

# Ki Pro Ultra

## File Based Recorder/Player



## Installation and Operation Guide

Version 3.0  
Published April 25, 2018



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Telephone	+1.530.271.3190
FAX	+1.530.271.3140
Web	<a href="https://www.aja.com">https://www.aja.com</a>
Support Email	<a href="mailto:support@aja.com">support@aja.com</a>
Sales Email	<a href="mailto:sales@aja.com">sales@aja.com</a>

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# Chapter 1 – Introduction

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## Overview

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Ki Pro Ultra is a 4K/UltraHD/2K/HD file-based video recorder and player, supporting the latest connectivity and large raster high-framerate workflows, including 4K 60p. Both Square Division and Two Sample Interleave (2SI) formats for 4K and UltraHD are supported.

3G-SDI, Fiber and HDMI digital video connectivity and a wealth of analog and digital audio connectivity answers any project's demand for efficient, powerful and flexible workflows. Designed to be either portable or rack-mountable with half-rack wide, 2RU high dimensions, it's well suited for use in studio/truck environments in addition to on-set and even digital signage applications. The Ki Pro Ultra answers the growing demand for 4K and UltraHD capable recorder products with full support for current HD projects.

Ki Pro Ultra enables manageable large-raster workflows, supporting a broad range of video formats and framerates recorded directly to AJA's proven and reliable Pak Media, offering the lowest cost per GB available today.

With its extensive analog and digital connectivity, virtually any video and audio source can feed into Ki Pro Ultra, which allows you to record in the format you want to edit and deliver.

Internally, Ki Pro Ultra natively supports the Apple ProRes or Avid DNxHD/DNxHR codecs in hardware, allowing realtime capture. In fact, while the camera is recording to its own tape or file-based memory, Ki Pro Ultra can simultaneously capture the media as ProRes or DNxHD/DNxHR 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.

Smooth slow motion playback can be obtained easily with full control via the RS-422 serial connection or through the simple and intuitive on-unit menu system.

Menus and images are beautifully rendered on a new high resolution LCD display enabling detailed playback and monitoring in all environments. Ki Pro Ultra—the ultimate next-generation digital recorder and player.

## Features

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Ki Pro Ultra offers many unique features for optimum quality, ease of use, and support for a wide variety of workflows and environments. Ki Pro Ultra provides flexible HD/2K/UltraHD/4K recording, for versatile operation in mixed format environments, with a very small form factor and solid state storage.

## Ki Protect

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Ki Pro Ultra includes Ki Protect, a feature that helps to ensure data integrity if a media drive is accidentally removed or loses power during recording. The Ki Protect feature automatically pre-allocates recording space on the media drive for video, audio and timecode when the record button is pressed. Whilst recording, the file header is then continuously updated every time new data is written. That way, the only loss that should be incurred is the last few frames that were in transit to the media drive to be recorded when the operation was interrupted. Frames that are already recorded will be preserved and are recoverable, providing greater piece-of-mind on set and in the studio.

## Hardware

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- Apple ProRes 444, Apple ProRes 422, Apple ProRes 422 (HQ), Apple ProRes 422 (LT), and Apple ProRes 422 (Proxy)—4K/UltraHD, 2K, HD implemented in hardware
- Avid DNxHR HQX, Avid DNxHR SQ, and Avid DNxHR LB—implemented in hardware
- Avid DNxHD HQX, Avid DNxHD SQ, and Avid DNxHD LB—implemented in hardware
- MXF with OP1A support for DNxHD encoded files, bringing true Avid MXF compatibility for HD workflows
- 3G-SDI input (4x BNC connectors)
- 3G-SDI output (4x BNC connectors)
- 3G-SDI Fiber input (4x LC connectors) (optional)
- 3G-SDI Fiber output (4x LC connectors) (optional)
- HD-SDI monitor output (1x BNC connector)
- HDMI Input 1.4b (RGB or YCbCr)
- HDMI Input v2.0 compatible (4K 60p 4:2:0 YCbCr)
- HDMI Output 1.4b (RGB or YCbCr)
- HDMI Output v2.0 compatible (4K 60p 4:2:0 YCbCr)
- 8-ch AES Audio Input (1/2x DB-25 TASCAM pinout)
- 8-ch AES Audio Output (1/2x DB-25 TASCAM pinout)
- 8-ch Analog Audio Input (1x DB-25 TASCAM pinout)
- 8-ch Analog Audio Output (1x DB-25 TASCAM pinout)
- LTC Input (1x BNC connector)
- LTC Output (1x BNC connector)
- Reference Loop (2x BNC connectors)
- RCA Audio output (2x mono RCA connectors)
- Headphone jack (1x 3.5mm Jack)
- 10/100/1000 Ethernet LAN (1x RJ-45 connector)
- RS-422 Machine control (1x DB9)
- 1280 x 720p TFT LCD display (for UI information and confidence monitoring)
- Dual 12 Volt AC/DC power (2x 4-pin XLR connectors)

