

# KAM-SD-2AES

KAMELEON SERIES MODULES

Instruction Manual

SOFTWARE VERSION 4.0.3

071835700  
JANUARY 2005

*the most watched worldwide*

# Contacting Grass Valley

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

Copyright © Thomson Broadcast and Media Solutions All rights reserved.

## Grass Valley Web Site

The [www.thomsongrassvalley.com](http://www.thomsongrassvalley.com) web site offers the following:

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

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

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

# Contents

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

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

Introduction ..... 7  
Installation ..... 8  
    System Requirements ..... 8  
    Frame Capacity ..... 8  
    Module Placement in the 2000T3NG Kameleon Frame..... 9  
        Installing the Front and Rear Modules..... 9  
Cabling ..... 12  
    SDI Video In ..... 12  
    AES Audio Inputs ..... 12  
    AES Audio Outputs..... 12  
    SDI Video Out..... 12  
Power Up ..... 13  
    Operation Indicator LEDs ..... 14  
Configuration and Adjustments ..... 15  
    Configuration Summary..... 15  
    Newton Control Panel Configuration ..... 18  
    Web Browser Interface ..... 19  
    Web Page Operations and Functional Elements..... 21  
        Status and Identification Header..... 21  
Initial Configuration Process Overview ..... 22  
KAM-SD-2AES Links and Web Pages ..... 23  
    Status Web Page..... 24  
        Color-coded Status Indicators and Links..... 24  
        Status/Front Module Properties ..... 24  
        Submodule Properties..... 24  
        Warning/Fault Summary..... 26  
    Input/Output Configuration Web Page ..... 27  
        Web Page Elements ..... 28  
    Functional View Web Page ..... 30  
    SDI In Web Page ..... 31  
    Video Input Select Web Page..... 33  
        View Selection ..... 33  
        Video Selection Settings ..... 33  
        Output Timing Selection..... 34  
        Advanced VBI Configuration..... 35  
    Frame Sync Web Page..... 37  
        Timing Adjustment ..... 37  
        Freeze Mode Selection..... 37  
    Video Processing Web Page..... 39

Contents

- Video Processing Controls . . . . . 39
  - Clipping Controls . . . . . 41
  - Reset To Default . . . . . 41
- VBI SDI Web Page . . . . . 43
- AES Inputs Web Page . . . . . 45
- Audio Channel Pairing Web Page . . . . . 46
- Audio Sync Web Page . . . . . 47
  - Enable Auto Track. . . . . 47
  - Delay Adjustments . . . . . 47
- Audio Processing Web Page . . . . . 49
  - Audio Gain. . . . . 49
  - Output Processing. . . . . 49
  - Selecting Output Resolution . . . . . 50
- AES Outputs Web Page . . . . . 51
- E-MEM Configuration Web Page. . . . . 52
  - File Operations. . . . . 54
- Slot Configuration. . . . . 57
  - Slot Identification . . . . . 57
  - Locate Module . . . . . 57
  - Slot Memory. . . . . 57
  - Frame Heath Reporting . . . . . 59
  - Hardware Switch Controls . . . . . 59
  - Slot SNMP Trap Reports . . . . . 59
- Software Update Web Page. . . . . 60
- Specifications. . . . . 61
- Service . . . . . 64
  - Troubleshooting . . . . . 64
- Index**. . . . . 65

# *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-SD-2AES Kameleon Series Module*

## **Introduction**

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

The KAM-SD-2AES module provides broadcast quality serial digital video synchronization and processing. Two AES audio inputs are available to the module for processing and synchronizing to two AES outputs.

This module features:

- Broadcast quality serial digital video processing and frame synchronization,
- 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-SD-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. Place the front media module in the corresponding front slot.
3. Cable the signal ports.

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

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

## System Requirements

For proper operation of the KAM-SD-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<br>Kameleon Frame<br>Capacity | 2000T1DNG<br>Kameleon Frame<br>Capacity |
|------------------------|--|---|
| KAM-SD-2AES Module set | 12                                     | 4                                       |



## Module Placement in the 2000T3NG Kameleon Frame

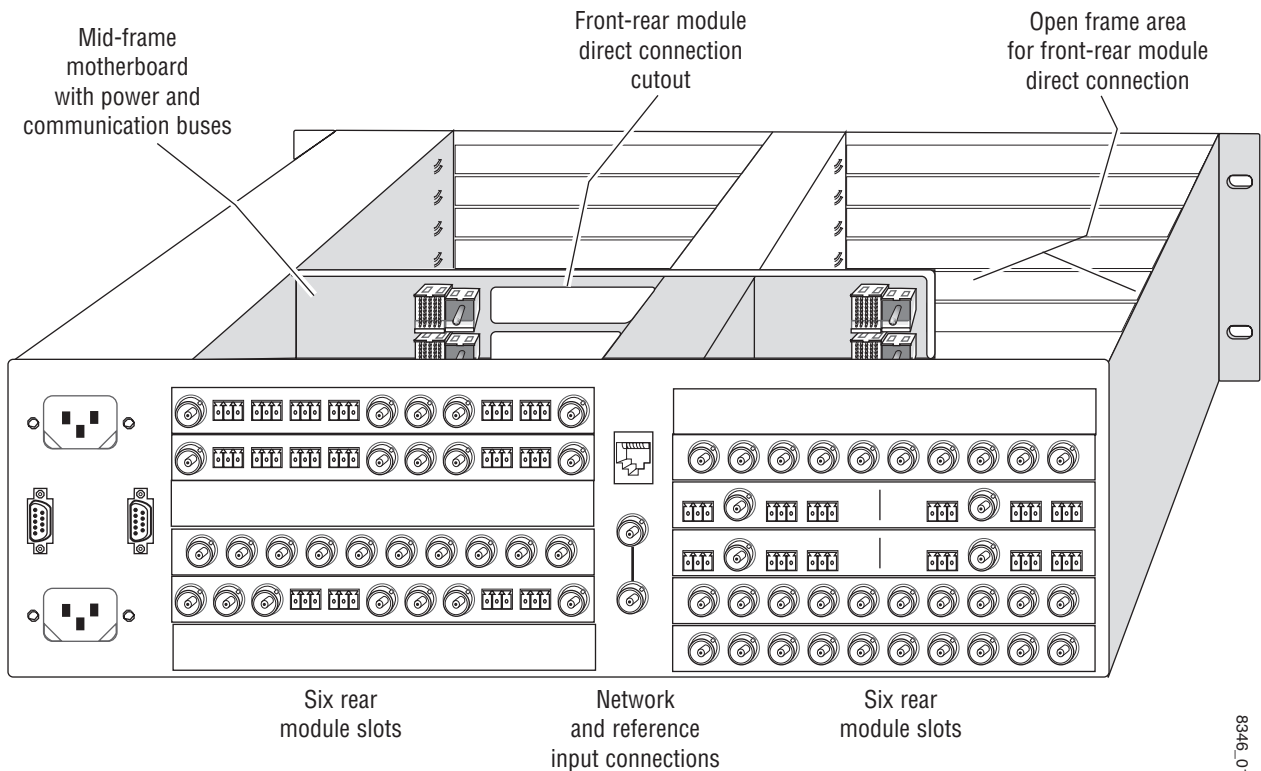
There are twelve slot locations in both the front and rear of a 3 RU frame to accommodate 2000 and Kameleon Series media modules (audio/video signal handling modules). The Kameleon media modules consist of a two-module set with a front processing media module and a passive rear module that can be plugged 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-SD-2AES module set in the 2000 Series frame:

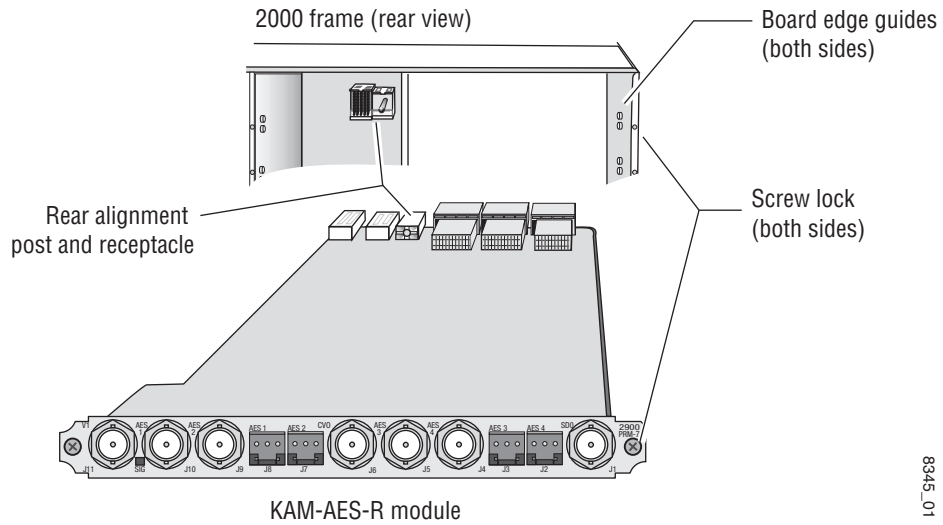
1. Locate a vacant slot in the rear of the 3 RU frame (Figure 1).

