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 36](#)), 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-MUX. 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 37 on page 57](#)).

Figure 36. E-MEM Web Page (Standard View)



Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 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 37) 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 37. E-MEM Web Page (Advanced View)



Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection: Standard Advanced

E-MEM®

Local Operations			File Operations		
<input type="button" value="Recall"/>	E-MEM 1:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="966 1228 1112 1270" type="button" value="Save to..."/>	<input data-bbox="1161 1228 1307 1270" type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 2:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="966 1291 1112 1333" type="button" value="Save to..."/>	<input data-bbox="1161 1291 1307 1333" type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 3:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="966 1354 1112 1396" type="button" value="Save to..."/>	<input data-bbox="1161 1354 1307 1396" type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 4:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="966 1417 1112 1459" type="button" value="Save to..."/>	<input data-bbox="1161 1417 1307 1459" type="button" value="Load from..."/>
<input type="button" value="Recall"/>	E-MEM 5:	<input type="text"/>	<input type="button" value="Learn"/>	<input data-bbox="966 1480 1112 1522" type="button" value="Save to..."/>	<input data-bbox="1161 1480 1307 1522" type="button" value="Load from..."/>

Restore factory settings

Restore factory names

File Operations

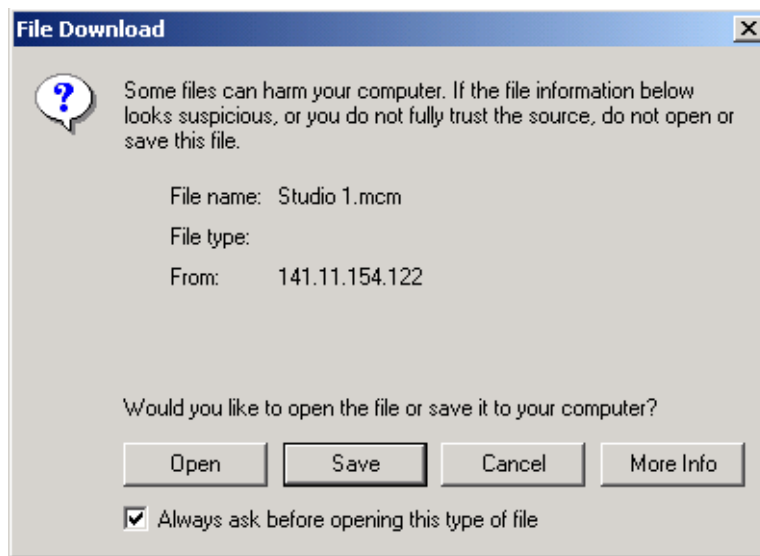
Save File

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.

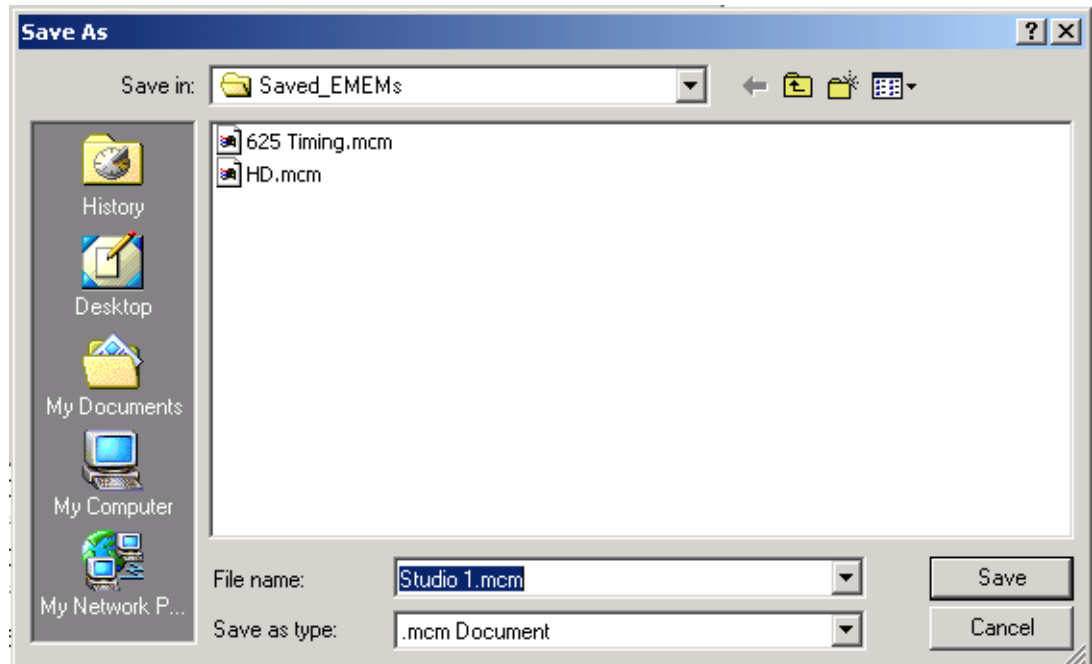
This will bring up a File Download screen similar to [Figure 38](#). Select **Save**.

