

# KiPROrack

## Installation and Operation Guide

Version 4.2

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Because it matters.

**AJA**<sup>®</sup>  
VIDEO SYSTEMS

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# Notices

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## Trademarks

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## Contacting Support

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When calling for support, have all information at hand prior to calling.

To contact AJA Video for sales or support, use any of the following methods:

*Telephone:* +1.800.251.4224 or +1.530.271.3190

*Web:* <http://www.aja.com>

*Support Email:* [support@aja.com](mailto:support@aja.com)

*Sales Email:* [sales@aja.com](mailto:sales@aja.com)

# Chapter 1: Introduction

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## Overview

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Ki Pro Rack satisfies the broadcast video requirement for a compact, 1 RU rack-mounted digital video recorder designed for creating “ready-to-edit” professional digital video files. Supporting a file-based workflow, Ki Pro Rack records Apple ProRes 422 or Avid DNxHD files on industry-standard media. Features include analog and digital audio/video I/O and recording to 2x removable SATA storage modules. When removed, the storage modules function as standard FireWire 800 drives.

With Ki Pro Rack you can acquire video using the same codecs that you use for editing—Apple ProRes 422 or Avid DNxHD. Ki Pro Rack supports all four types of Apple ProRes 422 (including HQ, LT and Proxy) as well as Avid DNxHD 220x, Avid DNxHD 145 and for 1080p formats, Avid DNxHD 36. Ki Pro Rack simplifies the link between production and post by acquiring on the best codecs for use with Apple Final Cut Pro X or Avid Media Composer from virtually any SDI or HDMI camera, regardless of format. With its extensive analog and digital connectivity, virtually any video and audio source can feed into Ki Pro Rack, and 10-bit realtime up/down/cross conversion, allows you to record in the format you want to edit and deliver.

Internally, Ki Pro Rack natively supports the Apple ProRes 422 or Avid DNxHD codecs in hardware, allowing realtime capture directly to QuickTime files. In fact, while the camera is recording to its own tape or file-based memory, Ki Pro Rack can simultaneously capture the media as ProRes or DNxHD so it’s instantly ready to edit when the removable storage module is connected to a computer. With this kind of flexibility, you can save time, steps, and get your project done quicker and with the highest quality.

Like AJA’s famous KONA and other Ki Pro products, Ki Pro Rack offers unparalleled connectivity. Within its 1 RU form factor, Ki Pro Rack offers SD/HD analog I/O, SD/HD digital I/O, HDMI I/O, two channels of balanced analog audio I/O, RS-422 machine control, and LTC timecode in/out.

Control options are also varied and flexible. An Ethernet 10/100/1000 LAN connection via an RJ45 connector allows remote control and configuration from a Mac or PC web browser.

This manual covers installation and operation of Ki Pro Rack and its options.

## Features

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Ki Pro Rack offers a large number of unique features for optimum quality, ease of use, and support for a wide variety of workflows and environments. Ki Pro Rack provides flexible standard and high definition recording, with hardware up/down/cross-conversion for versatile operation in a mixed SD/HD environment, plus a wide variety of control methods and storage options.

## Hardware

- Apple ProRes 422, Apple ProRes 422 (HQ), Apple ProRes 422 (LT), and Apple ProRes 422 (Proxy)—SD, HD 720/1080, full-raster 10-bit 4:2:2, realtime, implemented in hardware
- Avid DNxHD 220x, Avid DNxHD 145 and for 1080p formats, Avid DNxHD 36-HD 720/1080, full-raster 10-bit 4:2:2 for Avid DNxHD 220x and 8-bit 4:2:2 for Avid DNxHD 145 and Avid DNxHD 36, implemented in hardware
- Up/down/cross-conversion, 10-bit, realtime, implemented in hardware
- Digital HD/SD SDI I/O, 1-channel selectable input and output (4 BNC)
- Digital HDMI I/O (2 HDMI)
- Component HD/SD analog video I/O, SMPTE/EBU/Betacam/RGB/YPrPb (6 BNC)
- Composite analog input NTSC/NTSC-J/PALvideo (1 Component Y BNC)
- Composite analog output NTSC/NTSC-J/PALvideo (1 Component Y BNC)
- AES audio, 8-channel, 24-bit, 48 kHz audio (8 BNC); 8-channel SDI embedded
- 2-channel balanced analog audio input and output (4 XLR)
- Timecode, LTC I/O (2 BNC); SDI embedded RP188 with onscreen display
- RS-422 9-pin D connector machine control port for interactivity with editors
- 10/100/1000 Ethernet LAN
- Panel user interface features a VFD display (2-line character display), with 14 control buttons, 3 control knobs, and a power button
- Available Storage Modules (HDD) for use with Apple Mac® computers (HFS+ file system) equipped with a Firewire 800 port.
- 100-240 VAC 50/60 Hz redundant power connectors
- 3-year warranty

## Software

- Remote Browser control software. When a Mac® or PC are connected via the Ki Pro Rack Ethernet port, the device can control the Ki Pro Rack via a web browser
- 20 Preset registers for storing and recalling system preset configurations
- Embedded internal web server for remote control via LAN
- Gang recording using a master Ki Pro to control other units (CONFIG 35.4)
- RS422 serial port control of Ki Pro Rack for VTR-like interaction with edit controllers or non-linear editors (see CONFIG parameter 35.2 explained in Chapter 3)
- Alarms to alert you to conditions that may need your attention



## Apple ProRes 422 Advantages

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Quality using Apple ProRes 422 is excellent—broadcast quality. Captured media is virtually indistinguishable from pristine uncompressed sources. Better yet, ProRes maintains the quality during editing, surviving multiple encoding/decoding generations without degradation. It was designed by Apple for editing, rather than as a transmission/distribution codec as are most popular codecs. Some of the advantages include:

- Full-size 1920-by-1080 and 1280-by-720 HD resolutions.
- Full-size 720-by-486 and 720-by-576 SD resolutions.
- 4:2:2 chroma sampling. Provides precise compositing and blending at sharp saturated-color boundaries.
- 10-bit sample depth. Preserves subtle gradients of 10-bit sources (perfect for green-screen compositing, graphics or color correction) with no visible banding artifacts.
- I frame-only encoding. Ensures consistent quality in every frame and no artifacts from complex motion.
- Variable bit-rate (VBR) encoding. “Smart” encoding analyzes the image and allocates more bits to complex frames.
- Low data rate requirements make for more storage options and require less drive space to store high quality video.
- Optimized for efficient Real-Time effects.

- Data rates:*
- 220 Mb/second Apple ProRes 422 (HQ)
  - 145 Mb/second Apple ProRes 422
  - 100 Mb/second Apple ProRes 422 (LT)
  - 36 Mb/second Apple ProRes 422 (Proxy).

*NOTE: Apple ProRes 422 (Proxy) is for high-quality offline editing at the original frame size, frame rate, and aspect ratio.*

## Avid DNxHD Advantages

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Quality using Avid DNxHD is excellent—HD quality encoding without high bandwidth requirements. Avid DNxHD was designed for non-linear post-production and broadcast to withstand multi-generational processing.

- Full-size 1920-by-1080 and 1280-by-720 HD resolutions.
- 4:2:2 chroma sampling.
- 10-bit sample depth (for DNxHD 220x) or 8-bit.
- Every frame of encoding is independent.
- Variable bit-rate (VBR) encoding.
- Low data rate requirements.

- Data Rates:*
- 220 Mb/second
  - 185 Mb/second or 175 Mb/second when DNxHD 220x has been selected (Mb/second varies depending upon the format and frame rate)
  - 145 Mb/second
  - 120 Mb/second or 115 Mb/second when DNxHD 145 has been selected (Mb/second varies depending upon the format and frame rate).

- Avid DNxHD 36 is for high-quality offline editing at the original frame size, frame rate, and aspect ratio and is only offered when working with 1080p format video.

*NOTE: SD video encoding using Avid DNxHD is not supported.*

## In This Manual

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- Chapter 1** Introduces the Ki Pro Rack briefly, listing features, box contents, and system requirements.
- Chapter 2** Presents a product overview, showing front and rear panel controls, connectors, and options.
- Chapter 3** Explains how to install Ki Pro Rack and set up the initial configuration.
- Chapter 4** Provides complete instructions for operating the Ki Pro Rack from the front panel.
- Chapter 5** Discusses remote web browser control of Ki Pro via Ethernet.
- Appendix A** Provides specifications for various aspects of the system.
- Appendix B** Contains important caution, warning, and compliance statements.
- Back Matter** Contains copyright, trademark, and warranty information.
- Index** Provides an index for subjects covered in this manual.

# Chapter 2: Ki Pro Rack at a Glance

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## Overview

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When using Ki Pro Rack, you'll make media cable connections to a variety of equipment based on how the system is being used. Chapters 2 and 3 discuss Ki Pro Rack configurations, options, indicators, controls, and connections so you'll have a working knowledge of how it can be used to tie together the worlds of acquiring media (production) and post-production.

Learning about the front panel indicators will be useful in selecting operational modes and monitoring what is happening on Ki Pro Rack as well as troubleshooting. Becoming familiar with the Ki Pro Rack operator-side and connectors will simplify installation, setup, and operation of the system.

On the following pages are front and rear panel illustrations with notations that summarize all of the connectors and indicators. Detailed descriptions of each of the connectors and indicators follow afterward.

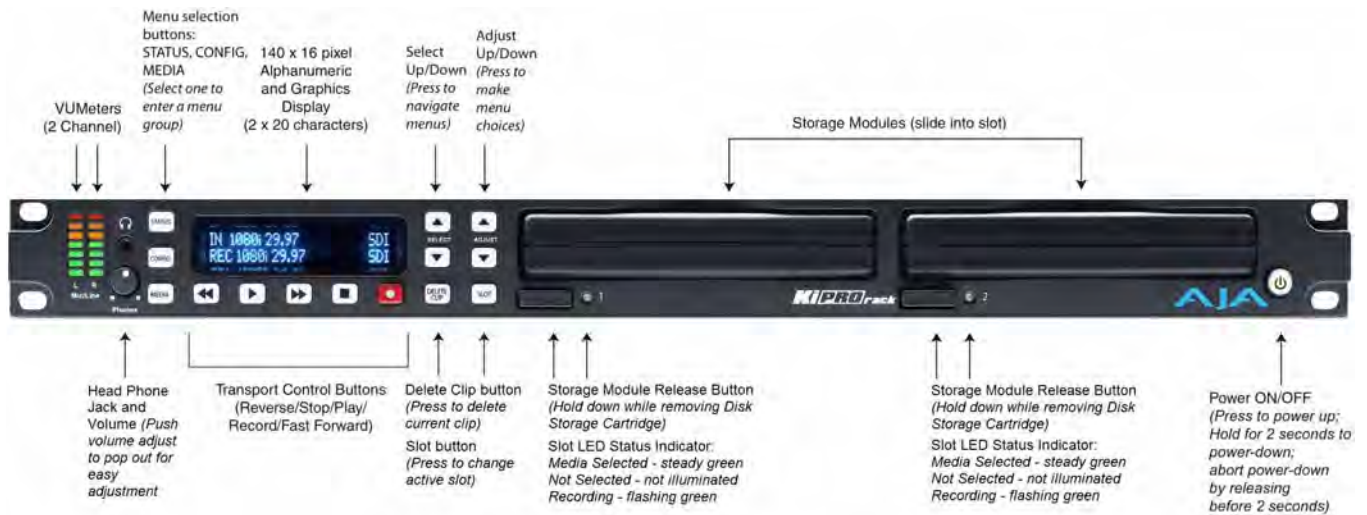
Appendix B says this is Class B for most countries. Need to resolve.

. . .

	<p><b>Caution!</b></p> <p>This device is a Class A product. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.</p>
	<p><b>Caution!</b></p> <p>The AJA Ki Pro Rack contains a lithium battery soldered in place permanently (it is not user replaceable). If you ever dispose of the Ki Pro, ensure you follow local regulations for safe disposal. The lithium battery shall not be exposed to excessive heat, such as sunshine or fire.</p>

# Operator Side

Figure 1. Ki Pro Operator Side (front panel)



## Controls and Displays

The Operator Side or front panel of Ki Pro Rack features a variety of buttons, knobs, jacks, and indicators for operating the product. Each of these items is described briefly on the following pages. Additionally, all display menus and front panel operations are described in Chapter 3.

The front panel of Ki Pro Rack operates in two modes:

- TRANSPORT mode (default) for controlling play, record, clip selections, etc.
- MENU mode for configuring the Ki Pro Rack system

Some controls have different functions in these two modes. For example, the SELECT buttons select clips in Transport mode and select menus in Menu mode.

In the Transport mode, the transport buttons below the display and the SELECT and ADJUST buttons on the right of the display control playback and recording.

In the Menu mode, there are three menu group buttons on the left side of the display: STATUS, CONFIG, and MEDIA. These menu group buttons access corresponding display menu groups that allow you to check status, configure the system, or perform media-related tasks. The SELECT and ADJUST buttons allow you to scroll menus and make selections and adjustments.

**Buttons** Each pushbutton on the front panel is listed and described below.

**Power ON/OFF Button:** Controls system power on/off and shows whether power is ON (when illuminated) or OFF. To turn power on, press the button once, and watch power-up progress on the display. To power down, hold the power button down for 2 seconds. This action prevents accidental power-off during normal operation. You can abort the power-down process by releasing the power button before 2 seconds have elapsed. It isn't necessary to depress the button or press hard—it's a "soft" button sensed by the processor inside.

**STATUS Button:** Pressing the STATUS button, when it is not lit, enters the I/O Status menu. Pressing STATUS when it is lit turns off the Status menu and returns you to Transport mode. STATUS menus can be accessed at any time—including when the machine is in an active

transport mode (PLAY, RECORD, FF, REV). The ALARM state presented on the display shares functionality with STATUS. The Select buttons can be used to cycle through alarms and I/O status.

**CONFIG Button:** Pressing CONFIG when it is not lit, enters the CONFIG menu. Pressing CONFIG when it is lit turns Off the CONFIG menu (returning you to the default TRANSPORT menu). The CONFIG menu can only be entered from the STOP mode. The CONFIG menu remembers which parameter it is set to when exited, and will return to that same parameter when the menu is re-entered.

**MEDIA Button:** Pressing MEDIA when not lit, enters the MEDIA menu. Pressing MEDIA when it is lit will turn Off the MEDIA menu (returning to the default TRANSPORT menu). The MEDIA menu can only be entered from the STOP mode. The MEDIA menu remembers which parameter it is set to when exited, and will return to that same parameter when the menu is re-entered.

**Transport Control Buttons:** The transport buttons, described below, are always active.

**STOP ■:** The STOP button has a dual function. When playing back a clip (PLAY, FF, or REV) the first push of STOP acts as a pause mode: the playback is paused, the current point of the clip is displayed, and the STOP button flashes. A second push of STOP completely stops the playback and directs Ki Pro Rack's outputs into an E to E mode (the currently selected inputs bypass to the outputs). To determine at a glance if the STOP button is in a "pause" mode, note that the stop button will flash if media playback is paused. The STOP button is fully illuminated in "stop" mode.

**PLAY ▶:** Press PLAY to begin forward playback of the current clip at normal speed.

**RECORD ●:** Press the red button to begin recording. Once in RECORD mode, all other transport buttons are locked-out except the STOP button.

**FFWD ▶▶:** Press button to begin fast playback of the current clip at 2x speed. Successive pushes increase the speed to 4x, 8x, and 16x. (Pushing the button after 16x speed is reached has no further effect.) When fast-forwarding, audio is muted.

**REV ◀◀:** Pressing REV when not lit, begins playback of the current clip in reverse at 1x speed. Successive pushes increase the speed to 2x, 4x, 8x, and 16x. (Pushing the button after 16x speed is reached has no further effect.) When playing in reverse, audio is muted for all speeds.

**SELECT (up/down):** The SELECT up/down buttons operate differently depending on whether Ki Pro Rack is in the TRANSPORT mode or the MENU mode. In the TRANSPORT mode, the SELECT buttons select clips and operate like "previous" and "next" keys. When a clip is selected, Ki Pro Rack "cues" it to the beginning. Note that ordering and playback of clips is based on timestamp order (creation date), not clip name. However, in a playlist, ordering and playback is determined by playlist order. In the MENU mode, the SELECT buttons select parameters for adjustment. Holding down either of the SELECT buttons causes them to repeat.




**ADJUST (up/down):** The ADJUST up/down buttons operate differently depending on whether Ki Pro Rack is in TRANSPORT mode or MENU mode. In TRANSPORT mode, and in the "Pause" mode (single push of STOP from PLAY mode), the ADJUST buttons "single step" the current clip at a rate of one frame per button push (up=forward, down=reverse). In the MENU mode, the ADJUST buttons adjust the selected parameter. Holding down either of the ADJUST buttons causes them to repeat.

**DELETE CLIP Button:** Dedicated button that when pressed, deletes the currently selected clip. When pressed, the system displays a precautionary "ARE YOU SURE?" prompt. Press the up-arrow ADJUST button to delete the clip, or the down-arrow ADJUST button to abort the deletion. When a clip is deleted, the next clip is cued for deletion. Pressing DELETE CLIP, STOP or any other button—while "ARE YOU SURE" is displayed—cancels the deletion. Pressing any button other than ADJUST up always aborts deletion.


DELETE CLIP can be used in either the TRANSPORT menu or the MEDIA menu. When pressed in the TRANSPORT menu with a current clip active (PLAY, REV, FF, RECORD), the active mode will continue until the DELETE CLIP is confirmed.

**SLOT Button:** The SLOT button serves two purposes. First, it selects which storage is accessed by the system. Second, the SLOT button is used to unmount a currently selected piece of media.

	<b>Caution!</b> Not using the SLOT button to unmount the media can lead to issues with the media if the media is removed prior to this action.
---	---

Pushing the Slot button cycles between unmounting media and selecting media. This function is only active when in the "STOP" mode and requires a "PRESS STOP TO CONFIRM" if not stopped. After you select a slot, the system returns to the last selected clip and timecode for that slot. If the media has been changed since the slot was last selected (physically removed/media replaced), then the "first" clip on the media will be "cued" to its start point. If inserted media has any issues, additional prompts may be displayed as appropriate such as: "WARNING Backup and Reformat" or "WARNING Media Unrecognized."

**Disk Storage Module Release Button:** Press and hold to physically release a storage module from the unit; you must pull out the storage module while pressing the button. This action prevents a storage module from accidental removal while recording/playing. For safe removal of media, the corresponding slot LED must be unlit.

	<b>Caution!</b> Removing any media with the slot LED lit, or while flashing, can result in corrupted media or potential damage to the media.
---	---

**Head Phone Volume Knob:** To adjust headphone listening level, press the knob inward and the knob will then pop out for easy adjustment.

**Displays and Indicators** The displays and indicators consist of an alphanumeric and graphics display, analog audio level VU meters, and LED status indicators for the media slots. Display and indicator details are as follows:

**Alphanumeric and Graphics Display:** Display details: The display is a 140x16 Graphics display. Normally, it will be configured in a 2x20 character format. All menus are designed to fit into this format, so some words may be truncated to fit the display limits.

Operational note: The display power consumption is directly related to the number of pixels that are turned on and the intensity. Therefore, the default brightness is an intensity value of 6 (on a scale of 1-8) and users will be able to diminish this value to conserve as much as 22% power consumption for the VFD. The intensity setting of the VFD also correlates to the backlit buttons on the unit (play, select up, select down, etc.).

During a period of 3 minutes of inactivity, the VFD will go to a screensaver mode— if the Screen Saver parameter has been set in the CONFIG menu.

**VU Meters:** The VU meters are 7-segment LEDs show audio input levels for the 2 analog audio channels (respectively).

**Green:** Indicates that the audio source signal level is in the “safe” area (no clipping). Vertically, the green LEDs also show the signal strength, so you can see if the signal level is low. Generally, it’s preferred to have the signal near the top of the green or even occasionally peaking into the yellow LEDs.

**Yellow:** Indicates that the audio source signal levels are at the peak edge of the safe area before clipping will occur.

**Red:** Indicates that the audio source amplitude is too hot and the signal is clipping at its signal peaks. You should reduce the input gain at its source (camera, mixer or source equipment supplying the signal).

**Slot LED:** This is the Disk Storage Module Status Indicator and indicates the following media statuses:

LED lit/on: selected media

LED unlit/off: inactive media, okay to eject or no media inserted

LED flashing: recording in progress

## Other Front Panel Features

The following additional features are also present on the front panel.

**Head Phone Jack:** 1/8” (3.5mm) miniature stereo TRS connection for standard stereo headphones.

## Connector Side

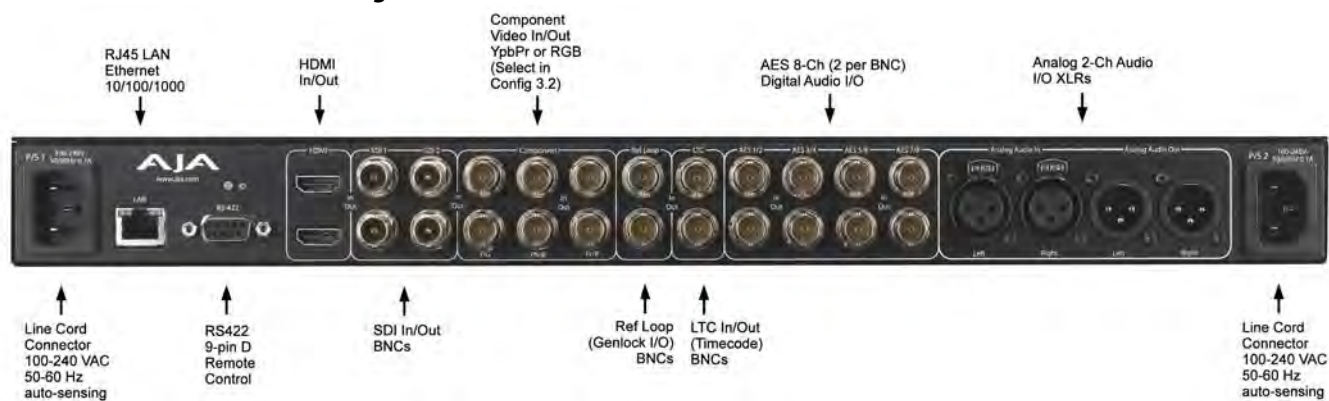
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The connector side of Ki Pro Rack contains the available audio/video connections. Connect any camcorder, camera, or audio source—digital or analog—regardless of brand or format, to Ki Pro Rack’s many connectors. On the back side of the unit, two AC line cords provide redundant 100-240 VAC 50/60 Hz power to the dual power connectors (see *Installation* later in this chapter).

The function of Ki Pro Rack’s inputs and outputs depends on the operational mode. Ki Pro Rack’s active input (the one to be recorded) is selected by the front panel or web browser interface. Ki Pro Rack’s outputs are active all the time. In other words, the same output video appears simultaneously on the HDMI, SDI, component, and composite outputs. This method of operation allows simultaneous connection to source devices, onset monitoring displays, and audio equipment.

**NOTE:** *You should be aware of the limitations of each output. The composite output is by definition an SD signal, so it will not output HD. The HDMI output is by definition an HDMI-compatible signal, so 1080PsF formats cannot be output via HDMI; instead use a true progressive format for the HDMI output.*

**Figure 2. Ki Pro Connector Side and Rear Panel**



## Connections

- 10/100/1000 Ethernet LAN
- RS422 9-pin serial port for control of Ki Pro Rack via external editing systems
- HDMI video with embedded audio, 2 channel input and recording support, 1x connector for input and 1x connector for output.
- 2 HD/SD-SDI Inputs and Outputs, with 2 or 8 channel embedded audio (2x BNC)
- HD/SD Component YPbPr/RGB Video, 3x BNCs for input, and 3x BNCs for output.
- Composite video output (1x BNC—Component Y)
- Ref Loop genlock input and output (looping)
- LTC input and output (2 BNC, non-looping output during recording)
- AES 8-channel digital audio input and output (8x BNC)
- Analog Audio 2-channel balanced input and output (4x XLR)

**Ethernet:** An RJ45 connector provides a 10/100/1000 Ethernet port for connecting Ki Pro Rack directly to a computer or Ethernet hub or switch for connecting to a LAN. Ki Pro Rack is compatible with CAT-5 straight-through or cross-over Ethernet cables, automatically detecting which is used. Once connected and properly configured, Ki Pro Rack can then be controlled by a web browser on the LAN.



**RS-422 Connector:** Ki Pro Rack features a 9-pin serial port that may be used with some RS-422 devices.



**IMPORTANT:** *Not all RS-422 devices have been tested with Ki Pro Rack, so AJA cannot definitively say which devices may or may not communicate as expected with Ki Pro Rack when operated under RS-422 remote control. Refer to the latest Release Notes document for which devices or non-linear editors have been tested with Ki Pro operating under RS-422 control.*

**HDMI:** Two HDMI connectors provide for input and output of HDMI compatible video and embedded audio. HDCP sources are not supported on the input. The HDMI input is designed to support long cable runs: up to 100 feet (30.48m) when using 22 or 24AWG HDMI cable, or up to 50 feet (15.24m) using 28 or 30AWG HDMI cable. The HDMI output supports standard HDMI cables only.





HDMI formats supported:

- 525i 29.97
- 625i 25
- 720p 50, 720p 59.94
- 1080i 25, 1080i 29.97,
- 1080p 23.98, 1080p 24, 1080p 25, 1080p 29.97

**NOTE:** To maintain regulatory compliance, when attaching any HDMI audio or video accessory to Ki Pro Rack HDMI, you must use one each of the ferrite beaded HDMI cables, HH-28F-06, between the input and output ports of the Ki Pro Rack and the HDMI accessory.

**SDI Inputs and Outputs:** Four BNC connectors are provided for two SDI inputs and outputs. The SDI inputs and outputs support SD-SDI and HD-SDI video and embedded 24-bit digital audio. If your camera has multiple outputs, look to see if it has SDI, and use it where possible for the highest quality.



**Component YPbPr:** Connect component YPbPr video cables from a VTR, Camera, or other source to the three YPbPr input BNCs: Y/G, Pb/B and Pr/R. Then connect the YPbPr Out BNCs to a monitor, or other component device. Component input video signals are A/D (input) converted (10-bit). Similarly, component output video signals are D/A converted (10-bit). Component video signals are higher quality than composite.



**NOTE:** Although RGB is used less frequently in today's video systems, Ki Pro Rack supports it at output. Because Ki Pro Rack's (and SMPTE SDI) native format is YPbPr, AJA recommends the use of YPbPr whenever possible. Although component video monitors often have RGB inputs, it's better to use YPbPr when the monitor supports it. The YPbPr format provides "headroom" for "superwhite" and "superblack"—and these video levels will be clipped when transcoding to RGB. Also, the RGB/YPbPr transcoding involves a level translation that results in mathematical round-off error.

**NOTE:** Component Video, or YPbPr, has been given several names over time. YUV, Y/R-Y/B-Y, and YCbCr, are just some examples. Although these various formats have some differences in levels, they are all basically the same. Ki Pro Rack supports three different types of YPbPr: SMPTE/EBU N10, Betacam (NTSC), and Betacam (NTSC Japan). These three formats differ in level only.

**NOTE:** Setting the Ki Pro Rack component input and/or output to "Beta" for HD material results in an "Invalid Selection" alarm that must be corrected before recordings or other operations may take place.

**Composite NTSC/PAL Output:** One BNC connector (Component Y) supplies composite NTSC or PAL output. Connect the output BNC to a monitor, or other composite video device. Composite video signals are D/A (output) converted (10-bit).

**Ref Loop:** Two looping BNCs allow genlock signal input and output connections. If the genlock output is unused, it must be terminated using a 75-ohm termination cap. When the output connects to downstream equipment, the last piece of equipment in the series must be terminated in 75 ohms.



**LTC Timecode Input And Output:** Two BNCs provide connections to the house LTC timecode generator or source. Connections are high impedance. One BNC is for input and the other for output. Note: the Ki Pro Rack LTC output does not provide output during EE or recording



operations; the output is only for use during playback, as might be used for dubbing content to another device with matching timecode. For timecode to multiple Ki Pro Rack units, the use of a timecode generator and a timecode distribution amplifier is recommended.

*AES Digital Audio Inputs and Outputs:*

AES digital audio connections consist of four BNC input connectors, two channels per connector (1/2, 3/4, 5/6, 7/8). AES outputs also consist of four BNC connectors with the same two channels per connector.



*Analog Audio 2-Channel Balanced Input and Output:*

Four XLRs, 2 female for input and 2 male for output, provide 2 channels of balanced audio. Audio is high-quality 24-bit A/D input and D/A output at 48kHz. Level adjustments are made via software. Software level adjustments for analog audio (parameter 4.1) apply to balanced audio (XLR).



## Power Connector (back of unit)

Ki Pro Rack includes two redundant 100-240 VAC 50/60 Hz input connectors. The power inputs are auto-sensing and will adjust to any voltage within the 100-240 VAC range. Use the supplied power cords to connect either connector to an AC source for non-redundant power or use both connectors/cords for redundancy. If redundancy is desired, connect the two power cords to different AC branch circuits in case one circuit shuts off.



## Storage

Record hours of media to portable removable hard-drive storage modules with built-in FireWire 800. Ki Pro Rack media may also be used with Windows OS editing systems when third party software, such as MediaFour's MacDrive, is installed. Both media types mount on your OSX desktop for immediate editing and file access.

	<p><b>Caution!</b> Failure to properly mount or dismount media, or an unexpected loss of power while recording, can result in an unrecoverable data loss.</p>
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## Removable Storage Modules (HDD or SSD)

The Ki Pro Solid State Storage Module (SSD) is recommended for mobile environments where shock-proof sturdiness may be needed. The Ki Pro SSD Storage Module offers the ultimate in media reliability. For non-mobile applications you can also use 250GB HDD Storage Modules.

You may also choose to purchase extra SSD or HDD Storage Modules so you can quickly load and unload media from the Ki Pro Rack unit while on set.

Storage Modules can be powered via the FireWire 800 cable, or via an AC adapter (available separately).

Check with your AJA dealer or the AJA website for Storage Module offerings as capacities and models may change.

**Figure 3. Storage Module**



**NOTE:** HDD and SSD storage modules look identical—see label underneath for type.

## Formatting Media

To reformat storage media, it must first be selected using the SLOT button (see previous topic). After selecting the media, follow these steps:

1. Press the STOP button
2. Press the MEDIA button
3. Press SELECT (up or down) repeatedly until you see the menu 16.1 Format Media.
4. Press ADJUST up arrow. Ki Pro Rack will display "FORMAT". Press the ADJUST up arrow button. Ki Pro Rack will display "CONFIRM ERASE"—press and hold the ADJUST up arrow button for 2 seconds or longer and then formatting will begin. Ki Pro Rack will display progress, and when it is done, "Format D1 Complete" will be displayed; press the stop button to begin using the newly formatted media.

## Using Ki Pro Media Rack in Final Cut Pro

When a Ki Pro storage module (HDD or SSD) is removed and connected to a Mac via a FireWire 800 cable, the module will mount as a normal Apple HFS+ filesystem. The REEL NAME parameter is the name of the media that will appear mounted on the OSX desktop.