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.

Figure 2. Installing Passive Rear Module

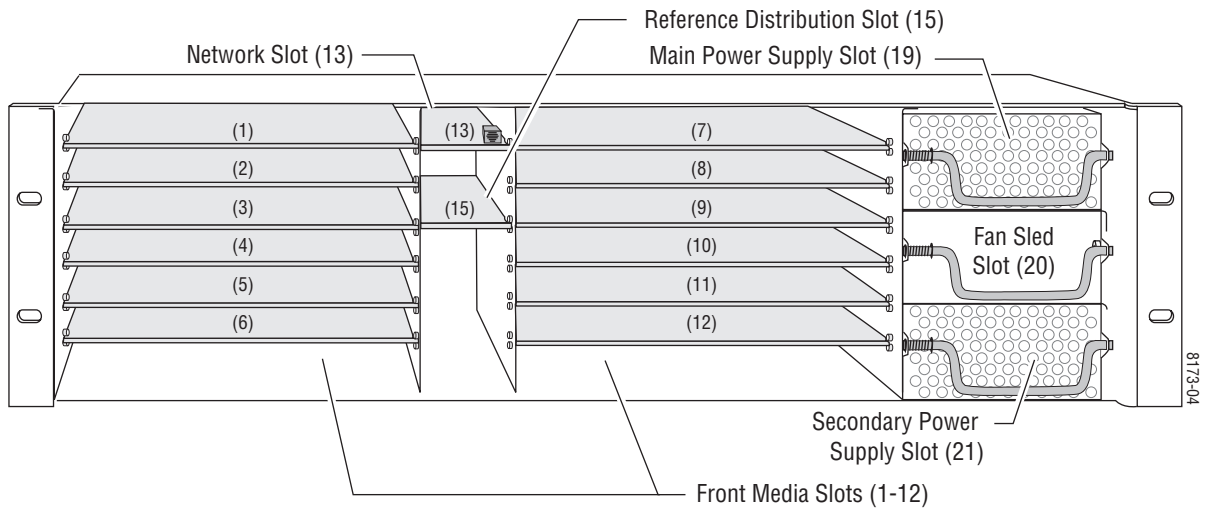


8345\_01

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.

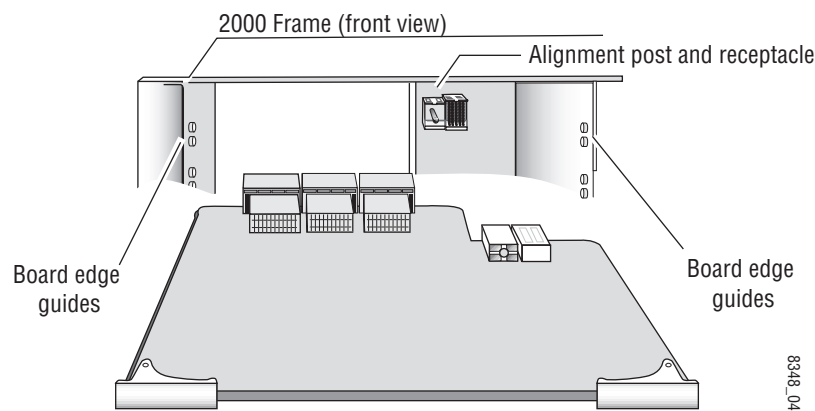
5. Locate the corresponding front media slot (1 -12) in the frame. The 3 RU frame front view is illustrated in [Figure 3](#).

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](#).

### SDI Video In

Connect serial digital video 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

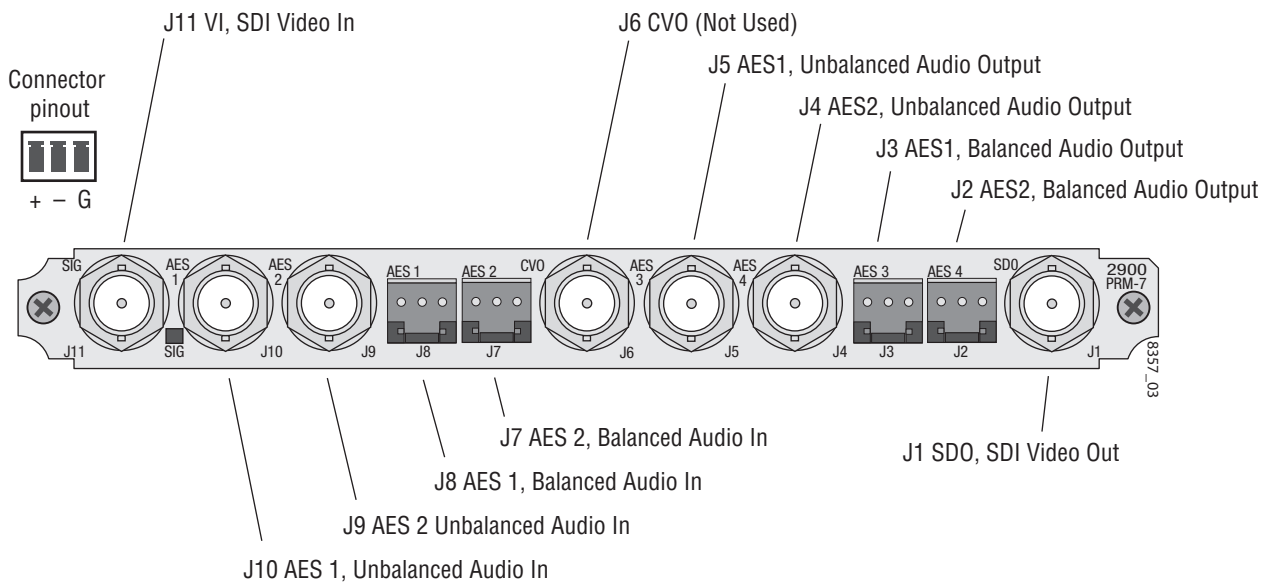
Two AES audio outputs are available at unbalanced BNC connectors J4 and J5 or balanced 3-pin connectors J2 and J3. The choice between balanced or unbalanced outputs must be made on the *Input/Output Configuration Web Page on page 27*.

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

### SDI Video Out

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

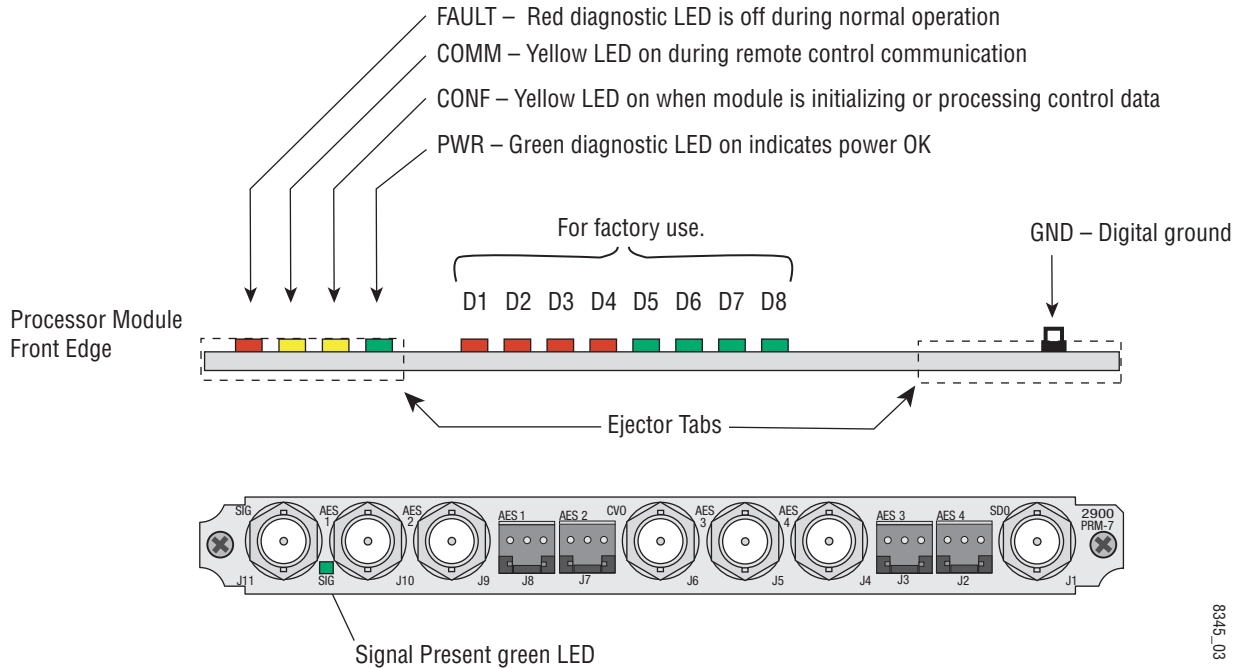
Figure 5. KAM-AES-R Input/Output Connectors



# Power Up

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

Figure 6. Front and Rear Module Indicator LEDs



8345\_03

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 57*).

