KAM-DEC-4ADC-MUX

KAMELEON SERIES MODULES

Release Notes

SOFTWARE VERSION 5.0.2

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JANUARY 2006

the most watched worldwide

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Grass Valley Web Site

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

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

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

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

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KAM-DEC-4ADC-MUX Module Release Notes

Introduction

This document provides information on the latest release of the software for use with the KAM-DEC-4ADC-MUX modules.

Note   Please read this document completely before attempting to download the latest software.

This document details:

- Software Update Overview (page 6) including:

  - KAM-DEC-4ADC-MUX Requirements,

  - Kameleon Frame 2000NET Requirements.

  - NetConfig Requirements, and

  - Newton Control Panel Requirements.

- KAM-DEC-4ADC-MUX Version 5.0.2 Software Release (page 9) including:

  - New Features, and

  - Resolved Software Issues.

- Updating Software (page 18), and

- Accessing Kameleon documentation from Grass Valley (page 25).

Software Update Overview

Recent releases of the Kameleon Series software have increased the number of parameters that the module sends to the Newton Control Panel and Net-Config. This has added enhancements as requested by customers. It has also introduced some operational changes and requirements for system and utility software you should be aware of in order for all components to work together.

Follow the steps in the order below to perform the Kameleon update:

1. Acquire or update NetConfig if required (*NetConfig Requirements*).

2. Update the 2000NET module in the frame to version 4.0.0 if required (*Kameleon Frame 2000NET Requirements* on page 7).

3. Update Newton Control Panel software if required (*Newton Control Panel Requirements* on page 7).

4. Perform the KAM-DEC-4ADC-MUX software update (*Updating Software* on page 18).

NetConfig Requirements

Use the NetConfig Networking application to update all software. The latest version of the NetConfig Networking application must be at version 2.0.6 or later for proper operation.

To determine your NetConfig version, open NetConfig click on the **About** link on the top of the NetConfig Toolbar.

If you do not have NetConfig or the latest version, you can download it from the Thomson Grass Valley ftp site at this URL:

ftp://ftp.thomsongrassvalley.com/pub/router/NetConfig/
Version 2.0.6/

1. Right-click on the latest NetConfig link to download the zipped file to the C:\temp folder or other convenient location on your PC.

2. Extract the zipped files onto your local drive:

3. Double-click on the NetConfig.EXE file to install NetConfig.

Note Installing NetConfig into the default location given in the install script (C:\Programs\Grass Valley Group) is recommended for future NetConfig and module software updates.

Kameleon Frame 2000NET Requirements

Kameleon modules must be installed in a 2000TFN frame with a 2000NET module running software version 4.0.0 or later.

Note   The 2000NET software version can be read on the Frame Status web page or the 2000NET Status web page.

The latest 2000NET software can be downloaded from the Thomson Grass Valley ftp site at this URL:

ftp://ftp.thomsongrassvalley.com/pub/modular/2000/2000net/

This software can be installed using the NetConfig Networking application as described in the *2000NET Release Notes* available on the ftp site in PDF format.

Newton Control Panel Requirements

Both the NewtonPC and the Newton hardware control panels must be at version 2.0.0 for proper operation. The Newton Panel Configurator Plug-in that resides in the NetConfig directory must also be updated to version 2.0.2.

The Newton hardware panel software and the latest Newton Configurator Plug-in can be downloaded from the Thomson Grass Valley ftp site as described below.

Newton Hardware Control Panel

To determine the software version of your Newton Hardware Control Panel, hold down the **Ident** button (lower left button on the hardware panel) until the software version and IP address of the panel appear on the display.

The latest Newton Hardware Control Panel software can be downloaded from the Thomson Grass ftp site at this URL:

ftp://ftp.thomsongrassvalley.com/pub/modular/Newton/v2.0.0/

1. Download the zip file to your local drive and unzip the file.

2. Run the Newt-RM1-Setup-2.0.0.EXE application to install the hardware panel software into the default Newton directory (Programs/Grass Valley Group/Newton).

Note   Do not install the NetConfig present in the **Select Components** window. Uncheck the NetConfig selection. This is an older version and should not be installed.

3. Use NetConfig to update the hardware panel software. Refer to the NetConfig or the Newton manual in PDF format in the NetConfig or Newton directory for instructions.