Once a Ki Pro storage device is mounted, each clip recorded by Ki Pro Rack will be a file on its file system that can be opened in Final Cut Pro. Because the clips were recorded as Apple ProRes 422, Apple ProRes 422 (HQ), Apple ProRes 422 (LT), or Apple ProRes 422 (Proxy) with proper Final Cut Pro metadata, they're instantly ready to edit. While the Ki Pro Rack clips can be accessed and used by Final Cut Pro directly from the Ki Pro media, AJA recommends backing up your clips to your local storage for editorial.

In Final Cut Pro 7's browser window you will see some of the information Ki Pro Rack saved as data to describe the media. Ki Pro Rack saves the "Name", "Media Start", "Media End" and "Reel" for Final Cut Pro 7. Ki Pro QuickTime clips can also be directly imported into Final Cut Pro X, which relies on Apple ProRes encoded media.

**NOTE:** From the Storage Module, Ki Pro Rack supports the playback of Apple ProRes 422, Apple ProRes 422 (HQ), Apple ProRes (LT) and Apple ProRes (Proxy) QuickTime files with appropriate 24-bit 48kHz audio in formats and frame rates noted as supported by the latest firmware release. Files created in other codecs or at other frame rates or frame sizes will not result in playback if placed in the "AJA" folder on the Ki Pro Storage Module. Placing non-Apple ProRes QuickTime files in the "AJA" folder can lead to problematic issues when attempting "Play All" operation of clips; if media other than Apple ProRes QuickTime files must be kept on the Ki Pro Storage Module, they should be placed outside of the "AJA" folder on the drive.

## **Using Ki Pro Rack Media with Avid Media Composer**

Avid DNxHD QuickTime files produced on the Ki Pro Rack system are designed for use with Avid Media Composer. While these QuickTime files can be read in a variety of other non-linear edit systems (when the appropriate Avid QuickTime codec package has been installed), AJA cannot verify the behavior or performance of DNxHD QuickTime files in these other non-linear edit systems.

To use the Avid DNxHD files produced by the Ki Pro products in Avid Media Composer, AJA recommends using the "Link to AMA File(s)" feature provided in Avid Media Composer.

*NOTE: While Ki Pro Rack recorded files can be directly accessed from Avid Media Composer via AMA for editorial, AJA advises transferring/copying media to a local drive or disk array for editing.*

# Chapter 3: Installation








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## Overview

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The installation and set up of a Ki Pro Rack is straight-forward. If you'll be controlling the unit from the front panel buttons and display, it's ready right out of the box. Just cable the system's audio and video sources, VTR(s), monitors, and audio equipment, mount the Ki Pro Rack unit as desired, and begin recording. However, if you wish to control Ki Pro Rack from a web browser, there are additional configuration steps.

The following topic details set up and installation of Ki Pro Rack. Choices you will make include how Ki Pro Rack will be controlled (front panel or Ethernet & web-browser) and the physical system requirements for your application (camera mount or not, video and audio monitoring choices, and media workflows). First we'll discuss mounting methods and then follow up with software configuration and setup.

	<b>Warning!</b> Read and follow all warning notices and instructions marked on the product or included in the documentation.
	<b>Warning!</b> Only use attachments and accessories specified and/or sold by the manufacturer.
	<b>Warning!</b> Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
	<b>Warning!</b> Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
	<b>Warning!</b> Do not use this device near water and clean only with a dry cloth.
	<b>Warning!</b> Unplug this device during lightning storms or when unused for long periods of time.
	<b>Warning!</b> Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

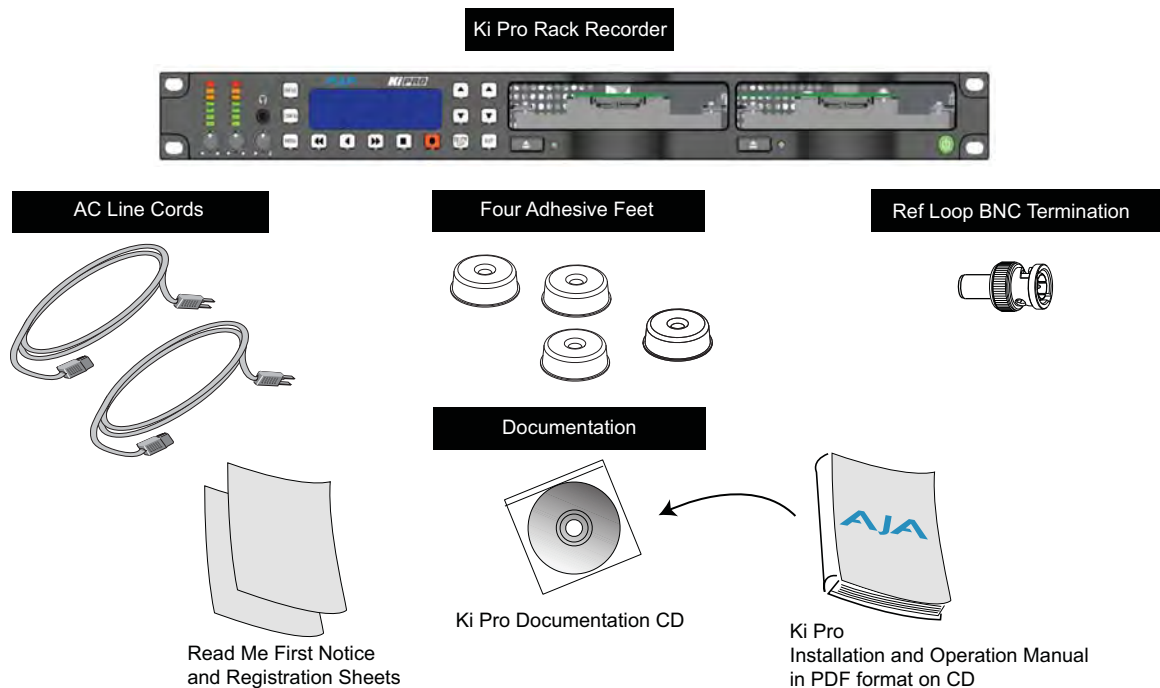
## What's In The Box?

When you unpack your Ki Pro Rack, you'll find the following components:

- Ki Pro CD-ROM—contains documentation, including this manual (PDF).
- Ki Pro Rack Recorder.
- BNC termination—place on the Ref Loop output at the end of the loop.
- Four Rubber adhesive feet for placing on the bottom of Ki Pro Rack.
- Two AC power cords for redundant 100-240 VAC 50/60 Hz power.
- Read Me First Notice—late-breaking news and errata related to Ki Pro Rack.
- Registration Sheet—register by mail or online (details provided).

Please save all packaging for shipping the Ki Pro in case you need to do so.

**Figure 4. Ki Pro Rack Shipping Box Contents**



## Mounting Ki Pro Rack








Ki Pro Rack is a rack-mountable or standalone box that connects to the video and audio output connector(s) from a camera, camcorder, or other professional source to record the media from that device. Here are some typical workflows and applications:

- Recording a live video feed from a camera; Ki Pro Rack is rackmounted, receiving component video input.
- Recording a corporate video live from a camera; Ki Pro Rack sits on a computer work desk receiving HDMI audio and video input.
- Recording on location, Ki Pro Rack is truck-mounted, receiving an HD-SDI feed.
- Desk-mounted in an AV media library, recording legacy material from a variety of decks, formats and sources, converting dissimilar media to standardized Apple Pro Res for archival.

- Recording live house-of-worship services, Ki Pro Rack sits on a shelf receiving a feed from a wall mounted remote camera and audio feed from the house mixer.

## Applying Power

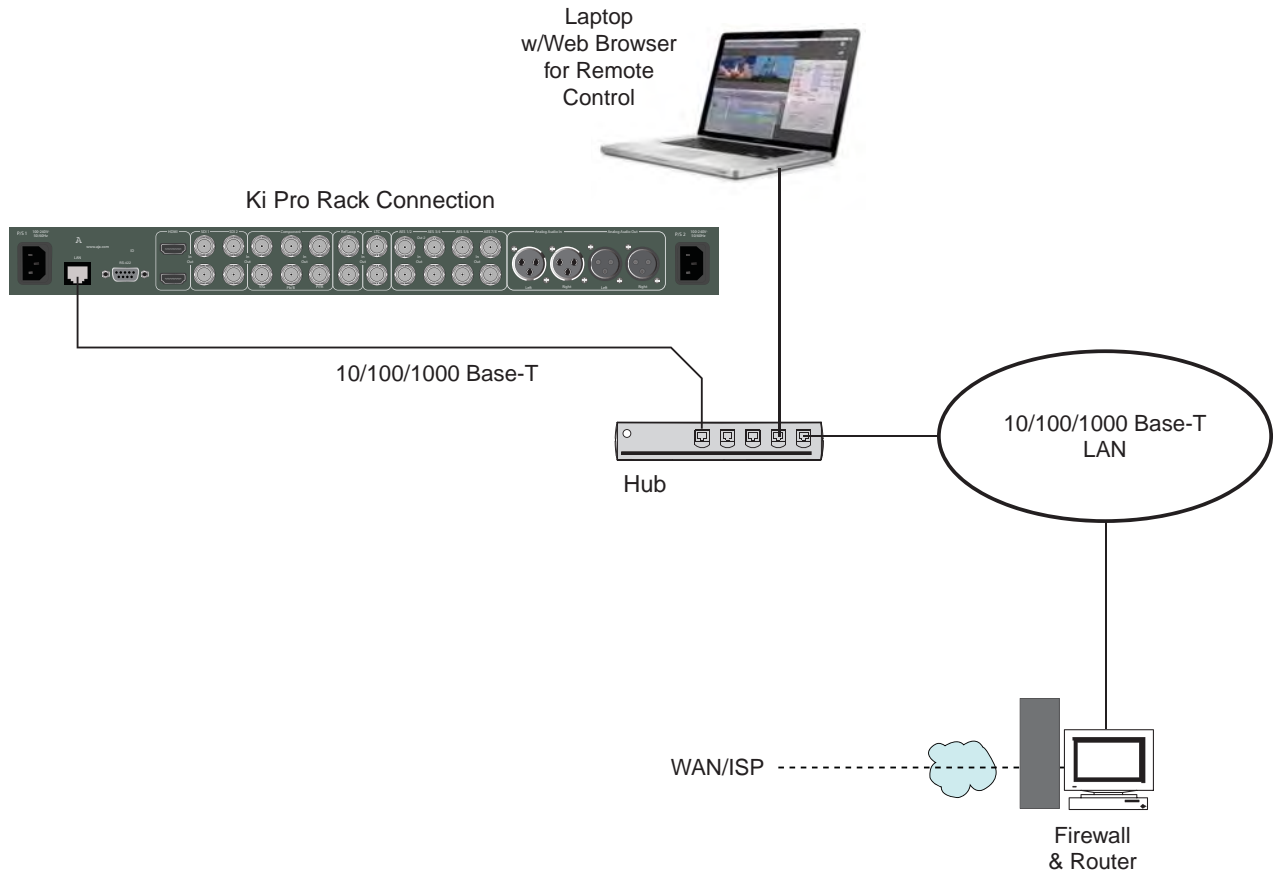
To begin using Ki Pro Rack, plug at least one of the supplied AC line cords into one of the power sockets on the back of Ki Pro Rack. Then plug the AC line cord into 100-240 VAC 50/60 Hz (the supply is autosensing). For redundancy, connect both AC cords to the Ki Pro Rack, and connect the cords to separate AC branch circuits. A power switch on the front panel turns unit power on and off.

	<p><b>Warning!</b> Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.</p>
	<p><b>Warning!</b> Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.</p>
	<p><b>Warning!</b> Unplug this device during lightning storms or when unused for long periods of time.</p>
	<p><b>Warning!</b> Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility. Remove the supplied AC line cord from mains power when moving the unit. Do not defeat the safety purpose of the grounding-type plug.</p>
	<p><b>Warning!</b> Ki Pro Rack has no user-serviceable parts. To remove power from the unit, remove the power connector to ensure disconnection. Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.</p>
	<p><b>Warning!</b> Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.</p>
	<p><b>Warning!</b> Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.</p>

# Remote Network Control

The following diagram and text explain how to interface to Ki Pro Rack using an Ethernet direct connection or LAN.

**Figure 5. Ki Pro Networking Example**








## Network Connections

Ki Pro Rack can be networked directly to a MacBook Pro or Mac using a single Ethernet cable (straight or cross-over)—or it can be connected to a local area network (LAN). In hard-wired configurations, Ki Pro Rack connects via its 10/100/1000 Base-TX Ethernet connector. In a direct connection, you simply connect the Ki Pro Rack to an Ethernet-equipped computer having a browser using a Category-5 cable. If connecting via a LAN, you then connect the Ki Pro Rack's Ethernet connector to a hub or switch on the LAN. A LAN is a shared network that includes other Ethernet devices all attached via a hub or digital switch. LANs may be divided into zones separated by software or hardware routers.

Devices on a LAN have IP addresses which may be fixed and permanent, or dynamically assigned by the network (DHCP). When attaching Ki Pro Rack to a LAN, you should first talk to your network administrator and find out how they want it connected (static IP or DHCP). Your IT department will be able to supply the information you need to install Ki Pro Rack on a LAN.



## Class a or class b? need to resolve

	<b>Caution!</b> This device is a Class A product. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.
	<b>Caution!</b> The 802.11b/g radio is disabled by default and can be enabled only in the presence of an authorized access point.
	<b>Warning!</b> Intentional radiators, such as the AJA Ki Pro client adapter, are not intended to be operated with any antenna(s) other than those furnished by AJA. An intentional radiator may only be operated with the antenna(s) with which it is authorized.
	<b>Warning!</b> Do not touch the Ki Pro radio or antenna cover when the antenna is transmitting or receiving.
	<b>Warning!</b> Install this device in such a manner as to maintain a minimum of 5 cm (2 inches) separation distance between the radiating element(s) and all persons. This safety warning conforms with FCC radio frequency exposure limits.

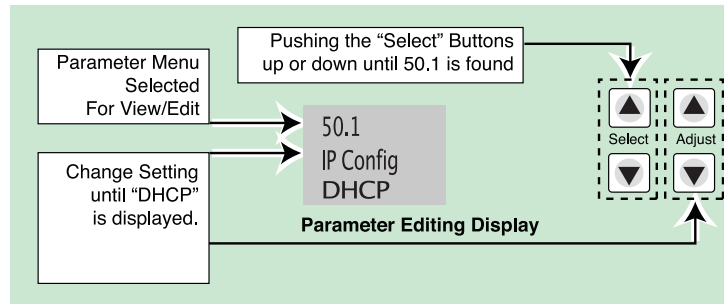
## TCP/IP Information You'll Need

If your LAN has a DHCP server that assigns IP addresses dynamically, then you don't have to configure anything (Ki Pro Rack defaults to DHCP). If for some reason your IT administrator prefers an assigned IP address that is fixed (called a "static IP"), then get the IP address—you'll be entering it in the "IP CONFIG parameter." If your LAN requires static IP addresses, then also ask your IT administrator for the *Subnet Mask* and *default gateway* IP address (your LAN's internet router). The following two topics discuss two different ways to set up Ki Pro Rack: via DHCP or via a static IP address.

## Networking via DHCP

The default configuration (from the factory) automatically looks for a DHCP server to issue an IP address. So, as long as your network has a DHCP server (usually part of your router—e.g. an Airport base station wireless router), then you need to do nothing other than plugging the Ki Pro Rack into the net. To manually select DHCP: use the Select buttons to navigate to the parameter "50.1 IP CONFIG", and then use the Adjust buttons to select "DHCP". That's it!

**Figure 6. Ki Pro Networking via DHCP**



Here are the steps to communicate with Ki Pro Rack after choosing the DHCP selection:

1. Use the Select buttons to navigate to parameter 50.2. Note on a piece of paper the DHCP supplied IP address shown.
2. With your laptop or desktop computer connected to the same LAN and DHCP enabled, type the IP address you noted in step 1 into the browser address bar. You should now see Ki Pro Rack's browser status screen.

If Ki Pro Rack cannot get an address from the DHCP server on the LAN while Ki Pro Rack is set to DHCP via parameter 50.1, it will then automatically drop back to a preset factory IP address of 192.168.0.2. In this instance you can follow these alternate steps to communicate with Ki Pro Rack:

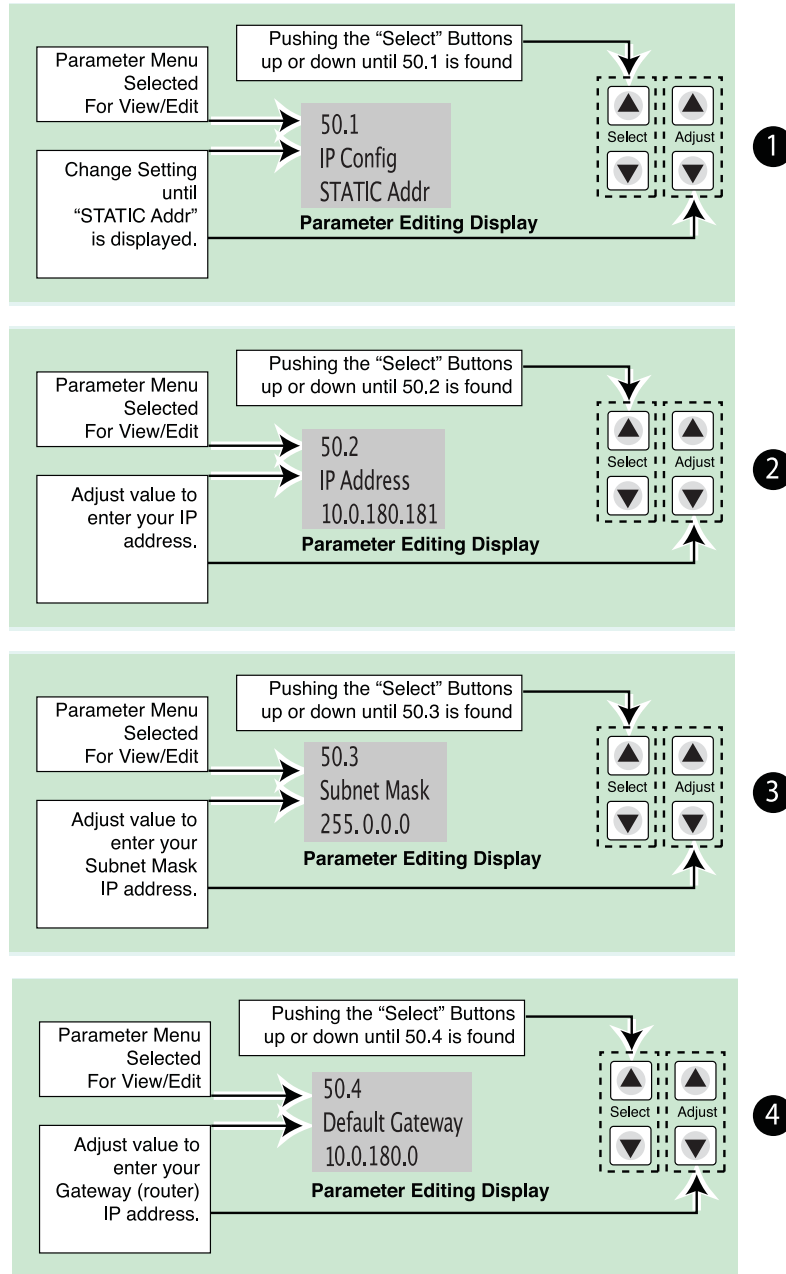
1. Set the computer's Ethernet IP address to 192.168.0.n (where n is not 2).
2. Set the computer's Subnet mask to 255.255.255.0 (most computers default to the proper netmask when the address is set).
3. Run a browser on the computer and type "192.168.0.2" (the factory fallback IP address). You should now see Ki Pro Rack's browser status screen.

**NOTE:** *If Ki Pro Rack fails to find a DHCP server via its network connection, it will fall back to using the factory default static IP of 192.168.0.2—or whatever IP address you've previously defined. AJA recommends you define a Static IP address with parameter 50.2 so you'll be prepared in the event your DHCP server fails.*

## Networking Ki Pro using a Static IP Address

To set a static IP address for Ki Pro Rack, you'll have to make some simple Parameter menu selections. The illustration below shows the four menu selections you need to make, while entering the information provided to you by your IT administrator (as discussed earlier).

**Figure 7. Configuring Ki Pro with a Static IP Address**



**NOTE:** For parameters 50.2, 50.3, and 50.4, you will be setting IP addresses that consist of "octets" separated by a period (i.e., 10.0.180.0). For these parameters, the Select button selects the octet and then the Adjust buttons select the desired number. Pressing Select again advances to the next octet. At the final octet, the address will flash—pressing Select at that point confirms the setting.

## Networking Ki Pro using the Factory Default IP

If you don't want to use DHCP to network Ki Pro Rack and also don't want to set your own static IP address, you can simply use a Default setting to use a factory setting of 10.65.74.65. This might be useful for an application where you directly connect a laptop or computer to Ki Pro Rack and want to get networking quickly. Here are the steps to set up this method of communication:

1. Use the Select buttons to navigate to parameter "50.1 IP CONFIG", and then use the Adjust buttons to select "Default".
2. Set your laptop or desktop computer Ethernet IP address to 10.m.n.m (where m is not 65 and n is not 74).
3. Also on the computer, set the Subnet mask to 255.0.0.0 (most PCs default to the proper netmask when the address is set—so you may not have to do anything here).
4. Run a browser on the computer and type "10.65.74.65" (the *Default* factory IP address). You should now see Ki Pro Rack's browser status screen.

## Test Ki Pro's Network Connection with "Ping"

After setting the IP address and other TCP/IP settings and connecting Ki Pro Rack's Ethernet connection to a LAN or directly to a computer, ensure that you have a valid connection by "Pinging" the Ki Pro Rack. Pinging ensures that other devices on the network, or a computer directly attached to it, can see it. Simply run the Ping utility from a computer on the same LAN as Ki Pro Rack, or one attached directly to Ki Pro Rack. Here's how to Ping a Ki Pro Rack from a Mac OSX computer:

### Mac Ping Procedure

1. Find the Applications Folder, and then find the Utilities Folder inside of the Applications Folder.
2. Locate the "Terminal" utility application and double-click it.
3. On the Ki Pro Rack, go to parameter menu 50.2 and read the IP address.
4. At the Terminal prompt, enter the IP address noted in step 3. For example: ping 192.168.0.2
5. If successful, the ping utility will respond that packets were sent, received and how long it took. For example:  
*64 bytes from 192.168.0.2: icmp\_seq=0 ttl=64 time=0.590 ms*
6. If unsuccessful, check Ki Pro Rack's network settings and resolve the problem with your IT administrator.

## Controlling Ki Pro from a web-browser

To control Ki Pro Rack from a web-browser on a network attached computer, you must enter Ki Pro Rack's IP address as a URL in the browser. For example, if Ki Pro Rack's IP address were "10.0.6.31", you would then type into the web browser: <http://10.0.6.31>

This topic is explained in greater detail in *Chapter 4: Browser Remote Control*.

# Chapter 4: Front Panel Operation

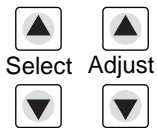


## Overview

There are two ways to control Ki Pro Rack: from the front panel or remotely from a web browser connected via ethernet. This chapter discusses controlling and using Ki Pro Rack from its front panel. Remote control via browser is discussed in Chapter 4.

In Chapter 2 we covered the panel controls overall, so ensure you read and understand that material first. Here in this chapter we introduce each of the front panel's modes and menus as well as *Clips* and *Reels*, with procedures for basic use.

First we introduce the two basic front panel modes, TRANSPORT and MENU, followed by how the SELECT and ADJUST buttons operate in each of these two panel modes.



The TRANSPORT mode is the default mode—it controls basic PLAY, STOP, FF, REV, REC and other functions. In the TRANSPORT mode, the Select buttons (up or down) cycle through the clips in the currently selected storage slot (like previous/next), and the Adjust buttons allow single-stepping, frame forward or backward. The following shows the display for the TRANSPORT mode:

Clip SC12BTK	D1 47%
Reel 212	01:02:22:14

TRANSPORT Mode

The MENU mode allows you to use the display to view system status, setup or adjust the system configuration, or modify media settings. Certain parameters set in the menus are stored in non-volatile memory so that the parameter is remembered between power cycles, for example: system name and date/time.

To enter the MENU mode to view menus in the display, press one of the 3 MENU buttons: STATUS, CONFIG, or MEDIA.

In the STATUS menu, the Select buttons cycle through the various STATUS screens. The Adjust buttons have no effect on the STATUS menu. The following shows the display for the STATUS menu:

Input Format	Input selected
Recording Format	Audio input selected

STATUS Menu (Record Mode)

Media Format
Output Conversion

STATUS Menu (Play Mode)

In the CONFIG or MEDIA menus, the Select buttons select various adjustable parameters, and the Adjust buttons adjust the selected parameter. When you enter into a parameter of a menu, the system remembers and returns to the last selected parameter. The following shows the displays for the CONFIG and MEDIA menus.

Parameter number	Parameter Name
Parameter setting	(chosen by Adjust buttons)

CONFIG Menu

Parameter number	Parameter Name
Parameter setting	(chosen by Adjust buttons)

MEDIA Menu (like CONFIG)

## TRANSPORT Mode (default)

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TRANSPORT mode is the default mode for Ki Pro Rack operation. When you power up Ki Pro Rack, the first display you'll see is the TRANSPORT mode menu. Any clip that previously was recorded is referenced in the display and can be played.

If the screen saver is on, pushing one of the transport buttons in the middle of the front panel (PLAY, STOP, FF, REV, REC) dismisses the screen saver and returns to the current display. A second press, or a first press if the screen saver is already off, immediately takes action and causes the display to change to the TRANSPORT mode if it is not already displayed. Settings you've made in the MEDIA menus are observed (more on that later). You'll always know you are in TRANSPORT mode as long as one of the MENU buttons aren't lit (STATUS, MENU, or MEDIA)—if one is lit, then you are in a "menu".

**Stop Mode** When in the "STOP" mode, the CONFIG and MEDIA set-up menus can be accessed to adjust various parameters that control Ki Pro Rack's operation. Note that you must be in STOP, not PAUSE to access these menus—if you try to access these menus without first having stopped playback, a "PRESS STOP" prompt will appear on the VFD display. You can tell if the STOP button is in "pause" if the button is flashing.

**Transport Lockout** There are certain times when transport controls are locked out. For example, when ejecting media, or entering an IP address, the transport controls are locked out until the operation is completed. Most other menu functions do not lock out the transport controls.

**Exiting Menus** At any time you only need to hit any transport button to exit (or “exit” a STATUS, CONFIG, or MEDIA menu by pushing its button). Pressing a transport button sends the display into the TRANSPORT default menu.

**Confirmation Messages** Several operations may result in an “ARE YOU SURE” interaction; for example, FORMAT MEDIA. This protects you from inadvertent actions and ensures that accidental button presses don’t have negative repercussions. When you answer yes to an ARE YOU SURE prompt, the display then changes to an “in progress display”, and automatically returns to the menu when the operation is complete.

**Conversions During Recording** When recording, Ki Pro Rack is in an E-to-E state. However, any conversions selected (on input or output) will be applied. This means you can specify the type of recording via the *In Convert* as “None”, leaving the incoming signal as is, or convert the signal to another format for your recording.

**Recording a Clip** There is more than one way to record a clip, since you can control Ki Pro Rack in numerous ways. The MEDIA and CONFIG menus presented later in this chapter detail the parameters available to control recording. Before we get into that level of detail, here’s an example of just how simple recording can be:

1. Press the STATUS button. You’ll see the currently selected input and input format (line 1) and the chosen recording format and audio input (line 2).
2. If these settings are acceptable, push the red RECORD button below the display.
3. The green LED next to the storage module release button blinks to show that a recording is in process, and you’ll see the timecode changing on the display. The RECORD button is also backlit while recording.
4. When you’ve finished recording, press the STOP button (left of RECORD).

You can customize your configuration via the CONFIG and MEDIA menu parameters.

*NOTE: To change Apple ProRes 422 settings prior to recording, follow these steps:*

1. Press MEDIA
2. Repeatedly press SELECT until you see 14.1 Encode Type.
3. Press ADJUST up or down to select “ProRes 422LT”, “ProRes 422PX”, “ProRes 422HQ” or “ProRes 422”.
4. Press MEDIA or STOP to exit the menu.

**Selecting a Different Video Input** To select a different video input before recording, follow these steps:

1. Press CONFIG.
2. Repeatedly press SELECT until you see 2.1 Video In.
3. Then press ADJUST up or down to choose a desired video input connector.
4. To select a different audio input, use the SELECT up arrow button and you will see 2.2 Audio In.
5. Press ADJUST up or down to chose a desired audio input connector.

**NOTE:** You cannot select HDMI audio unless you have an HDMI video source, nor can you select an SDI audio source if you have not selected an SDI video source. If you attempt to mismatch these settings, a warning will alert you to the mismatch on the front panel.

These are just a few menu parameters that you might wish to change before you make your recordings. To learn all the ways to convert formats on input or output read the CONFIG menu and MEDIA menu parameter topics later in this chapter.

## Recording Notes

- Ki Pro Rack may take a few seconds to close longer files (files over 20 minutes). For these longer recordings, you may see a "Closing File" prompt on the display.
- Ki Pro Rack alerts you when the media is nearly full with a "Media Low" prompt at 15% of the remaining capacity. At 10% of the total capacity of the media, the "Media Full" prompt will appear. Any recordings that have been started will stop once 10% is reached and no further recordings can be performed using this media until it is formatted again or a MEDIA>Delete Clips>DELETE ALL has been performed. Deleting clips to produce more than 10% free space will allow recording to resume.
- To change Apple ProRes 422 settings prior to recording: press MEDIA, and then repeatedly press SELECT until you see 14.1 Encode Type. Next, press ADJUST up or down to select "ProRes 422LT", "ProRes 422PX", "ProRes 422HQ" or "ProRes 422". Press MEDIA or STOP to exit the menu. To change to Avid DNxHD, select 14.0 Encode Mode in the MEDIA menu; use the ADJUST up button to select "DNxHD", and then ADJUST up again, and hold ADJUST up for two seconds to reboot for DNxHD. Once the Ki Pro Rack system is rebooted, navigate to 14.1 Encode Type and press the ADJUST up or down to select "DNxHD 220x", "DNxHD 145" or "DNxHD 36" (if using 1080p).

## Playing Back a Clip

To playback recorded media, you simply select the clip desired and press PLAY. If the clip you wish to playback is not currently selected, use the SELECT up/down buttons until the clip name appears on the display. Like recording, there is more than one way to initiate playback (front panel, web browser). From the front panel these are the basic steps:

1. Press the STOP button to get to the TRANSPORT mode (if not already there). Find the clip name in the display (it shows the current clip/reel).
2. Press the SELECT up or down arrow button repeatedly until you find the clip you are looking for.
3. Press the PLAY button (>).
4. When playing back a clip (PLAY, FF, or REV) the first push of STOP acts as a "Pause" mode: the playback is paused, the current point of the clip is displayed, and the STOP button will flash. A second push of STOP will completely stop the playback and Ki Pro Rack's outputs will go into an "E to E" mode (the currently selected inputs will be bypassed to the outputs). When a playback reaches the end of a clip, it will automatically pause on the last frame of the clip.