## Software

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- Internal web server for remote control configuration via LAN
- Both HFS+ and ExFAT file systems supported
- Continuous rollover record only limited by the size of your media
- Capture and playback of CEA 708 Closed Captioning data as QuickTime movie tracks
- Download and upload of files via LAN

- 20 Preset registers for storing and recalling system preset configurations
- Alarms to alert users to conditions that may need attention

## Media Formatting Requirements

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The Ki Pro Ultra records and plays Apple QuickTime ProRes 444, Apple ProRes 422 and DNxHD files to/from SSD media.

Files can be stored on the media using the HFS+ file system. This makes the media readable on any Mac OS computer natively (using the associated media reader) and PCs using 3rd-party software that can read HFS+ formatted drives (MediaFour's MacDrive for example).

Ki Pro Ultra can also store files on media using the ExFAT file system, for native PC operation.

## Ki Pro Ultra Options

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### AJA Pak Media

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Ki Pro Ultra lets you record edit-friendly 4K, 2K, or HD files directly to removable AJA Pak Media. Once removed from the Ki Pro Ultra, the Pak Media can be inserted in the AJA Pak Dock which connects directly to your computer via Thunderbolt or USB 3.0, allowing you to rapidly transfer ProRes or DNxHD files that are ready for use immediately in your non-linear editing system.

*NOTE: When you order your Pak Media you can choose the formatting, either HFS+ or ExFAT.*

### AJA Pak Options

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The Pak 256, Pak 512, Pak 1000, and Pak 2000 options are high-capacity Solid State Drives encased in a protective housing with rugged connection engineered to handle the rigors of repeated use in the field.

*NOTE: The newer Pak 256 (R1), Pak 512 (R1), and the Pak 1000 and Pak 2000 media support recording all formats and frame rates up to and including 4K/UltraHD 50, 59.94, 60 at ProRes 422 (HQ). Legacy Pak 256 (R0) and Pak 512 (R0) media have slightly lower capabilities, and are able to record up to 4K/UltraHD 30 at ProRes 422.*

### AJA Pak-Adapt-CFast

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Pak-Adapt-CFast allows you to use CFast media you provide with Ki Pro Ultra.

Simply insert the CFast card and once the green LED is lit, your media is mounted and can be formatted. Formatting CFast media may take up to 60 seconds to complete. You're then able to record direct to your media. Pak-Adapt-CFast requires qualified media to ensure you get the best results.

### Qualified CFast Media

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Although most types of CFast media will mount, only qualified media will provide proven performance. AJA does not prevent the user from using unqualified media and as such does not recommend the usage of any other media than that

listed below. AJA Video does not take any responsibility for any loss of data by using unqualified media.

For a current listing of all CFast media qualified by AJA, see the Qualified Media Guide at:

<https://www.aja.com/en/products/pak#support>

## AJA Pak-Adapt-eSATA

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Pak-Adapt-eSATA is a Pak Media sized eSATA adapter that lets you attach qualified RAID or single volume storage to Ki Pro Ultra and use that media as a record drive. Simply connect a high quality eSATA cable to the Pak-Adapt-eSATA port, and once the green LED is lit your media is mounted. You can then record direct to that media.