NewtonPC Control Panel

To determine the software version of NewtonPC, open NewtonPC and right-click on the blue bar at the top of the screen. Right-click on **About NewtonPC** in the pulldown.

Contact Customer Service for updating NewtonPC.

NetConfig Newton Panel Configurator Plug-in

The Newton Panel Configurator Plug-in must be at version 2.0.2. To view the version you currently have, open NetConfig on your PC and select the Newton Panel Configurator icon (shown at left) in the NetConfig Tool Bar. The current version is shown in the top right corner of the Configurator.

A file named **PanFigR.dll** must be downloaded from the Thomson Grass Valley ftp site and placed into the NetConfig directory to update the Configurator to version 2.0.2.

The required .dll file can be downloaded from the Thomson Grass Valley Customer Service web site at this URL:

ftp://ftp.thomsongrassvalley.com/pub/modular/Newton/
NetConfig Plugin 2.0.2/

1. Right-click on the PanFigR.dll to save it to your local drive.

2. Shut down NetConfig.

3. Open the NetConfig directory on your local drive (installed by default in Programs/Grass Valley Group/NetConfig) and drag the new .dll file into the main NetConfig directory.

4. Select **Yes** to replace the current PanFigR.dll with the new one provided when the **Confirm File Replace** window comes up.

5. Open NetConfig and select the Newton Configurator icon.

6. Verify that the version is now 2.0.2.

Version 5.0.2 Software Release

This section provides information on the new feature enhancements and resolved issues with the version 5.0.2 software release for the KAM-DEC-4ADC-MUX module.

New Features

KAM-DEC-4ADC-MUX software release 5.0.2 includes the following feature enhancements:

3D Decoder Control

The composite input is now processed through a 3D decoder which offers three preset decoder modes and a user defined mode (see Figure 1 on page 11). Preset modes are selected according to the amount of motion present in the input video.

Each decoder mode has a set of default values when selected. User controls are provided for setting motion threshold, the type of comb filtering, luma and chroma threshold levels, and luma bandwidth.

To determine the best preset decoding mode for your application, select one of the 3D preset decoding modes at the bottom of the 3D Decoder Control section depending on the amount of motion in the input video:

- **Low Motion** – this is a 3D temporal filter ideal for applications where there is little motion in the video, such as scenes involving sitting and other scenes involving little motion.

- **Mixed Motion** – a general purpose filter, this is the default choice for most video applications involving mixed motion.

- **High Motion** – a 2D adaptive filter is employed for handling change in motion recommended for video where there will be a great deal of motion such as sports. Once motion is detected in a scene, the high motion decoder should be used.

- **User Defined** – changing any preset value in the Motion decoders will switch to the user mode.

After setting the preset decoder mode for the amount of motion in the video application, use the following controls to maximize video quality.

3D Motion Threshold

This control sets the limit between the use of 3D or 2D adaptive decoding modes. 3D decoding is used below the motion threshold, otherwise the mode is 2D adaptive decoding. This decoding mode decision is automatically evaluated for each pixel.

As a general rule to get the best decoding result, it is recommended to reduce the motion threshold as the motion increases in the video. Use the default threshold values of each preset decoder as a guide to setting the 3D motion threshold and the correct preset decoder mode.

The preset modes and default thresholds are as follows:

- **High Motion** preset set the threshold to 5,

- **Mixed Motion** preset sets the threshold to 25, and

- **Low Motion** preset sets the threshold to 60.

The recommended mode is **Mixed Motion** which is the factory default mode.

Comb Filter

The comb filter is part of the 2D adaptive comb filter mode. It determines what component of the video will be used to detect motion (Luma and Chroma or just the Luma or Chroma portion of the video).

- **Luma + Chroma** – when set for both luminance and chrominance, the 2D adaptive decoder motion detector is controlled by both the luminance and chrominance difference level magnitude.

- **Luma** – in this mode, the 2D adaptive decoder motion selector is controlled by only the luminance difference level magnitude in the video.

- **Chroma** – in this mode, the 2D adaptive decoder motion selector is controlled by only the chrominance difference level magnitude in the video.