During playback you can use the FFWD, REV, SELECT, or ADJUST buttons as follows:

**FFWD >>:** Press button to begin fast playback of the current clip at 2x speed. Successive pushes increase the speed to 4x, 8x, and 16x. (Pushing the button after 16x speed is reached has no further effect.) When fast-forwarding, audio is muted.

**REV <<:** Pressing REV when not lit, begins playback of the current clip in reverse at 1x speed. Successive pushes increase the speed to 2x, 4x, 8x, and 16x. (Pushing the button after 16x speed is reached has no further effect.) When playing in reverse, audio is muted for all speeds.



**SELECT (up/down):** While in TRANSPORT mode, the SELECT buttons select clips and operate like “previous” and “next” keys. When a clip is selected it is “cued” to the beginning of the clip. Note that ordering and playback of clips is based on timestamp order, not clip name. If you have paused playback (the STOP button is flashing), you can use the SELECT down button to jump back to the beginning of the clip. If the STOP button is not flashing, depressing the SELECT down button will select the previous clip.

**ADJUST (up/down):** While in TRANSPORT mode, and in either a “STOP” or “pause” state, the ADJUST buttons will “single step” the current clip at a rate of one frame per button push (up=forward, down=reverse).

## Deleting Clips

To delete a previously recorded clip:

1. In TRANSPORT mode, use the SELECT up and down arrow buttons to browse through the clips on the current storage device.
2. When you find a clip you want to delete, press the DELETE CLIP button.
3. Ki Pro Rack will ask “Are you sure”—press the ADJUST up arrow button to confirm deletion. Pressing the down arrow, or any other button, will abort the deletion.

## STATUS menus

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The STATUS menus display I/O status and Alarm information. The STATUS menu can be accessed almost anytime and will not change any active transport modes. Like the CONFIG and MEDIA menus, STATUS display screens can be viewed by pushing the SELECT up or down buttons. Pressing STATUS will exit the screens and return to TRANSPORT mode, where an action could still be occurring (like playback or even recording).

### Record and Play Modes

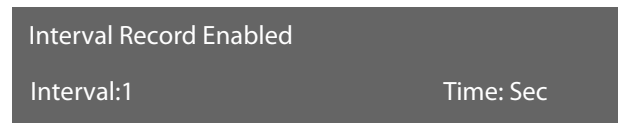
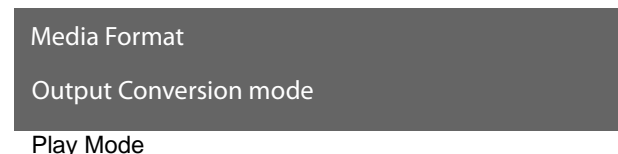
Line 1: Status (Record) displays the input format; the 4 characters on the right display the selected input video format: SDI, CMP, HDMI. Status (Play) displays the media format.

Line 2: Status (Record) displays the record format; the 4 characters on the right display the selected audio input: SDI, XLR, or HDMI.

Second STATUS page: Shows the timecode setting prior to recording. With the STATUS button selected, press SELECT up to see the second page.

The third page may show the Interval Record status (if Interval Record is enabled).

Here are some STATUS display examples:



**Alarm Status** The Alarm menu displays warnings and alarms. Some alarms will automatically be shown on the display. Others will only be seen by checking the STATUS displays (press Select up/down to cycle through them). If everything is OK, a "SYSTEM NORMAL" message will be seen when you cycle through the STATUS displays.




SYSTEM NORMAL

You will be alerted to an alarm condition by having all backlit keys and the display flash to full intensity for 2 seconds. If more than one alarm state is active, the display holds each alarm notification for 3 seconds before cycling to the next alarm. These alarm notifications override whatever the display is currently showing for the TRANSPORT or STATUS menus. Once there is a Ki Pro Rack alarm active (e.g. *Invalid Selection*) the STATUS button light blinks for as long as the alarm is present. This alerts you so you'll know the reasons for the alarm condition are still active. You can then press the STATUS button to determine what the alarm condition is.

CONFIG and MEDIA menus, once entered after an alarm notification, will cause the alarm display to go away. Pushing any button always returns Ki Pro Rack to its pre-alarm state—however, if the alarm condition still exists after this initial button push (i.e., the reason for the alarm), the alarm notification will reappear on the display. Note: the STATUS button will blink if there is an active alarm condition.


Examples of ALARM displays are shown following this page. WARNING appears on the first line and the prompted action item on the second line.



WARNING  
INVALID SELECTION



WARNING  
UNRECOGNIZED MEDIA



WARNING  
MEDIA IN USE

Ki Pro Rack features a variety of alarms to help you diagnose the condition of the unit, possible configuration issues, or possible signal issues. Here is a list of warning messages and their meanings:

"WARNING Input Format Changed" prompt appears if a recording is started and the signal is lost or changed. If this occurs, Ki Pro Rack stops the recording in progress unless the Loss of Video CONFIG parameter is set to continue recording.

"WARNING Record Format" may appear if there is no video input to Ki Pro Rack. No recording will be performed in this state.

"WARNING A/V Mismatch" may appear if SDI video is selected and HDMI audio is selected or vice versa. Embedded audio, via SDI or HDMI, must be matched to the video source. Analog audio can be used with any video input.

"WARNING Dropped Frames" may appear if media is underperforming and cannot keep up with the data rate required to make a recording or perform a playback. If you see this prompt during recording, you might consider backing up your current recordings and formatting the media. For playback, you might simply re-attempt playback.

"WARNING SDI VFR Mismatch" will appear if you have set the video input to something other than SDI when parameter 1.1 is set to "VFR"—as only the SDI input provides the appropriate data for VFR support.

"WARNING Media Low" will appear when the media only has 15% of capacity remaining. Media must be switched out when it reaches 10% of capacity. With 10% of media remaining, the "WARNING Media Full" prompt will appear.

"WARNING Media in Use" may appear if you try to remove the media by pushing the SLOT button while an operation is still taking place. Wait for the operation to finish and then try again.

"WARNING Media Not Present" may appear if media has been physically removed and the user pushes the slot button.

"WARNING Media Invalid" may appear if the media could not be formatted or contained errors the Ki Pro Rack was not able to correct. To resolve this issue, mount the drive on an Apple computer under Mac OSX, copy the clips from the media, then re-insert the media into Ki Pro Rack. If it does not read properly, you will need to format the media.

"WARNING Storage Removed" will appear if the media is removed without first hitting the SLOT button to properly unmount media. In the event this happens, media immediately re-inserted into the Ki Pro Rack may show clips as "N/A" and subsequent recordings may not be possible. To resolve this issue, mount the drive on an Apple computer under Mac OSX, then re-insert the media. If it does not read properly, you will need to format the media.

"WARNING Backup and Reformat" may appear if media has issues being mounted by the Ki Pro Rack. As the prompt indicates, it is best to back up the media by copying it to another drive or disk array and then reformat the media. Some signs that the media is in a read-only state: even though clips have been recorded to the media, "N/A" appears in the clip area of the UI, "Loading" appears in the clip area of the UI but does not eventually load a clip, or hitting the record button with all settings correctly configured for the Ki Pro Rack does not result in a recording.

"WARNING Media Unformatted" appears when media was inserted that contains no filesystem recognized by Ki Pro Rack. Ki Pro Rack recognizes HFS+ filesystems; media with other types of filesystems may appear unformatted to Ki Pro Rack. Unformatted media or media with other types of filesystems (FAT32, etc.) may be formatted by the usual means.

"WARNING Change Encode Type" appears because ProResHQ is not supported on ExpressCard/34. Select another flavor of ProRes (normal, LT or Proxy) before attempting to record to an ExpressCard/34.

"WARNING Invalid Selection" appears when Ki Pro Rack receives conflicting configuration requests, such as selecting component in/out "Beta" for HD.

"WARNING Name In Use" appears when an attempt was made to record over a previously existing clip. This can happen when the take number reaches its maximum, 999. To resolve it change one of the clip naming parameters to eliminate the naming conflict.

"WARNING No Video Input" appears when an attempt was made to record but no video was detected on the input. Check connections and sources to make sure valid video is being fed to the input selected in 2.1 Video Input.

"WARNING 2 Channel Format" appears when the number of channels selected in 2.3 Audio Channels is eight, but the selected audio input only supports two channels. Only SDI supports eight channels.

"WARNING Genlock Missing" appears when 6.1 Genlock has been set to INPUT or Component Y but there is no signal detected on the chosen genlock input.

"WARNING Genlock Mismatch" appears when 6.1 Genlock has been set to INPUT or Component Y but the signal detected on the selected genlock input is incompatible with the video format on the selected video input.

"WARNING Non VFR Format" appears when 1.1 Record type is set to VFR (variable frame rate), but the video to record is not a valid VFR type. This can happen because the video format on the selected video input doesn't support or isn't carrying VFR ancillary data, or the video signal generator is enabled in 4.1.2 VIDEO SG or 1.4 Input Conversion is enabled.

"WARNING No Clip Name" appears when an attempt was made on a ganged slave unit to set the clip name to use from a master, but the name was empty. The custom clip name on the master may be empty.

"WARNING Unsupported Media" appears when a USB-only or SxS card was inserted into the Ki Pro Rack's ExpressCard/34 slot. These types of media are not supported by Ki Pro Rack. Choose an ExpressCard/34 from the approved list on AJA's website.

"WARNING Please Reboot" appears when media was removed without using the slot button and the Ki Pro cannot continue operating without rebooting.

## MEDIA menus

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As the name implies, the MEDIA menus display choices related to media storage, the type of encoding, and how Ki Pro Rack behaves when recording and playing back. There are also menus for naming reels, clips and takes.

### Media Menu Parameters

**12.1 Media State** This parameter applies to using the Ki Pro Rack to transfer data. These are the available options:

Record-Play ( <i>default</i> ) Data-LAN*	Use media to record and play video. LAN data may be uploaded/downloaded from the Ki Pro.
---	---

See "[Data-LAN Considerations](#)" on page 37.

]For normal video operation, select *Record-Play*. For data transfer using an Ethernet LAN, choose *Data-LAN*.

If the state is designated as Data, the Transport functions are locked; in other words, media cannot be recorded or played back as video. You can still access MEDIA menu parameters, however, so you can reset the parameter. If you attempt to playback or

record while in the Data mode, a “CHANGE MEDIA STATE” prompt alerts you that you cannot use the transport functions. Additionally, the front panel UI states that the unit is in a “DATA MEDIA STATE” in an obvious way as opposed to presenting the typical clip, reel, timecode, etc. usually seen on the front panel.

After you select the Data state, you can connect the Ki Pro Rack to a host computer via the Ethernet connection. When using Data-FW, the Ki Pro Rack mounts the selected volume, designated by the lit LED. In other words, if the Storage Module is selected on the Ki Pro Rack, that is the volume mounted by the host operating system.

The Data Media State allows valid media to be copied to or from the Ki Pro Rack. These are the valid media files that can be copied to Ki Pro Rack:

- QuickTime files that are full raster (720x486, 720x576, 1280x720 or 1920x1080)
- QuickTime files that are encoded as:

Apple ProRes 422

Apple ProRes 422 (Proxy)

Apple ProRes 422 (LT)

Apple ProRes422 (HQ)

Avid DNxHD 220x

Avid DNxHD 145

Avid DNxHD 36

(Support for SD video is not provided by Avid DNxHD, and DNxHD 36 only provides support for the 1080p format)

Files must be Ki Pro Rack supported frame rates and must use 24-bit 48kHz audio (2 or 8 channel), if audio is included. Files copied to Ki Pro Rack that do not meet these criteria may not appear in the web UI or front panel UI when you review clips.

The DATA MEDIA STATE does not survive reboots or power cycles of the device. After such an event, this parameter returns to the default *Record-Play* mode.

The DATA MEDIA STATE does not survive reboots or power cycles of the device. After such an event, this parameter returns to the default *Record-Play* mode.

### **Data-LAN Considerations**

When the Ki Pro Rack Media State, Data-LAN is used, only the web UI for control and configuration of the Ki Pro Rack may be used for data transfer. The web UI will present "Upload+" and "Download+" buttons in the All Clips portion of the UI. If the Data-LAN state is not active, these buttons do not appear in the web UI.

### **14.0 ENCODE MODE**

This parameter determines whether the Ki Pro Rack will encode Apple ProRes 422 or Avid DNxHD QuickTime files. These are the available options:

ProRes ( <i>default</i> ) DNxHD	Encoder will produce Apple ProRes 422 files. Encoder will produce Avid DNxHD files.
------------------------------------	--

*NOTE: After selecting the desired encoding mode, a reboot is required to switch to the new encoding mode. To accomplish the reboot, hold down the ADJUST up button for 2 seconds as instructed by the display.*

**14.1 ENCODE TYPE** This parameter defines the Apple ProRes encoding method if ProRes has been selected as the encoding mode. These are the available options:

ProRes 422 (default)	Record media as Apple ProRes 422 files.
ProRes 422HQ	Record media as Apple ProRes 422 (HQ) files.
ProRes 422LT	Record media as Apple ProRes 422 (LT) files.
ProRes 422PX	Record media as Apple ProRes 422 (Proxy) files.

Or the following appears if 14.0 Encode Mode has been set to DNxHD. (These selections are valid only if an HD source is used—1080p for DNxHD 36.)

DNxHD 220x (default)	Record media as Avid DNxHD 220x files.
DNxHD 145	Record media as Avid DNxHD 145 files.
DNxHD 36	Record media as Avid DNxHD 36 files.

*NOTE: Unlike Apple ProRes 422, Avid DNxHD encoding does not provide support for standard definition video. If standard definition video is input and an Avid DNxHD encode type has been selected, a warning prompt will appear: "WARNING Change Encode Input not HD."*

**15.1 PLAY MEDIA** This parameter determines behavior during playback. These are the available options:

One (default)	Plays one clip and then stops playback.
All Playlist	All/Playlist—Plays the current clip and then continues playing the next clip on the Ki Pro media or the playlist. Note that with this setting, Ki Pro will play clips back regardless of format or framerate, but you may notice the video monitor reset for format/framerate changes. If all clips are the same format and framerate or conversion is applied to the output for clips with the same Hz, then clips play out smoothly one after another.

**15.2 LOOP PLAY** This parameter turns looped playback on and off. These are the available options:

OFF (default)	Play clip(s) and then stop playback when complete.
ON	Play clip(s) and then loop back and repeat playback

**15.3 PLAYLIST** This parameter displays the name of the selected playlist. These are the available options:

variable	The name of the selected playlist appears. If no playlist is selected via the web UI controls, then no name appears. The user cannot select or create playlists from the front panel UI; these tasks are handled using the web UI.
----------	--

**15.4 DROPPED FRAMES** This parameter determines how playback handles dropped frames. These are the available options:

CONTINUE	In the unlikely event that the playback of a clip(s) begins to drop frames, this parameter allows users to define whether the playback continues or stops.
STOP	

**16.1 FORMAT MEDIA** This parameter is used to format the currently selected storage device. These are the available options:

KEEP MEDIA (default) FORMAT MEDIA	No action (do not format the media device selected). Format the selected media device (you will be prompted Y/N?). If no media is inserted in the Ki Pro, the message "No Storage" is displayed.
--------------------------------------	---

**16.2 DELETE CLIPS** This parameter can be used to delete all of the clips on the media. These are the available options:

KEEP CLIPS (default) DELETE ALL	No action (do not delete clips). Delete all clips on the storage device when DELETE CLIPS is pressed or Adjust up arrow is pressed and held for 2 seconds. If no media is inserted in the Ki Pro, the message "No Storage" is displayed.
------------------------------------	---

The Ki Pro Storage Module can be used to hold data other than Apple ProRes 422 QuickTime recordings. If other files are saved to the Ki Pro Storage Module, they should be placed outside of the "AJA" folder. Any material inside of the "AJA" folder will be erased if a MEDIA>Delete Clips>DELETE ALL is performed.

**17.0 REEL NAME** This parameter determines the reel name associated with all clips generated while using this setting. These are the available options:

001 to 999 (default = 001)	Press ADJUST button up or down to change the REEL NAME value from 001 to 999.
-------------------------------	---

The reel name is a number between 001 and 999. It is historically linked to the naming conventions used for film and tape-based media. The REEL NAME is an incrementing three digit value that works with EDLs. For this reason, the parameter does not have a "NONE" selection—all clips will be associated with a REEL NAME. The REEL NAME parameter is also the name of the media as it will appear when the storage module is mounted on a computer desktop (and media was formatted by the user). **Note:** the REEL NAME cannot be changed once a recording session starts on the storage unit without reformatting the drive. 17.2 CLIP NAME

**17.2 CLIP NAME** This parameter determines the clip name associated with all clips generated while using this setting. The clip name is either "Clip" or "SC". These are the available options:

SC (default) Clip	Clips generated have filenames beginning with "SC". Clips generated have filenames beginning with "Clip"
----------------------	---

**Clip Naming—Two Examples** The following two examples show how resulting clip names are generated. Each example is based on the collective settings for these parameters:

- REEL NAME
- CLIP NAME
- CLIP NUMBER
- CLIP NUMBER APPEND
- ALPHA APPEND VALUE

In both examples that follow, "TK" is a default append to the naming convention just prior to the auto-incrementing TK value (which can be manually overridden via parameter 17.8 Take).

Ki Pro Rack offers these parameter choices for easy identification of the QuickTime files, so that the names can logically match the shooting script, and are acceptable when imported into the Final Cut Pro 7 Browser window, Final Cut Pro X's Events or Avid Media Composer Bins. The Final Cut Pro 7 Browser window provides columns of data used to describe the media. In the most minimal form, "Name", "Media Start", "Media End" and "Reel" are the required pieces of information for a Final Cut Pro clip to be properly perceived as "valid" media. Additional information or "QuickTime metadata" is useful and can be mapped into the myriad choices provided in the Final Cut Pro Browser column headings. Final Cut Pro X also uses such information and can provide even more support for QuickTime file metadata. Avid Media Composer Bins provide "Name", "Creation Date", "Duration", "Tracks", "Start", "Video", "Audio SR" and "Field Ordering" information when working with DNxHD Ki Pro Mini created media and Avid's AMA.

**Example 1** Using the factory default AJA parameter settings:

REEL NAME	001
CLIP NAME	SC
CLIP NUMBER	1
CLIP APPEND	ALPHA
ALPHA APPEND	A
TAKE	1

The resulting clip would be named and displayed as: "SC1ATK1". The media would be named "001" if mounted on the OS X desktop as a volume.

**Example 2** Using customized settings:

REEL NAME	002
CLIP NAME	Clip
CLIP NUMBER	12
CLIP APPEND	NONE
ALPHA APPEND	B
TAKE	1

The resulting clip would have the following naming convention: "CLIP12TK1". The media would be named "002" if mounted on a desktop as a volume.



**17.3 CLIP NUMBER** This parameter determines the clip number, from 1 to 999, that follows the CLIP NAME, and is associated with all clips generated while using this setting. These are the available options:

1 to 999 (default = 1)	Press ADJUST button up or down to change the CLIP NUMBER value from 1 to 999.
---------------------------	---

**17.4 CLIP APPEND** This parameter is used with parameter 17.5 ALPHA APPEND to append a text value after the CLIP NUMBER or have no text appended. These are the available options:

ALPHA (default)	The text value entered in ALPHA APPEND is appended to the CLIP NAME and CLIP NUMBER.
NONE	No text is appended to the CLIP NAME and CLIP NUMBER.

**17.5 ALPHA APPEND** This parameter is used with parameter 17.4 CLIP APPEND to append a text value after the CLIP NUMBER. These are the available options:

A to Z (default = A)	Press ADJUST button up or down to change the ALPHA APPEND value from A to Z. Alphabetic values increment with A and Z wrapping around.
-------------------------	--

**17.8 TAKE** This parameter determines the TAKE number, from 1 to 999, that follows the CLIP NAME and CLIP NUMBER, followed by any ALPHA APPEND (if selected), generated for all clips while using this setting. These are the available options:

1 to 999 (default = 1)	Ki Pro automatically generates a TAKE number. Press ADJUST button up or down to change the TAKE value from 1 to 999, if a value other than the automatically generated value is desired.
---------------------------	--

There are rules that Ki Pro Rack observes in relation to Clips and Takes:

1. Ki Pro Rack will not overwrite an existing clip when using standard clip naming.
2. The Take number will auto-increment past existing numbers for the “prefix” as defined by the Reel Name, Clip Name, Clip Number, Clip Append, Alpha Append, and Take settings.
3. If the number is at “999”, Ki Pro Rack will not auto-increment; instead it will register a “Name In Use” alarm. This prompts you to select a new Clip Name, Clip Number, Clip Append, Alpha Append, and/or Take settings so that a new unique “prefix” is created. This action ensures files are unique and understandable, and that clips are never overwritten.

## Custom Clip Naming

Beginning with Ki Pro 2.0 firmware, users can elect to give their clips names other than the standard criteria provided by AJA. Custom clip names can be created via the front panel UI menu parameters (19.1, 19.2, and 19.4) through the use of the select and adjust up/down arrows. Users may find that the more efficient method to perform custom clip naming is via the web UI entry fields.

*NOTE: When entering characters for a custom clip name, you must scroll through all characters using the Adjust buttons until you reach the end of the name space before the name is accepted.*

**IMPORTANT:** Certain characters may not be allowed or supported if entered for a clip name. Examples include: punctuation marks (other than internal spaces or periods), special characters (like @), and non-ASCII UTF-8 characters are rejected outright. Note: non-UTF-8 characters appear in some languages, like Chinese and Japanese, and are not supported.

**19.1 USE CUSTOM CLIP NAME** This parameter enables or disables whether a custom clip name can be used via menu parameters 19.1, 19.2, and 19.4, or via the web UI. These are the available options:

OFF (default) ON	Enable defining of custom clip name Disable defining of custom clip name
---------------------	---

**19.2 CUSTOM CLIP NAME** This parameter defines a custom clip name. The custom clip name is defined via the front panel select and adjust up/down arrows. The default name is "CUSTOM". These are the available options:

<i>variable</i>	Using the adjust buttons, enter a custom clip name. Using the adjust buttons and the top Select button, select the characters for the name. The adjust buttons scroll through the choices and the top Select button advances to the next character. While selecting characters, the character being changed will flash to show its position. Certain characters may not be allowed or supported if entered for a clip name. Examples include: punctuation marks (other than internal spaces or periods), special characters (like @), and non-ASCII UTF-8 characters are rejected outright. Note: non-UTF-8 characters appear in some languages, like Chinese and Japanese, and are not supported. <i>Default: CUSTOM</i>
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**19.4 CUSTOM TAKE** This parameter defines a custom take. The custom take number is defined via the front panel select and adjust up/down arrows. These are the available options:

1 to 999 (default = 1)	Press ADJUST button up or down to change the TAKE value from 1 to 999, if a value other than the automatically generated value is desired.
------------------------	--

**22.1 GANG CLIP NAME** This parameter is used when performing gang recording via multiple Ki Pros (refer to Controlling Multiple Ki Pros later in this manual). These are the available options:

Master Name (default) Slave Name	Name clips the same across all Ki Pro ganged units Name clips independently on Ki Pro units
-------------------------------------	--

If the desire is to have clips named the same across all Ki Pro ganged units' recordings, then use the "Master Name" selection in this parameter. If the desire is to have clips named independently on Ki Pro units, then "Slave Name" should be selected. Selecting "Slave Name" means that the recording will take its name from the individual Ki Pro's parameters and not accept the value pushed to the Slave by the Master Ki Pro.

## CONFIG menus

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When we talk about menus, we discuss the Parameter Number and Name on the top line of the display and the Parameter Setting(s) possible as shown on the bottom line of the display; remember, the current setting is what is shown.

As in the MEDIA menus already presented, pressing one of the parameter *Adjust* buttons changes the current CONFIG parameter's value to a new one from the Ki Pro Rack's list of choices—repeating the list if you continue to press *Adjust*—or adjusting a numerical value up or down.

The exact choices displayed varies depending on the parameter. Most adjustment choices made with the Adjust buttons take effect immediately and are subsequently stored into the Ki Pro Rack's non-volatile memory if they remain unchanged for 3 seconds.

If a Select or Adjust button is held down continuously, the changes begin to happen automatically - with acceleration if applicable.

Holding down both the Adjust (up) and Adjust (down) buttons—*at the same time*—sets that parameter back to its factory default value.

The CONFIG menus are for system set-up and configuration. Each parameter is numbered, just like the MEDIA menus.

*NOTE: The composite output on the unit follows the component output; this means that the composite output only works if either the source format or the convert format is SD.*

### CONFIG Menu Parameters

Many of the CONFIG menu parameters are used together to configure the type of Ki Pro Rack recording and associated conversion formats used on the input or output for a particular workflow.

Before we begin listing all of the individual CONFIG menu parameters, it's useful to see how they can be used for an example application. Here are two examples of making CONFIG menu selections for specific real world workflows.

**Example 1** In this example the incoming video is 1080i29.97. However, we want our Ki Pro recording to match the rest of the footage we have acquired at 720p59.94. Therefore, we select IN CONVERT>HD 720 to get the desired result. Here are the parameter settings:

- Set 1.1 RECORD TYPE>NORMAL
- Set 1.4 IN CONVERT>HD 720
- Set 1.5 OUT CONVERT>NONE

**Example 2** In this example the incoming video is 1080PsF 29.97, so we need to configure Ki Pro for PsF recordings (which would otherwise be understood as interlace). To do this, we'll set the RECORD TYPE to PsF. Here are the parameter settings:

- Set 1.1 RECORD TYPE>PsF
- Set 1.4 IN CONVERT>NONE
- Set 1.5 OUT CONVERT>NONE

**1.1 RECORD TYPE** This parameter defines the frame recording method of media stored. RECORD TYPE can be configured to record the incoming video signal in a “NORMAL” manner, “PsF” signal if the incoming source is 1080psf 29.97 (for example), or variable frame rate (VFR). These are the available options:

NORMAL (default)	Record standard format as input
PsF	Record progressive segmented frame
VFR	Record variable frame rate

**NOTE:** A 23.98Hz source is automatically treated as PsF, regardless of this setting. For 29.97 Hz or 25 Hz, “NORMAL” means encode as interlaced and “PSF” means encode as progressive. This only applies to 1080 formats. The following details clarify each case:

- 1080PsF 23.98 incoming video > Normal selected > 1080p 23.98 recorded to disk.
- 1080i 25 incoming video > PsF selected > 1080p 25 recorded to disk.
- 1080i 29.97 incoming video > PsF selected > 1080p 29.97 recorded to disk.
- 1080PsF signal is recorded to disk as progressive; progressive material on disk may be played back as PsF or progressive on the video outputs; this selection can be made in parameter 1.3 1080p Playback.

VFR (Variable Frame Rate) recording makes use of meta data embedded in the RP188 data stream on the SD-SDI/HD-SDI input, allowing for the frame rate to change actively. Examples of cameras offering variable frame rate include Panasonic AJ-HDC27 and several cameras from the Panasonic HPX line.

Beginning with Ki Pro version 3.0 firmware, select cameras that output 1080p within a 1080i signal are also supported by the VFR selection. For the Canon XH-G1s, 1080p 23.98 may be extracted from the 1080i 29.97 signal when VFR is selected. For the Canon EOS C300, 1080p 23.98 may be extracted from the 1080i 29.97 signal and 1080p 24 may be extracted from the 1080i 30 signal. For the Canon EOS C300 formats of 1080p 25 and 1080p 29.97, set the Record Type to PsF to produce progressive frame recordings.

**NOTE:** 720p VFR rates of 23.98, 25 and 29.97fps and 1080p VFR support are not provided when using the DNxHD encoding mode. VFR support for DNxHD will be added with a future firmware update.

**1.3 1080p PLAYBACK** This parameter defines the format applied when 1080p media is played back from storage. These are the available options:

PsF (default)	Playback as 1080 progressive segmented frame (regardless of what was recorded when input)
Progressive	Playback as standard 1080p progressive frame

**NOTE:** HDMI output of progressive material requires the use of 1080p Playback set to Progressive; HDMI only tends to support true progressive or interlace video, not PsF.

**1.4 IN CONVERT** This parameter defines the type of up, down, cross, or aspect-ratio conversion, if any, applied to the selected input and stored when recording. These are the available options:

NONE (default)	No conversion of selected input.
SD	Convert selected input to SD
HD 720	Convert selected input to HD 720
HD 1080	Convert selected input to HD 1080

*NOTE: There is one converter available for input—if selected, it will be applied to the currently selected input. Also, input conversion of 1080psf23.98 sources is not supported.*

**1.5 OUT CONVERT** This parameter defines the type of up, down, cross, or aspect-ratio conversion, if any, applied to the output when playing media from storage or while recording. These are the available options:

NONE (default)	No conversion on output.
SD	Convert on output to SD
HD 720	Convert on output to HD 720
HD 1080	Convert on output to HD 1080.