## Qualified Media

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Pak-Adapt-eSATA requires qualified media to ensure the best results. Although most types of RAID and single volume drives will mount, only qualified media provides proven performance. AJA does not prevent the use of unqualified media, but does not recommend using any devices other than those listed below. AJA only supports customers using qualified RAID enclosures, high quality cables and approved drives. AJA does not take responsibility for any loss of data resulting from the use of unqualified media.

*IMPORTANT: The 'Rollover' functionality of Ki Pro Ultra is not supported between multiple Pak-Adapt-eSATAs, or between Pak Media and Pak-Adapt-eSATA, due to the longer mount times required by larger volumes.*

For a current listing of all eSATA media qualified by AJA, see:

<https://www.aja.com/en/products/pak#support>

## AJA Pak Dock

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The AJA Pak Dock option is an external media reader with Thunderbolt™ and USB 3.0 connections for fast transfer of media to a host computer.

## AJA Fiber Modules

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Fully integrated fiber inputs and outputs means Ki Pro Ultra can be integrated directly to a dedicated fiber network alongside many other fiber products.

See <https://www.aja.com/software/configurator> for an online tool you can use to select compatible SFP modules.

## KPU-Shelf

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Ki Pro Ultra can be mounted side by side using the optional KPU-Shelf for rackmount applications. Using the four channel HD recording capability and front panel quad display, two rack mounted Ki Pro Ultra units can record and monitor eight HD signals in only two rack units of space.

## Apple ProRes 422 and Apple ProRes 444 Advantages

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Captured media using Apple ProRes 422 or Apple ProRes 444 is virtually indistinguishable from uncompressed HD/2K/4K sources. Better yet, Apple ProRes maintains the quality during editing, surviving multiple encoding/decoding



generations without degradation. It was designed by Apple specifically for editing. Some of the advantages include:

- Resolution support for 4096-by-2160 (4K), 3840-by-2160 (UltraHD), 2048-by-1080 (2K), 1920-by-1080 (HD), and 1280-by-720 (HD).
- 4:2:2 or 4:4:4 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.

*NOTE: Ki Pro Ultra can accept 12-bit inputs but processes and encodes at 10-bit.*

- Intra-frame 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.

## Avid DNxHD/HR Advantages

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

- Full-size 4K, UltraHD, 1920-by-1080 and 1280-by-720 resolutions.
- 4:2:2 chroma sampling.
- 10-bit sample depth (DNxHR HQX or DNxHD HQX), or 8-bit.

*NOTE: Ki Pro Ultra can accept 12-bit inputs but processes and encodes at 10-bit.*

- Every frame of encoding is independent.
- Constant bit-rate (CBR) encoding.
- Low data rate requirements.

Table 1. Data Rates (Mb/sec) for DNxHR and DNxHD Formats

Codec		Format	23.98	24	25	29.97	50	59.94	60
DNxHR	HQX	4K	711	711	741	880			
		UHD	666	666	695	833			
	SQ	4K	470	470	490	587			
		UHD	441	441	459	551			
	LB	4K	146	146	152	183			
		UHD	137	137	143	171			
DNxHD	HQX	1080p	175	175	185	220	365	440	440
		1080i					185	220	220
		720p					175	220	220
	SQ	1080p	115	115	120	145	240	290	290
		1080i					120	145	145
		720p					115	145	145
	LB	1080p	36	36	36	45	75	90	90

NOTE: Blank format/frame rate combinations are not currently supported.  
NOTE: 4K, UltraHD, and SD video encoding using Avid DNxHD is not currently supported.

## Workflow

Figure 1. Ki Pro Ultra Workflow—Ingest, Edit, Monitor, and Master



# In This Manual

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Chapter 1 is the introduction you're reading, provides an overview of hardware and software features and options.

Chapter 2 gets you started with Ki Pro Ultra, introducing the front panel controls and rear connector features.

Chapter 3 gives detailed installation information.

Chapter 4 provides complete instructions for operating the Ki Pro Ultra from the front-panel controls and LCD display.