Figure 38. File Download Screen



This will bring up the Save As screen as shown in [Figure 39](#). 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 39. 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 40](#)).

Figure 40. Load E-MEM Web Page

Load E-MEM 1

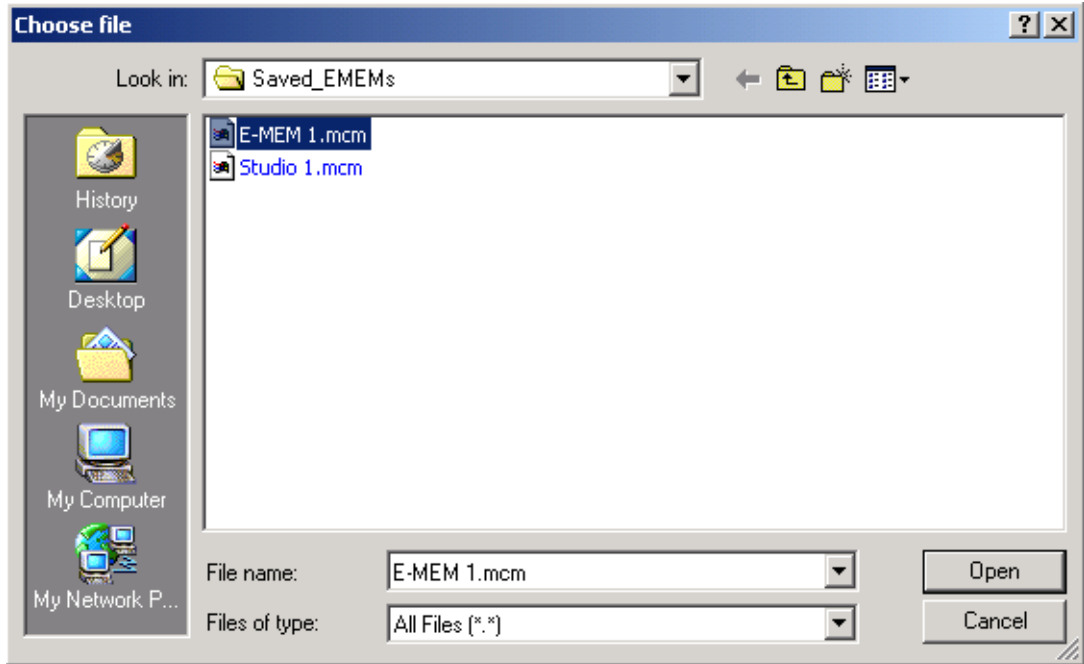
Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync, Proc Amp, AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: 7

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

Figure 41. Choose File Screen



This will place the path and filename in the Load E-MEM screen (Figure 40 on page 59). If this is the correct file, select **Load**. Continue to load files or select **Cancel** to return to the main E-MEM web page. Loaded files will now be entered in the associated E-MEM registers.

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

Slot Configuration Web Page

- [Frame Sync](#)
 - [Video Proc](#)
 - [MUX](#)
 - [AES Inputs](#)
 - [Audio Channel Pairing](#)
 - [Audio Sync](#)
 - [Audio Proc](#)
 - [E-MEM@](#)
 - [Slot Config](#)
- Use this link

Use the Slot Config web page shown in [Figure 42](#) to perform the following functions on the module:

- Slot Identification
- Locate Module
- Slot Memory
- Frame Health Reporting (2000T3 Frame only)
- LED Reports
- SNMP Trap Reporting

Each of these functions is described in detail below.