Luma Level

The Luma Level control sets the magnitude of the difference level threshold for the Y or luminance component of the video signal in the comb filter. The default value is 56.

Chroma Level

The Chroma Level control sets the magnitude of the difference level threshold for the chrominance portion of the video signal in the comb filter. The default value is 56.

Figure 1. Composite Input Web Page

Composite In

Model: KAM-DEC-4ADC-MUX Description: Frame Sync, Proc Amp, AV/4AA to SD/2Embed
Frame Location: Bay 9 QA 2000 Frame , Slot: 2
Last Recalled E-MEM: Factory Defaults

Video Input Status

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

Settings for Standard: 525

Input Video Gain (%)	Black Level (%)
<< < 100.0 * > >> | < >|	<< < 0.0 * > >> | < >|
Video Input Signal:	NTSC
Input Signal Setup:	⦿ No Setup ○ Setup

3D Decoder Control

3D Motion Threshold	
<< < 25 * > >> | < >|	
Comb Filter	Luma Bandwidth
Luma + Chroma ▾	○ Narrow ⦿ Wide
Luma Level	Chroma Level
<< < 56 * > >> | < >|	<< < 56 * > >> | < >|
○ Low Motion ⦿ Mixed Motion ○ High Motion ○ User Defined	

Reset 3D Decoder to Default

Functional View   Next

Luma Bandwidth

The Luma Bandwidth sets the frequency at which the comb filtering occurs. It can be set for **Narrow** or **Wide**.

• **Narrow** – extends the 2D comb filter to lower frequencies and is the default bandwidth for the **High Motion** preset mode.

• **Wide** – allows 2D comb filtering only at higher frequencies. This is the **Mixed** and **Low Motion** default.

Note   Narrow or Wide bandwidth may be selected according to the chrominance subcarrier frequency and chrominance bandwidth.

Reset 3D Decoder

Press the **Reset 3D Decoder to Default** to return to the default **Mixed Motion** mode.

Flywheel Video Decoder

A new control has been added to the Video Input Select web page (Figure 2 on page 13) to enable a Flywheel Video Decoder.

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

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

When the Flywheel Video Decoder is turned on, a caution will appear as shown in Figure 2 on page 13. Since the Flywheel decoder generates its own video timing for the incoming video stream to deal with noise and interruptions, leaving it on during normal operation may cause undesirable resynchronization delays if the source changes or is lost. It will take about 7 seconds to change states.

Figure 2. Video In Select Web Page – Flywheel Video Decoder

Video Input Select

Model: KAM-DEC-4ADC-MUX Description: Frame Sync, Proc Amp, AV/4AA to SD/2Embed
Frame Location: Bay 9 QA 2000 Frame , Slot: 2
Last Recalled E-MEM: Factory Defaults

View Selection: ⦿ Standard ○ Advanced (VBI Config)

Video Selection

	Current	Selection
Input Name	Video In	
Input Status	Not Present	☑ Report Loss of Signal
Video Format	Composite	Composite
Video Line Rate	525	○ 525 ○ 625 ⦿ Auto
Flywheel Video Decoder ⚠Flywheel Video Decoder mode should only be ON during signal adjustment. Turn OFF once signal has been properly adjusted to resume normal operation. Switching Flywheel Video Decoder ON/OFF causes a video blank of about 7 seconds.		☑ On
Frame Reference	Present	☑ Report Loss of Signal
Frame Sync / Delay	Frame Sync	

Output Timing Selection

	Source	Status	Mode	GenLock	Audio Framing
Internal Frame Reference	⦿	Present	525	Locked	Free Run
Video In	○	No input	-	-	-

Back   Functional View   Next

A + B (Pair1 or 2) Capability for Audio Processing

An additional A + B function for audio output processing has been added to each Audio Proc Processing pulldown list. The new function provides a selection of A + B (Pair1 or 2) from the opposite audio pair as an output (Figure 3).

Figure 3. Audio Proc Web Page

Disable Output Video Control

An additional control has been added on the Frame Sync web page to provide a control for disabling the SDI output video completely when video is lost on the output. Selecting the **Disabled Output** radio button on the Frame Sync web page (Figure 4) turns off this output completely. This allows for video detection devices on the output to recognize that the video on this output has been lost.