# Configuration and Adjustments

KAM-SD-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-SD-2AES Configuration Controls

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

Table 3. Summary of KAM-SD-2AES 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/<br>Freeze Mode Selection radio buttons  | N/A                  |
| Enable video processing                        | Enable                       | Disable, Enable, or Color Bars                            | Video Proc/<br>Video Processing radio buttons   | N/A                  |
| Video gain lock                                | Off                          | On or Off   | Video Proc/<br>Video Gain Lock radio buttons  | N/A                  |
| Main video contrast/Y gain                     | 100%                         | 50 to 149.6%<br>(0.4% steps)                              | Video Proc/Standard View<br>Y Gain control (%)  | YGain                |
| Main video chroma gain                         | 100%                         | 50 to 149.6%<br>(0.4% steps)                              | Video Proc/Standard View<br>Chroma Gain control (%)   | ChroGain             |
| Enable Clip controls                           | Disable                      | Enable or Disable   | Video Proc/Standard View<br>Clip Settings radio buttons   | N/A                  |
| Apply clips set in Video Proc to all VBI lines | Off                          | On or Off   | Video Proc/Standard View<br>Apply Clips to VBI checkbox or<br>VBI SDI/<br>Apply Clips to VBI checkbox | N/A                  |
| Main video soft/Y black clip                   | -6.8%                        | -6.8 to 109%<br>(0.1% steps)                              | Video Proc/Standard View<br>Soft/Y Black Clip control (%)   | YBClip               |
| Main video hard/video black clip               | -37.3% (525)<br>-30.0% (625) | -37.3 to -7.3% (525)<br>-30.0 to 0% (625)<br>(0.1% steps) | Video Proc/Standard View<br>Hard/Video Black Clip control (%)   | VBClip               |
| Main video soft/Y white clip                   | 109%                         | -6.8 to 109%<br>(0.1% steps)                              | Video Proc/Standard View<br>Soft/Y Clip control (%)   | YWClip               |
| Main video hard/video white clip               | 138.7%                       | -6.8 to 138.7%<br>(0.1% steps)                            | Video Proc/Standard View<br>Hard/Video Clip control (%)   | VidWClip             |
| Main video brightness/Y offset                 | 0%                           | -3.55 to 3.44%<br>(0.11% steps)                           | Video Proc/Advanced View<br>Brightness/Y Offset control (%)   | YOffset              |
| Main video hue/chroma phase                    | 0.0                          | ± 89.8 degrees<br>(0.1 degree steps)                      | Video Proc/Advanced View<br>Hue/Phase control (degrees)   | ChroPhs              |
| Main video B-Y gain                            | 100%                         | 50 to 149.6%<br>(0.4% steps)                              | Video Proc/Advanced View<br>B-Y Gain control (%)  | BYGain               |
| Main video B-Y balance/offset                  | 0.0                          | -3.55 to 3.44%<br>(0.11% steps)                           | Video Proc/Advanced View<br>B-Y Balance/Offset control (%)  | N/A                  |
| Main video R-Y gain                            | 100%                         | 50 to 149.6%<br>(0.4% steps)                              | Video Proc/Advanced View<br>R-Y Gain control (%)  | RYGain               |
| Main video R-Y balance/offset                  | 0.0                          | -3.55 to 3.44%<br>(0.11% steps)                           | Video Proc/Advanced View<br>R-Y Balance/Offset control (%)  | N/A                  |
| Blank SDI VBI lines (line-by-line)             | Not Blanked                  | Blank/Not Blanked   | VBI SDI/<br>Field 1/Field 2 Blank VBI line checkboxes   | N/A                  |
| AES input sample rate                          | Disable                      | Enable or Disable   | AES Inputs/<br>Sample Rate Convert disable radio button   | N/A                  |
| AES input loss of signal report                | Enable                       | Enable or Disable   | AES Inputs/<br>Loss of Signal Report checkbox   | N/A                  |
| AES input AES error warning                    | Enable                       | Enable or Disable   | AES Inputs/<br>AES Error Warn checkbox  | N/A                  |
| Audio Pair 1 and Pair 2 channel swap           | –                            | –   | Audio Channel Pairing/<br>Pair 1 and 2 Ch A and Ch B radio buttons                                    | Pair1Swp<br>Pair2Swp |



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

| Function   | Default  | Range/Choices Resolution   | Web Page/<br>Function Name  | Newton<br>Panel   |
|--|--|--|---|---|
| Define audio Pair 1 and Pair 2 Ch A and Ch B audio streams   | Pair1ChA=<br>Str1.Ch1<br>Pair1ChB=<br>Str1.Ch2<br>Pair2ChA=<br>Str2.Ch1<br>Pair2ChB=<br>Str2.Ch2 | Str1.Ch1<br>Str1.Ch2<br>Str2.Ch1<br>Str2.Ch2<br>Silence                  | Audio Channel Pairing/<br>Pair 1 and 2 Ch A and Ch B radio buttons              | Str1.Ch1<br>Str1.Ch2<br>Str2.Ch1<br>Str2.Ch2<br>Silence |
| Enable auto tracking for Pair 1 and 2 Ch A and Ch B  | Off  | On or Off  | Audio Sync/<br>Pair 1 and Pair 2 Ch A and Ch B<br>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/<br>Pair 1 and Pair 2 Ch A and Ch B<br>Channel Lock Locked checkbox  | N/A   |
| Audio Pair 1 Ch A delay adjust<br>Audio Pair 1 Ch B delay adjust<br>Audio Pair 2 Ch A delay adjust<br>Audio Pair 2 Ch B delay adjust | 0  | 0 to 5180 ms<br>(20 ms steps)  | Audio Sync/<br>Pair 1 and Pair 2 Ch A and Ch B<br>Delay controls (ms)           | Ch1ADly<br>Ch1BDly<br>Ch2ADly<br>Ch2BDly                |
| Select audio processing option for Pair 1 Ch A' and Ch B' and Pair 2 Ch A' and Ch B'   | Pass   | Pass<br>Invert,<br>A+B<br>A – B,<br>-(A+B)<br>1 kHz<br>400 Hz<br>Silence | Audio Proc/<br>Pair 1 and Pair 2 Ch A' and Ch B'<br>Processing pulldowns        | Ch1AProc<br>Ch1BProc<br>Ch2AProc<br>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/<br>Pair 1 and Pair 2 Ch A and Ch B<br>Locked checkbox               | N/A   |
| Audio Pair 1 Ch A gain adjust<br>Audio Pair 1 Ch B gain adjust<br>Audio Pair 2 Ch A gain adjust<br>Audio Pair 2 Ch B gain adjust     | 0 dB   | -40 to + 6 dB  | Audio Proc/<br>Pair 1 and Pair 2 Ch A and Ch B<br>Gain controls (dB)            | Ch1AGain<br>Ch1BGain<br>Ch2AGain<br>Ch2BGain            |
| Set output resolution for Pair channels  | 20 bit   | 20 bit or 24 bit   | Audio Proc/<br>Pair 1 and Pair 2 Ch a and Ch B<br>20 bit or 24 bit radio button | N/A   |
| Assign AES pairs to output connectors  | –  | Audio Pairs  | AES Outputs/<br>J4 & J5 (Unbalanced) and<br>J2 & J3 (Balanced)<br>radio buttons | N/A   |

## Newton Control Panel Configuration

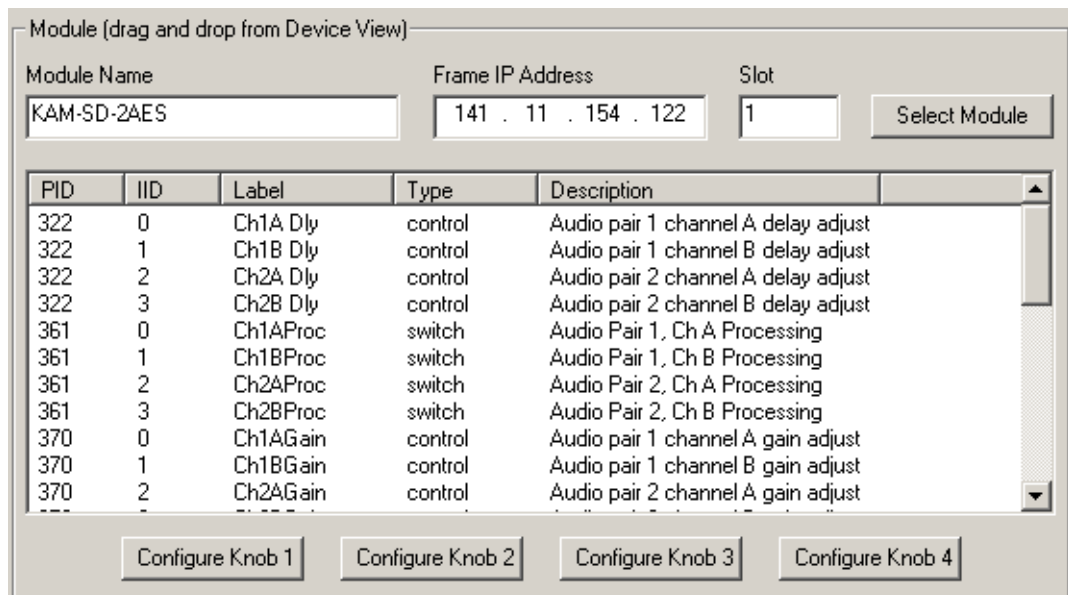
A Newton Control Panel (hard or soft version) can be interfaced to the Kameleon 2000 Series frame over the local network. Control panel access offers the following considerations for module configuration and monitoring:

- 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

**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 |
| Media Module |          | Empty        |            |
| Media Module | Aux Card | Media Module | Empty      |
| Media Module |          | Empty        |            |
| Media Module |          | Empty        | Power Sled |
| Media Module |          | Media Module |            |

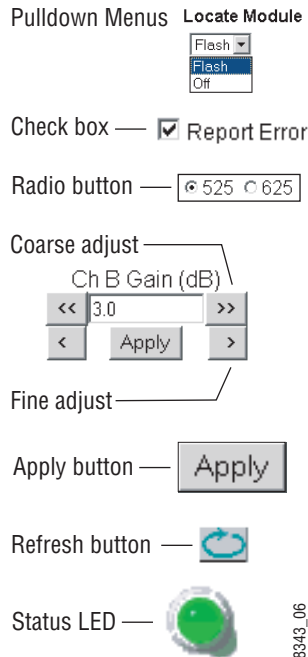
**Properties**  
 Vendor Thomson, Grass Valley Software Version 3.2.2  
 Media Slots 13

**Navigation Links:**  
[Bay 2 QA 2000 Frame](#)  
[Status](#)  
[Configuration](#)  
[1 KAM-ENC-2AES-DMX](#)  
[2 KAM-SD-2AES-DMX](#)  
[3 KAM-SD-2AES](#)  
[4 KAM-SD-2AES-EAP](#)  
[5 Media Slot 5](#)  
[6 Media Slot 6](#)  
[7 Media Slot 7](#)  
[8 Media Slot 8](#)  
[9 Media Slot 9](#)  
[10 Media Slot 10](#)  
[11 Media Slot 11](#)  
[12 Media Slot 12](#)  
[13 2000NET](#)  
[15 Sync Slot](#)  
[19 Power Sled 19](#)  
[20 Fan Sled 20](#)  
[21 Power Sled 21](#)

8857\_01

## 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. 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-SD-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 52) and an Advanced view providing additional **Save to** and **Load from** file operations (page 53),
- Slot Config – provides a Locate Module function, Slot Identification and Memory, and SNMP trap enable/disable controls (page 57), and
- Software Update – allows updating of software from a CD-ROM or the web site (page 60).

Figure 10. KAM-SD-2AES Web Page Links

### 3 KAM-SD-2AES

Status

I/O Config

Functional View

- SDI In

- Video Input Select

- Frame Sync

- Video Proc

- VBI SDI

- AES Inputs

- Audio Channel Pairing

- Audio Sync

- Audio Proc

- AES Outputs

E-MEM@

Slot Config

Software Update

## Status Web Page

Use  
this  
link

- 3 [KAM-SD-2AES](#)
- [Status](#)
- [I/O Config](#)
- [Functional View](#)
- [SDI In](#)
- [Video Input Select](#)
- [Frame Sync](#)
- [Video Proc](#)
- [VBI SDI](#)
- [AES Inputs](#)

The Status web page for the KAM-SD-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 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-SD-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.

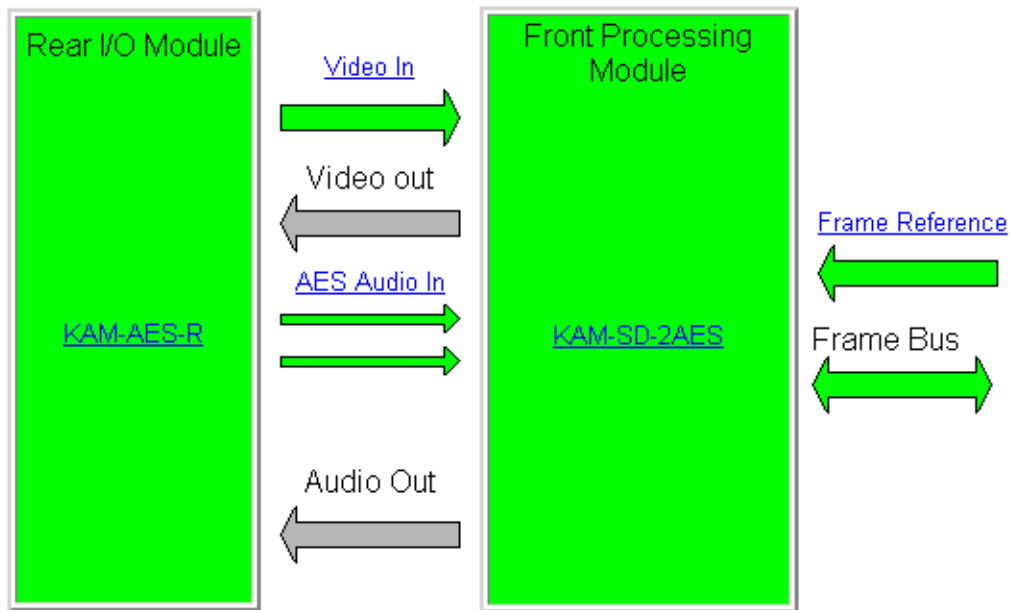


Figure 11. Module and Signal Status



Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 3  
 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: [VR02376374](#)  
 Hardware Revision: [31A](#)  
 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)
- Internal Error - Unknown front module type

## Input/Output Configuration Web Page

- Use this link
- 3 [KAM-SD-2AES](#)
  - [Status](#)
  - [I/O Config](#)
  - [Functional View](#)
  - [SDI In](#)
  - [Video Input Select](#)
  - [Frame Sync](#)
  - [Video Proc](#)

Use the I/O Config web page to:

- View a graphical overview of the currently installed rear module connectors,
- See signal status of inputs,
- Select AES input and output connector types (Balanced/Unbalanced), and
- 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-SD-2AES front module with unbalanced audio inputs and outputs selected (**Unbalanced** radio buttons 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 AES)

**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: 3  
 Last Recalled E-MEM: [Factory Defaults](#)

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

|                       |  |                                    |                                  |                                  |           |  |                                    |                                  |                                  |                             |
|-----------------------|--|------------------------------------|----------------------------------|----------------------------------|-----------|--|------------------------------------|----------------------------------|----------------------------------|-----------------------------|
| J11<br>VI<br>Video In | J10<br>AES 1<br>Unbalanced<br>Audio  | J9<br>AES 2<br>Unbalanced<br>Audio | J8<br>AES 1<br>Balanced<br>Audio | J7<br>AES 2<br>Balanced<br>Audio | J6<br>CVO | J5<br>AES 3<br>Unbalanced<br>Audio   | J4<br>AES 4<br>Unbalanced<br>Audio | J3<br>AES 3<br>Balanced<br>Audio | J2<br>AES 4<br>Balanced<br>Audio | J1<br>SDO<br>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               | Present  | Not 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 |                                    |                                  |                                  |                             |

Select AES input type

Select AES output type

**Legend:**

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

Figure 13 illustrates the I/O Config web page for the KAM-AES-R passive rear module required for the KAM-SD-2AES front module with balanced audio inputs and selected (**Balanced** radio buttons selected).

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

**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 3  
 Last Recalled E-MEM: Factory Defaults

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

| J11<br>VI<br>Video In | J10<br>AES 1<br>Unbalanced<br>Audio  | J9<br>AES 2<br>Unbalanced<br>Audio | J8<br>AES 1<br>Balanced Audio | J7<br>AES 2<br>Balanced Audio | J6<br>CVO | J5<br>AES 3<br>Unbalanced<br>Audio   | J4<br>AES 4<br>Unbalanced<br>Audio | J3<br>AES 3<br>Balanced Audio | J2<br>AES 4<br>Balanced Audio | J1<br>SDO<br>Serial Digital |
|-----------------------|--|------------------------------------|-------------------------------|-------------------------------|-----------|--|------------------------------------|-------------------------------|-------------------------------|-----------------------------|
|                       |  |                                    |                               |                               |           |  |                                    |                               |                               |                             |
| Input                 |  |                                    | Input                         | Input                         |           |  |                                    | Output                        | Output                        | Output                      |
| Video In              | AES In 1<br>Unbal  | AES In 2<br>Unbal                  | AES In 1 Bal                  | AES In 2 Bal                  |           | AES Out 1<br>Unbal   | AES Out 2<br>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

## Web Page Elements

Each element of I/O Config web page is summarized below.

### 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 serial digital video input, two AES audio inputs and outputs, and one serial digital output are supported.