Chapter 5 discusses remote web browser control of Ki Pro Ultra via Ethernet.

Chapter 6 provides details of AJA accessories available for use with Ki Pro Ultra.

Appendix A lists specifications.

Appendix B provides safety and compliance information.

Warranty Information & Index complete the manual.

# Chapter 2 – Ki Pro Ultra at a Glance

## Front Panel Controls

Figure 2. Ki Pro Ultra Operator Side Controls



**Caution!** The Aja Ki Pro Ultra contains a lithium battery soldered in place permanently (it is not user replaceable). If you ever dispose of the Ki Pro Ultra, ensure you follow local regulations for safe disposal. The lithium battery shall not be exposed to excessive heat, such as sunlight or fire.

## Front Panel

The Ki Pro Ultra front panel includes:

- Transport controls
- Headphone volume control and headphone jack
- Multi-purpose User Control Knob for jog and selection functions
- Large 1280 x 720 TFT LCD display with Video Monitor and Menu/Status Overlays
- Additional selection buttons to quickly access the overlay display modes:
  - Configuration menus
  - Status display
  - Video monitor overlay display options
  - Media management

## Buttons

### Power ON/OFF Button

Controls system power ON/OFF and shows when power is ON (when illuminated) or OFF.

*NOTE: When power is first applied to Ki Pro Ultra, the unit powers up immediately (without pressing the button. This facilitates a quick return to operation if there is a power interruption.*

*NOTE: Upon power up with both slots populated, Slot 1 is the initial storage system accessed by Ki Pro Ultra.*

In normal operation to turn power on, press the button once. It isn't necessary to press hard—it's a "soft" button sensed by the processor inside. Pressing the button will begin power-up and display start-up progress on the alphanumeric display.

To power down, press and hold the power button down for 3 seconds while the display counts down. This process prevents accidental power-off during normal operation. You can abort the power-down process by simply removing your finger from the power button before the 3 seconds have elapsed.

### **DISP Button**

Use the display button to toggle video overlay display modes. Sequential presses of the button step through these display modes:

1. No overlay – display is video monitor only
2. Top and bottom status overlay
3. Top and bottom status overlay plus VU meters

The display button can be used to hide the Config or Status overlay if it is active.

### **User Control Knob**

The User Control Knob on the right side of the Ki Pro Ultra front panel is used to scroll through and select menu items. After scrolling to, and high-lighting a menu item of interest, push the knob to select. To pop out of a selected menu item, use the rotator knob to highlight EXIT and push the knob to return to the top level.

When not in a configuration mode and media is mounted with clips available, you can use the selection knob to scroll through the clips. Press the knob once to enable JOG mode to step through the clip a frame at a time.

### **STATUS Button**

When it is not highlighted, you can press the STATUS button to display the status overlay. Status includes video input, format, record format, and audio setup information. Once selected, the selector knob can be rotated to display either the Status or ALARM tab. If any ALARMS or WARNINGS are active, they will be displayed under the ALARMS tab.

When it is highlighted, pressing the STATUS button hides the Status overlay.

A blinking Status button indicates Alarms are present. Press the STATUS button to immediately display the ALARM tab.

*NOTE: When necessary, you can initiate a "safeboot" of the Ki Pro Ultra to factory presets by holding in the STATUS button while powering up.*

### **CONFIG Button**

When it is not highlighted, you can press CONFIG to access the Ki Pro Ultra configuration menu overlay. If the transport is active—video is playing or being recorded—you will be prompted to stop the transport before entering configuration mode. Use the User Control Knob to respond to system prompts by rotating and pushing to select. Once in configuration mode the User Control Knob can be rotated to scroll the menu system. Push the User Control Knob to enter a selected menu, scroll through the selections, push to select a setting. To leave a menu, scroll to Exit and press the knob.

### **MEDIA Button**

When it is not highlighted, you can press the MEDIA button to enter the Media menu. Pressing MEDIA when it is highlighted will turn Off the Media menu (returning to the default Transport menu). The Media menu can only be entered

from the transport 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 are always active.