Figure 42. Slot Configuration Web Page

Slot Config

Model: [KAM-DEC-2AES-MUX](#) Description: [Frame Sync](#), [Proc Amp](#), [AV/2AES to SD/2Embed](#)
 Frame Location: [not assigned](#) , Slot: [7](#)

Slot Identification

Name:

Asset Tag:

Locate Module

▾

Slot Memory

Restore upon Install

[Frame Health Reports](#)

[LED Reports](#)

[SNMP Trap Reports](#)

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 16](#)).

Slot Memory

The slot configuration for each media module is automatically saved periodically (once an hour) 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 and software version 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.

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

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

Frame Health Reports Link

Select the Frame Health Reports link to open the 2000NET module Frame Alarm Reporting web page. This web page allows configuration of the alarms and warnings that are reported to the external Frame Health Alarm connector on the rear of the 2000T3 frame.

Note The external Frame Health Alarm is not present on the 2000T1 frame.

LED Reports Link

Select the LED Reports link to open the 2000NET LED Reporting web page. Normally, every module in the frame will report to the 2000NET module any Fault, Signal Loss, Reference Loss, or Config Error conditions. These conditions will be reflected by the status LEDs on the 2000NET module. Using this web page, any of these conditions can be disabled from being reported to the 2000NET module for each individual module in the frame.

SNMP Trap Reports Link

Select the SNMP Trap Reports link to open the 2000NET SNMP Reporting web page. This link will only be present when SNMP Agent software has been installed on the 2000NET module. This web page allows configuration of which alarms and warnings that are reported to the SNMP management software.

Refer to the *2000NET Instruction Manual* for complete details on using the 2000NET web pages.

Software Updating

Software updating of the Kameleon modules is now done using the NetConfig Networking Application PC option. This application is available free of charge from the Thomson Grass Valley web site as described in the software release notes. When the Kameleon module is installed in a frame with a 2000NET module running version 4.0.0 or later, the Software Update web page is no longer present.

Note If you are using a 2000NET card with software earlier than 4.0.2 (the latest version), you may still use the Software Update page, but updating to the latest version of the 2000NET module and using the NetConfig application is recommended.

The procedure for updating software with NetConfig will be given in the latest KAM-DEC-2AES-MUX Release Notes when an update is available. Refer to this document for complete details on features of the new software release and other important notes about the update.

Specifications

Note Specifications are subject to change without notice.

Table 6. SDI Output Specifications

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

Table 7. Composite Input Specifications

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

Table 7. Composite Input Specifications

Parameter	Value
Field tilt	< 0.5%
Differential phase	< 1 degree
Differential gain	< 1%
Signal/noise ratio (CCIR410 or EIA RS-250B)	> 60 dB to 5.5 MHz
Phasing	None
Picture centering error	0.0 ±20 ns non-adjustable
Decoding modes	Three-line adaptive with two pre-programmed adaption threshold levels high/low
Blanking start/end	SMPTE170M or CCIR624, non-adjustable
Composite In Control	
Overall video gain range	44% to 219% in 0.5% steps, 100% default
Black range	-21.5% to +22% of luma full-scale in 0.1% steps, 0 default
Hue range	-180 to + 179 degrees in 0.1 degree steps, 0 degree default (525 only)
Setup processing in vertical	Line by line on/off (525 only)
Vertical blanking processing	Line by line blank/notch decode/pass

Table 8. Frame Sync/Timing Specifications

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

Table 9. Main Video Processing Specifications

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

Table 10. AES/EBU Input Specifications

Parameter	Value	
	Balanced (AES3-1992)	Unbalanced (AES3id 2001)
AES/EBU Input		
Common mode range	+ 10/-10 V, 50 Hz to 20 kHz	NA
Differential voltage range	200 mV p-p to 12 V p-p	200 mV p-p to 2 V p-p
Input return loss	> 25 dB (100 kHz to 6 MHz)	> 15 dB (100 kHz to 6 MHz)

Table 10. AES/EBU Input Specifications

Parameter	Value	
Sample rate	32 – 96 kHz	32 – 96 kHz
Performance		
Static withstand	5 kV (330 Ω, 150 pF)	