*NOTE: There is one converter available for output—if selected, it will be applied as appropriate, based on other settings (1.6, 1.7 and 1.8) possibly affecting multiple outputs. Output conversion of 1080psf23.98 is only supported for SD (not 720p).*

**1.6 SDI OUT** This parameter defines whether the SDI output matches the file format or has the 1.5 OUT CONVERT selection applied to it. These are the available options:

FILE FRMT (default)	Output with the same format as the file
OUT CONVERT	Output using the selection in 1.5 OUT CONVERT

*NOTE: The "FILE FRMT" (file format) is from the file on playback and is the result of any input conversion (or none) applied during capture.*

**1.6 SDI 2 OUT** This parameter defines whether the SDI 2 output matches the file format or has the 1.5 OUT CONVERT selection applied to it. These are the available options:

FILE FRMT (default)	Output with the same format as the file
OUT CONVERT	Output using the selection in 1.5 OUT CONVERT

*NOTE: The "FILE FRMT" (file format) is from the file on playback and is the result of any input conversion (or none) applied during capture.*

**1.7 COMPONENT OUT** This parameter defines whether the component video output matches the file format or has the 1.5 OUT CONVERT selection applied to it. These are the available options:

FILE FRMT (default)	Output with the same format as the file
OUT CONVERT	Output using the selection in 1.5 OUT CONVERT
CVBS ON Y	Forces SD Out Convert if HD

*NOTE: Setting the Ki Pro Rack component input and/or output to "Beta" for HD material causes an "Invalid Selection" alarm requiring correction before operations can continue.*

**1.8 HDMI OUT** This parameter defines whether the HDMI output matches the file format or has the 1.5 OUT CONVERT selection applied to it. These are the available options:

FILE FRMT (default)	Output with the same format as the file
OUT CONVERT FRMT	Output using the selection in 1.5 OUT CONVERT

**1.9 SUPER OUT** This parameter provides superimposition of timecode and transport state (Record, Pause, etc.) onto the selected video output. These are the available options:

Off (default) SDI2	Superimposition is disabled Superimposition is enabled for the SDI2 output
-----------------------	---

*NOTE: CVBS on Y must also be selected for 1.7 Component Output in order to use the CVBS on Y selection with the Super Out.*

**2.1 VIDEO INPUT** This parameter selects a video input source from the video input connections available. This is the video that will be recorded and/or passed through. These are the available options:

SDI (default) HDMI COMPONENT	Selects SDI input connector Selects the HDMI input connector Selects the Component input connectors
------------------------------------	---

*NOTE: The message, "WARNING A/V Mismatch" may appear if SDI video is selected and HDMI audio is selected or vice versa. Embedded audio, via SDI or HDMI, must be matched to the video source. Analog audio can be used with any video input.*

**2.2 AUDIO INPUT** This parameter selects an audio input source from the audio input connections available, including embedded SDI audio which requires an SDI video source and HDMI audio, which requires an HDMI video source. These are the available options:

SDI (default) AES XLR HDMI	Selects SDI embedded audio from the SDI input connector (if SDI video input is selected) Selects the AES BNCs to provide the audio input Selects the XLR input for audio input Selects HDMI embedded audio (if HDMI video input is selected)
-------------------------------------	---

*NOTE: The message, "WARNING A/V Mismatch" may appear if SDI video is selected and HDMI audio is selected or vice versa. Embedded audio, via SDI or HDMI, must be matched to the video source. Analog audio can be used with any video input.*

**2.3 AUDIO CHANNELS** This parameter selects the use of either two or eight audio channels via SDI embedded or AES audio. These are the available options:

2 Channels (default) 8 Channels	Selects recording of 2 SDI embedded or AES audio channels Selects recording of 8 SDI embedded or AES audio channels
------------------------------------	--

Generally, when working with camera sources, there are only one or two audio tracks being produced, and therefore 2 channel would be the appropriate selection. In post production use, there are often more channels of audio required, so 8 channel audio may be the appropriate choice in such situations. Ki Pro Rack only allows for the selection of either 2 channels or 8 channels of audio to be written to the QuickTime file that is recorded. Therefore, if the source has more than 2 channels of audio, but less than 8 channels of audio that need to be preserved, the CONFIG Menu parameter 2.3 Audio Channels would need to be set to "8 Channels."

*NOTE: Not all devices support 8 channel audio. Ki Pro Rack does not provide a "mixdown" option for 8-channel recordings on output, so be sure to use devices that support 8-channel audio via SDI or AES if the 8 channels recorded are desired.*

*NOTE: If any selection other than SDI or AES is made (XLR or HDMI) when 8 channels is selected, the Ki Pro Rack will provide a warning prompt, "WARNING 2 Channel Format".*

**3.1 COMPONENT IN LVL** This parameter selects the input level for signals applied at the component video input connectors. These are the available options:

SMPTE/N10 (default) BETACAM	Selects SMPTE/N10 input signal levels Selects BETACAM input signal levels
--------------------------------	--

*NOTE: Setting the Ki Pro Rack component input and/or output to "Beta" for HD material will result in an "Invalid Selection" alarm that will need correction before recordings or other operations may take place.*

**3.2 COMPONENT OUT LVL** This parameter selects the output level for signals applied at the component video output connectors. These are the available options:

SMPTE/N10 (default) BETACAM RGB	Selects SMPTE/N10 output signal levels Selects BETACAM output signal levels Selects RGB output signal levels
---------------------------------------	--

*NOTE: Setting the Ki Pro Rack component input and/or output to "Beta" for HD material will result in an "Invalid Selection" alarm that will need correction before recordings or other operations may take place.*

**3.4 NTSC CONFIG** This parameter selects the output level for the composite video output connector. These are the available options:

NTSC (default) NTSC JAPAN	Selects standard NTSC output signal levels Selects NTSC Japan output signal levels
------------------------------	---

**4.1 ANALOG AUDIO** This parameter configures the analog audio signal levels for input and output. These are the available options:

+24dBu (default) +18dBu +15dBu +12dBu	Selects pro-level USA signal levels of +24dBu Selects pro-level Europe signal levels of +18dBu Selects pro-level German signal levels of +15dBu Selects consumer signal levels of +12dBu NOTE: Maximum amplitude is 0 dBFS
--	--

Professional audio equipment has much higher levels than consumer equipment: a 0 VU reading corresponds to +4 dBu. Connecting a professional +4 dBu device to a consumer audio input -10dBV (-7.8 dBu) may cause overloading, whereas the output of a consumer device probably does not have sufficient power to drive a professional audio input. With consumer and semi-professional audio equipment, a VU reading of 0 dB is typically referenced to -10 dBV and 0 dBu = 0.775 VRMS.

**4.2 AUDIO LVL L** This parameter selects the left channel audio level. These are the available options:

LINE (default)	Selects level for line level devices, such as mixers and VTRs
MIC	Selects level for microphone sources

**4.3 AUDIO LVL R** This parameter selects the right channel audio level. These are the available options:

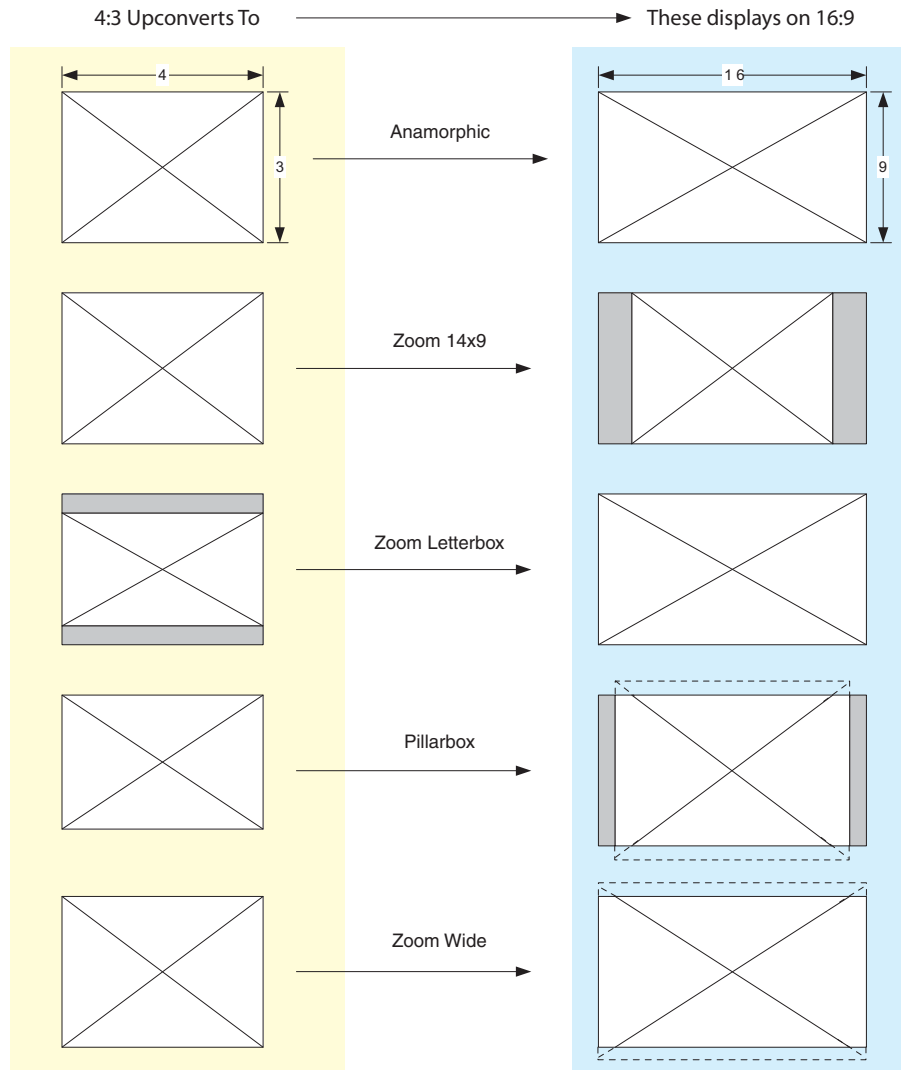
LINE (default)	Selects level for line level devices, such as mixers and VTRs
MIC	Selects level for microphone sources

**5.1 UPCONVERSION** This parameter selects the type of upconversion from SD performed, if set up to do so with parameters 1.6 through 1.8. These are the available options:

ZOOM WIDE (default)	Using a combination of zoom and stretch, the image is sized to fit a 16x9 screen
ANAMORPHIC	Anamorphic full screen display
ZOOM 14X9	Image is zoomed slightly to fill a 14x9 image with black sidebars
ZOOM LTRBOX	Image is zoomed to fit the full screen (this can introduce a small aspect ratio change)
PILLARBOX	Image is not changed; black sidebars surround image



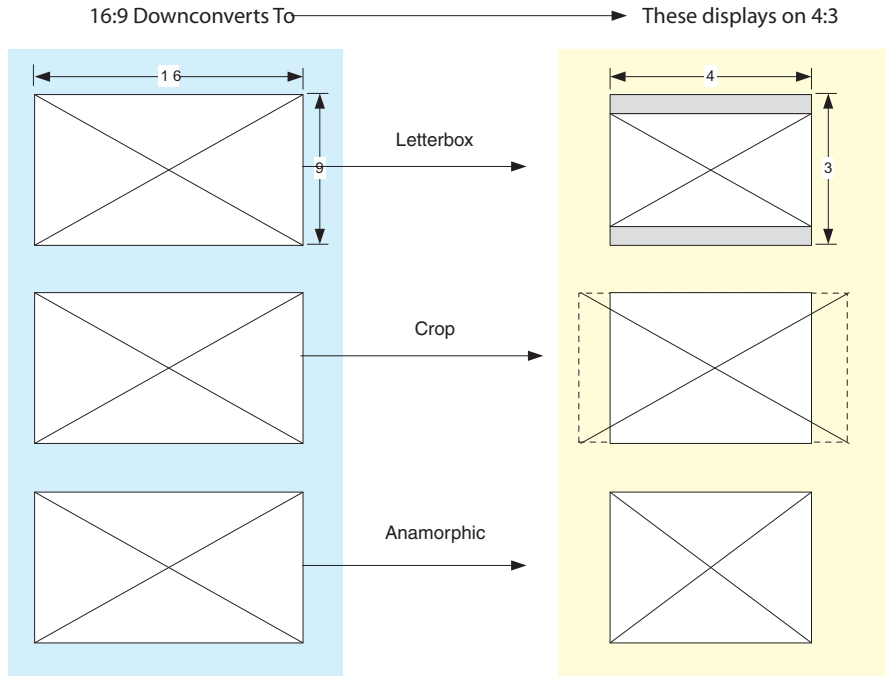
**Figure 8. Upconversion Illustrations**



**5.2 DOWNCONVERSION** This parameter selects the type of downconversion from HD performed, if set up to do so with parameters 1.6 through 1.8. These are the available options:

LETTERBOX (default)	Image is reduced with black top and bottom added to image area, with the aspect ratio preserved.
CROP	Image is cropped to fit new screen size.
ANAMORPHIC	HD image is converted to full-screen SD with a 16x9 aspect ratio (anamorphic).

**Figure 9. Downconversion Illustrations**



**6.1 GENLOCK** This parameter selects a source of reference video used for genlocking during playback. Ki Pro Rack always genlocks to the selected input during capture. These are the available options:

INPUT	Use the currently selected input as the Genlock source
CMP Y	Use component Y as the genlock source
FREERUN (default)	Free run mode: Ki Pro syncs to its own timebase and is not locked to an external source
REF IN	Use the REF Input as the genlock source

**8.0 TC IN** This parameter selects the source of timecode start from those available. These are the available options:

TC VALUE (default)	Use the value specified in parameter 8.1 TC VALUE
SDI RP188	Use the timecode read from the embedded RP188 metadata in the SDI input
LTC	Use timecode from the LTC input connector
TIME OF DAY	Set TC to "Time of Day" clock (CONFIG parameter 55.6)
RS422	RS422 in-point TC value is used for the start value of a recording (presented only if 35.2 is set to RS422 Only)
HDMI	Use timecode from HDMI input (Sony cameras only)

**NOTE:** Ki Pro Rack, when used with select Sony cameras, only works with HDMI timecode matched to the recording format and HDMI output: 1080i 29.97 (1080i 59.94) or 1080i 25 (1080i 50). If a 1080p 24 recording on the Sony camera's internal media with a 1080i 29.97 HDMI output is produced, the Ki Pro Rack may not respond to HDMI timecode as expected.

**8.1 TC VALUE** This parameter selects the starting hour for timecode when 8.0 is set to *TC Value*. These are the available options:

00:00:00:00 to 23:00:00:00 (Default: 01:00:00:00)	Use the ADJUST buttons to select a timecode hour. For example: <b>01:00:00:00</b> , <b>02:00:00:00</b> , etc.
--	---

**8.2 TC TYPE** This parameter selects drop frame or non-drop frame timecode. These are the available options:

NDF (default) DF	Selects Non-drop Frame timecode Selects Drop Frame timecode
---------------------	--

*NOTE: If the TC In is SDI RP188, LTC, or RS422, the TC Type selection does not apply. TC Type only applies to the TC Value or the Time of Day value generated by Ki Pro Rack. These are the available options:*

**8.3 ARM RECORDING** This parameter selects how recording will begin: either by pressing record button (or web "Record" button) or via timecode. These are the available options:

REC KEY (default) TC/REC KEY	Start when Record button is pressed Start on Time Code trigger or Record button
---------------------------------	--

If starting on timecode, parameters 8.0, 8.1. and 8.2 must be set to qualify the source and type of timecode.

*NOTE: For TC/REC KEY to operate, a record run timecode with incrementing values and starts/stops is needed. Freerun timecode does not provide this and is not applicable to the TC/REC KEY selection.*

**9.0 INTERVAL RECORD** The Ki Pro Rack can be used to create timelapse recordings via the 9.0 Interval Record, 9.1 Interval Frames and 9.2 Interval Time selections. Note that the 9.1 and 9.2 menu options will not appear unless 9.0 Interval Record is enabled. These are the available options: .

OFF (default) ON	Normal recordings are produced. Timelapse recordings are produced.
---------------------	---

Example of timelapse recording selections:

The incoming video signal is 1080i 29.97 fps, the record button is depressed, and the recording is then stopped 90 seconds later with the following settings:

- 9.0 Interval Record > On
- 9.1 Interval Frames > 1
- 9.2 Interval Time > Second

The resulting recording would be 90 frames in duration, would have a frame rate of 29.97 fps, and would appear to be "undercranked" or "sped up" when compared to a normally created recording.

*NOTE: Selecting an interval frame number that exceeds the incoming video frames per second will result in normal video. "Overcranking" or "slow mo" is not supported by the interval recording feature.*

**9.1 INTERVAL FRAMES** Determines how many frames from the incoming video will be used for the recording. These are the available options:

Incrementing Value	Sets number of frames to use for the recording.
--------------------	---

**9.2 INTERVAL TIME** Determines the time period from which the interval frames are selected. These are the available options;

Second	The second from which interval frames are selected.
Minute	The minute from which interval frames are selected.
Hour	The hour from which the interval frames are selected.

**13.1 CAMERA DATA** Some cameras produce SDI ancillary data that users may want to transfer to their Ki Pro Rack recordings. Examples include: start/stop commands, timecode, reel name, clip name and take. The CONFIG menu parameter 13.1 Camera Data is designed to address this use of SDI ancillary data. The default for this parameter is “None”; when this is selected, no camera metadata is passed to any of the Ki Pro Rack parameters even if a camera with SDI ancillary data is connected to the Ki Pro Rack. If an appropriate camera is present and sending appropriate SDI ancillary data and that camera manufacturer/ model is selected from the list, then AJA passes as much of the metadata that is available from the camera (and is viable for AJA to support) into the Ki Pro Rack’s timecode value, file name, and other applicable parameters.

These are the available options:

NONE (default)	Camera metadata is not passed to any of the Ki Pro Rack parameters even if a camera with ancillary data is connected to the Ki Pro Rack.
RED One 24	Red One 24 Camera metadata available from the camera is passed into the Ki Pro Rack’s timecode value, file name, and other applicable parameters.
RED One 25	Red One 25 Camera metadata available from the camera is passed into the Ki Pro Rack’s timecode value, file name, and other applicable parameters.
RED Epic	Red Epic Camera metadata available from the camera is passed into the Ki Pro Rack’s timecode value, file name, and other applicable parameters.
Canon XF	Canon XF-series with SDI outputs will provide ancillary data that produces start/stop commands and timecode values but not clip naming.
Canon C300	Canon C300 cameras provide ancillary data that produces start/stop commands and timecode values but not clip naming.
Pana AF100	Panasonic AG-AF100 series cameras provide ancillary data that produces start/stop commands and timecode values but not clip naming. If the camera is configured for 720p 23.98 (24), 720p 25 or 720p 29.97 (30) recording, this Camera Data setting will also allow the extraction of these frame rates for recording on the Ki Pro Rack.
Sony F3	Sony PMW-F3 SDI outputs will provide ancillary data that produces start/stop commands and timecode values but not clip naming.
ARRI Alexa	ARRI Alexa cameras provide ancillary data that produces start/stop commands and timecode values; clip naming is not yet supported.
Canon HDMI	Certain Canon HDMI cameras, such as the C100, provide ancillary data via HDMI that produces start/stop commands and timecode values but not clip naming.

This menu parameter has domain over an array of other Ki Pro parameters; selecting Camera Data supersedes other parameter selections if valid ancillary data is present and the camera is selected from the menu parameter.

Example: The RED Epic sends ancillary data from which the reel name, clip name, take and timecode value are obtained and passed to the Ki Pro Rack recording.

Reel: A230

Clip Name: A230\_C001\_0714SW

Take: \_001

Timecode Value: 20:11:05:12

Within the Ki Pro Rack, the Reel Name that is written to the file is "A230" instead of using the 17.0 Reel Name that is set to "001" within the menu parameter."

The full file name is "A230\_C001\_0714SW\_001" instead of using the standard clip naming convention produced by the MEDIA menu parameters 17.0, 17.2, 17.3, 17.4, and 17.5 which would have produced a file named "SC1ATK1".

The timecode value of 20:11:05:12 is produced instead of using the CONFIG menu parameters of 8.0, 8.1, and 8.2 which might have produced a timecode value of 01:00:00:00 in the recorded file.

Additionally, if a start/stop flag is present in the ancillary data, then instead of the value selected in CONFIG menu parameter 8.3 Arm Recording, the starting and stopping is produced by the start/stop flag of the camera (the Rec Key is always a viable selection even when the Camera Data parameter is selected).

To avoid confusion, the various CONFIG or MEDIA menu parameters do not change; the changes only affect the file written to the media. If a piece of metadata is missing, such as Reel Name, the Ki Pro Rack will write all other parameters and use the standard setting for a value for which no ancillary metadata was found. This means in some cases that a file could have a clip name associated to the camera recording, but the reel number associated with the clip created by the camera and the Ki Pro Rack could differ.

To make camera integration as straightforward as possible, only one selection, 13.1 Camera Data, in the CONFIG menu parameters needs to be set as opposed to settings throughout various menu parameters in CONFIG and MEDIA menu parameters.

### **IMPORTANT Notes About Cameras Supported by 13.1**

The following important notes describe operational variations of menu 13.1 when used with various cameras.

*RED Epic:* With the RED Epic, AJA recommends sending the camera an appropriate genlock/reference signal so that the Ki Pro Rack recordings will be timecode accurate when compared to the RED Epic recordings. RED Epic firmware version 1.6.24 (or later) is required for proper operation.

*RED One 24:* This setting is actually designed to extract the 23.98 frame per second from within the RED One 720p 59.94 output. Note that "24" is used as opposed to 23.98 in order to accommodate the user interface constraints. For the RED One, timecode should be sent to the camera via a timecode generator in order to produce corresponding timecode recordings on the Ki Pro Rack; note that even with this configuration, the timecode value produced has an accuracy of +/- 1 frame. RED One firmware version 31.6.16 (or later) is required for proper operation.

*RED One 25:* For the RED One, timecode should be sent to the camera via a timecode generator in order to produce corresponding timecode recordings on the Ki Pro Rack; note that even with this configuration, the timecode value produced has an accuracy of +/- 1 frame. RED One firmware version 31.6.16 (or later) is required for proper operation.

*Canon XF:* Because the Camera Data parameter requires the use of SDI, only the XF series cameras that feature SDI outputs can be used with this feature. These cameras provide ancillary data that produces start/stop commands and timecode values but not clip naming.

*Canon C300:* These cameras provide ancillary data that produces start/stop commands and timecode values but not clip naming. The Canon EOS C300 outputs 1080i by default, but can produce true progressive video within this interlaced output. The extraction of 1080p 23.98 from within 1080i 29.97 and 1080p 24 from within 1080i 30 is automatic if the camera is properly configured and the Camera Data selection is set to Canon C300; users do not need to manually set the Record Type parameter separately. However, for 1080p 25 that is output as 1080i 25 and 1080p 29.97 that is output as 1080i 29.97 from the camera, users need to manually select "PsF" in the Record Type (1.1) menu parameter even if they have selected the Canon C300 in the Camera Data parameter. This selection is required because there is no ancillary data indicating these frame rates within the SDI output of the camera.

*Canon HDMI:* In order to configure certain menu parameters on the Canon HDMI cameras, the HDMI cable must not be connected to the camera. Configure the camera's HDMI settings prior to connecting the HDMI output of the camera to the Ki Pro Rack. Since the Canon HDMI selection is not camera specific like the other Camera Data selections, other parameters must be set manually and are not auto-configured by this selection.

For use with the C100, the following CONFIG menu parameters should be set as follows:

1.1 Record Type > VFR (if the C100 is configured for 2-3 Pulldown on the HDMI output)

2.1 Video Input > HDMI

2.2 Audio Input > HDMI

8.0 TC In > HDMI.

**IMPORTANT Note  
About Using DNxHD  
Encoding with 13.1  
Camera Data**

Ki Pro Rack does not provide support for VFR recordings when the DNxHD encoding mode is used, so some of the functionality of the 13.1 Camera Data is not supported when DNxHD is selected. While camera start/stop and timecode values may be produced when a Camera Data selection is made, frame extraction from RED or Canon cameras is not supported. Users should consider using ProRes encoding if the Camera Data capabilities are desired. Note that Apple ProRes QuickTime files may be used with Avid Media Composer via AMA.

**32.0 LOSS OF VIDEO**

This parameter selects whether recording continues when valid video is not present. These are the available options:

STOP Rec(default) CONT Rec	Recording stops when video is lost Recording continues when video is lost
-------------------------------	--

*NOTE: If CONT Rec is selected, and a loss of video is encountered, a graphic with the text "LOSS OF VIDEO" superimposed over color bars will appear. Be sure to check your source and video connections if you are experiencing a loss of video.*

**35.2 REMOTE CONTROL** Enables or disables Ki Pro remote control by an external device. With the RS422 selection, an external RS422 controller or an NLE may be used to control the Ki Pro. These are the available options:

Local Only (default) RS422 Only	Selects Ki Pro control via front panel or web UI Selects RS422 control of Ki Pro
------------------------------------	---

The CONFIG menu parameter 8.0 TC IN is set automatically to correspond to the RS422 Only. When the 8.0 TC IN is set to RS422, it allows Ki Pro Rack to accept an RS422 in-point timecode value as the beginning timecode value for the recording. Example: the value 01:00:00:00 is received as the in-point; this becomes the first frame of the Ki Pro recording.

**NOTE:** *Ki Pro Rack can be used as a player or a recorder under RS422 operation, but when used as a recorder, Ki Pro Rack can only perform assemble edits, not insert edits. This means that Ki Pro Rack creates a new file for each assemble edit performed; Ki Pro cannot insert into an existing file.*

Ki Pro Rack can operate on a solitary clip under remote control or all of the clips on the Storage Module. Whether one clip or all clips are active under RS422 is determined by the MEDIA menu parameter 15.1 Play Media.

**IMPORTANT:** *Ki Pro Rack may react erratically if invalid clips or media are present and 15.1 Play Media "All" is selected.*

**NOTE:** *Ki Pro Rack RS422 device control under a single clip is designed so that the clip may be obtained in its entirety via non-linear capture. This is made possible because Ki Pro Rack produces video black/silence prior to the first frame of video for the single clip and after the last frame of video for the single clip. This means that unlike videotape where you might not have sufficient pre-roll to ingest a take into a non-linear editor, Ki Pro Rack allows you to obtain the whole clip by marking the in-point for ingest as the very first frame of video recorded.*

If MEDIA parameter 15.1 is set to "All", Ki Pro Rack allows the playback of all clips on the Storage Module in the order they were created, but does not allow for video black/silence prior to the first clip or after the last clip recorded. In this way, Ki Pro Rack behaves like a tape recording and a traditional VTR. Like a tape recording, Ki Pro Rack will display continuous timecode for clips that were recorded one after another, but Ki Pro Rack will also display timecode for clips that might have been recorded with differing or non-continuous timecode values. In such cases, the user must be aware of the timecode changes and log and capture material accordingly, just as would be the case if using a videotape with discontinuous timecode.

There are other important considerations when working with Ki Pro under remote control. When media is mounted in Ki Pro Rack, the most recently recorded clip is displayed. If using the MEDIA parameter 15.1 Play Media in the "All" selection, this is akin to having a videotape inserted into a VTR "tail out" and not rewound. Also note that if using the 15.1 Play Media parameter set to "One", the clips would need to be stepped through manually via the Ki Pro Rack front panel Select up/down arrows or via the web UI via the Transport page with the same Select up/down arrows to move between clips that are to be controlled.

Since Ki Pro Rack has a default state of E-to-E when stopped, if both the input and output of a non-linear editor are simultaneously connected to Ki Pro Rack, you may then need to begin playback on Ki Pro Rack to produce a clean picture. After this initial playback happens under remote control, subsequent playback and stop/pause will appear as expected as Ki Pro Rack will not re-enter the E-to-E state.

Due to the fact that Ki Pro Rack is file based, when shuttling across clips at high speed, a "hop" may be visually perceptible as files close and open; this does not compromise the operation of Ki Pro Rack under RS422, but may seem different from how a tape-based VTR would respond under similar conditions.

**NOTE:** *AJA recommends the following for use with Apple's Final Cut Pro 7>Edit to Tape and Avid's Media Composer>Digital Cut:*

*Only connect the output signal of the NLE to the Ki Pro Rack to avoid the possibility of an EE feedback loop; if the input and output of both the NLE and the Ki Pro Rack are connected and EE is entered, a feedback loop may occur.*

*To avoid potential cueing errors during pre-roll for an edit, it is recommended that prior to attempting the layback, the Edit to Tape or Digital Cut windows show "00:00:00:00" for the timecode value; this means that the Ki Pro Rack is in a "full stop" which is indicated by a solidly backlit STOP button on the front of the unit as opposed to "pause" indicated by a flashing backlit STOP button.*

**41.1 VIDEO SG FRMT** This parameter determines the video format output from Ki Pro Rack's internal test signal generator. This parameter is used with parameter 41.2 to determine the type of video test signal output by Ki Pro Rack. These are the available parameters:

525i 29.97 (default) 625i 25 720p 50 720p 59.94 1080p 23.98 1080i 25 1080i 29.97 720p 60 1080PsF 23.98 1080PsF 24 1080i 30 1080p 24 1080p 25 1080p 29.97	Select the video format desired for test signal output.
---	---



**41.2 VIDEO SG** This parameter determines the video signal output from Ki Pro's internal test signal generator. This parameter is used with parameter 41.1 to determine the type of video test signal output by Ki Pro Rack. These are the available options:

OFF (default)	Turn test signal output OFF.
Black	Video test signal output is color black.
75% Bars	Video test signal output is 75% color bars. This 75% amplitude, 100% saturation test signal is useful to check low frequency response and video tilt as well as the performance of video clamping.
100% Bars	Video test signal output is 100% color bars. This 100% white full field bars test signal is helpful to check chroma amplitude versus overall video level.

**41.3 AUDIO SG** This parameter determines the audio signal output from Ki Pro Rack's internal test signal generator. These are the available options:

OFF (default)	Turn audio test signal output OFF.
Silence	Output an audio test signal containing silence only.
1 kHz	Output a standard 1 kHz test signal tone.

**50.1 IP CONFIG** This parameter determines the type of TCP/IP network configuration used by Ki Pro Rack. These are the available options:

STATIC ADDR	Assign a static IP address manually (parameters 50.2, 50.3, and 50.4 will have to be entered to accomplish this).
DEFAULT ADDR	Use the factory default static IP address: 10.65.74.65
DHCP (default)	Select automatic IP address assignment from DHCP server on LAN. NOTE: if Ki Pro Rack cannot find a DHCP server to communicate with, it will select the default factory IP address of 192.168.0.2.

*NOTE: With parameters 50.1, 50.2 and 50.3, there is no timeout when editing—changes made while in these menus are saved and activated when the menu is exited.*

**50.2 IP ADDRESS** This parameter determines the static IP address used by Ki Pro for TCP/IP networking. These are the available options:

variable	Using the adjust buttons, enter an IP address compatible with your LAN (if you have one). If direct connecting to a computer, enter a legal IP address that you'll also enter in the computer's web browser. This is only needed for Static IP configurations. NOTE: If 50.1 is set to <i>DHCP</i> and there is a DHCP failure, then the default IP address is: 192.168.0.2 NOTE: If 50.1 is set to <i>Default Addr</i> , the default static IP address is: 10.65.74.65
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*NOTE: For parameters 50.2, 50.3, and 50.4, you will be setting IP addresses that consist of "octets" separated by a period (i.e., 90.0.181.0). When editing these, the Select button selects the octet*

and then the Adjust buttons select the desired number. Pressing Select Up again advances to the next octet. At the final octet, the address will flash—pressing Select Up at that point confirms the setting.

When these parameters are edited, you can abort the editing process by backing out (press the Select down arrow button repeatedly until the edit passes the first octet). You'll notice that after completing the edit on the last octet, the display will blink—this is an indication that the edited IP address is about to be saved. You can save the edited IP address (press the Select arrow up to save) or choose not to save by pressing the Select arrow down button.

**50.3 SUBNET MASK** This parameter determines the subnet mask used by Ki Pro for TCP/IP networking. These are the available options:

variable	Using the Adjust buttons, enter a subnet mask compatible with your LAN (if you have one). This is only needed for Static IP configurations. NOTE: If 50.1 is set to <i>DHCP</i> , the default <i>Subnet Mask</i> will be assigned by the DHCP server. NOTE: If 50.1 is set to <i>Default Addr</i> , the default <i>Subnet Mask</i> is: 255.0.0.0.
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Please read the "Note" about editing IP addresses in parameter 50.2 as it also applies to parameters 50.3 and 50.4.