**STOP** - The square symbol STOP button has a dual function. When playing back a clip (PLAY, FFWD, 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 Ultra’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 round red RECORD button to begin recording. Once in RECORD mode, all other transport buttons are locked-out except the STOP button.

**FFWD >>** - Press FFWD 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 <<** - Press REV when not highlighted to begin 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.

**SLOT** - The SLOT button serves two purposes. It selects which media slot is accessed by the system (either Slot 1 or 2) and is used to unmount the currently selected media. When the Pak card LED is extinguished, it is unmounted and can be removed.



**Caution!** Always use the SLOT button to unmount media or it may be damaged when removed.



**Caution!** Pushing the slot button cycles between unmounting media and selecting media. This function is only active when in transport STOP mode. If it is not highlighted, press the stop button. 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 (media physically removed or replaced), 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 Unformatted.”



**Caution!** Removing media with the Slot LED highlighted, 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

### Alphanumeric and Graphics LCD Display

This display shows menus, status, alerts and other information. Some words in the menus may be truncated to fit the display limits. The LCD displays not only UI information, but also a scaled version of the incoming signal or playback of

recordings. When the monitoring outputs are set to crop a signal to 1920x1080, a graticule is applied to the scaled image on the LCD to alert the user.

### VU Meters

A video overlay is provided on the LCD to display audio VU meters. Meters are color-coded to report signal strength:

- Green - 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 - audio source signal levels are at the peak edge of the safe area before clipping will occur.
- Red - 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 Status Indicator

These LED 1 and 2 states indicate the status of the media slots, S1 and S2:

- LED highlighted/on: selected media
- LED not highlighted/off: inactive media, okay to eject or no media inserted
- LED flashing: recording in progress

On power up, slot S1 is the initial selection.