### 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*

| <b>Color</b>       | <b>Video In</b>                    | <b>Analog Audio In</b> | <b>Analog Audio Out</b> | <b>Digital Audio In</b> | <b>Digital Audio Out</b> | <b>Video Out</b> |
|--------------------|------------------------------------|------------------------|-------------------------|-------------------------|--------------------------|------------------|
| <b>Green</b>       | Present                            | None                   | None                    | Present                 | None                     | None             |
| <b>Yellow</b>      | Not present or<br>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
- 3 KAM-SD-2AES
  - Status
  - I/O Config
  - Functional View
  - SDI In
  - Video Input Select
  - Frame Sync
  - Video Proc

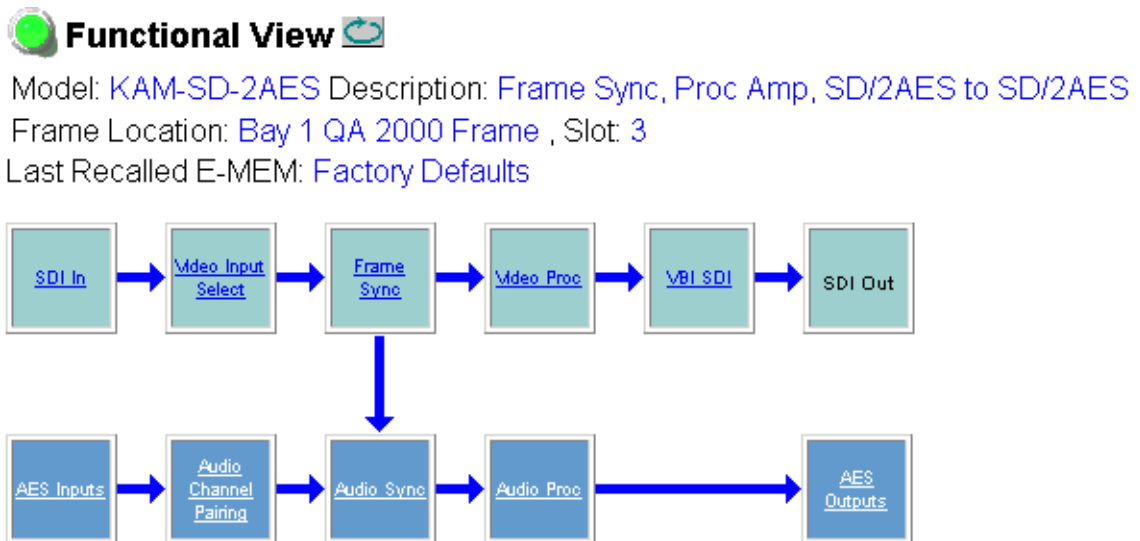
Use the Functional View web page (Figure 14) to:

- 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



## SDI In Web Page

Use this link

- 3 [KAM-SD-2AES](#)
- [Status](#)
- [I/O Config](#)
- [Functional View](#)
- [SDI In](#)
- [Video Input Select](#)
- [Frame Sync](#)
- [Video Proc](#)

Use the SDI In web page to view the status of the SDI input signal in Summary view (Figure 15) or Detail view (Figure 16 on page 32):

- Select the **Summary** radio button to bring up the summary view shown in Figure 15.
- Use the **Clear All Status** button to clear and reset the status reporting.

Figure 15. SDI In Web Page (Summary View)



Model: [KAM-SD-2AES](#) Description: [Frame Sync](#), [Proc Amp](#), [SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 3  
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection:  Summary  Detail

|                                  |                          |
|----------------------------------|--------------------------|
| Input Signal Name                | <a href="#">Video In</a> |
| Input Signal State               | <a href="#">Present</a>  |
| Input Signal Standard            | <a href="#">525</a>      |
| Current State                    | <a href="#">No Error</a> |
| Reported Errors                  | <a href="#">No Error</a> |
| <a href="#">Clear All Status</a> |                          |

[Functional View](#)    [Next](#)

To view a detailed view of the SDI input status, select the **Detail** radio button to bring up the view shown in Figure 16 on page 32.

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

Figure 16. SDI In Web Page (Detail View)



Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection:  Summary  Detail

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

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

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



## Video Input Select Web Page

Use  
this  
link

- [I/O Config](#)
- [Functional View](#)
- [SDI In](#)
- [Video Input Select](#)
- [Frame Sync](#)
- [Video Proc](#)
- [VBI SDI](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)

Use the Video Input Select web page (Figure 17 on page 34) 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 17 on page 34. Use the **Advanced** view for configuring the Vertical Blanking Interval for selecting active video lines to carry data (see *Advanced VBI Configuration on page 35*).

### Video Selection Settings

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

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

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

- Video Format – current input video format reported.
- Video Line Rate – select 525 or 625 line rate or enable automatic line rate detection
- Frame Reference –
  - 2000GEN frame reference signal presence reported,
  - Enable/disable Loss of Signal report to both Kameleon status web pages and SNMP monitoring devices.
- SDI Input Errors –
  - Input signal errors reported, and
  - Enable/disable SDI error warning report to both Kameleon status web pages and SNMP monitoring devices.

- Frame Sync/Delay – (read-only) Frame Sync mode is reported when Output Timing Selection is **Internal Frame Reference** and timing is provided from the 2000GEN module. Frame Delay mode is reported when the input signal (**Video In**) is used for timing reference.

## Output Timing Selection

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

Figure 17. Video Input Select – Standard View

### Video Input Select

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

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)

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 checked="" type="checkbox"/> Report Loss of Signal                                 |
| Video Format                     | <a href="#">SDI</a>        | <a href="#">SDI</a>   |
| Video Line Rate                  | <a href="#">525</a>        | <input type="radio"/> 525 <input type="radio"/> 625 <input checked="" type="radio"/> Auto |
| Frame Reference                  | <a href="#">Present</a>    | <input checked="" type="checkbox"/> Report Loss of Signal                                 |
| <a href="#">SDI Input Errors</a> | <a href="#">Clear</a>      | <input checked="" type="checkbox"/> Warn SDI Errors                                       |
| Frame Sync / Delay               | <a href="#">Frame Sync</a> |   |

#### Output Timing Selection

|                          | Source                           | Status                  | Mode                | GenLock                | Audio Framing            |
|--------------------------|----------------------------------|-------------------------|---------------------|------------------------|--------------------------|
| Internal Frame Reference | <input checked="" type="radio"/> | <a href="#">Present</a> | <a href="#">525</a> | <a href="#">Locked</a> | <a href="#">Free Run</a> |
| Video In                 | <input type="radio"/>            | <a href="#">Present</a> | <a href="#">525</a> | -                      | -                        |

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

## 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 18).

Figure 18. Standard and Advanced View Selection

### Video Input Select

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

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 3

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 19 on page 36](#) for 525 line rate and [Figure 20 on page 36](#) 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 19 on page 36](#) and lines 24/337 and 25/338 in [Figure 20 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 19. Advanced VBI Configuration – 525 Line Rate

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

**VBI / Data Lines**

|                       |   |            |            |            |            |            |
|-----------------------|---|------------|------------|------------|------------|------------|
| <b>Field 1 Lines</b>  | 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] |
| <b>Field 2 Lines</b>  | 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 |            |            |            |            |            |

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

Figure 20. Advanced VBI Configuration – 625 Line Rate

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

**VBI / Data Lines**

|                       |  |            |            |            |            |            |            |
|-----------------------|--|------------|------------|------------|------------|------------|------------|
| <b>Field 1 Lines</b>  | 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] |
| <b>Field 2 Lines</b>  | 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 |            |            |            |            |            |            |

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

## Frame Sync Web Page

Use  
this  
link

- [I/O Config](#)
- [Functional View](#)
- [SDI In](#)
- [Video Input Select](#)
- [Frame Sync](#)
- [Video Proc](#)
- [VBI SDI](#)
- [AES Inputs](#)

Use the Frame Sync web page (Figure 21 on page 38 and Figure 22 on page 38) 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 33*.

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 21 on page 38). 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 22 on page 38). AutoBlack outputs a black signal while AutoFreeze outputs the last complete video field.

Figure 21. Frame Synchronizer Web Page – Video In Reference



Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 3  
Last Recalled E-MEM: [Factory Defaults](#)

### Timing Adjustment

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

### Freeze Mode Selection

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

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

Figure 22. Frame Synchronizer Web Page – Internal Frame Reference



Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 3  
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 |
|-------------|--|

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

## Video Processing Web Page

Use  
this  
link

- [I/O Config](#)
- [Functional View](#)
- [SDI In](#)
- [Video Input Select](#)
- [Frame Sync](#)
- [Video Proc](#)
- [VBI SDI](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)

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 23 on page 40). 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 24 on page 42.

### Standard View

In Standard View (Figure 23 on page 40), 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 23. Video Processing Web Page – Standard View

 **Video Proc** 

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

Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)

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 (%)<br><input type="text" value="100.0"/><br><input type="button" value="Apply"/>                        | Saturation/Chroma Gain (%)<br><input type="text" value="100.0"/><br><input type="button" value="Apply"/> |
| Brightness/Y Offset (%)<br><input type="text" value="0.00"/><br><input type="button" value="Apply"/>                     | Hue/Chroma Phase (Deg)<br><input type="text" value="0.0"/><br><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 (%)<br><input type="text" value="109.0"/><br><input type="button" value="Apply"/> | Hard/Video White Clip (%)<br><input type="text" value="138.7"/><br><input type="button" value="Apply"/> |
| Soft/Y Black Clip (%)<br><input type="text" value="-6.8"/><br><input type="button" value="Apply"/>  | Hard/Video Black Clip (%)<br><input type="text" value="-37.3"/><br><input type="button" value="Apply"/> |

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



## Advanced View

In Advanced View ([Figure 24 on page 42](#)), 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 24 on page 42](#). 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. This control is also available on the VBI SDI web page ([page 43](#)).