This new control appears on the Frame Sync web page when the module is set for either a Video reference or an Internal Frame Reference on the Video Input Select web page.

Figure 4. Frame Sync Web Page with Internal Frame Reference

Frame Sync

Model: KAM-SD Description: Kameleon Module
Frame Location: Bay 1 QA 2000 Frame , Slot: 2
Last Recalled E-MEM: Factory Defaults

Timing Adjustment

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

New control to disable output when input video is lost.

Freeze Mode Selection

Freeze Mode	⊙ None ○ AutoBlack ○ AutoFreeze ○ Field 1 ○ Field 2 ○ Frame ○ Disabled Output

Back   Functional View   Next (Video)
Next (Audio)

Resolved Software Issues

KAM-DEC-4ADC-MUX software release 5.0.2 resolves the following issues since the original version 1.0.4 release:

- (25186) In Frame Sync mode, a 1 to 2 microsecond sized defect was noticed scrolling through the analog/digital output.

- (41810) When switching between two properly timed sources (at line 10), a glitch was noticed on the video output.

- (44319) When Analog Audio inputs were present, refreshing a web page which reporting Analog Audio presence and clipping was intermittently reporting incorrect presence state and/or color.

- (44392) The first Active Picture Line (F1, Line 21) Sample Data was incorrect. It reported 082, but should have been 040. And if Last Data Lines (24/287) were enabled, these lines and F1/F2 (25/288) reported Data as 082.

- (44533, 44683, 46629, 54079, 54166, 62793) Several Newton Control Panel parameters have been changed or corrected to make operation clearer to the user.

- (46021) With an unlocked 525 composite input, an artifact caused by sample flicker was causing HANC errors to be reported in the digital output.

- (46736) After a recall of factory defaults, setup is present on the VBI lines by default but the VBI Encode web page checkboxes for setup were not checked indicating setup was present.

- (47136) After a reboot of the module, the Audio Input Select parameters were not being saved.

- (47287) When the module was first plugged in and no input signal was connected to the rear module or when the input signal was removed, the SDI output would go to green.

- (47953) Brightness/Y Offset and Hue/Chroma Phase controls were missing in the standard view of the Video Proc web page.

- (48544) A warning on the Status web page about the hardware revision being too old has been corrected.

- (49041) Chrominance color blue had distortion on both SDI and composite outputs. When chrominance was disabled on the Composite Out web page, artifacts could also be seen on line 24 of Field 1.

- (49214) VBI lines had an undesirable relief at 5 MHz.

- (49243) In 625 mode (PAL) with a composite input signal, adjusting the hue in the video processor would cause noticeable chroma modulation.

- (50785) A composite output was appearing at unused rear BNC J6 CVO. This output has been removed.

- (52581) With the Flywheel Video Decoder function turned on in the Video Input Select web page, the video output would not recover synchronization when the video input white noise went from 0 dB to 60 dB.

- (53754) When Internal Frame Reference was selected as the Output Timing Source on the Video Input Select web page and the 2000GEN module providing the reference was removed, the Status web page did not report the loss of reference. The loss of reference is now properly reported by showing the Reference Input arrow as yellow and reporting a warning message on the Status web page.

- (57157) Green flashes were occurring after a direct switch or after a Saturn routing switch.

- (57170) When switching from a composite 625 to 525 format, EAV and SAV would double. This will now re-synchronize correctly when the format is changed.

- (57520) FAULT LED would erroneously light in a steady state when a rear module mismatch was detected. This is now only reported as a warning state on the Status web page as it should.

- (59905) When an AES source was changed on the AES Output web page, an error message would appear, preventing the ability to change the source.

- (60157) The video output of the module would go to black when an audio replacement (Mux) function was attempted.

- (60331) On the VBI Decode web page, selecting a Blanking checkbox to remove blanking from a VBI line had no effect.

- (60334) When a rear module was removed and replaced, the Status web page would report that the rear module was missing.

- (60893) An audio phase shift was occurring between the left and right channels of an audio pair when a stereo pair was demuxed. Channels are now synchronized.

- (60894) An audio phase shift was occurring between the left and right channels of an audio pair when auto tracking was enabled or disabled on the Audio Sync web page. Channels are now synchronized.

Updating Software

This section describes how to obtain and install the latest software.