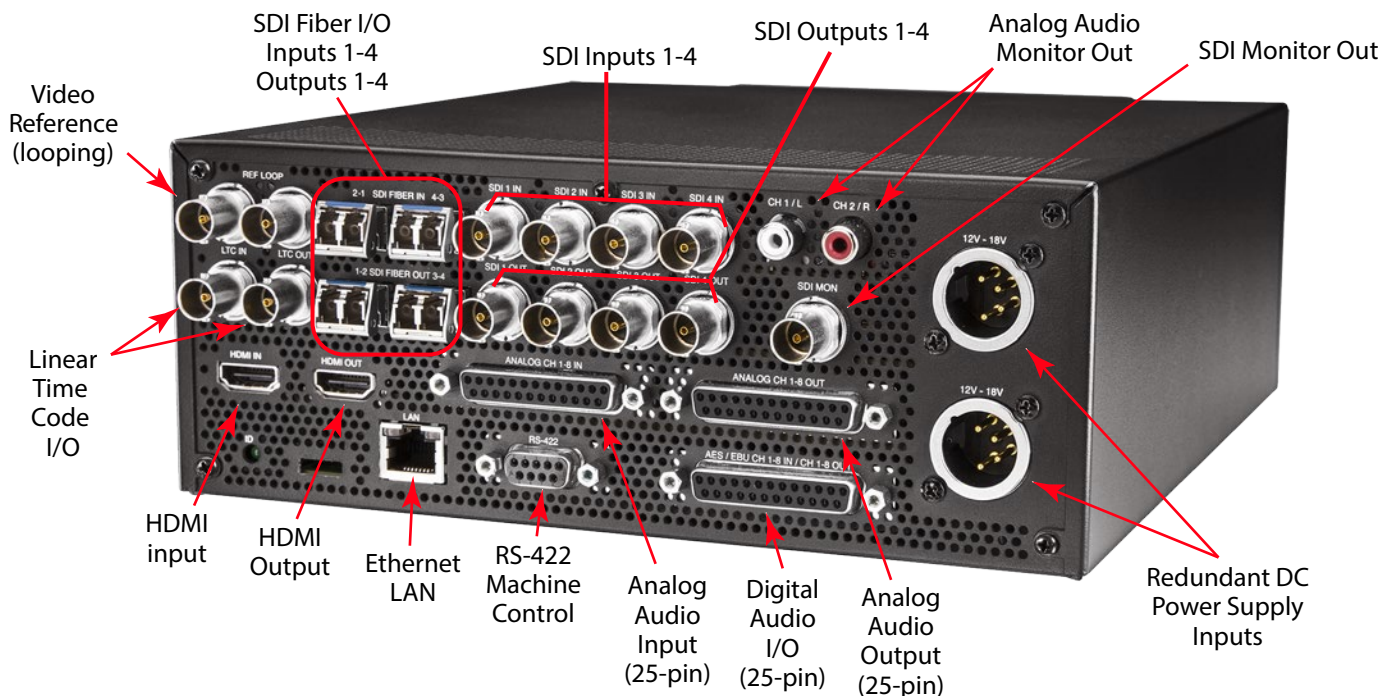
### Head Phone Jack

1/8” (3.5mm) miniature stereo TRS connection for standard stereo headphones.

## Rear Panel Connectors

The functions of Ki Pro Ultra’s inputs and outputs depend on the operational mode. Ki Pro Ultra’s active input (the one to be recorded) is selected by front panel or web browser control. Ki Pro Ultra’s outputs are active all the time.

Figure 3. Ki Pro Ultra Connectors



## Connections

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- Reference video loop for connection to a stable source of genlock video or sync
- LTC Input and Output (2x BNC)
- HDMI v1.4b & v2.0 compatible input and output up to 4K/UltraHD 50/59.94/60 4:2:2 YCbCr or 4:4:4 RGB with up to 8-channel embedded audio
- 10/100/1000 Ethernet LAN
- Dual-channel Fiber Inputs 1-4/Outputs 1-4
- HD/3G-SDI Inputs and Outputs 1-4, with up to 16-channel embedded audio (8x BNC)
- HD-SDI Monitor Output (1 BNC) with embedded audio.
- Balanced 8-channel Analog Audio Input via one DB-25 TASCAM pinout
- Balanced 8-channel Analog Audio Output via one DB-25 TASCAM pinout
- AES EBU 8-channel Audio Input and Output via one DB-25 TASCAM pinout
- RS-422 DB-9 Machine Control Interface (Sony 9 Pin protocol)
- Dual Mono Analog Audio Output via 2 RCA Connectors

## Ref Loop

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The Reference Loop BNCs accept an output timing reference signal. The reference can be analog SD blackburst or HD tri-level sync. Examples of permissible reference video input signals:

- 525 Color Black
- 625 Color Black
- 1080i Tri-level Sync
- 720p Tri-level Sync

The 2 BNCs are a passive loop: one BNC is for the Input, and the remaining BNC can be connected to another piece of equipment in the reference chain or terminated.

*NOTE: For proper operation the input reference signal must be stable and properly terminated using a 75-ohm terminator on either the unused loop connector or the last piece of downstream equipment to which the reference video is connected.*

## LTC Timecode I/O

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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.

## SFP In/Out (optional)

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Four duplex SFP cages (two input, two output) accept optional SFP modules. All Ki Pro Ultra's SFP I/O ports support up to 3G SDI operation.

## SDI Inputs and Outputs

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Eight BNC connectors (four inputs and four outputs) are provided supporting HD/3G-SDI video and embedded 24-bit digital audio.

*NOTE: Which audio channels are embedded to the SDI Outputs is determined by the audio embedding settings being used for the Ki Pro Ultra audio input, or the audio channels of the clip being played back.*



## SDI Monitor Out

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One SDI Monitor Out connector provides for monitoring compatible video and multi-channel embedded audio.

## Analog Audio Monitor Output

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Two RCA connectors provide line level analog audio output, carrying the same signal sent to the front panel headphone output.

## HDMI Input and Output

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Two HDMI connectors (one input and one output) support HDMI video and multi-channel embedded audio, and use standard HDMI cables. HDCP is not supported on the input or output.