Use the following clipping controls to adjust levels on the video 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 24. Video Processing Web Page – Advanced View

**Video Proc**

Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 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 (%)<br><< 100.0 >><br>< Apply >  | Saturation/Chroma Gain (%)<br><< 100.0 >><br>< Apply > | B-Y Gain (%)<br><< 100.0 >><br>< Apply >          | R-Y Gain (%)<br><< 100.0 >><br>< Apply >          |
| Brightness/Y Offset (%)<br><< 0.00 >><br>< Apply >   | Hue/Chroma Phase (Deg)<br><< 0.0 >><br>< Apply >       | B-Y Balance/Offset (%)<br><< 0.00 >><br>< Apply > | R-Y Balance/Offset (%)<br><< 0.00 >><br>< 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 (%)<br><< 109.0 >><br>< Apply >                                    | Hard/Video White Clip (%)<br><< 138.7 >><br>< Apply > |
| Soft/Y Black Clip (%)<br><< -6.8 >><br>< Apply >                                     | Hard/Video Black Clip (%)<br><< -37.3 >><br>< Apply > |

Reset to Default

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

## VBI SDI Web Page

Use this link


- [Frame Sync](#)
- [Video Proc](#)
- [VBI SDI](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)
- [Audio Proc](#)
- [AES Outputs](#)

Use the VBI SDI web page (Figure 25 for 525, Figure 26 on page 44 for 625 line rate) to configure blanking for the VBI and Data Lines.

- 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 blank existing VBI and Data Line information by selecting the corresponding checkbox.
- Check the **Apply Clips to VBI** checkbox to apply the clip values made with the Video Processor to all of the VBI lines. This control is also available on the Video Processing web page (page 39).

**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 35*.

Figure 25. VBI SDI Web Page – 525 Line Rate

 **VBI SDI**

Model: [KAM-SD-2AES](#) Description: [Frame Sync](#), [Proc Amp](#), [SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 Last Recalled E-MEM: [Factory Defaults](#)

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

### Field 1 Line Blanking

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

### Field 2 Line Blanking

|       | VBI Lines                |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          | Data Lines               |                          |                          |  |
|-------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
|       | 273                      | 274                      | 275                      | 276                      | 277                      | 278                      | 279                      | 280                      | 281                      | 282                      | 283                      | 284                      | 285                      | 286                      | 287                      |  |
| Blank | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |

Apply clips to VBI

[Back](#)   [Functional View](#)

Figure 26. VBI SDI Web Page – 625 Line Rate



Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 Last Recalled E-MEM: [Factory Defaults](#)

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

**Field 1 Line Blanking**

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

**Field 2 Line Blanking**

|       | VBI Lines                |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          | Data Lines               |                          |                          |                          |                          |
|-------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|       | 319                      | 320                      | 321                      | 322                      | 323                      | 324                      | 325                      | 326                      | 327                      | 328                      | 329                      | 330                      | 331                      | 332                      | 333                      | 334                      | 335                      | 336                      | 337                      | 338                      | 339                      | 340                      | 341                      |
| Blank | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Apply clips to VBI

[Back](#)   [Functional View](#)

## AES Inputs Web Page

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

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-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 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 Bal</a> | Present      | 48 kHz      | ---  | Off          | Off          | Audio    | Audio    | None                | <input type="button" value="Clear"/> |
| J9    | <a href="#">AES In 2 Bal</a> | Present      | 48 kHz      | ---  | Off          | Off          | Audio    | Audio    | None                | <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 Bal</a> | Present      | <input type="checkbox"/> Disable | <input checked="" type="checkbox"/> Report | Present   | <input checked="" type="checkbox"/> Warn |
| <a href="#">AES In 2 Bal</a> | Present      | <input type="checkbox"/> Disable | <input checked="" type="checkbox"/> Report | Present   | <input checked="" type="checkbox"/> Warn |

[Functional View](#)   [Next](#)

## Audio Channel Pairing Web Page

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

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

### Audio Channel Pairing

Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 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 Bal.Ch1</a>  | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | Str1.Ch1 |
| <a href="#">AES In 1 Bal.Ch 2</a> | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            | Str1.Ch2 |
| <a href="#">AES In 2 Bal.Ch1</a>  | <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            | Str2.Ch1 |
| <a href="#">AES In 2 Bal.Ch 2</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  |

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

## Audio Sync Web Page

Use  
this  
link

- [Video Proc](#)
- [VBI SDI](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)
- [Audio Proc](#)
- [AES Outputs](#)

Use the Audio Sync web page ([Figure 29 on page 48](#)) 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



Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 Last Recalled E-MEM: [Factory Defaults](#)

| Pair 1   |  | Pair 2   |  |
|--|--|--|--|
| Ch A   | <a href="#">AES In 1 Bal.Ch1</a>           | Ch A   | <a href="#">AES In 2 Bal.Ch1</a>           |
| Ch B   | <a href="#">AES In 1 Bal.Ch2</a>           | Ch B   | <a href="#">AES In 2 Bal.Ch2</a>           |
|  | 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  | 33 mS                                      | Auto Tracking Delay  | 33 mS                                      |
| Total Delay  | 33 mS 33 mS                                | Total Delay  | 33 mS 33 mS                                |
| Channel Lock   | <input checked="" type="checkbox"/> Locked | Channel Lock   | <input checked="" type="checkbox"/> Locked |
| Ch A Delay Adjust (mS)<br><input type="button" value="&lt;&lt;"/> <input type="text" value="0"/> <input type="button" value="&gt;&gt;"/><br><input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/> |  | Ch A Delay Adjust (mS)<br><input type="button" value="&lt;&lt;"/> <input type="text" value="0"/> <input type="button" value="&gt;&gt;"/><br><input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/> |  |
| Ch B Delay Adjust (mS)<br><input type="button" value="&lt;&lt;"/> <input type="text" value="0"/> <input type="button" value="&gt;&gt;"/><br><input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/> |  | Ch B Delay Adjust (mS)<br><input type="button" value="&lt;&lt;"/> <input type="text" value="0"/> <input type="button" value="&gt;&gt;"/><br><input type="button" value="&lt;"/> <input type="button" value="Apply"/> <input type="button" value="&gt;"/> |  |

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



## Audio Processing Web Page

Use  
this  
link

- [VBI SDI](#)
- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [Audio Sync](#)
- [Audio Proc](#)
- [AES Outputs](#)
- [E-MEM@](#)
- [Slot Config](#)

Use the Audio Processing web page ([Figure 30 on page 50](#)) 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 30 on page 50](#).

## 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-SD-2AES](#) Description: [Frame Sync](#), [Proc Amp](#), [SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 Last Recalled E-MEM: [Factory Defaults](#)

| Pair 1                                   |  | Pair 2                                   |                                  |
|--|--|--|----------------------------------|
| Ch A                                     | <a href="#">AES In 1 Bal.Ch1</a>                                     | Ch A                                     | <a href="#">AES In 2 Bal.Ch1</a> |
| Ch B                                     | <a href="#">AES In 1 Bal.Ch2</a>                                     | Ch B                                     | <a href="#">AES In 2 Bal.Ch2</a> |
| Gain Settings                            | <input type="checkbox"/> Locked                                      | Gain Settings                            | <input type="checkbox"/> Locked  |
| Ch A Gain (dB)<br><< 0.0 >><br>< Apply > |  | Ch A Gain (dB)<br><< 0.0 >><br>< Apply > |                                  |
| Ch B Gain (dB)<br><< 0.0 >><br>< Apply > |  | Ch B Gain (dB)<br><< 0.0 >><br>< 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

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

## AES Outputs Web Page

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

Use this link

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 49*. A link to this page is provided.

Figure 31. AES Outputs Web Page

### AES Outputs

Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 3  
 Last Recalled E-MEM: [Factory Defaults](#)

| Audio Pairs   | J3<br>AES 3<br>AES Out 1 Bal     | J2<br>AES 4<br>AES Out 2 Bal     | Output<br>Resolution |
|---|----------------------------------|----------------------------------|----------------------|
| <a href="#">AES In 1 Bal.Ch1 &amp; AES In 1 Bal.Ch2</a> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | 20 bit               |
| <a href="#">AES In 2 Bal.Ch1 &amp; AES In 2 Bal.Ch2</a> | <input type="radio"/>            | <input type="radio"/>            | 20 bit               |
| Balanced / Unbalanced                                   | Balanced                         | Balanced                         |                      |
| Output Sample Rate                                      | 48 kHz                           | 48 kHz                           |                      |

[Back](#)    [Functional View](#)

## E-MEM Configuration Web Page

- [VBI SDI](#)
  - [AES Inputs](#)
  - [Audio Channel Pairing](#)
  - [Audio Sync](#)
  - [Audio Proc](#)
  - [AES Outputs](#)
  - [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 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-SD-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 53).