Acquiring Software

To acquire the latest KAM-DEC-4ADC-MUX software, connect to the Thomson Grass Valley ftp site at the following URL:

ftp://ftp.thomsongrassvalley.com/pub/modular/Kameleon/

1. Create a temporary folder on your C:\ drive if one does not exist.

2. Select the link to KAM-DEC-4ADC-MUX. If a README file is present, open it and read the information before attempting to download the files.

   Download the following files to the Chutney directory or other convenient location on your PC by right-clicking on the file link and selecting **Save Target As…**:

   • KAM-DEC-4ADC-MUX_5.0.2.sw2 (required for NetConfig download)

   Note   Do not save this file as a text document. Select **All Files** under the **Save As Type** pulldown. NetConfig will not recognize this file if it has a.text extension.

   • KAM-DEC-4ADC-MUX_5.0.2_appli_only.fld (first.fld download file with application only). (This file is only needed for upgrading from version 1.0.4.)

   • KAM-DEC-4ADC-MUX_5.0.2.fld (second.fld download file with application plus complete Slinks firmware package for all upgrades).

Updating Software With NetConfig

This procedure explains in detail updating KAM-DEC-4ADC-MUX version 1.0.4 to version 5.0.2.

If you are currently running software version 5.0.2 on your KAM-DEC-4ADC-MUX module, and you need to do a software update, you will only need to do the second.fld download, starting with .

NetConfig Upgrade Procedure

Use the following procedure to do a full upgrade from version 1.0.4 using NetConfig:

1. Copy all KAM-DEC-4ADC-MUX software download files from the Chutney directory into the main NetConfig directory on your PC. This is normally in the default location in C:\Program Files\Grass Valley Group\NetConfig.

   If you have installed NetConfig in another location, find the location of the NetConfig directory by right-clicking on the NetConfig shortcut. Select **Properties** and note the location in the **Start In** field. Download the package to the NetConfig directory.

2. In the main NetConfig directory, locate a folder named **modular**. If this folder does not exist, create a folder called **modular** in the main NetConfig directory.

3. Move the two KAM-DEC-4ADC-MUX .fld files you copied into the main NetConfig directory, KAM-DEC-4ADC-MUX_5.0.2_appli_only.fld and KAM-DEC-4ADC-MUX_5.0.2.fld, into this **modular** folder.

4. Verify that the KAM-DEC-4ADC-MUX.sw2 file is somewhere in the main NetConfig directory (not in the **modular** folder). This file should not have a .txt extension or it will not work properly.

Note   NetConfig reads each .sw2 file in its main directory and navigates to the directory given in these files to find the .fld files available. There may be a number of .sw2 and .fld files in your NetConfig directory for other modular products. These will not interfere with the update.

5. Locate the module to be upgraded in your frame and unplug it. Plug it back in to reset it and begin the upgrade.

CAUTION   During the download, the module will have no video output, so be sure the module is off-air before upgrading.
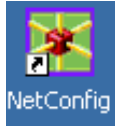
6. Open NetConfig.

7. Navigate to the frame containing the KAM-DEC-4ADC-MUX module you wish to upgrade on the left of the screen.

Note　If you have not used NetConfig before, refer to the *NetConfig Instruction Manual* included during installation in the main NetConfig directory in pdf format (NetConfig.pdf).

8. Click on the **Load SW** button on the top of the NetConfig toolbar.

9. This will bring up the Load Software screen (Figure 5). This manual illustrates NetConfig, v2.0.6.

The following files names should appear in the modular directory:

- KAM-DEC-4ADC-MUX (KAM-DEC-4ADC-MUX_5.0.2)

- KAM-DEC-4ADC-MUX_appli_only (KAM-DEC-4ADC-MUX_5.0.2_apply_only)

Note　There will likely be other modular software listed in the **modular** folder.

10. For updating a module with version 1.0.4 software only, highlight the KAM-DEC-4ADC-MUX_5.0.2_appli_only selection (Figure 5). This will bring up all of the Kameleon type modules accessible on this network in the window on the right. Their current software version and frame IP Address will be displayed.