*NOTE: Which audio channels are embedded to the HDMI Output is determined by the audio embedding settings being used for the Ki Pro Ultra audio input, or the audio channels of the clip being played back.*

### HDMI formats supported

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- 720p 50, 59.94, 60
- 1080i 25, 29.97, 30
- 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- 2Kx1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- Ultra HD (3840x2160p) 23.98, 24, 25, 29.97, 30, 50\*, 59.94\*, 60\*
- 4K (4096x2160p) 23.98, 24, 25, 29.97, 30, 50\*, 59.94\*, 60\*

*NOTE: When using the Ki Pro Ultra HDMI connection and attaching it to any HDMI audio or video accessory, you must use a ferrite-beaded HDMI cable, HH-28F-06, between the HDMI output port of the Ki Pro Ultra and the HDMI accessory to maintain regulatory compliance.*

## Ethernet

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An RJ-45 connector provides a 10/100/1000 Ethernet port for connecting Ki Pro Ultra directly to a computer or Ethernet hub or switch for connecting to a LAN. Ki Pro Ultra is compatible with CAT-5 straight-through or cross-over Ethernet cables, automatically detecting which is used. Once connected and properly configured, Ki Pro Ultra can then be controlled by a web browser on the LAN.

## 8-Channel Balanced Analog Audio I/O

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Two DB-25 TASCAM pinout, one input and one output, provide 8-channel 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.

## AES Digital Audio I/O

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AES digital audio connections consist of one DB-25 TASCAM pinout for 8 channels of input and 8 channels of output.

## RS-422 Connector

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Ki Pro Ultra offers 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 Ultra, so AJA cannot definitively say which devices may or may not communicate as expected with Ki Pro Ultra when operated under RS-422 remote control. To see which devices or nonlinear editors have been tested operating under RS-422 control, refer to the latest Ki Pro Ultra Release Notes document.*

For details on using RS-422 machine control setup, see ["35.2 Remote Control" on page 52](#).

## Power Connector

On the back of Ki Pro Ultra are two standard 4-pin male XLR connectors for supplying 12-Volt DC power to the unit. You can use either the supplied AC Adapter or furnish your own battery source. Since the connector is an industry standard pinout, choices are varied and flexible. Many 3rd party vendors offer products using this standardized power connector.

- Pin 1: -
- Pin 4: +
- Pins 2 and 3: not used



**Caution!** *Ki Pro Ultra has no user-serviceable parts. To remove power from the unit, remove the 4-pin XLR 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*

## Storage

Ki Pro Ultra Plus can record to Pak Media, a form of removable SSD media. The media is formatted either as HFS+ (native to the Mac OS file system,) or ExFAT (suitable for PCs. Using the Pak Dock, Pak Media with the correct formatting can be directly mounted on a Mac or PC for immediate editing and file access.



**Caution!** *Failure to properly mount or dismount media, or an unexpected loss of power while recording, can result in an unrecoverable data loss.*

## Formatting Media

Pak Media is provided pre-formatted. However, you may want to format media that has already been used, or name media and format it during your shoot. To format Pak Media, the media must be inserted into a Media Slot. Once the media is mounted:

1. Press the MEDIA button.
2. Rotate the User Interface Control Knob until you see the menu parameter 16.0 File System Formatting:
3. Push in the User Interface Control Knob.
4. Rotate the User Interface Control Knob to choose the type of file system formatting (HFS+ or ExFAT).
5. Push in the User Interface Control Knob.
6. Rotate the User Interface Control Knob until you see the menu parameter 16.1 Format Media:

7. Push in the User Interface Control Knob.
8. Rotate the User Interface Control Knob until "OK" appears. Push in on the User Interface Control Knob.
9. Press and hold in the User Interface Control Knob and formatting will begin.

You may select any other key to abort the format operation should you inadvertently enter this menu parameter. The confirmation process used for formatting media helps you avoid accidentally formatting media.

**WARNING:** *Formatting permanently deletes all recordings on that media, and you will not be able to recover them. Always be sure that any media you format has been properly backed up prior to formatting.*

Ki Pro Ultra will display formatting progress and will display a completion confirmation when done. Press any key to clear the completion prompt.