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



Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection:  Standard  Advanced

### E-MEM®

| Local Operations                      |          |                                       |
|---------------------------------------|----------|---------------------------------------|
| <input type="button" value="Recall"/> | E-MEM 1: | <input type="text" value="Studio 1"/> |
| <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-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
 Last Recalled E-MEM: [Factory Defaults](#)

View Selection:  Standard  Advanced

**E-MEM®**

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

Restore factory settings

Restore factory names

## File Operations

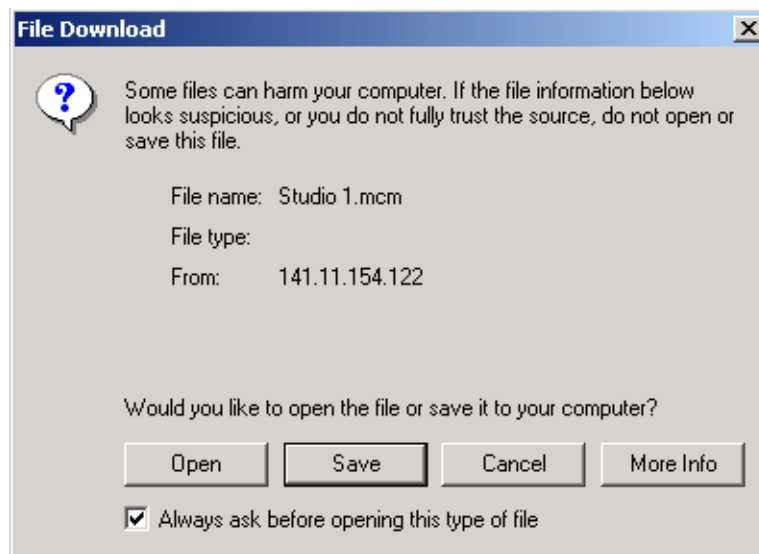
### Save File

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

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

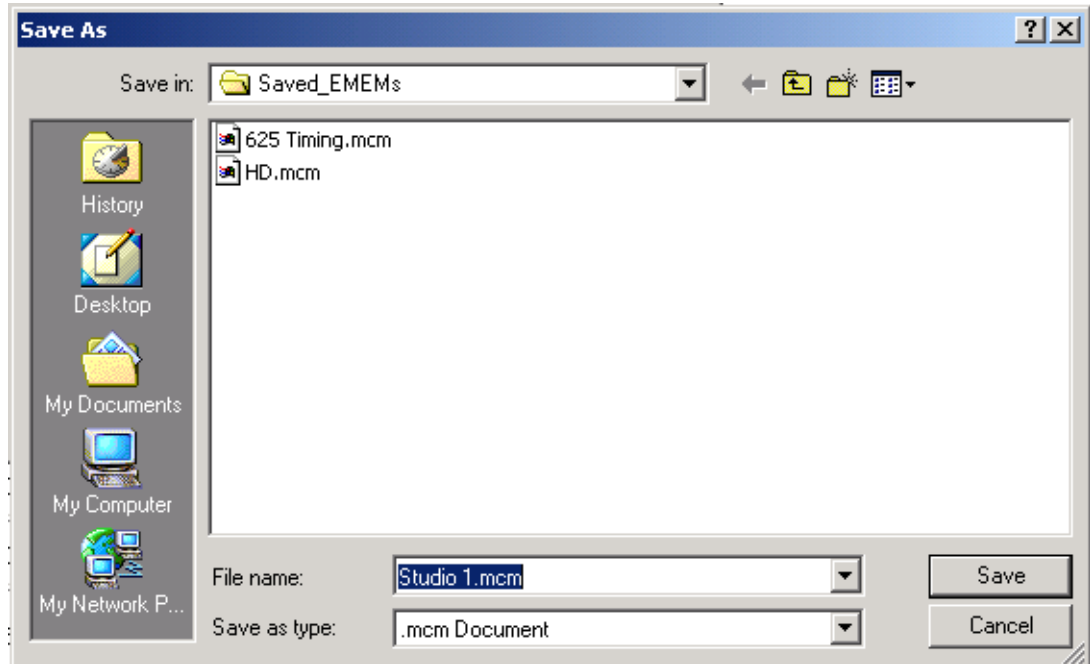
This will bring up a File Download screen similar to [Figure 34](#). Select **Save**.

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

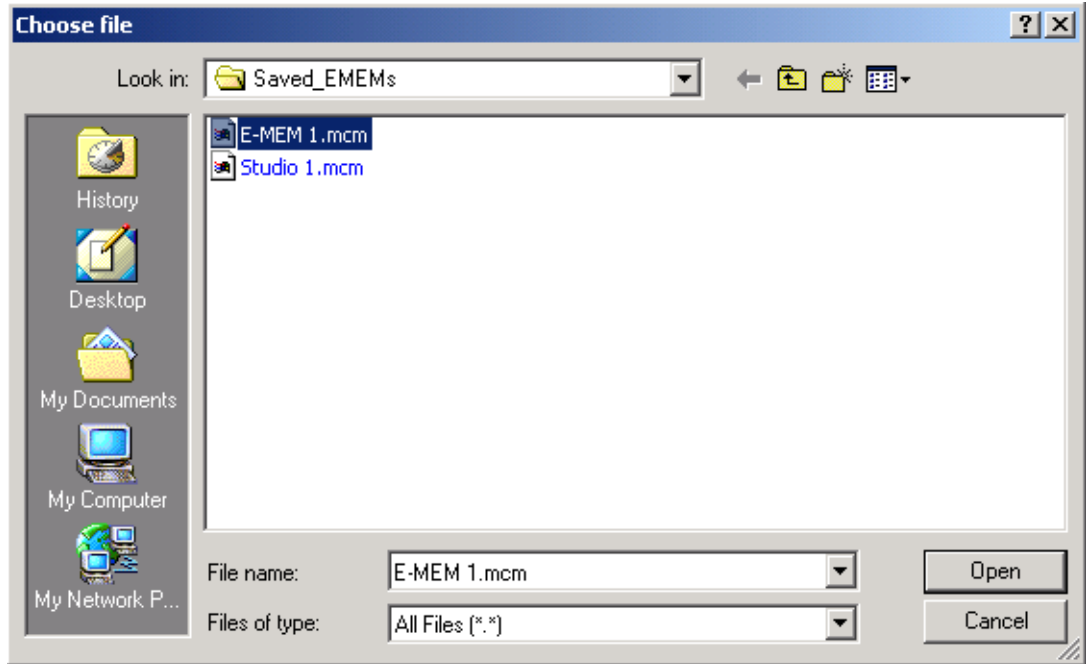
Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: 3

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 55). 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 58](#)) 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-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
 Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [2](#)

### Slot Identification

Name:

Asset Tag:

### Locate Module

### Slot Memory

Restore upon Install

### Frame Health Reporting

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

### Hardware Switch Controls

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

### Slot SNMP Trap Reports

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

- [AES Inputs](#)
- [Audio Channel Pairing](#)
- [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



Model: [KAM-SD-2AES](#) Description: [Frame Sync, Proc Amp, SD/2AES to SD/2AES](#)  
Frame Location: [Bay 1 QA 2000 Frame](#) , Slot: [3](#)  
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="19.158.211.31"/>       | <a href="#">19.158.211.31</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 Input/Output Specifications

| Parameter                         | Value  |
|-----------------------------------|--|
| <b>SDI Input</b>                  |  |
| Signal type                       | Serial digital video conforming to SMPTE259M 10-bit 4:2:2 component digital signal |
| Input impedance                   | 75 $\Omega$  |
| Connector type                    | 75 $\Omega$ BNC on rear module   |
| Input return loss                 | > 15 dB to 270 MHz   |
| Common mode rejection ratio       | 2 V p-p to 60 Hz   |
| Equalization                      | Up to 250 meters of Belden 1694A   |
| <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. 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 $\mu$ s in 37 ns steps |

Table 8. 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 9. 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 Ω, 150 pF)        |                           |

Table 10. AES/EBU Output Specifications

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

Table 11. 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<br>Individual setting for each channel. |
| Re-pairing                   | Complete flexibility to swap or recombine any input channel with any other                             |

Table 12. Electrical Length Specifications

| Parameter                | Value           |
|--------------------------|-----------------|
| <b>Electrical Length</b> |                 |
| SDI In to SDI Out        | 14 $\mu$ s      |
| AES/EBU to AES/EBU Out   | 2.0 ms @ 48 kHz |

Table 13. 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               | 11 Watts typical                                    |