Figure 5. NetConfig Load Software Screen – First .fld Download
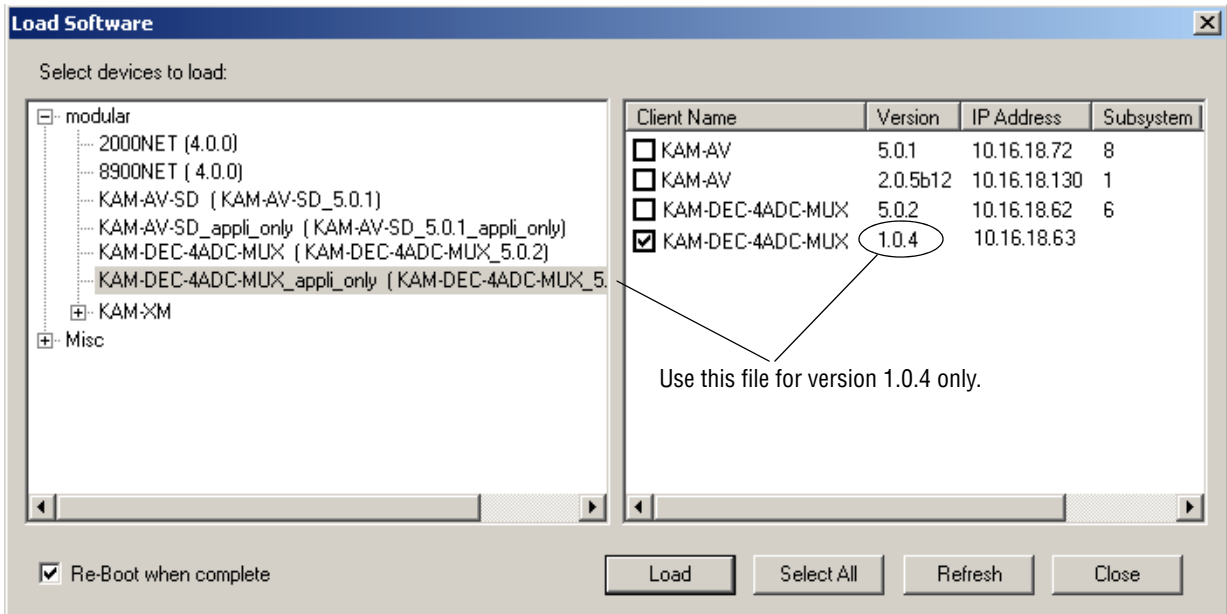
11. Find only the KAM-DEC-4ADC-MUX module you are updating in the Client Name list with version 1.0.4. Do not attempt to upload this software to any other Kameleon type module or a KAM-DEC-4ADC-MUX module running version 5.0.2.

12. Check the corresponding checkbox in the window on the right to indicate you wish to update this device.

Note You may upgrade all modules at once with this application by checking all of the Client Name checkboxes. We recommend upgrading one module first to understand the process before attempting to upgrade all of the modules at once.

13. Check the **Re-Boot when complete** checkbox in the lower left corner of the screen.

14. Click on the **Load** button in the NetConfig Load Software window to begin the update.

15. If the load has been successful, a popup will appear as shown in Figure 6. Click the **OK** button.
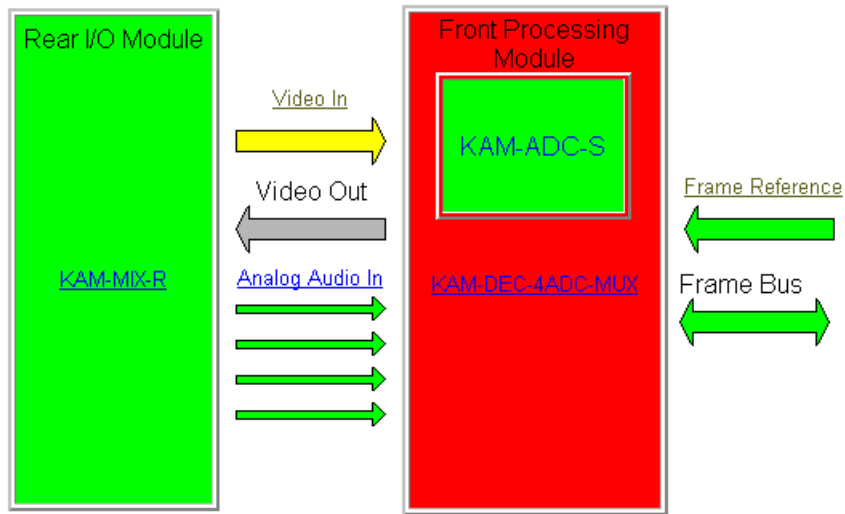
Figure 6. Load Successful Popup
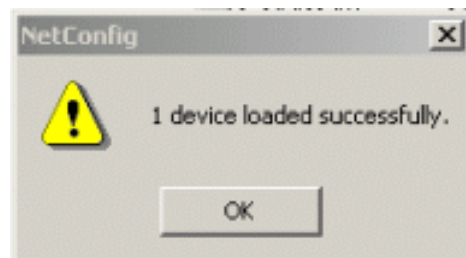
16. Allow the reboot to complete.