**50.4 STATIC GATEWAY** This parameter determines the gateway or router used by Ki Pro on your LAN for TCP/IP networking. These are the available options:

variable	Using the Adjust buttons, enter a gateway compatible with your LAN (if you have one). This is only needed for Static IP configurations. NOTE: If 50.1 is set to <i>DHCP</i> , the default <i>gateway</i> will be assigned by the DHCP server. NOTE: If 50.1 is set to <i>Default Addr</i> , the default gateway is: 10.0.0.1.
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**NOTE:** Without a properly configured default gateway (whether you have a router/gateway or not), Ki Pro will be unable to see other Ki Pros on the network, although you may still be able to control the Ki Pro Rack via a web browser. Also, without a proper gateway defined, the discovery feature "Available Ki Pros—Click to Refresh" on the Network web page will not work correctly and list other Ki Pros on the network.

**50.5 SYSTEM NAME** This parameter defines a name for Ki Pro Rack and gives it a unique identifier. This same name is used both when displaying systems via the web interface and for display on Ki Pro Rack's screen saver (if System name is chosen in Parameter 70.1 Screen Saver). These are the available options:

variable	Using the Adjust buttons, enter a name for Ki Pro Rack. Using the Adjust buttons and the top Select button, select the characters for each of the up to 20-character name. The Adjust buttons scroll through the choices and the top Select button advances to the next character. While selecting characters, the character being changed will flash to show its position. The character set allowed is: 0 through 9, '-', ',', 'A through Z (uppercase) and a through z (lowercase). <i>Default: AJA Ki Pro</i>
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**50.6 MAC ADDRESS** This parameter is an information-only field showing the MAC address of the Ki Pro Rack's ethernet adapter. These are the available options:

information only display	Selecting this parameter allows you to view Ki Pro Rack's ethernet MAC address. The MAC address is a unique value associated with the internal ethernet network adapter. MAC addresses are also known as hardware addresses or physical addresses. MAC addresses uniquely identify an ethernet adapter on a LAN. MAC address format: MM:MM:MM:SS:SS:SS The value is 12-digit hexadecimal, where the first half identifies the manufacturer and the second half identifies the unique serial number.
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**50.9 USER AUTHENTICATION** This parameter enables or disables an authentication login requirement when using the web UI. By default this parameter is set to Disabled.

If you select Login via the front panel interface and then you attempt to use the web UI interface, you will be asked for a login password. The web browser will present the login screen requesting that a password be entered before you can access any other parameter or configuration screen.

The password is initially set to the default value: password.

If you select Login for the User Authentication parameter via the web UI, you may enter a user selected password. As long as the menu parameter is not changed to Disabled, the password requirement will remain in effect. Any time the web UI is accessed, the login password will be requested before additional access to any other web UI parameter or configuration screen will be granted. If you enter a user selected password, be aware that this password will be retained and you will need to remember the password. If the user entered password is forgotten, you may clear it by performing a Hard Factory Reset.

**NOTE:** *A standard Factory Reset does not clear the user entered password. To perform a Hard Factory Reset, enter the 99.0 Factory Reset parameter, and unlike a typical Factory Reset where only the ADJUST (up) button is held for 2 seconds, hold both the ADJUST (up) and the ADJUST (down) buttons simultaneously for 2 seconds.*

**NOTE:** If authentication is used, it provides a minimum security safeguard against unauthorized use of the Ki Pro Rack in a networked environment. You should not consider it a substitute for proper network security measures.

Disabled (default)	Disables the requirement for a login password when accessing the device via the web UI.
Login	Login is required via the web UI before changes can be made to the Ki Pro Rack configuration.

**55.4 DATE SET** This parameter manually sets the calendar date of the internal Ki Pro Rack clock. The value is defined as YYYY/MM/DD (year/month/day). These are the available options:

variable	Using the adjust buttons, enter a calendar date for Ki Pro Rack. Using the adjust buttons and the top SELECT button, select the characters for each category (YYYY/MM/DD). The adjust buttons scroll through the choices and the top SELECT button advances to the next character. While selecting characters, the character being changed will flash to show its position. When finished, the final press of the SELECT up button will flash the whole value. Press SELECT once more to confirm and the next menu parameter will appear.
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**55.6 TIME SET** This parameter manually sets the time of the internal Ki Pro Rack clock, when setting manually (NTP not used). These are the available options:

variable	Using the Adjust buttons, enter a time for Ki Pro Rack's clock. Using the Adjust buttons and the top Select button, select the characters for each digit (hours/minutes). The Adjust buttons scroll through the choices and the top Select button advances to the next character. While selecting characters, the character being changed will flash to show its position. When finished, the final press of the SELECT up button will flash the whole value. Press SELECT once more to confirm and the next menu parameter will appear. Time is set using a 24-hour format (military) and must be set to GMT time. NOTE: There are many websites that will assist you in converting your local regional time to GMT (UTC). AJA does not endorse any particular one, but here are two examples: <a href="http://tycho.usno.navy.mil/zones.html">http://tycho.usno.navy.mil/zones.html</a> <a href="http://hurricanes.noaa.gov/zulu-utc.html">http://hurricanes.noaa.gov/zulu-utc.html</a>
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**70.1 SCREEN SAVER** When set to "AJA Logo", a rolling AJA logo screen saver will appear on the alphanumeric display after 3 minutes of inactivity—defined as no button presses on the front panel. When the Screen saver is on, the STATUS button or STOP button will exit the screen saver. These are the available options:

ON (AJA LOGO (default)	Display horizontally rolling AJA logo after 3 minutes of button inactivity
SYSTEM NAME	Display the Ki Pro Rack system name (parameter 50.5).
OFF	Screen saver is disabled.

*NOTE: The screensaver will not appear if an active transport function is underway (Play, Record, etc.).*

**70.2 DISPLAY INTENSITY** This parameter determines the brightness of the alphanumeric VFD display and front panel backlit buttons. These are the available options:

variable (Default: 6)	Using the Adjust buttons, you can dim or brighten the alphanumeric display and activity indicator LEDs in steps from 1 (dim) to 8 (brightest).
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**70.3 FAN SPEED** This parameter determines the speed of Ki Pro Rack’s internal cooling fan. In some environments where audio recording is occurring close to the Ki Pro Rack unit, it may be desirable to set the fan speed to “QUIET RECORD” for optimum quiet operation. These are the available options:

NORMAL (default)	Fan runs at normal fixed speed for optimum cooling.
QUIET RECORD	Fan runs at a fixed slower speed for optimum quiet.
QUIET AUTO	Fan runs at normal speed until recording begins, then ramps down to a slower speed for optimum quiet.
NORMAL AUTO	Fan runs at variable speeds for optimum cooling.

**80.1 SERIAL NUMBER** This parameter displays this Ki Pro Rack’s unique serial number.

**80.2 SW VERSION** This parameter displays Ki Pro Rack’s software version level.


**91.1 RECALL PRESET** This parameter recalls the Ki Pro Rack to a previously saved preset configuration stored using parameter 92.1.

Use the ADJUST buttons to set the number of the Preset register you wish to recall. To recall, press the SELECT up (^) button, and then press the ADJUST up (^) button. The message [COMPLETE] is displayed after a successful recall.

**92.1 STORE PRESET** This parameter saves a preset configuration to the selected storage register. Use the ADJUST buttons to set the number of the Preset register.

To store, press the SELECT up (^) button, and then press the ADJUST up (^) button. The message [COMPLETE] is displayed after a successful store.

**99.0 FACTORY RESET** Selecting this parameter and then pressing the ADJUST (up) button for 2 seconds recalls Ki Pro Rack’s factory default settings.

	<b>Caution!</b> Selecting this parameter and recalling factory defaults will overwrite the current settings (with the exception of network settings, which are retained).
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Recalling factory defaults does not affect these settings: Encode Mode, Encode Type, IP Config, IP Address, Subnet Mask, Default Gateway, System Name, or Date and Time. To clear the network settings and recall factory defaults, hold down both the Adjust (up) and Adjust (down) buttons at the same time.

*NOTE: To set a single parameter to its factory default value, go to that parameter and hold down both the Adjust (up) and Adjust (down) buttons at the same time.*

# Chapter 5: Browser Remote Control

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## Remote Control Overview

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An optimized web server in Ki Pro Rack allows you to remotely monitor and adjust parameter settings via a browser client running on a network wired computer. The network can be a closed local area network, a straight computer-to-Ki Pro Rack cable, or even exposed through a firewall to a broadband WAN (not recommended since anyone on the internet can access the Ki Pro Rack).

The LAN connection on Ki Pro uses a standard RJ45 connector, but internally it's intelligent and communicates via standard "straight-through" CAT 5 ethernet cables or null-modem (cross-over) cables without any configuration or strapping required.

*NOTE: Safari is the preferred web browser for Ki Pro control on the Mac, and additionally Chrome and Firefox on Windows. Other web browsers may work, but AJA cannot guarantee consistent operation for all web browsers or web browser versions.*

## Resetting Values To Factory Settings

Note that when using the web browser to change Ki Pro Rack configurations, you can easily return to the factory configuration anytime you need to do so. To perform a global reset of Ki Pro to factory settings, go to Ki Pro front panel CONFIG parameter 99.0 for a reset to factory values. You can also recall factory settings by selecting the *Presets* browser menu, scrolling to the bottom of the list of presets, and clicking *Recall Factory Preset*.

## Web Browser via Ethernet

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To control Ki Pro via wired internet, connect a computer to the Ki Pro unit's LAN connector, an RJ45 socket, via a CAT5 ethernet cable.

To access the Ki Pro, simply enter its URL in the web browser. The URL will be the IP address defined in Ki Pro's Network parameter menus (50.2—please note also that 50.1 through 50.4 must all be configured correctly to access Ki Pro on your network). If Ki Pro is using DHCP (the default), the IP address can be found by going to parameter 50.2 and reading it there. When Ki Pro is shipped from the AJA factory, it defaults to DHCP operation.

If 50.1 is set to *DHCP*, and the DHCP server on the network fails to grant an IP address, then Ki Pro will fall back to the static IP address. If 50.1 is set to *Default Addr*, the factory default static IP address is: 10.65.74.65. So, if 50.1 is set to *Default Addr*, you would type the following in the web browser: *http://10.65.74.65* to see Ki Pro's web interface *Main Status* screen.

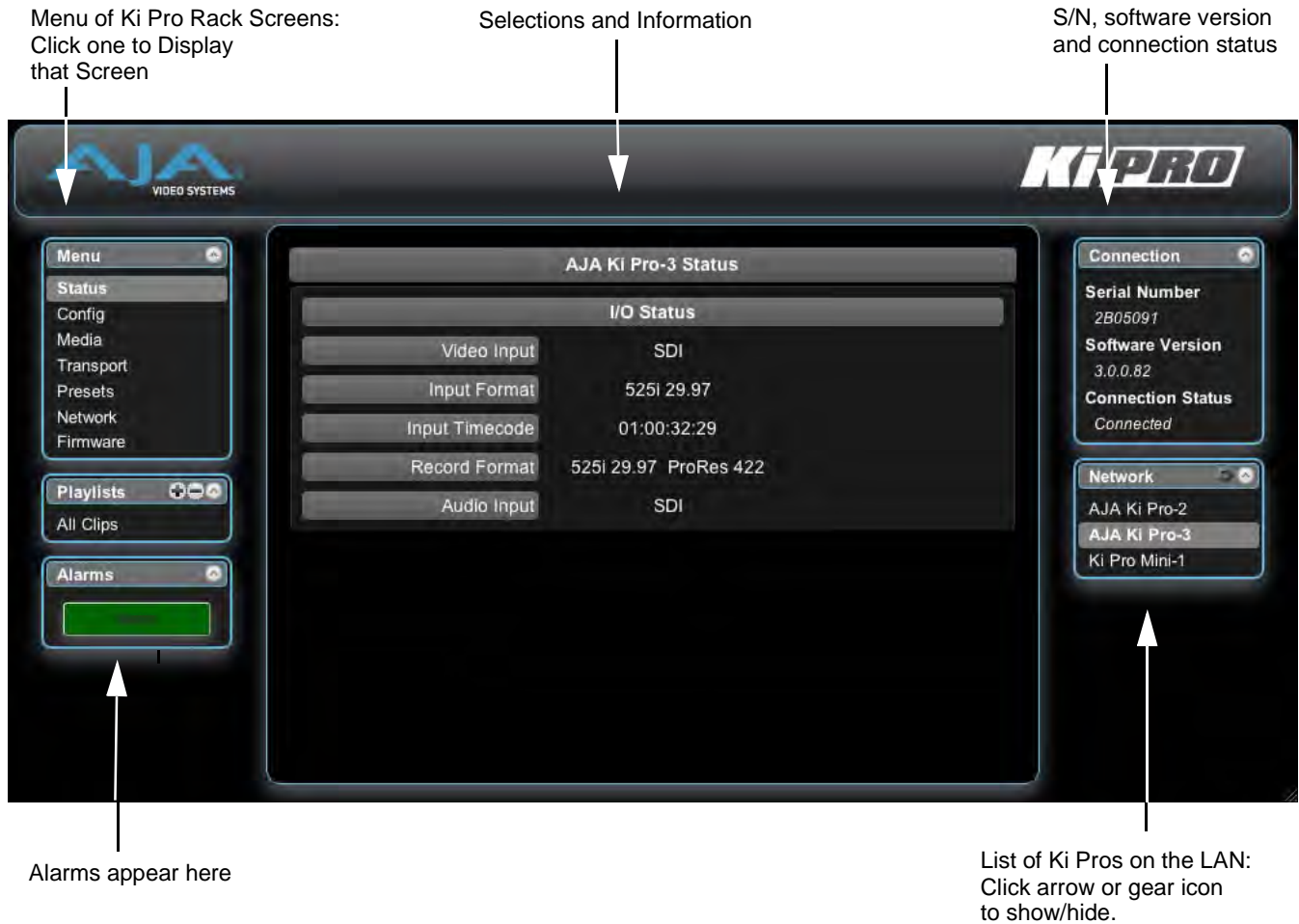
## General Screen Information

All Ki Pro Rack web screens have certain areas in common. On the left of each screen is a Menu panel listing all the available Ki Pro Rack screens. Click any of these links to jump to that screen. On the right side of each screen you'll also find a Connection panel. This area shows the connection status in addition to the Ki Pro Rack's serial number and software version. This latter information is useful if you ever have to call AJA Technical Support to discuss a problem or get help. Below the Connection panel, the Network panel shows the

Ki Pro systems on the network and allows you to switch control between systems. See [“Controlling Multiple Ki Pros” on page 78](#) at the end of this chapter for additional information on using multiple Ki Pros. In the middle of each screen are selections and information pertaining to the subject matter of that screen (i.e., the “Media” screen has choices about the media formats you are using).

Ki Pro Rack web screens closely mirror the parameter menus displayed on its front panel. In each of the screens presented on the following pages, we’ll list the parameter menu numbers that are related so you can read the full definitions. Additionally, the Status screen lets you change parameter settings right on the screen if you right-click the setting.

**Figure 10. Ki Pro Rack Web Interface, Main Status Screen**



## Config Screen

The Config screen is a general purpose screen used to configure Ki Pro Rack’s I/O choices, conversion choices, and also set up Ki Pro Rack’s environment (name, clock settings, display etc.)

Figure 11. Ki Pro Rack Web Interface, Config Screen



**NOTE:** In the following web screen control definitions, the number in parentheses refers to the Parameter descriptions in Chapter 2—you can read more information there about the choices and their meanings.

- Record Type (1.1):** This parameter defines the frame recording method of media stored. RECORD TYPE can be configured to record the incoming video signal in a “NORMAL” manner, as a “PsF” signal if the incoming source is 1080psf 29.97 (for example), or VFR for variable framerate recording of the SD-SDI/HD-SDI input (such as Varicam).
- 1080p Playback (1.8):** This parameter defines the format applied when 1080p media is played back off from storage. You can choose Playback as standard 1080p progressive frame or 1080 progressive segmented frame (regardless of what was recorded when input).
- In Convert (1.4):** This parameter defines the type of up, down, cross, or aspect-ratio conversion, if any, applied to the selected input when recording. Selections are None, SD, HD 720, or HD 1080.
- Out Convert (1.5):** This parameter defines the type of up, down, cross, or aspect-ratio conversion, if any, applied to the output. Selections are None, SD, HD 720, or HD 1080.
- SDI 2 Output (1.6):** This parameter defines whether the SDI output matches the file format or has the 1.5 OUT CONVERT selection applied to it.
- SDI Output (1.6):** This parameter defines whether the SDI output matches the file format or has the 1.5 OUT CONVERT selection applied to it.
- Component Output (1.7):** This parameter defines whether the component video output matches the file format or has the 1.5 OUT CONVERT selection applied.
- HDMI Output (1.8):** This parameter defines whether the HDMI output matches the file format or has the 1.5 OUT CONVERT selection applied to it.



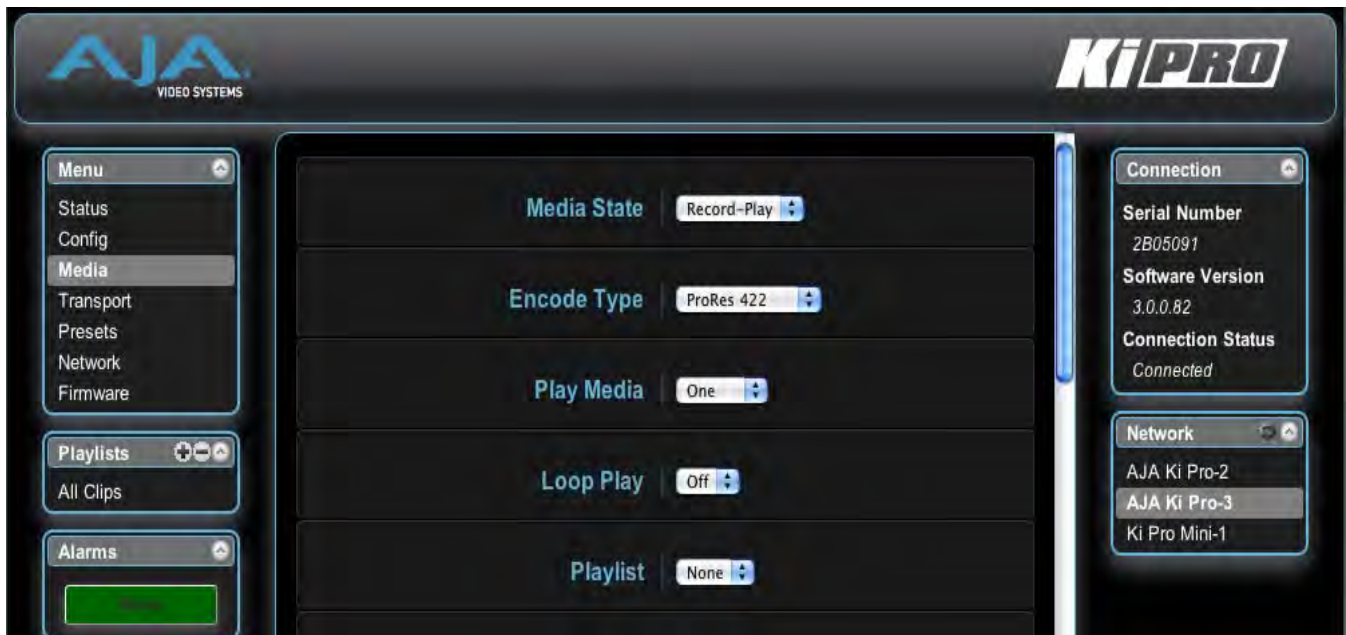
- Super Out (1.9):* This parameter enables or disables superimposition of timecode and transport state (Record, Pause, etc.) onto the SDI, SDI2, Component, HDMI, and CVBS on Y outputs.
- Video Input (2.1):* This parameter selects a video input source from the video input connections available. This is the video that will be recorded and/or passed through.
- Audio Input (2.2):* This parameter selects an audio input source from the available audio input connectors. This audio will be recorded and/or passed through.
- Audio Channels (2.3):* This parameter selects use of either two or eight audio channels via SDI embedded audio.
- Component In Level (3.1):* This parameter selects the input level for signals applied at the component video input connectors.
- Component Out Level (3.2):* This parameter selects the output level for signals applied at the component video output connectors.
- NTSC Config (3.4):* This parameter selects the output level for the composite video output connector.
- Analog Audio (4.1):* This parameter configures the analog audio signal levels for input and output. Professional audio equipment has much higher levels than consumer equipment: a 0 VU reading corresponds to +4 dBu. Connecting a professional +4 dBu device to a consumer audio input -10dBV (-7.8 dBu) may cause overloading, whereas the output of a consumer device probably does not have sufficient power to drive a professional audio input. With consumer and semi-professional audio equipment, a VU reading of 0 dB is typically referenced to -10 dBV. 0 dBu = 0.775 VRMS.
- Audio Lvl L (4.2):* This parameter sets left channel audio level for line level devices such as VTRs and mixers, or microphone sources.
- Audio Lvl R (4.3):* This parameter sets right channel audio level for line level devices such as VTRs and mixers, or microphone sources.
- Upconversion (5.1):* This parameter selects the type of upconversion from SD performed, if set up to do so with parameters 1.4 through 1.8.
- Downconversion (5.2):* This parameter selects the type of downconversion from HD performed, if set up to do so with parameters 1.4 through 1.8.
- Genlock Source (6.1):* This parameter selects the reference video source used for genlocking during playback.
- TC In (8.0):* This parameter selects the source of timecode start from those available. Available timecode sources: TC Value specified in parameter 8.1, an SDI RP188 input, an LTC input, or the time of day.
- TC Value (8.1):* This parameter selects a time for start of timecode when 8.0 is set to *TC Value*.
- TC Type (8.2):* This parameter selects drop frame or non-drop frame timecode.
- Arm Recording (8.3):* This parameter selects how recording will begin: either by pressing the Record button (or web "Record" button) or via timecode. If starting on timecode, parameters 8.0, 8.1. and 8.2 must be set to qualify the source and type of timecode. When timecode is selected, the Record button also remains active and available to start recording.
- Interval Record (9.0):* The Ki Pro Rack can be used to create timelapse recordings via the 9.0 Interval Record, 9.1 Interval Frames and 9.2 Interval Time selections. Note that the 9.1 and 9.2 menu options will not appear unless 9.0 Interval Record is enabled.

- Interval Frames (9.1):* This parameter determines how many frames from the incoming video will be used for the recording.
- Interval Time (9.2):* This parameter determines the time period from which the interval frames are selected.
- Camera Data (13.1):* This parameter controls the use of camera-generated ancillary data. Some cameras produce ancillary data that Ki Pro Rack users may want to transfer to their recordings. Examples include: start/stop commands, timecode, reel name, clip name and take. If a selection other than “NONE” is selected, and an appropriate camera is present—and sending appropriate ancillary data—then the metadata available from the camera will be passed into the Ki Pro Rack’s timecode value, file name, and other applicable parameters. *Please read the discussion on Config Parameter 13.1 “Camera Data” in Chapter 3 for additional information.*
- Loss of Video (32.0):* This parameter selects whether recording continues when valid video is not present.
- Remote Control (35.2):* Enables or disables Ki Pro Rack remote control by an external device. With the RS422 selection, an external RS422 controller or an NLE may be used to control the Ki Pro Rack. The CONFIG menu parameter 8.0 TC IN is set automatically to correspond to the RS422 Only. When the 8.0 TC IN is set to RS422, it allows Ki Pro Rack to accept an RS422 in-point timecode value as the beginning timecode value for the recording. Example: the value 01:00:00:00 is received as the in-point; this becomes the first frame of the Ki Pro Rack recording. Operation is described in Chapter 3 under Config Parameter 35.2, Remote Control.
- Video SG Format (41.1):* This parameter determines the video format output from Ki Pro Rack’s internal test signal generator.
- Video SG (41.2):* This parameter determines the video signal output from Ki Pro Rack’s internal test signal generator. This parameter is used with parameter above (41.1) to determine the type of video test signal output by Ki Pro Rack.
- Audio SG (41.3):* This parameter determines the audio signal output from Ki Pro Rack’s internal test signal generator (OFF, silence, or 1 kHz tone).
- System Name (50.5):* This parameter defines a name for Ki Pro Rack and gives it a unique identifier. This same name is used both when displaying systems via the web interface and for display on Ki Pro Rack’s screen saver (if System name is chosen in Parameter 70.1 Screen Saver).
- User Authentication (50.9):* This parameter enables or disables an authentication login requirement when using the web UI.
- Date Set (55.4/55.6):* This parameter manually sets the calendar date and time of the internal Ki Pro Rack clock. Edit the date and time fields and then click Apply to set the date and time.
- Screen Saver (70.1):* When set to “AJA Logo”, a rolling AJA logo screen saver will appear on the alphanumeric display after 3 minutes of inactivity—defined as no button presses on the front panel.
- Display Intensity (70.2):* This parameter determines the brightness of the alphanumeric display and front backlit buttons.
- Fan Speed (70.3):* This parameter determines the speed of Ki Pro Rack’s internal cooling fan. In some environments where audio recording is occurring close to the Ki Pro Rack unit, it may be desirable to set the fan speed to “QUIET AUTO” or “QUIET RECORD”.

## Media Screen

The Media screen offers settings for a variety of media-related functions, including formatting storage media, type of Apple ProRes 422 encoding, and reel and clip definitions.

**Figure 12. Ki Pro Rack Web Interface, Media Screen**



**Media State (12.1):** This parameter defines whether the media is used for video/audio recording or data transfer using an Ethernet LAN.

**Encode Type (14.0/14.1):** This parameter defines the Apple ProRes or Avid DNxHD encoding method. If you change from Apple to Avid or vice versa, a message appears telling you that a reboot is required. Click "Change Encode Type and Reboot" to complete the change and reboot the system.

**Play Media (15.1):** This parameter determines behavior during playback: either one clip will play when "Play" is selected, or all clips on the media (All) or in the playlist (Playlist) will be played. See parameter 15.1, Play Media, in Chapter 3 for details.

**Loop Play (15.2):** This parameter turns looped playback on and off.

**Play List (15.3):** This parameter specifies the playlist to be played.

**Dropped Frames (15.4):** This parameter determines how playback handles dropped frames.

**Format Media (16.1):** This parameter is used to format the currently selected storage device.

**Reel Name (17.0):** The reel name is a number between 1 and 999. It determines the reel name associated with all clips generated using this setting. It is also the name of the media as it will appear when the storage device is mounted on a Mac OSX desktop. To enter a specific value, click on the number to highlight it, type in a value, and press Enter to confirm the new value. You may also click and drag on the slider to make adjustments. To increment by single values using the slider, click the slider to highlight it, and then press the "back" arrow or "forward" arrow on your keyboard. *Note:* the Reel Name cannot be changed once a recording session starts on the storage unit without reformatting the drive.

**Clip Name (17.2):** This parameter determines the clip name associated with all clips generated while using this setting. The clip name is either "Clip" or "SC".

*Clip Number (17.3):* This parameter determines the clip number, from 1 to 999, that follows the CLIP NAME, and is associated with all clips generated while using this setting. To enter a value, click on the number to highlight it, type in a value, and press Enter to confirm the new value. You may also click and drag on the slider to make adjustments. To increment by single values using the slider, click the slider to highlight it, and then press the "back" arrow or "forward" arrow on your keyboard.

*Clip Append (17.4):* This parameter is used with parameter 17.5 ALPHA APPEND to append a text value after the CLIP NUMBER or have no text appended.

*Alpha Append (17.5):* This parameter is used with parameter 17.4 CLIP APPEND to append a text value after the CLIP NUMBER.


*Take (17.8):* This parameter determines the TAKE number, from 1 to 999, generated for all clips while using this setting. The TAKE number follows the CLIP NAME, CLIP NUMBER, and ALPHA APPEND (if selected).

*Use Custom Clip Name (19.1):* This parameter enables or disables whether a custom clip name can be used. Refer to "Custom Clip Naming" in Chapter 3 for greater detail.

*Custom Clip Name (19.2):* This parameter allows you to enter a custom clip name. To enter, click on the default name, "Custom" and type a new name. Once entered, you'll have to click the *Apply* button for it to take effect and be used.

*Use Custom Clip Take (19.3):* This parameter enables or disables whether a custom clip take name will be used. If enabled, takes increment sequentially from the first value selected.

**NOTE:** *The selection of Use Custom Clip Take is only available via the REST interface, not via the front panel UI or web UI, and it does not survive reboots.*

	<p><b>Caution!</b></p> <p>If a custom clip name is not changed and the "Use Custom Clip Take" parameter is not enabled, an existing clip can be overwritten on the disk. Example: the first recording made is called "Flying" and the "Custom Clip Take" parameter is not enabled; additionally, the user does not enter a new value for the custom clip name and leaves "Flying" entered. As a result, the first recording will be overwritten by the second recording. AJA does not typically recommend disabling the use of the custom clip take, but in some situations, overwriting an existing file may be desirable.</p>
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*Custom Take (19.4):* This parameter allows you to define a custom take number. Once entered, you'll have to click the Apply button for it to take effect. To enter a specific value, click on the number to highlight it, type in a value, and press Enter to confirm the new value. You may also click and drag on the slider to make adjustments. To increment by single values using the slider, click the slider to highlight it, and then press the "back" arrow or "forward" arrow on your keyboard.

*Gang Clip Name (22.1):* This parameter is used when performing gang recording via multiple Ki Pros (refer to *Controlling Multiple Ki Pros* earlier in this Chapter). If you want to name clips the same way across all the recordings of Ki Pro ganged units, then use the "Master Name" pull down selection. If you want to name clips independently on Ki Pro units, then select "Slave Name" from the pull down. Selecting "Slave Name" means that the recording will take it's name from the individual Ki Pro's parameters and not accept the value pushed to the Slave by the Master Ki Pro. Refer to "Custom Clip Naming" in Chapter 3 for greater detail.

## Transport Screen

The Transport screen offers record, playback, fast forward, rewind and stop controls, similar to those available on the operator-side of Ki Pro Rack. The screen also duplicates what is displayed on the Ki Pro Rack front visual display, so you can see exactly what the Ki Pro Rack operator/camera person is seeing.

**Figure 13. Ki Pro Rack Web Interface, Transport Screen**



**STOP ■**: Press STOP to end playback or a media operation (PLAY, FF, REV, or RECORD). When stopped, Ki Pro Rack displays the current point in the stopped clip. STOP can also be considered a “pause” button. A double-press of the STOP button will return Ki Pro Rack to an E-to-E state.

**PLAY >**: Press PLAY to begin forward playback of the current clip at normal speed.

**RECORD ●**: Press the red RECORD button to begin recording. Once in RECORD mode, all other transport buttons are locked-out except the STOP button.

**FFWD >>**: Press button to begin fast playback of the current clip at 2x speed. Successive pushes increase the speed to 4x, 8x, and 16x. (Pushing the button after 16x speed is reached has no further effect.) When fast-forwarding, audio is muted.


**REV <<**: Pressing REV when not lit, begins playback of the current clip in reverse at 1x speed. Successive pushes increase the speed to 2x, 4x, 8x, and 16x. (Pushing the button after 16x speed is reached has no further effect.) When playing in reverse, audio is muted.

**SELECT (up/down)**: While in the TRANSPORT menu, the SELECT buttons select clips and operate like “previous” and “next” keys. When a clip is selected it is “cued” to the beginning of the clip. Note that ordering and playback of clips is based on timestamp order, not clip name.