# Service

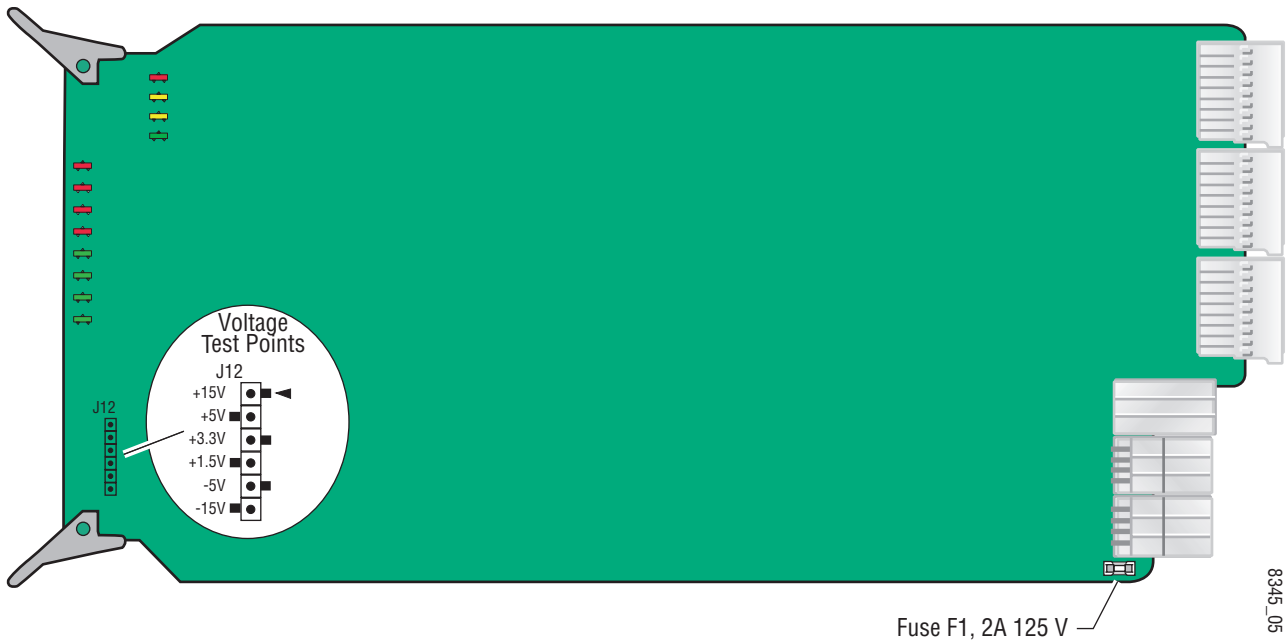
The Kameleon modules make extensive use of surface-mount technology and programmed parts to achieve compact size and adherence to demanding technical specifications. Circuit modules should not be serviced in the field except to check and replace fuses.

## 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.



# Index

## Numerics

- 2000GEN module
  - for output timing 34
  - requirement 8
- 2000NET module
  - hardware requirements 7
  - hardware switches 57
  - software requirement 8

## A

- AES audio inputs 45
  - AES errors 45
  - balanced 28
  - cabling 12
  - selecting connector type 15
  - status reporting 45
  - unbalanced 27
- AES audio outputs
  - balanced 28
  - cabling 12
  - selecting connector type 15
  - specifications 62
  - unbalanced 27
  - web page control 51
- AES Inputs web page 45
- AES Outputs web page 51
- Apply button 21
- Asset Tag
  - assigning 57
  - Status web page 24
- audio
  - channel lock
    - summary table 17
    - web page control 47
  - channel pairing
    - summary table 17
    - web page control 46
  - channel swap
    - summary table 16
    - web page control 46
  - delay

- channel lock 17
  - summary table 17
  - web page controls 47
- gain
  - summary table 17
  - web page controls 49
- output resolution
  - summary table 17
  - web page control 50
- processing
  - summary table 17
  - web page controls 49
- silence 46
- sync 47

Audio Channel Pairing web page 46

Audio Proc web page 49

Audio Sync web page 47

- auto tracking (audio)
  - summary table 17
  - web page control 47

## B

- balanced audio outputs
  - cabling 12
- B-Y gain
  - summary table 16
  - web page control 41
- B-Y offset
  - summary table 16
  - web page control 41

## C

- chroma gain (saturation)
  - summary table 16
  - web page control 39
- clipping controls
  - summary table 16
  - video 41
- clipping status
  - audio 49

- Coarse adjust button
  - overview 21
- color bars test signal 39
- color code
  - functional view page 30
- COMM LED 14
- compatible network software 7
- CONF LED 14
- configuration
  - overview 22
  - Remote, GUI 15
- control panel 15
- cooling 8

## D

- data lines 33
- delay
  - audio 47
- documentation online 2

## E

- EDH error reporting 31
- E-MEM
  - Advanced view 53
  - description 52
  - load file 55
  - save file 54
  - standard view 52
  - web page 52
- error reporting
  - SDI video inputs 15

## F

- factory defaults
  - recall factory defaults 52
  - summary table 15
  - video processor 41
- Factory names
  - recall 52
- fan 8
- FAQ database 2
- FAULT LED 14
- fault messages 26

- Fine adjust button
  - overview 21
- frame capacity 8
- Frame Health Reporting
  - enabling and disabling 59
- frame reference
  - loss of signal reporting 15
  - summary table 15
  - web page control 33
- frame sync
  - summary table 15
  - web page controls 34
- Frame Sync web page 37
- freeze modes
  - summary table 15
  - web page controls 37
- frequently asked questions 2
- front media module
  - installation 11
- Functional View
  - overview 22
  - web page 30
- fuse 64

## G

- graphical user interface (GUI) 23
- Grass Valley web site 2

## H

- Hard/Video Black Clip
  - summary table 16
  - web page control 41
- Hard/Video White Clip
  - summary table 16
  - web page control 41
- hardware requirement 7
- horizontal timing
  - summary table 15
  - web page control 37
- hue (chroma phase)
  - summary table 16
  - web page control 39

**I**

I/O Config web page [27](#)  
 inserting modules [8](#)

**K**

KAM-AES-R rear module  
   cabling [12](#)  
   installation [10](#)  
 KAM-SD-2AES module  
   features [7](#)

**L**

LEDs  
   front edge [14](#)  
   operational modes [14](#)  
 locate module [14, 57](#)  
 loss of signal reporting  
   audio input [45](#)  
   frame reference [33](#)  
   SNMP traps [59](#)  
   video in [33](#)

**M**

midplane [11](#)  
 module location function [14, 57](#)  
 module slot identification [57](#)

**N**

naming module slots [57](#)  
 NetConfig  
   updating software [60](#)  
 Network Interface Module  
   version [7](#)  
 Newton Control Panel  
   control summary table [15](#)  
   overview [18](#)

**O**

online documentation [2](#)  
 output resolution  
   setting [51](#)

  web page control [50](#)  
 output timing source  
   summary table [15](#)  
   web page control [34](#)

**P**

power requirements [63](#)  
 PWR LED [14](#)

**R**

Refresh button [21](#)  
 removing modules [8](#)  
 repair depot [64](#)  
 R-Y gain  
   summary table [16](#)  
   web page control [41](#)  
 R-Y offset  
   summary table [16](#)  
   web page control [41](#)

**S**

sample rate (output)  
   reported [51](#)  
 sample rate conversion  
   disable [45](#)  
 SDI In web page [31](#)  
   view selection [15](#)  
 SDI Input errors  
   summary table [15](#)  
   web page control [33](#)  
 SDI video in  
   cabling [12](#)  
   EDH error reporting [31](#)  
   error reporting [15](#)  
   loss of signal reporting [15](#)  
 SDI video out  
   cabling [12](#)  
   freeze mode [37](#)  
   specifications [61](#)  
 service [64](#)  
 signal status  
   rear module LED [13](#)  
   web page view [27](#)  
 Slot Config web page [57](#)

- slot configuration
  - saving 57
- slot memory 57
- slot names 57
- SNMP trap reports
  - enabling and disabling 59
- Soft/Y Black Clip
  - summary table 16
  - web page control 41
- Soft/Y White Clip
  - summary table 16
  - web page control 41
- software
  - requirement 7
  - update 60
- software download from web 2
- specifications 61
- status indicators
  - color codes 24
  - meanings 24
  - Status LEDs 21
- Status web page 24
- synchronizing audio 47
- system requirements 8

## T

- test signals
  - audio 49
  - video 39
- troubleshooting 64

## U

- unbalanced audio outputs
  - cabling 12

## V

- VBI configuration
  - advanced view 33, 35
  - apply clipping 43
  - applying clips to VBI 41
  - blank VBI lines
    - summary table 16
  - blanking 43
  - clipping, summary table 16
  - reserving data lines 35
  - summary table 15
- VBI SDI web page 43
- vertical blanking interval (VBI) 33
- vertical timing
  - summary table 15
  - web page control 37
- Video Gain Lock
  - summary table 16
  - web page control 41
- Video Input Select web page 33
- video line rate
  - summary table 15
  - web page control 33
- Video Proc web page 39
- video processing
  - clipping controls 41
  - overview 39
  - summary table 16
  - web page controls 39

## W

- warning messages 26
- web browser
  - overview 19
- web site
  - documentation 2
  - FAQ database 2
  - Grass Valley 2
  - software download 2

## Y

- Y Gain (contrast)
  - summary table 16
  - web page control 39
- Y Offset (brightness)
  - summary table 16
  - web page control 39