17. Open the Status web page of the module. The Status web page will show the front module in a red FAULT condition (Figure 7).

18. Check that the software version at the bottom of the screen has been updated to version 5.0.2.

Figure 7. First .fld Download Status Web Page

🟡 **Status** ↻

Model: KAM-DEC-4ADC-MUX Description: Frame Sync, Proc Amp, AV/4AA to SD/2Embed
Frame Location: not assigned , Slot: 1
Last Recalled E-MEM: Factory Defaults

Kameleon Module Physical Structure

Rear I/O Module

Front Processing Module

KAM-ADC-S

Video In

Video Out

Frame Reference

KAM-MIX-R   Analog Audio In   KAM-DEC-4ADC-MUX   Frame Bus

FAULT : Missing Xilinx 1 3D Image
WARNING : Missing Xilinx 2 KAM-EXTEND Image
FAULT : Xilinx 2 Failure

WARNING - Video Input Signal Not Detected

Verify software version is now 5.0.2

Status:

Front Module: FAULT
Rear Module: PASS
Sub Module 1: PASS
Sub Module 2: NOT SUPPORTED

Front Module:

Part Number: 671-6428
Serial Number: BO0509876
Hardware Revision: 20S
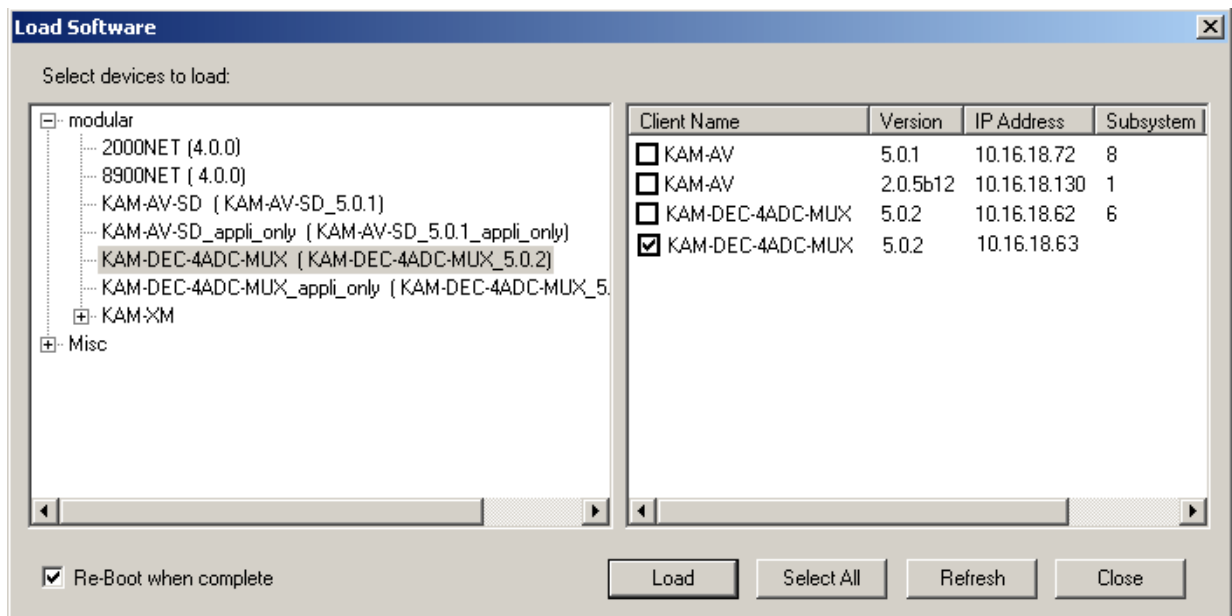Firmware Version: X1=48, X2=159.159.159
Software Version: 5.0.2
Asset Tag:

Sub Module 1:
Part Number: 671-6419 Serial Number: 12345678 Hardware Revision: 01A

Discover

19. Bring up NetConfig again and click on the **Discover** button in the top menu bar to update the module list. Then click on the **Load Sw** button.

20. In the Load Software screen, select the second .fld file, KAM-DEC-4ADC-MUX (KAM-DEC-4ADC-MUX_5.0.2), selection in the modular directory on the left (Figure 8). For modules that are running version 5.0.2, begin the update at this step.

21. Select the same Client Name as the first download. Note that its version will now report 5.0.2.

22. Check the **Re-Boot when complete** checkbox in the lower left corner of the screen.

23. Press the **Load** button to download the full package to the module(s) selected.

24. If the load has been successful, a popup will appear as shown in Figure 6 on page 21.

25. Click the **OK** button in the popup.

26. Allow the reboot to complete.

Figure 8. NetConfig Load Full Package

27. Open the Status web page of the module again.
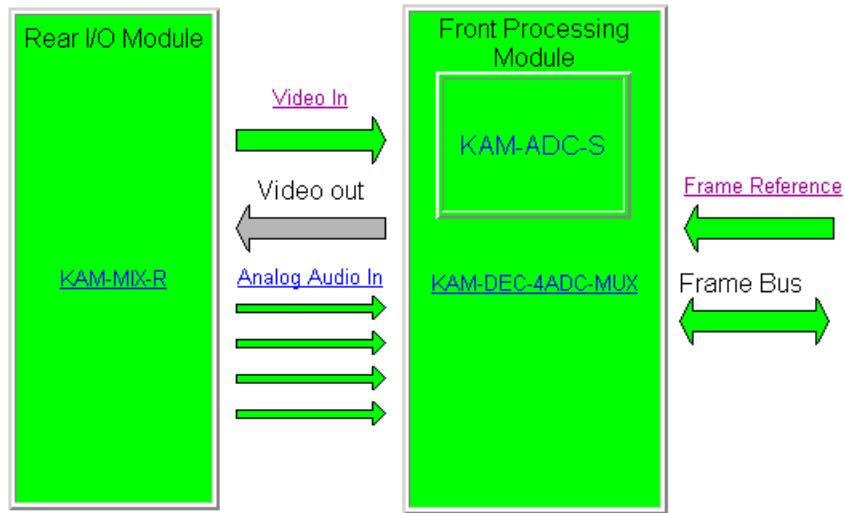
The KAM-DEC-4ADC-MUX Firmware should now be reported as X1=2.4.9 (3D version), X2=3.0.7 and Software Version: 5.0.2 as shown in Figure 9.

Figure 9. KAM-DEC-4ADC-MUX with Full Package

28. Go to the E-MEM web page and select the **Recall** button to restore factory settings.

29. Verify proper operation of the module.

This completes the upgrade. If you have upgraded from version 1.0.4 to version 5.0.2, refer to these Release Notes for an overview on new functionality for this software release and the *KAM-DEC-4ADC-MUX v5.0.2 Instruction Manual* for more information.

Refer to *Accessing Reference Documents*. below for information on finding these documents on the Thomson Grass Valley web site.

Accessing Reference Documents

For on-line access to reference documents referred to in these Release Notes, navigate to the following URL:

http://www.thomsongrassvalley.com/docs/

Select **Broadcast Products**, then the **Modular Products** selection in the table. Scroll to the **Kameleon SD Decoding Frame Synchronizers** section to find the KAM-DEC-4ADC-MUX Instruction Manual for version 5.0.2.

For the 2000NET module, scroll to the **Control and Monitoring** section to find the 2000NET Network Interface Module.

All of the documents referred to may also be ordered in hard copy from any Grass Valley Sales or Customer Service source. Refer to *Contacting Grass Valley* on page 2 at the front of this document.