**ADJUST (up/down)**: While in the TRANSPORT menu, and in the “STOP” mode, the ADJUST buttons will “single step” the current clip at a rate of one frame per button push (up=forward, down=reverse).

**DELETE CLIP**: Dedicated button that when pressed, deletes the currently selected clip. When pressed, the system displays a precautionary “ARE YOU SURE?” prompt.

**SLOT:** This button serves two purposes. First, it selects which storage slot is accessed by the system. Second, the SLOT button is used to unmount a currently selected piece of media.

	<p><b>Caution!</b></p> <p>Not using the SLOT button to unmount media before removal can cause problems with the files stored on that media.</p>
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Pushing the SLOT button cycles between unmounting media and selecting media. This function is only active when in the “STOP” mode and requires a “PRESS STOP TO CONFIRM” if not stopped. After you select a slot, the system returns to the last selected clip and timecode for that slot. If the media has been changed since the slot was last selected (physically removed/media replaced), then the “first” clip on the media will be “cued” to its start point. If inserted media has any issues, additional prompts may be displayed as appropriate such as: “WARNING FRMT MEDIA” or “WARNING MEDIA LOW.”

**Show Gang View:** When clicked, the Transport screen expands at the bottom to show controls for controlling multiple Ki Pros. See [“Gang Recording” on page 78](#) at the end of this chapter for an additional tutorial on using this feature.

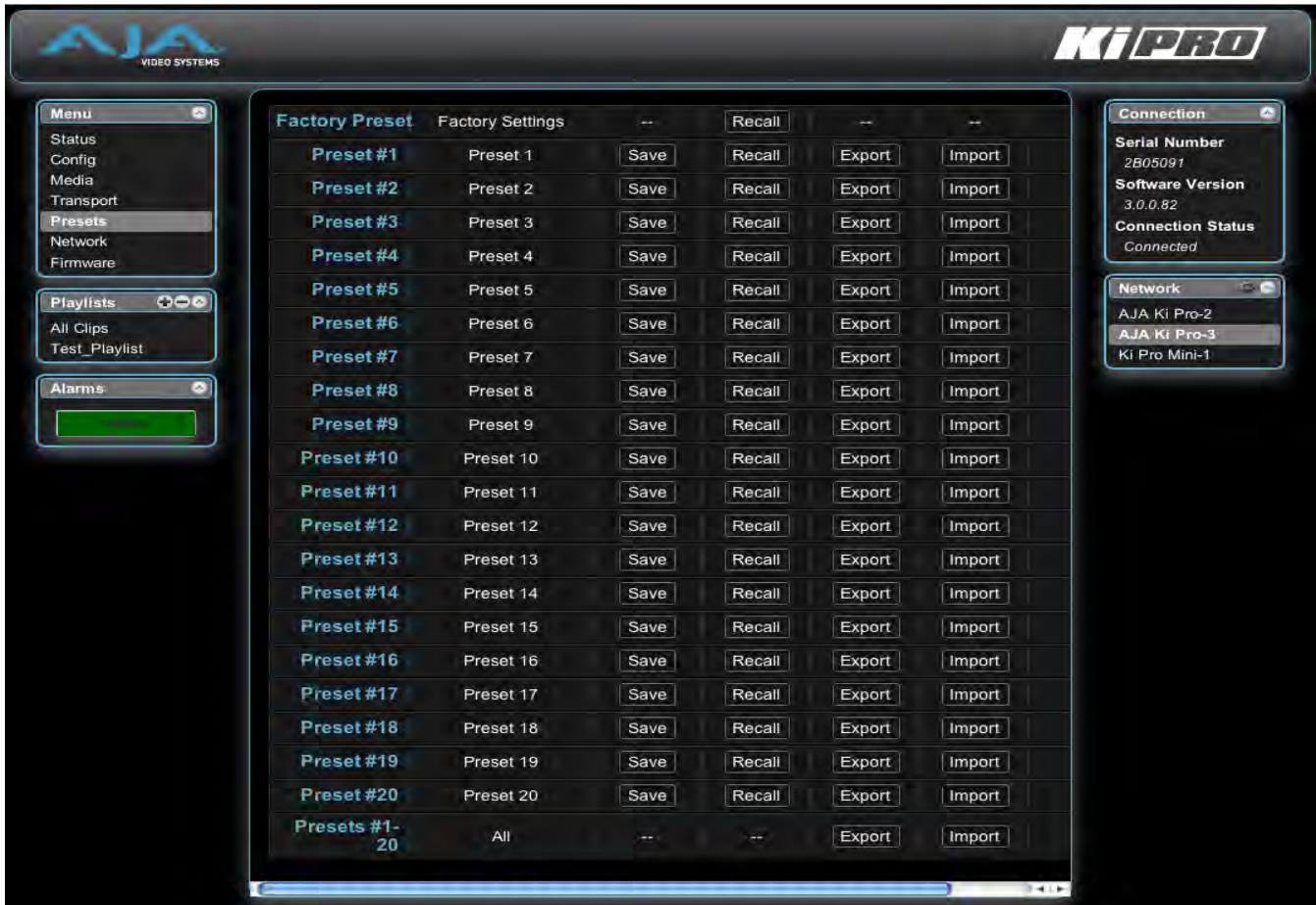
**Figure 14. Ki Pro Rack Web Interface, Transport Screen Gang View**



## Presets Screen

The Presets screen allows you to save Preset Configurations into 20 separate memory registers and recall the presets whenever needed. This screen also includes Export and Import functions that allow exporting one or all presets to your computer as files and importing exported preset files from your computer. A displayed message indicates successful or failed saves, recalls, exports, and imports.

**Figure 15. Ki Pro Rack Web Interface, Presets Screen**



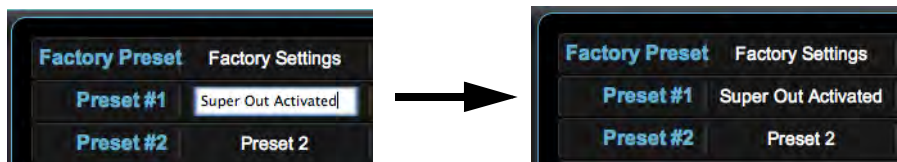
**Recall (91.1):** The Recall buttons recall saved preset configurations.

When you recall a Preset Configuration, the recalled preset immediately replaces the system's existing configuration. All previous settings are lost unless you have previously stored them in another preset configuration or an exported file.

**Store:** The Store buttons let you save the current configuration into the preset register with the associated name and number. A preset is a set of system parameters as they were set at the time the preset was stored. Only editable parameters are saved in the presets. Non-editable parameters are not saved.

To change a preset name, click in the name's text field and type a new name. Then press Enter.

**Figure 16. Ki Pro Rack Web Interface, Changing Preset Name**



*Export:* The Export buttons save the associated preset contents to a file on your computer. The file gets exported to the default download location specified in your browser options. The file name is the same as the preset name with the suffix .presets. If you export multiple files for the same preset, a number gets appended to ensure a unique file name. The file size is small, usually less than 10 kilobytes.

*Import:* The Import buttons let you browse for and import a preset file on your computer into the preset register associated with the selected button. A dialog box warns you that the operation will overwrite the current preset contents with the contents stored in the file.

*Export Presets 1-20 All:* Lets you save the contents of all presets to a file on your computer. The file gets exported to the default download location specified in your browser options with the name all.presets. If you export multiple files, a number gets appended to ensure a unique file name.

*Import Presets 1-20 All:* Lets you browse for and import a previously exported all.presets file from your computer. A dialog box warns you that the operation will overwrite all 20 current preset contents with the contents stored in the file.

*Recall Factory Preset:* Recall Factory Preset recalls all editable video and audio parameters to their factory default settings. Individual presets, user preferences, and Network settings, such as the IP Address, are not affected.

See [“Using Presets” on page 83](#) at the end of this chapter for an additional tutorial on working with presets.

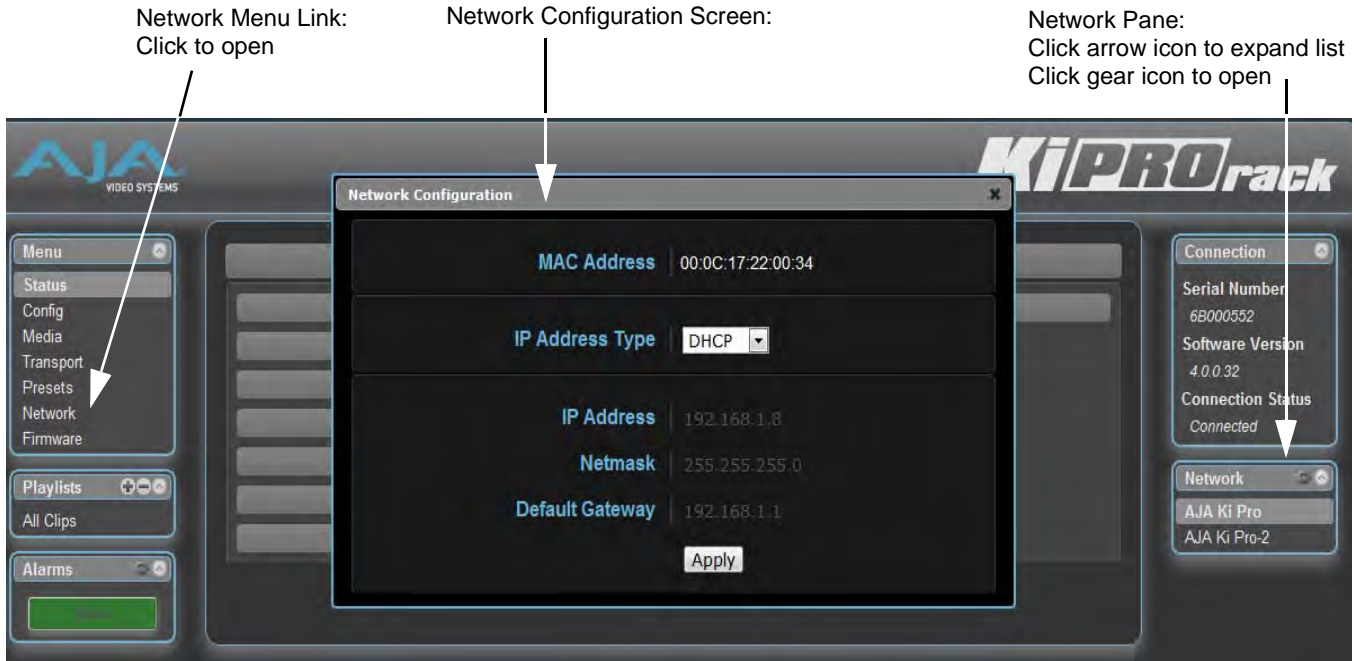
## Network Screen

The Network screen contains all of the information required to set up Ki Pro Rack TCP/IP networking. The screen also shows all Ki Pros that are on the same LAN as the Ki Pro Rack the web browser is currently communicating with.

*NOTE:* *Ki Pro Rack IP Address and netmask fields filter keystrokes and only allow legal characters. The Ki Pro Rack also checks the format of the entry to ensure it is valid; if found to be invalid, the background of the IP Address or netmask will turn red. If you click the Update button while an invalid entry exists in one of these fields, Ki Pro Rack will display an error dialog—you must correct the error before updating.*



**Figure 17. Ki Pro Rack Web Interface, Network Screen**



- IP Address Type (50.1):** Use to set the type of IP address for Ki Pro Rack. You can select a *Static* address that you enter in the IP Address field, you can select *DHCP* for automatic IP address assignment by your network router, or you can select *Default* to set Ki Pro Rack to its default IP address, which is 0.65.74.65.
- IP Address (50.2):** Enter an IP address compatible with your LAN (if you have one). When networking Ki Pro Rack to a computer, this is the IP address that you'll enter in the computer's web browser to bring up the Ki Pro Rack's web interface from its embedded web server. You must also click the "Update" button to update Ki Pro Rack with the IP address entered here. When an IP address is entered and the Update button is clicked, the IP address will change and the browser will display a "redirecting to..." page which should send the browser to the new IP address entered. (You can also click on a link on the redirect page.)
- Netmask (50.3):** Enter a subnet mask compatible with your LAN (if you have one). You must also click the "Update IP Address" button to update Ki Pro Rack with the changed information entered here.
- Default Gateway (50.4):** Enter the IP address for your LAN's gateway/router (if you have one). You must also click the "Update IP Address" button to update Ki Pro Rack with the changed information entered here.
- Apply:** Pressing this button requests Ki Pro Rack to update its IP information with that entered on this screen.
- Available Ki Pros:** The *Network* panel on the right side of the screen lists the Ki Pro devices present on the same local LAN as the current Ki Pro Rack (see note below). The serial numbers of all Ki Pros on the LAN, or their defined "System Names" (see parameter 50.5) are listed—and clicking on any of these will bring up the Status screen of that Ki Pro.
- NOTE:** *The Ki Pro you control may be running a different software version so screens may look different. As a rule, it's wise to have all your Ki Pro devices running the most current software and the same version. Also, without a properly configured default gateway (whether you*

have a router/gateway or not), the discovery feature “Available Ki Pros—Click to Refresh” on the Network page may not work.

Also, Ki Pro devices shown are cached and may not reflect the realtime state of all Ki Pros on the LAN. As Ki Pros are added or removed from the network they may take awhile to appear in the Available Ki Pros listing. If, at any time you want a current view of the network (clearing the cache and showing the realtime state), click the up arrow in the top right corner of the Network panel twice to refresh (close and reopen) the list.

## Playlists Screen

The Playlists All Clips screen allows you to see at a glance all of the clips on the currently selected media as chosen by the SLOT button (see Transport screen). You can also create new playlists consisting only of the clips you choose:

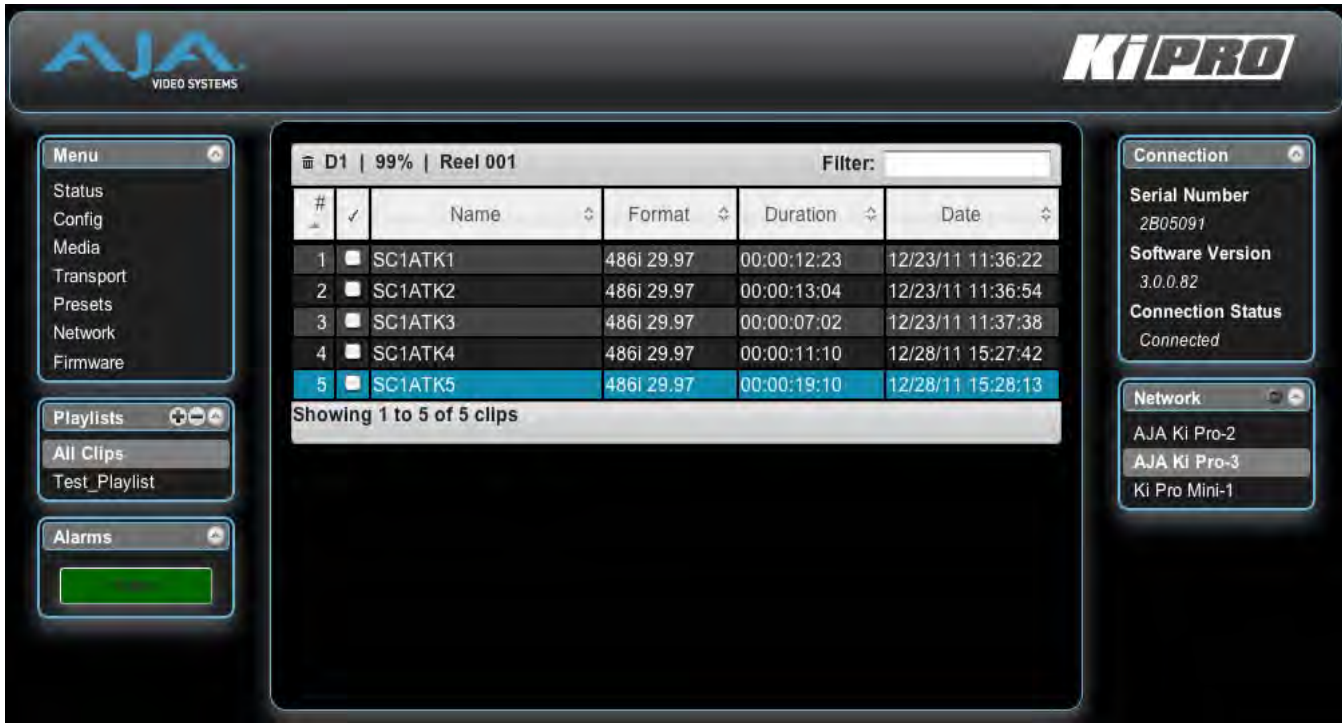
1. Click add (+) below the Playlists heading and enter a name for the new playlist.
2. Next, to select a clip to be added to a playlist, double-click the clip in the All Clips list to select it; you will know when it is selected as it will be highlighted in blue.
3. Next, click and drag the selected clip onto the playlist. You can also drag multiple clips by clicking the check boxes to the left of the names of the clips you want to copy before dragging them. Note that while in the click and drag operation, a filmstrip icon will appear (only in some browsers) and it will disappear once you have added the clip to the list. You will also see the Playlist being added to highlighted in green when the addition is made.
4. After adding the clips you want, click the playlist name to open the playlist; the clips you added will be listed.

You can reorder the clips if you want by simply double-clicking to select and then dragging them to the order you want. Note again that while clicking and dragging, the filmstrip icon will appear and the operation will highlight the order in green.

*NOTE: You can only bring clips up in order, not down in order when dragging and dropping. This means that if you want a clip to appear later in the order, you need to move the other clips above it.*

See [“Using Playlists” on page 81](#) at the end of this chapter for an additional tutorial on working with playlists.

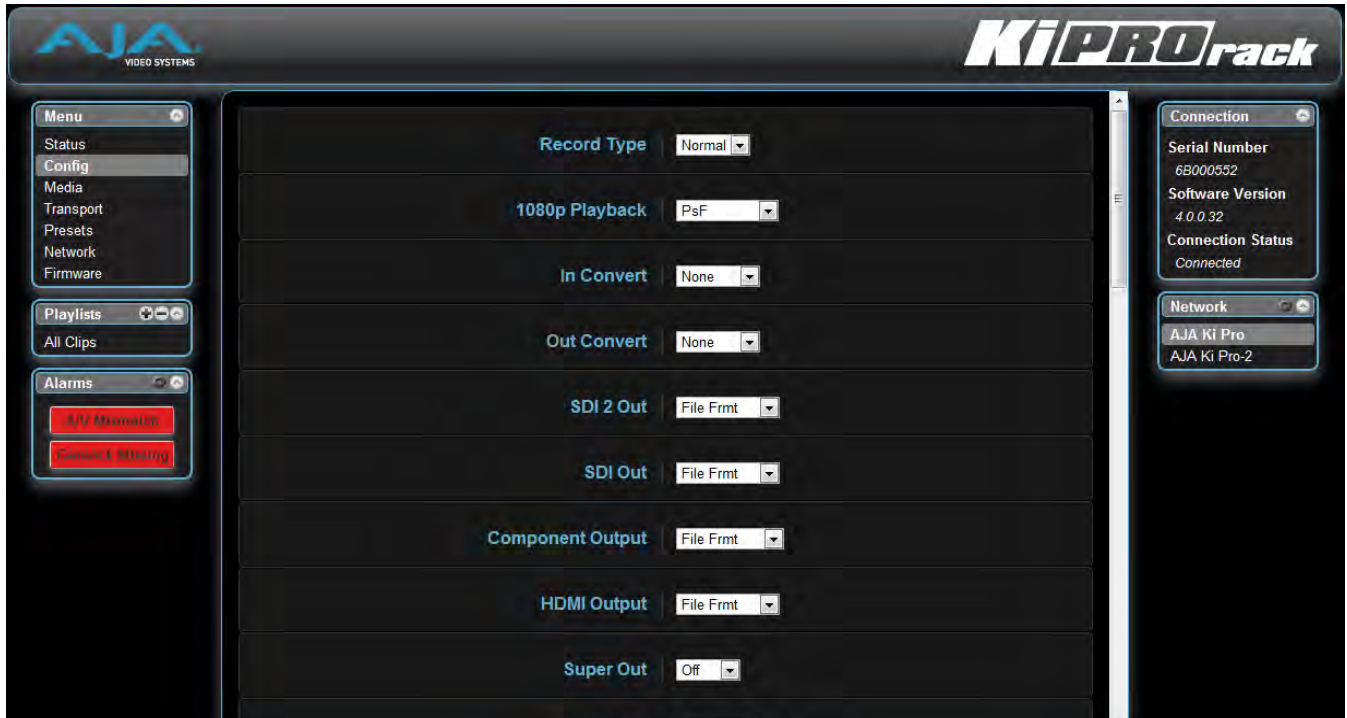
Figure 18. Ki Pro Rack Web Interface, Clips Screen



## Alarms Screen

The Alarms display is present on each screen and constantly shows you the state of any alarms in the system. The Alarms area normally contains a green box displaying, "None" if there are no alarms. If an alarm is generated, the Alarms area displays a red box containing text describing the alarm. If multiple alarms are generated, they appear as multiple red boxes, each one containing text describing the associated alarm.

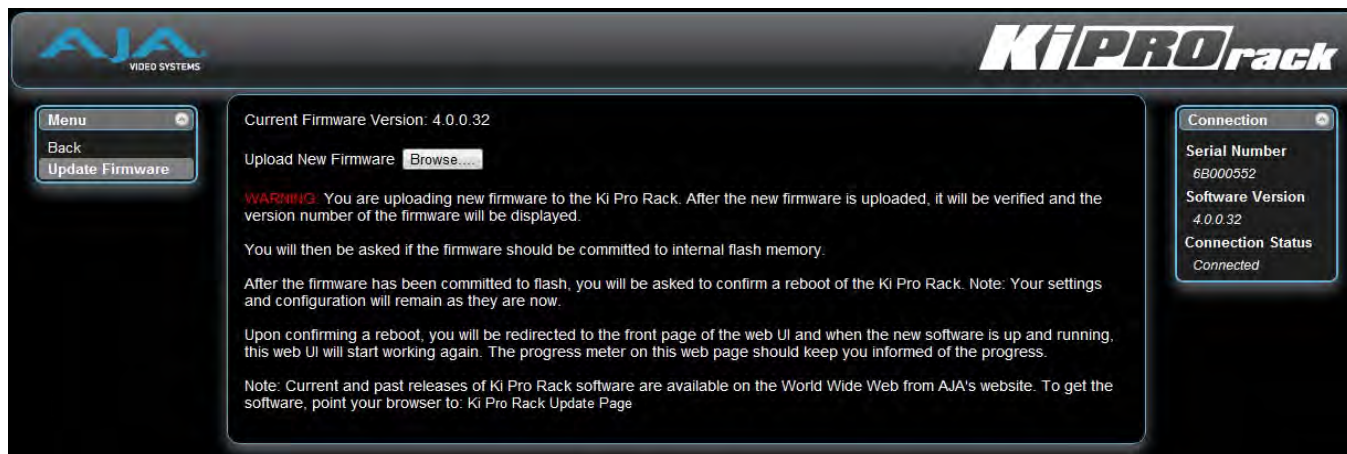
Figure 19. Ki Pro Rack Web Interface, Alarm Configuration Screen



## Update Firmware Screen

The Update Firmware screen allows you to update your Ki Pro Rack to later versions of software as they are issued by AJA and posted on the website. When software updates are released, they often contain new features, improvements, and bulletins that may be very useful. We suggest checking the website when you have time.

Figure 20. Ki Pro Rack Web Interface, Update Firmware Screen



## Preparing to Update Software

Although Ki Pro Rack comes from the factory pre-installed with software, it may not be as up-to-date as software posted on our AJA website. This topic describes the steps required to upgrade the software in your Ki Pro Rack.

1. Download the Latest Ki Pro Rack Software

Current and past releases of Ki Pro Rack software are available on the World Wide Web from AJA's website. To get the software, point your browser to:  
<http://www.aja.com/support/ki-pro/ki-pro.php>

This link is also available at the bottom of the "Update Firmware" screen (discussed later on this page). Once you're at the update page, Ki Pro Rack software files can be selected to download to your Mac or PC for upgrading your machine.

## 2. Unpack the Software

Ki Pro Rack software update files are "ZIP" files, which you can open with a number of standard and third party uncompressor applications. The software image that you'll install on Ki Pro Rack is a file with a name like *kipro\_ver\_2.0.0.99.bin* or similar.

**NOTE:** *Depending on your PC or Mac operating system settings, the ".bin" extension may not be visible to you in a file directory.*

## Upload and Install the Software on Your Ki Pro Rack

Uploading and installing the software update only requires a PC or Mac that can "see" the Ki Pro Rack via its ethernet connection. Follow this procedure to install the software:

1. Point your browser at Ki Pro Rack's upgrade page by clicking on the "Update Firmware" link at the bottom of the navigation box on the left-hand side of any Ki Pro Rack web page.
2. Click the "Browse..." button to select the file you previously downloaded. For example: *kipro\_ver\_2.0.0.99.bin* contained in the zipfile downloaded from AJA.
3. When you have selected a valid Ki Pro Rack image file, click the "Upload" button in the web browser. The file you select will upload to the Ki Pro Rack and be tested for validity. Incomplete, corrupted, or non-Ki Pro software files are rejected.
4. Wait for the procedure to complete—it will take only a few minutes. When done, Ki Pro Rack will prompt you to restart your machine. After restart, Ki Pro Rack will be running the new software. Progress is shown on the front panel.
5. Once these steps are complete, Ki Pro Rack will be running the software you just uploaded until the next time you upgrade it. The configuration of the Ki Pro Rack prior to the upgrade will be preserved.

Ensure the new software is running by bringing up the Ki Pro Rack web page again; the software version is displayed at the top of all web screens. If for some rare reason it didn't update, you can then run through the update steps again.

**NOTE:** *On some browsers, the Retry page may appear even though the software upgrade was successful. If this occurs, before clicking on retry, refresh the web page and check the version number. If the new version number appears at the top of the page, the software upgrade was successful. If the old version appears, click Retry.*

*If there is a power outage or glitch during the software download, Ki Pro Rack will boot the older software version and the upgrade process can then be re-started by the user. This happens because Ki Pro Rack has been designed with a safety feature where an internal "safe" copy of the previous software is retained in the event the updating process fails.*



### Caution!

AJA recommends you only update the Ki Pro Rack when on mains power, or with a fully charged battery.

## Advanced Features

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A few notes and instructions about selected features may help you get more value out of your Ki Pro Rack. The following topics expand on the information presented earlier in this chapter.

### Controlling Multiple Ki Pros

From the *Status* screen and the other top five screens of the Menu, you can see at-a-glance all of the Ki Pro systems that are present on the same local LAN. Their system names are shown in the *Network* panel on the right side of the screen. Click a system name to switch the browser to the *Status* screen of that Ki Pro system.

**NOTE:** *The Ki Pro you control may be running a different software version so screens may look different. As a rule, it's wise to have all your Ki Pro devices running the most current software and the same version. Also, you must have a properly configured default gateway to see the Ki Pros.*

If the Default Gateway (parameter 50.4) is not configured properly, other Ki Pros will not be listed. If the display shows "No Ki Pros found" then check the gateway setting.

Also, if the Default Gateway (parameter 50.4) is not configured properly, other Ki Pros will not be visible here. If it displays "No Ki Pros found" then check the gateway setting.

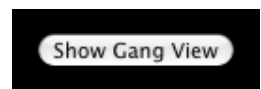
### Gang Recording

Multiple Ki Pro units can be used in unison to produce recordings via the Gang Control feature, beginning with Ki Pro version 2.0 firmware. This feature is only available via the web UI when Ki Pro units have IP addresses configured under a common network and subnet mask and are connected via their LAN connections to an ethernet switch or hub to a host computer. AJA recommends that all Ki Pro units in a gang use the same firmware version

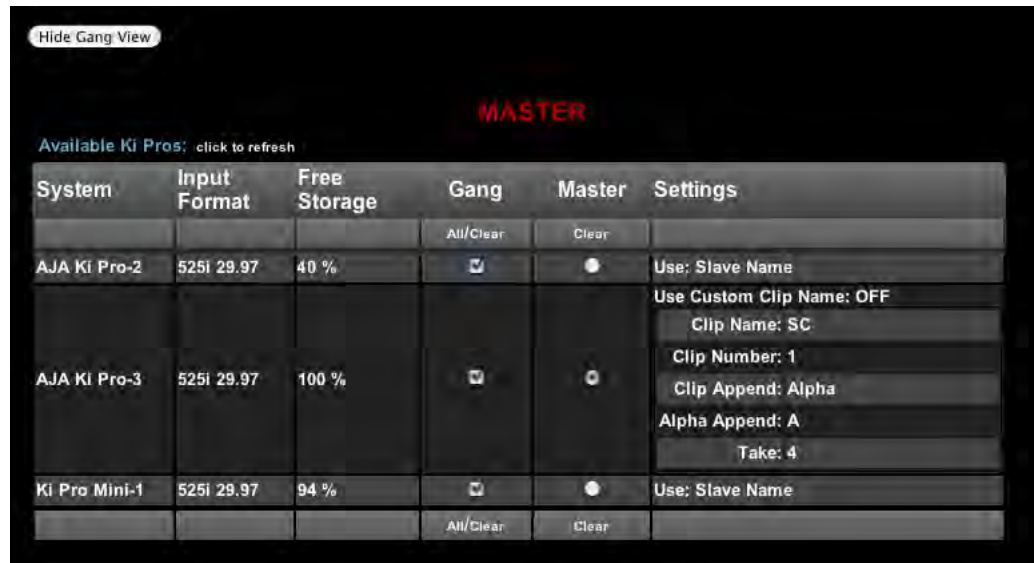
**Example:** You have a Ki Pro "Master" and a Ki Pro "Slave" both attached on a network where their static IP addresses are 192.168.0.2 and 192.168.0.3 respectively—each with a subnet mask value of 255.255.255.0. They are connected to a host computer with IP address 192.168.0.1 and subnet mask 255.255.255.0. The host computer uses a web browser, like Apple's Safari, to access the "Master" Ki Pro by entering 192.168.0.2 in the URL field of the browser. The Ki Pro "Master" unit web UI should appear.

### How to Use Gang Recording

Navigating to the Transport screen, a "Show Gang Controls" button appears on the left side of the screen. If "Show Gang Controls" is clicked, a list of "Available Ki Pros" is presented. If expected Ki Pro units do not appear, click on "Hide Gang View" then click on "Show Gang View" again to refresh. Ki Pro information can take up to a few seconds to be displayed. Finally, if Ki Pros are not listed after refreshing, confirm that the Ki Pros are on the appropriate network, have the appropriate IP address, etc.