Table 11. Multiplexing Specifications

Parameter	Value
MUX Performance	
Standard	SMPTE 272M A, C: Synchronous audio, 48K, 20/24 bits/sample Compatible with buffer sizes down to 48 samples
Pass through	Up to 4 groups (frame sync must be in delay mode)
Insert	1 group
Bits/sample on inserted audio	20/24 bits, selectable
Buffer size	170 samples
MUX delay	1.77 ms
Distribution	Evenly distributed, minimum of 3 samples per line, maximum of 4 samples per line except near switching lines Switch line and nearby lines (lines 4, 5, 6, 317, 318, 319 for 625; 8, 9, 10, 270, 271, 272 for 525) have 0 samples

Table 12. Audio Processing Specifications

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

Table 13. Electrical Length Specifications

Parameter	Value
Electrical Length	
Composite In to SDI Out	1 line + 10 μs
AES/EBU to SDI Out (MUX)	3.8 ms @ 48 kHz

Table 14. Environmental/Power Specifications

Parameter	Value
Environmental	
Frame temperature range	0 to 40 degrees C ambient
Operating humidity range	0 to 90% non-condensing
Non-operating temperature	-10 to +70 degrees C
Mechanical	
Frame type	2000T1DNG Kameleon Frame or 2000T3NG Kameleon Frame
Power	
Consumption	14 Watts typical

Service

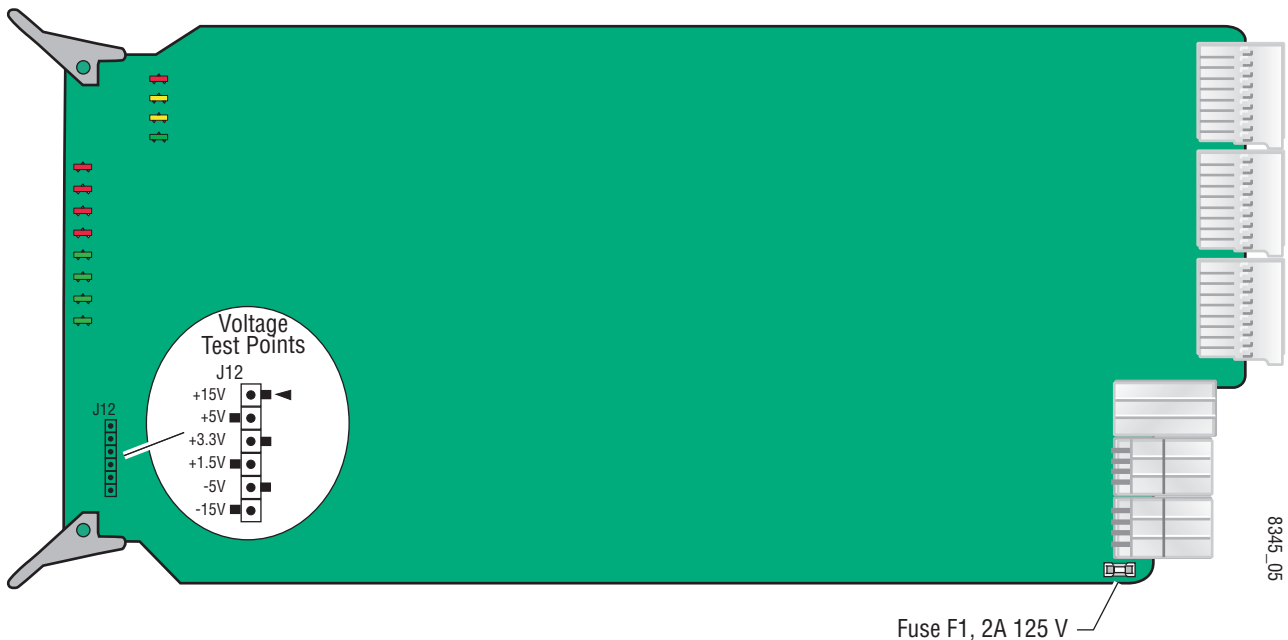
The Kameleon modules make extensive use of surface-mount technology and programmed parts to achieve compact size and adherence to demanding technical specifications. Circuit modules should not be serviced in the field except to check and replace fuses.

Troubleshooting

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

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

Figure 43. Location of Module Fuse and Voltage Testpoints



Refer to [Figure 8 on page 15](#) for the location of PWR LED and [Table 2 on page 16](#) for proper LED indications.

If the module is still not operating correctly, replace it with a known good spare and return the faulty module to a designated Grass Valley repair depot. Call your Grass Valley representative for depot location.

Refer to the [Contacting Grass Valley on page 4](#) at the front of this document for the Grass Valley Customer Support Information number.

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