**Figure 21. Ki Pro Rack Web Interface, Transport Screen—Show Gang Control**



Parameters for each available Ki Pro will appear in the Gang Controls area. These include: *System*, *Input Format*, *Free Storage*, *Gang*, *Master* and *Settings*. Ki Pro units that may be added to a gang will appear under the System column. The *Input Format* column gives information on what type of video format/framerate each system is receiving. *Free Storage* allows for an "at a glance" view of the capacity of the media in each unit. *Gang* is where the units can be added or removed from the gang. *Master* allows the promotion of a Ki Pro unit to the "controlling" role in the gang. *Settings* allows for the configuration of clip names on the Master and Slave Ki Pro units.

To add a Ki Pro to a gang, simply select the checkbox for the unit in the Gang column. As a shortcut, if all available Ki Pro units are desired for a gang, select the "All" item below Gang. Alternately, if you want to clear units from a gang, deselect them or use the "Clear" option.

**IMPORTANT:** *There can be only one Master in a gang; typically, the IP address for the Ki Pro unit you entered and are viewing the web UI on is the one which should be promoted to the "controlling" role. If the unit with the IP address that is currently being viewed via the web UI is selected, a red capitalized "MASTER" text will appear on the webpage above the columns.*


*A Master Ki Pro unit can send three items to the slave Ki Pro units within a gang; a record start command, a stop command and clip naming. The record start and stop commands are controlled from the web UI Transport area above the gang information on the Master Ki Pro unit or via physical front panel buttons (provided the unit is set to "Local Only" for the CONFIG parameter 35.2).*

The Settings area is where the Ki Pro clip name for each unit is decided. By default, the Ki Pro Rack is configured to use the standard clip naming conventions, not the custom clip naming conventions. The first user selection is "Use Custom Clip Name"; if the user wants to use the standard clip naming convention, leave this set to "OFF", but if the user wants to create a custom clip name, mouse click on the "OFF" to reveal a pulldown for "OFF/ON" selection, then click "OK".

If "OFF" was selected, the next parameter would be "Clip Name", again, clicking on the "SC" or "Clip" presented brings up the pulldown and the "OK" box. "Clip Number" must be entered manually with a valid value for Ki Pro Rack of 1 through 999 and then the enter/return key must be hit. NOTE: If the enter/return key is not entered after the

selection, the value will revert to whatever was previously shown. Clicking on the value next to "Clip Append" and "Alpha Append" both bring up a pull-down and an "OK" button. "Take" operates like the "Clip Number", where a valid value of 1 to 999 can be entered and then the enter/return key needs to be pressed for confirmation of the value. For custom clip naming considerations, review the section in this manual on "Custom Clip Naming."

For custom clip naming considerations, review the section in this manual on "Custom Clip Naming."

	<p><b>Caution!</b></p> <p>If a custom clip name is not changed and the "Custom Clip Take" parameter is not enabled, an existing clip can be overwritten on the disk. Example: the first recording made is called "Flying" and the "Custom Clip Take" parameter is not enabled; additionally, the user does not enter a new value for the custom clip name and leaves "Flying" entered. As a result, the first recording will be overwritten by the second recording. AJA does not typically recommend disabling the use of the custom clip take, but in some situations, overwriting an existing file may be desirable.</p>
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Note that for Slave Ki Pro Rack units, the Settings column provides a selection of either Use: "Master Name" or "Slave Name." Clicking on the default value of "Master Name" offers a pull-down selection of "Master Name" or "Slave Name" with an "OK" confirmation button. If the desire is to have clips named the same across all Ki Pro Rack units' recordings, then the Use: "Master Name" selection should be made. If the desire is to have clips named independently on Ki Pro Rack units, then "Slave Name" should be selected. Selecting "Slave Name" means that the recording will take its name from the individual Ki Pro Rack's parameters and not accept the value pushed to the Slave by the Master Ki Pro Rack.

It is important to note that as of firmware 2.0, Ki Pro can initiate recordings among units quickly, but not all units will begin or end recordings precisely at the same time or the same frame. This is not really an issue if matching timecode via SDI embedded RP-188 or LTC is sent to each unit from a timecode generator via discrete outputs on the timecode generator or via a distribution amplifier for the timecode. Note that many non-linear edit systems, like Final Cut Pro, can sync clips based on timecode values for multi-clip editorial. Also note that Ki Pro Rack does not provide simultaneous playback of media; only record start and stop functions are available.

*NOTE: Ki Pro Slave units in a gang do not respond if the Master Ki Pro is being operated under RS-422 device control. This avoids the potential for a Ki Pro Master left in a gang to accidentally arm other units outside of the defined parameters of control via the web UI or front panel buttons.*

## Gang Recording Summary

1. In the browser menus, select Transport to Navigate to the Transport screen.
2. Click Show Gang View on the Transport screen to see the Gang controls. This view shows available Ki Pro systems.
3. To gang systems together, click the checkbox in the Gang column for each system you want included.
4. Select control of clip naming in the Settings column for each system, either Slave Name or Master Name. For details, see the previous discussion.
5. Select one master system in the Master column to control the gang.
6. For the master system, set the clip naming in the Settings column.
7. Use the master system to control record start and stop and clip naming.



## Using Playlists

AJA provides tools for reviewing clips and creating playlists of clips. These clip playlists can be managed on the web browser Playlists screen, which includes a default All Clips playlist showing all clips on the Ki Pro Rack unit.

Ki Pro Rack media can have both Apple ProRes 422 encoded files and Avid DNxHD encoded files on the same media. The web UI Playlists, All Clips and user-created playlists, will denote which Encode Type is used for each clip and the currently selected Encode Mode is also represented by the clips which appear in white typeface. If clips appear in yellow, italic typeface, those clips are using the Encode Mode that is not currently selected. In this example, the first three clips are encoded as DNxHD 220x files and the last three clips are encoded as ProRes 422. The selected Encode Mode is ProRes since the last three clips appear in white typeface.

## Working with the All Clips Playlist

The default state of the Playlists is to list All Clips available. All Clips represents all of the recordings made on the Ki Pro Rack or valid files transferred to the Ki Pro Rack.

**Figure 22. Ki Pro Rack Web Interface, All Clips Playlist**

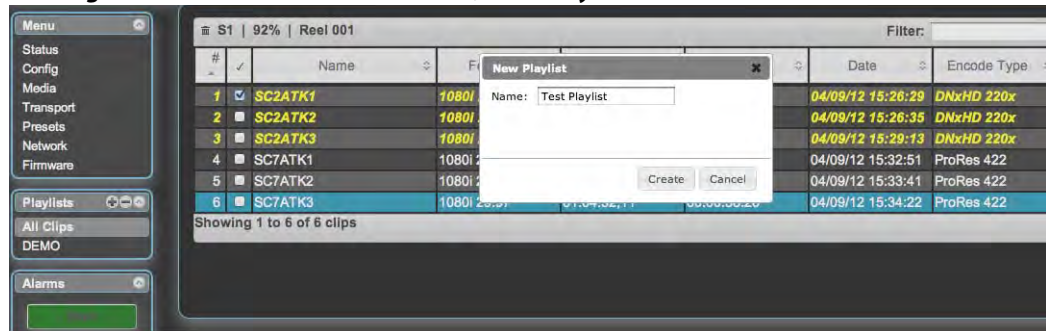
#	Name	Format	Starting TC	Duration	Date	Encode Type
1	SC2ATK1	1080i 29.97	01:00:54;06	00:00:11:06	04/09/12 15:26:29	DNxHD 220x
2	SC2ATK2	1080i 29.97	01:01:05;14	00:00:05:18	04/09/12 15:26:35	DNxHD 220x
3	SC2ATK3	1080i 29.97	01:01:11;02	00:02:35:09	04/09/12 15:29:13	DNxHD 220x
4	SC7ATK1	1080i 29.97	01:03:46;11	00:00:17:26	04/09/12 15:32:51	ProRes 422
5	SC7ATK2	1080i 29.97	01:04:04;09	00:00:48:03	04/09/12 15:33:41	ProRes 422
6	SC7ATK3	1080i 29.97	01:04:52;11	00:00:38:26	04/09/12 15:34:22	ProRes 422

You can cue up a clip quickly for review by simply double-clicking the clip in the list. Note that once you've double-clicked a clip to select it, it will be highlighted in blue in the list and the first frame of video from that clip will appear on the output of the Ki Pro Rack. To play back the clip, simply open the Transport page of the web UI and begin playback with the Play button. You can even quickly scan material by setting the Media>Play Media>All selection so that as you highlight clips for review, they will continue playing out of the Ki Pro Rack outputs.

## Creating a Playlist

In the Playlists portion of the web UI, there is a "+" symbol and a "-" symbol above the lists. The "+" symbol can be used to add a playlist. Simply click on this symbol and, when prompted, enter a name for the playlist you wish to create.

**Figure 23. Ki Pro Rack Web Interface, New Playlist**



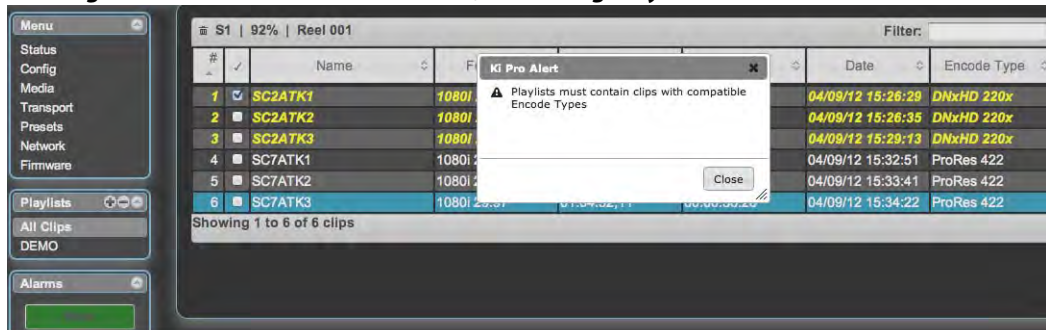
To add clips to a playlist, select a blue highlighted clip from the All Clips list and click and drag the clip onto the name of the playlist you created. Note that when you select a clip and click and drag it, a filmstrip icon will appear. If you do not see this icon, then you have not selected a clip. You can tell that a clip will be added to a playlist because the list you drag the clip to will be highlighted in green and the filmstrip icon will appear with a "+" symbol on the left side. When you release the mouse, the clip will be added to the playlist. You may select additional clips using the same method and add them to the playlist.

Note that if you attempt to add a non-matching encode type clip to a user created playlist, an alert prompt will appear. Playlists must contain clips with compatible encode types. In other words, once a playlist is created and contains an Apple ProRes 422 encoded clip, then all subsequent clips added to that playlist must use the Apple ProRes 422 encoding. If the first clips in the playlist are Avid DNXHD encoded, then all subsequent clips added to that playlist must use the Avid DNXHD encoding.

To move a number of clips to a playlist at once, use the column with the checkmark and tick the checkboxes of the clips prior to performing the click and drag to the list.

To review your playlist, click on the list in the Playlists area of the web UI.

**Figure 24. Ki Pro Rack Web Interface, Reviewing Playlist**

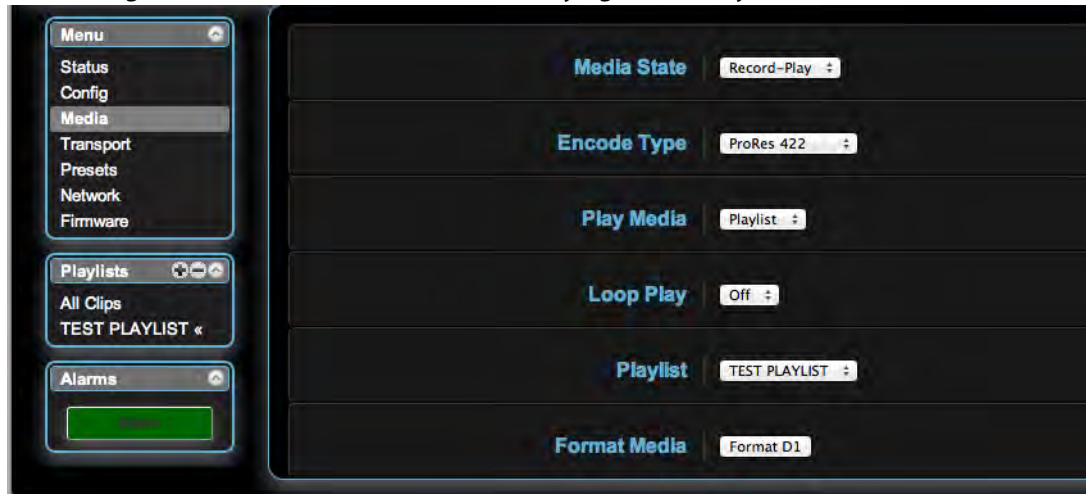


To reorder clips within a list, just click and drag them. You will notice that the clip is selected because the filmstrip icon will appear and you will know that a reorder is happening when you see the green highlight appear. **Important note:** a clip cannot be moved to the last position of the playlist. To move a clip to the last position in the playlist, move it to the next to last position in the list and move the last clip in the list above it.

You may create multiple playlists. Playlists are stored as a simple file on the Ki Pro Rack media alongside the clips.

**Playback of a Playlist** If you want to play a playlist you have created, first select Play Media>Playlist in the Media menu parameters. (**Note:** depending on whether you have been reviewing clips, you may first be prompted to "Press Stop" prior to entering the Media page to make Playlist selections; if this prompt appears, you will be led to the Transport page where you can depress stop and then enter the Media page.)

**Figure 25. Ki Pro Rack Web Interface, Playing Back a Playlist**



Select a playlist from the Playlist parameter in the Media menu. Once a playlist is selected, you will notice that a double arrow indication will appear next to the selected list in the Playlists portion of the web UI. If you go to the Transport portion of the web UI, you will now notice that the playlist is cued up, ready for playback of the first clip in the list. If you want to navigate within your list, you may use the fast forward and rewind buttons or the select up/down buttons. You can loop playback of a list using the Media menu parameters as well.

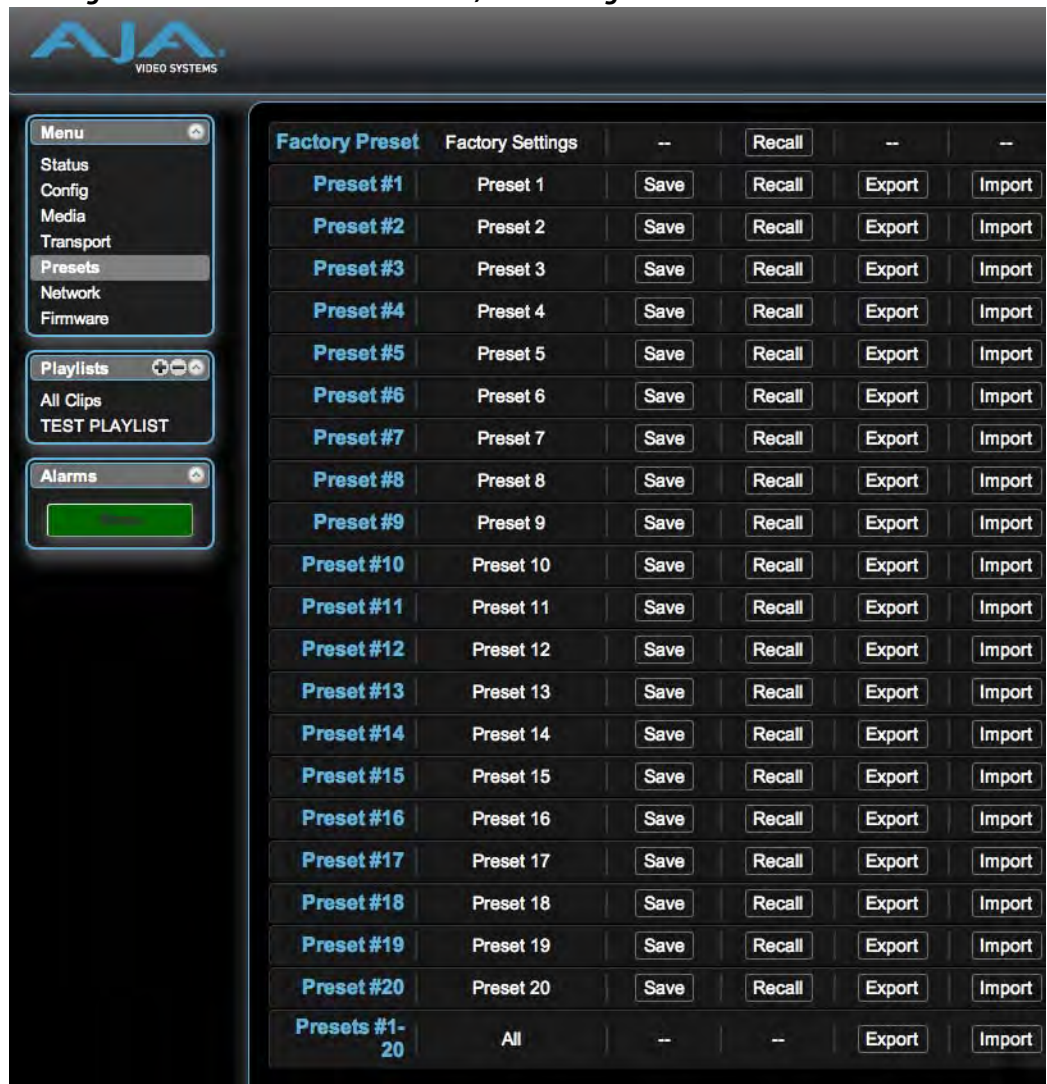
Management of the Playlists is made possible via the web UI; creation and management of playlists from the front panel is not supported. An indication of a selected playlist is presented on the front panel UI via menu parameter 15.3 Playlist. The selection of a playlist does not survive reboots of the unit, but the playlists that are created do survive reboots.

## Using Presets

Beginning with version 3.0 firmware, Ki Pro Rack offers a simple and efficient way to configure multiple parameters of the device from a preset. You can store a preset configuration and then recall that preset later to return Ki Pro Rack to the stored configuration.

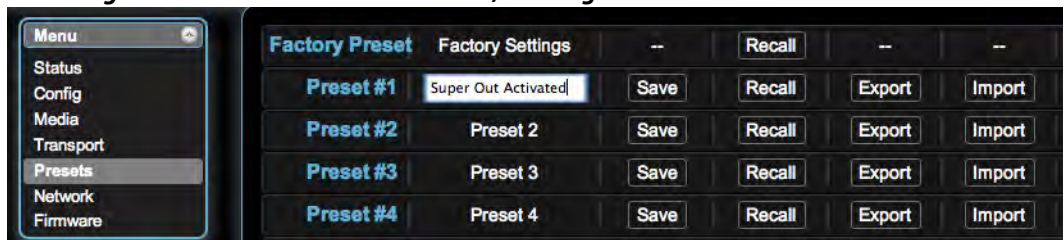
**Storing a Preset** The easiest way to work with presets is via the web UI. A Presets web UI page is provided where 20 customizable presets are offered.

**Figure 26. Ki Pro Rack Web Interface, Presets Page**



To customize presets, click on the second column of text fields and name the preset.

**Figure 27. Ki Pro Rack Web Interface, Naming a Preset**

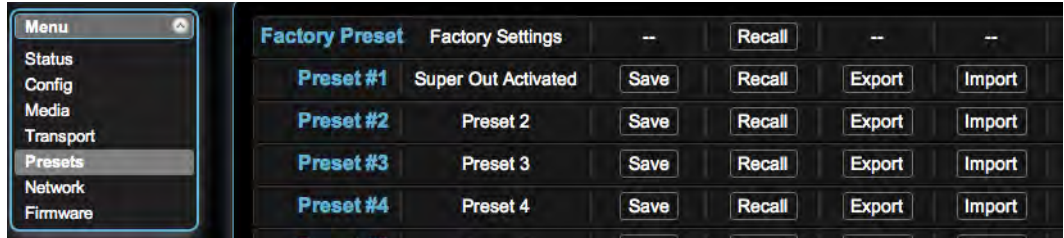


After you have entered a name for the preset, press Enter. The preset is not stored until you save it.

**IMPORTANT:** Be sure that you have made all of the parameter settings you want for a particular preset before you save it. By default, all parameters are stored and recalled.

**Recalling Presets** To recall a preset, select the Recall button in the row associated with the desired preset.

**Figure 28. Ki Pro Rack Web Interface, Recalling a Preset**



You can also export a preset file to your computer or import a preset file from your computer.

**NOTE:** AJA recommends that presets only be used between the same types of devices. In other words, only use presets from Ki Pro Racks with other Ki Pro Racks, not with Ki Pro Minis.

At any time you may perform a recall of the Factory Settings if you have presets enabled.

**IMPORTANT:** Presets do survive reboots of the device. If you want to be sure that your device does not have someone else's settings in place, you can perform a recall of Factory Settings prior to configuring and working with the Ki Pro Rack.

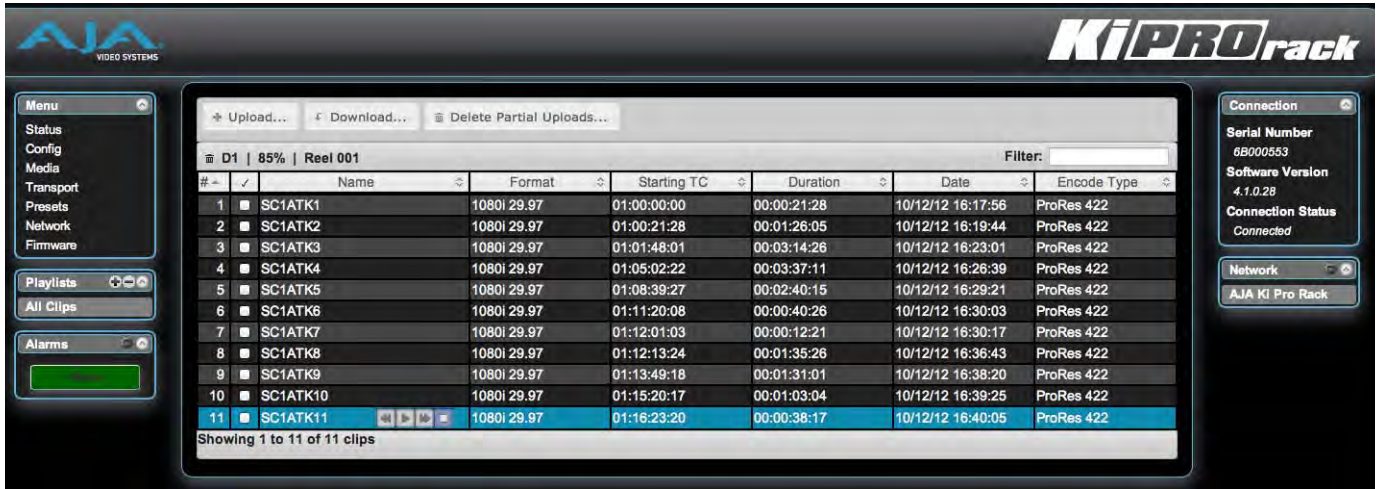
While the web UI is the preferred method of working with presets, they may also be saved and recalled from the front panel UI. *Important:* custom naming of presets is not possible from the front panel UI; presets will have their default names of "Preset 1," "Preset 2," etc. To recall a preset from the front panel UI, navigate to CONFIG menu parameter 91.1 Recall Preset. Use the ADJUST up/down buttons to select a preset. Use the SELECT up button to choose a specific preset and the ADJUST up button to recall the preset. To abort recalling a preset, press the select down button.

To save a preset, navigate to CONFIG menu parameter 92.1 Store Preset. Use the ADJUST up/down buttons to select a preset. Use the SELECT up button to choose a specific preset and the ADJUST up button to store the Preset. To abort recalling a preset, hit the select down button. *Hint:* in both CONFIG menu parameters 91.1 and 92.1, you can tell if you are navigating through the presets if you see the leading numeric characters flashing. Again, use the SELECT down button to exit these menu parameters.

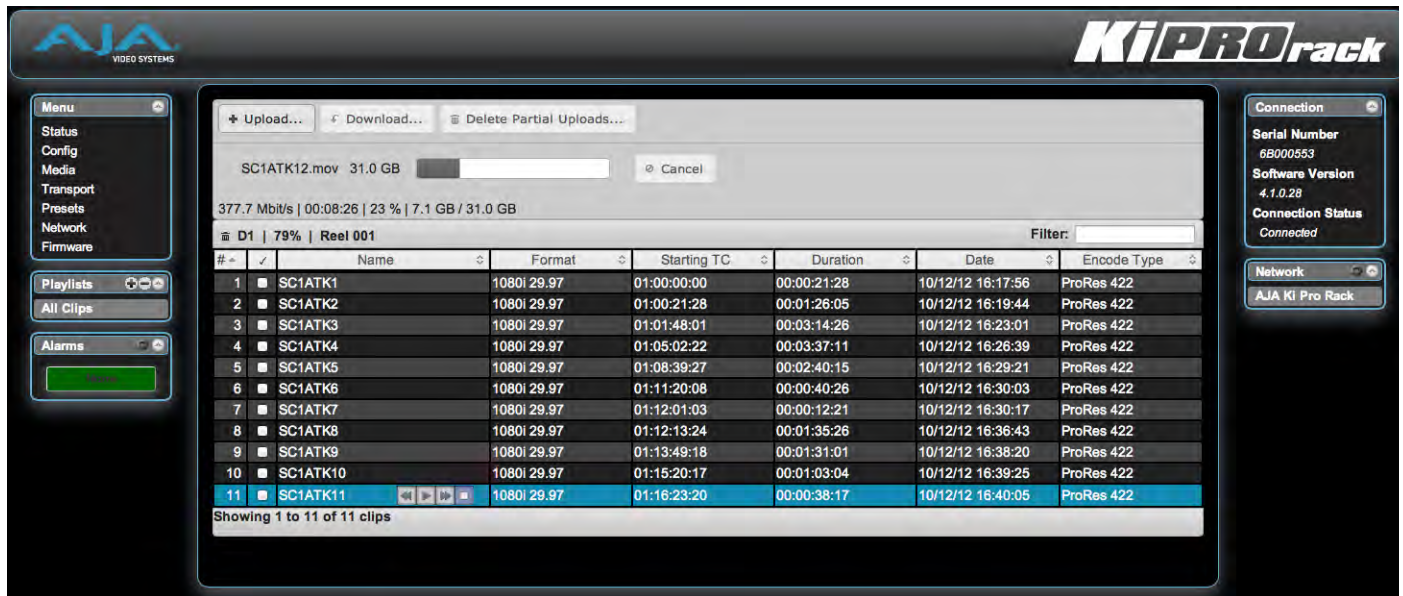
For ease-of-use, AJA strongly recommends using the web UI to work with presets; more options are also available when using the web UI.

## All Clips and Media State > Data-LAN

If the Ki Pro Rack is configured for Media State > Data-LAN, appropriately encoded QuickTime files may be uploaded to the Ki Pro Rack or downloaded from the Ki Pro Rack via the All Clips portion of the interface. (See [“Appropriately Encoded Clips” on page 87](#) for clip encoding requirements.)



During an upload, useful information about the upload is given: the name of the file being uploaded, the size of the file being uploaded, a progress bar and a cancel button. Additionally transfer speed information, remaining time to transfer and percentage of data transferred are shown.



Note that if an upload is cancelled or interrupted for any reason, the transfer may be resumed by simply selecting the clip that was transferring again and re-starting the transfer. If you have cancelled some uploads, you may regain the space that these partial uploads may occupy on them media by choosing the Delete Partial Uploads option.

To download a clip, select the Download option. Note that the file will be downloaded to the particular web browser's selected download location.

## **Appropriately Encoded Clips**

Appropriately encoded clips must have the following properties:

- A supported codec: Apple ProRes 422 (Proxy), Apple ProRes 422 (LT), Apple ProRes 422, Apple ProRes 422 (HQ), Avid DNxHD 220x, Avid DNxHD 145, or Avid DNxHD 36.
- A supported frame size: 1920x1080 for 1080 HD or 1280x720 for 720 HD or 720x486 for NTSC SD or 720x576 for PAL SD.
- A supported frame rate: 23.98, 24, 25 or 29.97 fps for 1080p material, 25 or 29.97 for 1080i material and 50 or 59.94 fps for 720p material.
- Proper interlace setting for interlaced material: for 59.94Hz regions, HD interlaced material will be top field first and SD interlaced material will be bottom field first. For 50Hz regions, HD and SD are both top field first if interlaced. *NOTE: DNxHD 36 only supports progressive.*
- Proper sound settings: Format > Linear PCM, Channels > Stereo (L R) or 2 Discrete Channels, Rate > 48.000 kHz, Sample size > 24 bits, and Little Endian.

# Appendix A: Specifications

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## Video

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### Video Inputs

- Digital:*
- 1 Channel, selectable input SD and HD-SDI (2xBNC), SMPTE-259/292/296 HDMI
- Analog:*
- SD/HD Component (3xBNCs): SMPTE/EBU N10, Betacam 525 line, Betacam 525J, YPbPr 12-bit A/D, 2x oversampling

### Video Outputs (all simultaneously active)

- Digital:*
- SD and HD-SDI, SMPTE-259/292/296 (1xBNC)
  - HDMI
- Analog:*
- Composite (1xBNC):
  - NTSC, NTSCJ, PAL 12-bit D/A, 8x oversampling
  - SD/HD Component (3xBNCs):
  - SD: SMPTE/EBU N10, Betacam 525 line, Betacam 525J, RGB, 12-bit D/A, 8x oversampling
  - HD: YPbPr, RGB, 12-bit D/A, 2x oversampling

## Audio

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### Audio Inputs

- Digital:*
- AES 24-bit, 8 channel, 48kHz (4xBNC)
  - SDI embedded audio, 24-bit, 8 channel, 48kHz
  - HDMI embedded, 2 channel
- Analog:*
- 24-bit A/D, 2 channel balanced (2 XLR), 48kHz
- Input level:*
- Line

### Audio Outputs

- Digital:*
- AES 24-bit, 8 channel, 48kHz (4xBNC)
  - SDI embedded audio, 24-bit, 8 channel, 48kHz
  - HDMI embedded, 2 channel
- Analog:*
- 24-bit D/A, 2 channel balanced XLR, 48kHz

## Network

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- 10/100/1000 Ethernet (RJ45)
- Embedded webserver for remote control



## Panel User Interface

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- 2 x 20 character display, with dedicated buttons

## Timecode

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- LTC timecode input and output via BNC
- SDI embedded RP188 timecode
- Onscreen timecode display on SDI 2 output

## Serial Port

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RS-422 (slave pinout), 9-pin (available beginning with version 2.0 firmware)—Connector pinout is as follows::

1	GND
2	TX -
3	RX +
4	GND
5	No Connection
6	GND
7	TX +
8	RX -
9	GND
Shell	GND

## Hardware Conversion

---

### Up-conversion - 10-bit

*Anamorphic:* Full-screen

*Pillar box 4:3:* Results in a 4:3 image in center of screen with black sidebars

*Zoom 14:9:* Results in a 4:3 image zoomed slightly to fill a 14:9 image with black side bars

*Zoom Letterbox:* Image zoomed to fill screen

*Zoom Wide:* Combination of zoom and horizontal stretch to fill 16:9 screen; this setting can introduce a small aspect ratio change

### Down-conversion - 10-bit

*Anamorphic:* Full-screen

*Letterbox:* Image is reduced with black top and bottom added to image area with the aspect ratio preserved

*Crop:* Image is cropped to fit new screen size

**Cross-conversion - 10-bit** 1080i to 720P  
720P to 1080i

## Physical

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*Height:* 1.75 inches (4.45 cm)

*Width:* 19 inches (48.26 cm)

*Depth:* 12.5 inches from front panel to back of deepest connector (37.74 cm)

*Operating Temperature Range:* 5° C to 40° C

*Safe Storage Temperature  
Range (power OFF):* -20° C to 60° C

## Power

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*Voltage:* 100-240 VAC 50/60 Hz

*Typical Operating Power:* 40W

# Appendix B: Safety and Compliance

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## Federal Communications Commission (FCC) Compliance Notices

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### Class B Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Canadian ICES Statement

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Canadian Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class B limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class B digital apparatus complies with Canadian ICES-003.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

# European Union and European Free Trade Association (EFTA) Regulatory Compliance

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This equipment may be operated in the countries that comprise the member countries of the European Union and the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHTENSTEIN, NORWAY, SWITZERLAND

## Declaration of Conformity

Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2004/108/EC.



This equipment meets the following conformance standards:

*Safety:* CB- IEC 60065:2001 + A1:2005  
NRTL - UL 60065:2003 R11.06, CSA C22.2 NO. 60065:2003 + A1:06  
GS - EN 60065:2002 + A1

Additional licenses issued for specific countries available on request.

*Emissions:* EN 55103-1: 2009  
EN 61000-3-2:2006 +A1:2009 +A2:2009, EN 61000-3-3:2008

*Immunity:* EN 55103-2: 2009  
EN 61000-4-2:2009, EN 61000-4-3:2006 +A1:2008, EN 61000-4-4:2004, EN 61000-4-5: 2005, EN 61000-4-6:2007, EN 61000-4-11:2004

The product is also licensed for additional country specific standards as required for the International Marketplace.



### **Warning!**

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

### **Achtung!**

Dieses ist ein Gerät der Funkstörgrenzwertklasse B. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

### **Attention!**

Ceci est un produit de Classe B. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

## Korea KCC Compliance Statement

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A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
Class A (Broadcasting Communication Equipment for Office Use)	As an electromagnetic wave equipment for office use (Class A), this equipment is intended to use in other than home area. Sellers or users need to take note of this.

## Taiwan Compliance Statement

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警告使用者：  
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class B product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class B.

## Japanese Compliance Statement

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### 2. Class B ITE

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

This is a Class B product based on the standard of the VCCI Council. If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

## Chinese Compliance Statement

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This product has been tested to the following Chinese standards:

GB13837-2003, GB8898-2011, and GB17625.1-2003

This product meets the requirements of implementation rules for compulsory certification (REF NO. CNCA-01C-17:2010) under certificate number 2012010805558398.

# Translated Caution Statements, Warning Conventions and Warning Messages

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The following caution statements, warning conventions, and warning messages apply to this product and manual.



Warning Symbol



Hazard Symbol



Caution Symbol

## Before Operation Please Read these Instructions

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	<p><b>Warning!</b> Read and follow all warning notices and instructions marked on the product or included in the documentation.</p> <p><b>Avertissement !</b> Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.</p> <p><b>Warnung!</b> Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.</p> <p><b>¡Advertencia!</b> Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.</p> <p><b>Aviso!</b> Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.</p> <p><b>Avviso!</b> Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.</p>
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	<p><b>Warning!</b> Do not use this device near water and clean only with a dry cloth.</p> <p><b>Avertissement!</b> N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec..</p> <p><b>Warnung!</b> Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.</p> <p><b>¡Advertencia!</b> No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.</p> <p><b>Aviso!</b> Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.</p> <p><b>Avviso!</b> Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.</p>
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**Warning!**

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

**Avertissement !** Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

**Warnung!** Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

**¡Advertencia!** No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

**Aviso!** Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

**Avviso!** Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.

**Warning!**

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

**Avertissement !** N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

**Warnung!** Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

**¡Advertencia!** No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

**Aviso!** Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

**Avviso!** Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore.

**Warning!**

Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

**Avertissement !** Référez-vous au personnel de service qualifié pour tout entretien. L'entretien est exigé quand l'appareil a été endommagé de quelque manière que ce soit, par exemple lorsque le cordon d'alimentation ou la prise sont endommagés, que du liquide a été versé ou des objets sont tombés dans l'appareil, que l'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.


**Warnung!** Das Gerät sollte nur von qualifizierten Fachkräften gewartet werden. Eine Wartung ist fällig, wenn das Gerät in irgendeiner Weise beschädigt wurde, wie bei beschädigtem Netzkabel oder Netzstecker, falls Flüssigkeiten oder Objekte in das Gerät gelangen, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.


**¡Advertencia!** Consulte al personal calificado por cuestiones de reparación. El servicio de reparación se requiere cuando el dispositivo ha recibido cualquier tipo de daño, por ejemplo cable o espigas dañadas, se ha derramado líquido o se han caído objetos dentro del dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, o no funciona de modo normal, o se ha caído.

**Aviso!** Remeta todos os serviços de manutenção para o pessoal de assistência qualificado. A prestação de serviços de manutenção é exigida quando o dispositivo foi danificado mediante qualquer forma, como um cabo de alimentação ou ficha que se encontra danificado/a, quando foi derramado líquido ou caíram objectos sobre o dispositivo, quando o dispositivo foi exposto à chuva ou à humidade, quando não funciona normalmente ou quando foi deixado cair.

**Avviso!** Fare riferimento al personale qualificato per tutti gli interventi di assistenza. L'assistenza è necessaria quando il dispositivo è stato danneggiato in qualche modo, ad esempio se il cavo di alimentazione o la spina sono danneggiati, è stato rovesciato del liquido è stato rovesciato o qualche oggetto è caduto nel dispositivo, il dispositivo è stato esposto a pioggia o umidità, non funziona correttamente o è caduto.



	<p><b>Caution!</b> This device is a Class B product. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.</p> <p><b>Attention!</b> Le périphérique est un produit de Classe B. Le fonctionnement de cet équipement dans une zone résidentielle risque de causer des interférences nuisibles, auquel cas l'utilisateur devra y remédier à ses propres frais.</p> <p><b>Achtung!</b> Dies ist ein Gerät der Klasse B. Bei Einsatz des Geräts in Wohngebieten kann es Störungen des Radio- und Fernsehempfangs verursachen. In diesem Fall muss der Benutzer alle notwendigen Maßnahmen ergreifen, die möglicherweise nötig sind, um die Störungen auf eigene Rechnung zu beheben.</p> <p><b>¡Precaución!</b> Este es un producto clase B. El uso de este equipo en áreas residenciales puede causar interferencias nocivas, en cuyo caso, se requerirá que los usuarios tomen cualquier medida necesaria para corregir la interferencia por cuenta propia.</p> <p><b>Cuidado!</b> Este dispositivo é um produto Classe B. Operar este equipamento em uma área residencial provavelmente causará interferência prejudicial; neste caso, espera-se que os usuários tomem as medidas necessárias para corrigir a interferência por sua própria conta.</p> <p><b>Attenzione!</b> Questo dispositivo è un prodotto di Classe B. Il funzionamento di questo apparecchio in aree residenziali potrebbe causare interferenze dannose, nel cui caso agli utenti verrà richiesto di adottare tutte le misure necessarie per porre rimedio alle interferenze a proprie spese.</p>
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	<p><b>Warning!</b> Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.</p> <p><b>Avertissement!</b> Retirez le ou les cordons d'alimentation en CA de la source d'alimentation principale lorsque vous déplacez l'appareil.</p> <p><b>Warnung!</b> Trennen Sie die Wechselstrom-Versorgungskabel vom Netzstrom, bevor Sie das Gerät verschieben.</p> <p><b>¡Advertencia!</b> Cuando mueva la unidad desenchufe de la red eléctrica el/los cable(s) de la fuente de alimentación CA tipo brick.</p> <p><b>Advertência!</b> Remova os cabos CA de alimentação brick da rede elétrica ao mover a unidade.</p> <p><b>Avvertenza!</b> Scollegare il cavo dell'alimentatore quando si sposta l'unità.</p>
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**Hazard Warning!**

High Voltage. This situation or condition can cause injury due to electric shock.

**Avertissement!** Tension élevée. Cette situation ou condition peut causer des blessures dues à un choc électrique.

**Warnung!** Hochspannung. Diese Situation oder Bedingung kann zu Verletzungen durch Stromschlag führen.

**¡Advertencia!** Alto voltaje . Esta situación o condición puede causar lesiones debidas a una descarga eléctrica.

**Aviso!** Alta Tensão . Esta situação ou condição pode causar danos devido a choques elétricos.

**Avviso!** Alta tensione. Questa situazione o condizione può causare lesioni a causa di scosse elettriche.

**Warning!**

Only use attachments and accessories specified and/or sold by the manufacturer.

**Avertissement!** Utilisez seulement les attaches et accessoires spécifiés et/ou vendus par le fabricant.

**Warnung!** Verwenden Sie nur Zusatzgeräte und Zubehör angegeben und / oder verkauft wurde durch den Hersteller.

**¡Advertencia!** Utilice solamente los accesorios y conexiones especificados y/o vendidos por el fabricante.

**Aviso!** Utilize apenas equipamentos/acessórios especificados e/ou vendidos pelo fabricante.

**Avviso!** Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore.

**Warning!**

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

**Avertissement!** La sécurité de la prise polarisée ou de la prise de type mise à la terre ne doit en aucun cas être empêchée de fonctionner. Une prise polarisée a deux broches, l'une étant plus large que l'autre. Une prise de type mise à la terre a deux broches et une troisième broche pour la mise à la terre. La broche large ou la troisième broche sont fournies pour votre sécurité. Si la prise fournie ne s'insère pas dans votre prise femelle, consultez un électricien pour le remplacement de la prise femelle obsolète.

**Warnung!** Der Sicherheitszweck des gepolten bzw. Schukosteckers ist zu berücksichtigen. Ein gepolter Stecker verfügt über zwei Pole, von denen einer breiter als der andere ist. Ein Schukostecker verfügt neben den zwei Polen noch über einen dritten Pol zur Erdung. Der breite Pol bzw. der Erdungspol dienen der Sicherheit. Wenn der zur Verfügung gestellte Stecker nicht in Ihren Anschluss passt, konsultieren Sie einen Elektriker, um den veralteten Anschluss zu ersetzen.

**¡Advertencia!** No eche por tierra la finalidad del tipo de enchufe polarizado con conexión a tierra. Un enchufe polarizado tiene dos espigas, una más ancha que la otra. Un enchufe con conexión a tierra tiene dos espigas iguales y una tercera espiga que sirve para la conexión a tierra. La espiga ancha, o la tercera espiga, sirven para su seguridad. Si el enchufe suministrado no encaja en el tomacorriente, consulte con un electricista para reemplazar el tomacorriente obsoleto.

**Aviso!** Não anule a finalidade da segurança da ficha polarizada ou do tipo ligação terra. Uma ficha polarizada tem duas lâminas sendo uma mais larga do que a outra. Uma ficha do tipo de ligação à terra tem duas lâminas e um terceiro terminal de ligação à terra. A lâmina larga ou o terceiro terminal são fornecidos para sua segurança. Se a ficha fornecida não couber na sua tomada, consulte um electricista para a substituição da tomada obsoleta.

**Avviso!** Non compromettere la sicurezza della spina polarizzata o con messa a terra. Una spina polarizzata ha due spinotti, di cui uno più largo. Una spina con messa a terra ha due spinotti e un terzo polo per la messa a terra. Lo spinotto largo o il terzo polo sono forniti per motivi di sicurezza. Se la spina fornita non si inserisce nella presa di corrente, contattare un elettricista per la sostituzione della presa obsoleta.

**Warning!**

Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

**Avertissement!** Puisque la prise principale est utilisée pour débrancher l'appareil, elle doit rester aisément accessible et fonctionnelle.

**Warnung!** Da der Netzstecker als Trennvorrichtung dient, muss er stets zugänglich und funktionsfähig sein.

**¡Advertencia!** Puesto que el enchufe de la red eléctrica se utiliza como dispositivo de desconexión, debe seguir siendo fácilmente accesible y operable.

**Aviso!** Dado que a ficha principal é utilizada como a desconexão para o dispositivo, esta deve manter-se prontamente acessível e funcional.

**Avviso!** Poiché il cavo di alimentazione viene usato come dispositivo di sconnessione, deve rimanere prontamente accessibile e operabile.

**Warning!**

Unplug this device during lightning storms or when unused for long periods of time.

**Avertissement!** Débranchez cet appareil pendant les orages avec éclairs ou s'il est inutilisé pendant de longues périodes.

**Warnung!** Das Gerät ist bei Gewitterstürmen oder wenn es über lange Zeiträume ungenutzt bleibt vom Netz zu trennen.

**¡Advertencia!** Desenchufe este dispositivo durante tormentas eléctricas o cuando no se lo utilice por largos periodos del tiempo.

**Aviso!** Desconecte este dispositivo da tomada durante trovoadas ou quando não é utilizado durante longos períodos de tempo.

**Avviso!** Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore, quali il treppiedi e l'esoscheletro.

**Warning!**

Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

**Avertissement!** Ne pas ouvrir le châssis. Aucun élément à l'intérieur du châssis ne peut être réparé par l'utilisateur. La garantie sera annulée si le châssis est ouvert par toute autre personne qu'un technicien d'un centre de service ou d'un établissement agréé AJA.

**Warnung!** Öffnen Sie das Gehäuse nicht. Keine der Geräteteile können vom Benutzer gewartet werden. Durch das Öffnen des Gehäuses wird die Garantie hinfällig, es sei denn, solche Wartungsarbeiten werden in einem AJA-Service-Center oder einem lizenzierten Betrieb vorgenommen.

**¡Advertencia!** No abra el chasis. El interior no contiene piezas reparables por el usuario. El abrir el chasis anulará la garantía a menos que se lo haga en un centro de servicio AJA o en un local autorizado.

**Advertência!** Não abra o chassi. Não há internamente nenhuma peça que permita manutenção pelo usuário. Abrir o chassi anula a garantia, a menos que a abertura seja realizada por uma central de serviços da AJA ou por um local autorizado.

**Avvertenza!** Non aprire lo chassis. All'interno non ci sono parti riparabili dall'utente. L'apertura dello chassis invaliderà la garanzia se non viene effettuata da un centro ufficiale o autorizzato AJA.

**Warning!**

The AJA Ki Pro Rack contains a lithium battery soldered in place permanently (it is not user replaceable). If you ever dispose of the Ki Pro, ensure you follow local regulations for safe disposal.

The lithium battery shall not be exposed to excessive heat, such as sunshine or fire.

**Avertissement!** Le bâti AJA Ki Pro contient une pile au lithium soudée en place de façon permanente (non remplaçable par l'utilisateur). Si vous souhaitez vous défaire du Ki Pro, assurez-vous de respecter les réglementations locales en matière d'élimination.

La pile au lithium ne doit pas être exposée à une chaleur excessive, par exemple la lumière du soleil ou un incendie.

**Warnung!** Das AJA Ki Pro Rack enthält eine Lithiumbatterie, die permanent angelötet ist (kann nicht vom Benutzer ausgetauscht werden). Stellen Sie bei der Entsorgung des Ki Pro sicher, dass Sie die örtlichen Vorschriften für eine sichere Entsorgung einhalten.

Die Lithiumbatterie darf keiner übermäßigen Hitze wie Sonne oder Feuer ausgesetzt werden.

**¡Advertencia!** Ki Pro Rack de AJA cuenta con una batería de litio soldada de manera permanente (no la puede reemplazar el usuario). Si alguna vez desecha desecha Ki Pro, asegúrese de seguir las reglas locales para desecho seguro.

La batería de litio no debe estar expuesta a calor excesivo como, por ejemplo, la luz solar o las llamas.

**Aviso!** O suporte do AJA Ki Pro contém uma bateria de lítio soldada permanentemente no local (não é substituível pelo usuário). Caso queira descartar o Ki Pro, você deverá seguir as regulamentações locais para um descarte seguro.

A bateria de lítio não deve ser exposta ao calor excessivo, como sol ou fogo.

**Avviso!** Il rack AJA Ki Pro contiene una batteria al litio saldata in posizione permanentemente (non è sostituibile dall'utente). Se si smaltisce il Ki Pro, accertarsi di rispettare le normative locali per lo smaltimento sicuro.

La batteria al litio non va esposta al calore eccessivo, ad esempio la luce solare o il fuoco.

**Warning!**

Not using the SLOT button to unmount the media can lead to issues with the media if the media is removed prior to this action.

**Avertissement!** La non-utilisation du bouton SLOT pour retirer le support d'enregistrement peut entraîner des problèmes avec le support d'enregistrement si celui-ci est retiré avant cette action.

**Warnung!** Wenn der Datenträger ohne vorheriges Drücken der SLOT-Taste entnommen wird, können Probleme mit dem Datenträger auftreten.

**¡Advertencia!** No utilizar el botón SLOT para desmontar la media puede acarrear problemas si la media se saca antes de esta acción.

**Aviso!** Não utilizar o botão SLOT para ejetar a mídia pode causar problemas com a mídia caso a mesma seja removida antes desta ação.

**Avviso!** Il mancato utilizzo del pulsante SLOT per la disinstallazione del supporto può comportare problemi con il supporto se quest'ultimo è rimosso prima di tale azione.

**Warning!**

Removing any media with the slot LED lit, or while flashing, can result in corrupted media or potential damage to the media.

**Avertissement !** Le retrait d'un support d'enregistrement alors que la DEL de la fente est allumée ou clignote, peut entraîner l'altération du support d'enregistrement ou un dommage potentiel à celui-ci.


**Warnung!** Wenn ein Datenträger entfernt wird, während die Steckplatz-LED leuchtet oder blinkt, kann dies zu Datenfehlern oder Beschädigung des Datenträgers führen.

**¡Advertencia!** Extraer cualquier media con la lucecita LED de la ranura encendida, o mientras parpadea, puede corromper o producir daños potenciales a la media.


**Aviso!** A remoção de qualquer mídia com o LED de slot aceso ou piscante pode resultar em mídia corrompida ou possíveis danos à mídia.

**Avviso!** La rimozione di qualsiasi supporto con il LED della scanalatura illuminato o lampeggiante può comportare problemi di riconoscimento del supporto o potenziali danni allo stesso.

The following warning is redundant to the one two above. Suggest remove

	<p><b>Warning!</b> Not using the SLOT button to unmount media before removal can cause problems with the files stored on that media.</p> <p><b>Avertissement !</b> La non-utilisation du bouton SLOT pour démonter un support d'enregistrement avant son retrait peut entraîner des problèmes avec les fichiers stockés sur ce support.</p> <p><b>Warnung!</b> Wenn der Datenträger ohne vorheriges Drücken der SLOT-Taste entnommen wird, können Probleme mit den auf diesem Datenträger gespeicherten Dateien auftreten.</p> <p><b>¡Advertencia!</b> No utilizar el botón SLOT para desmontar la media antes de sacarla puede causar problemas con los archivos almacenados en ella.</p> <p><b>Aviso!</b> A não utilização do botão SLOT para ejetar a mídia antes da remoção pode causar problemas nos arquivos armazenados naquela mídia.</p> <p><b>Avviso!</b> Il mancato utilizzo del pulsante SLOT per la disinstallazione del supporto prima della rimozione può causare problemi con i file memorizzati su tale supporto.</p>
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Yet another redundant message below. Why are there four???

	<p><b>Warning!</b> Failure to properly mount or dismount media, or an unexpected loss of power while recording, can result in an unrecoverable data loss.</p> <p><b>Avertissement !</b> La mauvaise installation ou retrait d'un support d'enregistrement, ou une panne inattendue d'alimentation pendant un enregistrement peut entraîner une perte irrémédiable des données.</p> <p><b>Warnung!</b> Wenn der Datenträger nicht korrekt eingelegt oder entnommen wird oder während der Aufzeichnung die Stromzufuhr unterbrochen wird, kann es zu unwiderruflichem Datenverlust kommen.</p> <p><b>¡Advertencia!</b> El hecho de no montar o desmontar la media de manera correcta, o una pérdida inesperada de energía mientras se está grabando puede dar como resultado una pérdida irreparable de datos.</p> <p><b>Aviso!</b> A colocação ou remoção incorretas da mídia, ou falta inesperada de energia durante a gravação poderão resultar em uma perda irreparável de dados.</p> <p><b>Avviso!</b> La mancata installazione o disinstallazione del supporto nella maniera corretta, oppure una perdita imprevista di alimentazione durante la registrazione, possono causare una perdita irreparabile dei dati.</p>
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**Warning!**

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

**Avertissement!** Protégez le cordon d'alimentation pour que l'on ne marche pas dessus ou qu'on le pince, en particulier au niveau des prises mâles, des réceptacles de convenance, et à l'endroit où il sort de l'appareil.

**Warnung!** Vermeiden Sie, dass auf das Netzkabel getreten oder das Kabel geknickt wird, insbesondere an den Steckern, den Steckdosen und am Kabelausgang am Gerät.

**¡Advertencia!** Proteja el cable de energía para que no se le pise ni apriete, en especial cerca del enchufe, los receptáculos de conveniencia y el punto del que salen del equipo.

**Aviso!** Proteja o cabo de alimentação de ser pisado ou de ser comprimido particularmente nas fichas, em tomadas de parede de conveniência e no ponto de onde sai do dispositivo.

**Avviso!** Proteggere il cavo di alimentazione in modo che nessuno ci cammini sopra e che non venga schiacciato soprattutto in corrispondenza delle spine e del punto in cui esce dal dispositivo.

**Warning!**

AJA recommends you only update the Ki Pro when on mains power, or with a fully charged battery.

**Avertissement !** AJA vous recommande de mettre à jour le Ki Pro uniquement lorsqu'il est raccordé au secteur ou que sa pile a une pleine charge.


**Warnung!** AJA empfiehlt, den Ki Pro nur zu aktualisieren, während das Gerät am Netzstrom angeschlossen ist oder wenn der Akku voll aufgeladen ist.

**¡Advertencia!** AJA le recomienda actualizar el Ki Pro solamente cuando esté conectado con el cable de alimentación eléctrica o cuando tenga la batería totalmente cargada.

**Aviso!** AJA recomenda atualizar o Ki Pro somente quando o mesmo estiver conectado à rede elétrica ou com a bateria completamente carregada

**Avviso!** AJA consiglia di aggiornare il Ki Pro solo quando è collegato all'alimentazione di rete, oppure con una batteria completamente carica.

The warning below has no meaning out of context (what is "this parameter?". Suggest remove.

	<p><b>Warning!</b> Selecting this parameter and recalling factory defaults will overwrite the current settings (with the exception of network settings, which are retained).</p> <p><b>Avertissement !</b> La sélection de ce paramètre et le rappel des paramètres par défaut définis en usine remplaceront les paramètres actuels (à l'exception des paramètres de réseau qui seront conservés).</p> <p><b>Warnung!</b> Durch die Auswahl dieses Parameters oder durch das Zurücksetzen auf die Werkeinstellungen werden die aktuellen Einstellungen überschrieben (mit Ausnahme der Netzwerkeinstellungen, die beibehalten werden).</p> <p><b>¡Advertencia!</b> Al seleccionar este parámetro y recuperar los valores de fábrica, se sobrescribirán a los valores actuales (con la excepción de la configuración de red, que se conserva).</p> <p><b>Aviso!</b> Selecionar este parâmetro e restaurar as configurações padrão de fábrica substituirá as configurações atuais (exceto as configurações de rede, as quais são mantidas).</p> <p><b>Avviso!</b> La selezione di questo parametro e il richiamo dei valori predefiniti di fabbrica sovrascrivono le impostazioni attuali (con l'eccezione delle impostazioni di rete, che sono mantenute).</p>
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### **Warning!**

If a custom clip name is not changed and the "Custom Clip Take" parameter is not enabled, an existing clip can be overwritten on the disk. Example: the first recording made is called "Flying" and the "Custom Clip Take" parameter is not enabled; additionally, the user does not enter a new value for the custom clip name and leaves "Flying" entered. As a result, the first recording will be overwritten by the second recording. AJA does not typically recommend disabling the use of the custom clip take, but in some situations, overwriting an existing file may be desirable.

**Avertissement !** Si le nom d'un clip vidéo personnalisé n'est pas modifié et que le paramètre " Custom Clip Take " (prise de clip personnalisé) n'est pas activé, un clip existant peut être écrasé sur le disque. Exemple : le premier enregistrement effectué s'appelle " Flying " et le paramètre " Custom Clip Take " est désactivé ; en outre, l'utilisateur ne saisit aucune nouvelle valeur pour le nom du clip personnalisé et laisse le nom " Flying " déjà saisi. Le premier enregistrement sera donc remplacé par le second enregistrement. AJA ne recommande pas généralement l'utilisation de la prise d'un clip personnalisé, mais dans certains cas, le remplacement d'un fichier existant pourra être voulu.

**Warnung!** Wenn ein benutzerdefinierter Clipname nicht geändert wird und der Parameter "Custom Clip Take" nicht aktiviert ist, kann ein vorhandener Clip auf dem Datenträger überschrieben werden. Beispiel: Die erste Aufnahme hat den Namen "Fliegen" und der Parameter "Custom Clip Take" ist nicht aktiviert. Der Benutzer gibt darüber hinaus keinen neuen Wert für den benutzerdefinierten Clipnamen ein und behält "Fliegen" bei. In der Folge wird die erste Aufnahme durch die zweite Aufnahme überschrieben. AJA empfiehlt normalerweise nicht, die Verwendung der benutzerdefinierten Clipaufzeichnung zu deaktivieren, aber in einigen Fällen ist das Überschreiben einer vorhandenen Datei möglicherweise wünschenswert.

**¡Advertencia!** Si no se personaliza el nombre del clip y el parámetro "Custom Clip Take" no está habilitado, se puede sobrescribir un clip existente en el disco. Ejemplo: la primera grabación realizada se llama "Flying" y el parámetro de la "Custom Clip Take" no está habilitado; además, el usuario no ingresa un nuevo valor para el nombre del clip personalizado y deja ingresado "Flying". Como resultado, la primera grabación será sobrescrita por la segunda grabación. AJA no suele recomendar deshabilitar el uso de la toma de clip a personalizada, pero en algunas situaciones, puede ser recomendable sobrescribir un archivo existente.

**Aviso!** Se o nome de um clipe personalizado não for modificado e o parâmetro "Custom Clip Take" não estiver habilitado, um clipe existente poderá ser substituído no disco. Exemplo: O nome da primeira gravação é "Flying" e o parâmetro "Custom Clip Take" não está habilitado; além disso, o usuário não insere um novo valor para o nome do clipe personalizado e deixa o nome "Flying" inserido na primeira gravação. Como resultado, a primeira gravação será substituída pela segunda gravação. Em geral, a AJA não recomenda desabilitar o uso do custom clip take, entretanto, em algumas situações, a substituição de um arquivo existente pode ser desejável.

**Avviso!** Se il nome di una clip personalizzata non è cambiato e il parametro "Custom Clip Take" non è abilitato, una clip esistente può essere sovrascritta sul disco. Esempio: la prima registrazione eseguita si chiama "Flying" e il parametro "Custom Clip Take" non è abilitato; inoltre, l'utente non inserisce un nuovo valore per il nome personalizzato della clip e lascia "Flying" inserito. Di conseguenza, la prima registrazione è sovrascritta dalla seconda. AJA di solito non consiglia la disabilitazione dell'utilizzo della presa personalizzata a clip ma, in alcune situazioni, la sovrascrittura di un file esistente può essere desiderabile.

# Warranty and Liability Information

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## Limited Warranty

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AJA Video warrants that the product, not including hard-disk based Storage Modules (HDD), will be free from defects in materials and workmanship for a period of three years from the date of purchase. AJA Video warrants that the hard-disk based Storage Modules (HDD), will be free from defects in materials and workmanship for a period of one year from the date of purchase. If a product proves to be defective during this warranty period, AJA Video, at its option, will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

To obtain service under this warranty, the Customer must notify AJA Video of the defect before expiration of the warranty period and make suitable arrangements for the performance of service by contacting AJA Video support through the channels set forth on the support contacts web page at <http://www.aja.com/support/index.php>. Except as stated, the Customer shall bear all shipping, packing, insurance and other costs, excluding parts and labor, to effectuate repair. Customer shall pack and ship the defective product to a service center designated by AJA Video, with shipping charges prepaid. AJA Video shall pay to return the product to Customer but only if to a location within the country in which the AJA Video service center is located.

This warranty shall not apply to any defect, failure or damage caused by negligent, inadequate or improper use, handling or maintenance. Without limiting the foregoing, AJA Video shall not be obligated to furnish service under this warranty or repair any damage or malfunction a) resulting from attempts by personnel other than AJA Video representatives to install, repair or service the product, b) resulting from improper use or connection to incompatible equipment, c) caused by the use of non-AJA Video parts or supplies, d) if the product has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product, or (e) resulting from being dropped or otherwise subjected to undue force, exposure to moisture or other corrosive or conductive substances, exposure to strong magnetic fields, use with improperly regulated power supplies, exposure to electric shock, use in temperatures outside the specified operating range, or otherwise failing to treat the product in accordance with the standard of care appropriate to sensitive and delicate electronic equipment.

EXCEPT AS STATED ABOVE, AJA VIDEO AND ITS VENDORS DISCLAIM IN THEIR ENTIRETY ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AJA VIDEO'S RESPONSIBILITY TO REPAIR OR REPLACE TIMELY REPORTED DEFECTIVE PRODUCTS IS THE WHOLE AND EXCLUSIVE REMEDY CUSTOMER IS PROVIDED.

THE PRODUCT IS NOT INTENDED, STATED, OR WARRANTED TO OPERATE UNINTERRUPTED OR ERROR-FREE. YOU UNDERSTAND AND ACKNOWLEDGE THAT THE PRODUCT IS NOT INTENDED TO BE USED AS THE SOLE OR PRIMARY DATA SOURCE OR TARGET FOR CRITICAL DATA, AND THAT IT IS YOUR RESPONSIBILITY TO IMPLEMENT REDUNDANT CAPTURE AND BACKUP SYSTEMS AS APPROPRIATE.

## Limitation of Liability

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UNDER NO CIRCUMSTANCES SHALL AJA VIDEO BE LIABLE IN ANY WAY FOR ANY LOST, CORRUPTED OR DESTROYED DATA, FOOTAGE OR WORK, OR FOR ANY OTHER INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR ANY THIRD PARTY CLAIM, IN CONNECTION WITH THE PRODUCT, WHETHER RESULTING FROM DEFECTS IN THE PRODUCT, SOFTWARE OR HARDWARE FAILURE, OR ANY OTHER CAUSE WHATSOEVER, EVEN IF AJA VIDEO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. AJA VIDEO'S LIABILITY IN CONNECTION WITH THIS PRODUCT SHALL UNDER NO CIRCUMSTANCES EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCT.

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