## Using Ki Pro Ultra Media with Final Cut Pro and Premier Pro

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When Ki Pro Ultra media is removed and connected to a computer via the AJA Pak Dock, the media will mount as a normal HFS+ or ExFAT file system. The Reel NAME parameter is the name of the media that will appear when the media is mounted.

Once the media is mounted, each clip recorded by Ki Pro Ultra will be a file on its file system, which (depending on the file type) can be opened directly in non-linear editors such as Final Cut Pro, Adobe Premiere Pro, etc. Compatible clips will be instantly ready to edit because they were recorded as ProRes or DNxHD QuickTime files, or as native DNxHD files.

## Using Ki Pro Ultra Media with Avid Media Composer

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Ki Pro Ultra can create native DNxHD files, and can also create DNxHD QuickTime wrapper files. Native DNxHD files on Pak Media can be accessed, opened and edited directly in Avid Media Composer without transcoding.

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

**NOTE:** *While Ki Pro Ultra QuickTime 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.*

**NOTE:** *Avid DNxHD QuickTime files produced on the Ki Pro Ultra 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.*

## Closed Captioning Support

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Ki Pro Ultra release 1.2 and above supports the capture and playback of CEA-708 Closed Captioning data as QuickTime movie tracks. Ki Pro Ultra extracts CEA-708 (including 608 within 708) packets contained in the vertical ANC data which is embedded in the SDI input (BNC or Fiber) signal. The packets are processed and inserted into a QuickTime track (CLCP) as part of the recorded QuickTime container. This track is created automatically if the CEA-708 packets are present in the VANC of the input SDI signal. No user configuration is required.

On playback, Ki Pro Ultra will process the QuickTime container file, process the CLCP track if present and insert/embed closed captioning data on the SDI 1 output (BNC or Fiber) VANC.

When in EtoE or record mode, the Ki Pro Ultra Status display indicates when closed captioning data is present on the input signal. In playback mode, the Status display indicates if CC data is being inserted.

Closed captioning is not supported on the Ki Pro Ultra HDMI inputs/outputs, or the SDI monitor output.

# Chapter 3 – Ki Pro Ultra Installation

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## Overview

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This section describes set up and installation of Ki Pro Ultra. Choices you will make include how Ki Pro Ultra will be controlled (front panel or Ethernet and web-browser) and the physical system requirements for your application.



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



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

## What's In The Box?

---

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

- Ki Pro Ultra Recorder
- AC Adapter 110/220 with industry standard 4-pin XLR connector for powering the Ki Pro Ultra. A standard North American line cord with 3-prong plug is included.
- Handle Installation Kit
- Feet for Desktop Installation

Please save all packaging for shipping the Ki Pro Ultra should you need to do so.

*Figure 4. Ki Pro Ultra Shipping Box Contents*







## Desktop Use

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Install the Ki Pro Ultra feet (included) when using it on a desktop or flat surface.

## Applying Power

The following Warnings are provided as good practices and should always be considered when Ki Pro Ultra is used in a desktop application.

	<b>Caution!</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.
	<b>Caution!</b> Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.
	<b>Caution!</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..
	<b>Caution!</b> Unplug this device during lightning storms or when unused for long periods of time..

## Using AC Power

To begin using Ki Pro Ultra, plug the 4-pin XLR on the supplied AC adapter into the XLR power socket on the back of Ki Pro Ultra. Then plug the AC adapter line cord into 110 VAC or 230 VAC (the supply is auto sensing).

**NOTE:** When connected to power, Ki Pro Ultra will immediately begin the power-up procedure. This automatic start-up allows the unit to return to operation as soon as an unexpected power interruption is corrected.

Figure 5. Ki Pro Ultra Power Supply Connections



## Using DC Power

To run Ki Pro Ultra on DC power, plug a 3rd-party industry standard 12 Volt battery pack with a 4-pin female XLR connector into the power connector on Ki Pro Ultra (underneath unit). The battery should be capable of supplying a sustained 3.3 A (as is supplied by the AC Adapter provided). Battery packs are available from a variety of sources.

**NOTE:** To operate Ki Pro Ultra properly, batteries should not have voltage lower than 12 volts and should not have voltage that exceeds 18 volts.

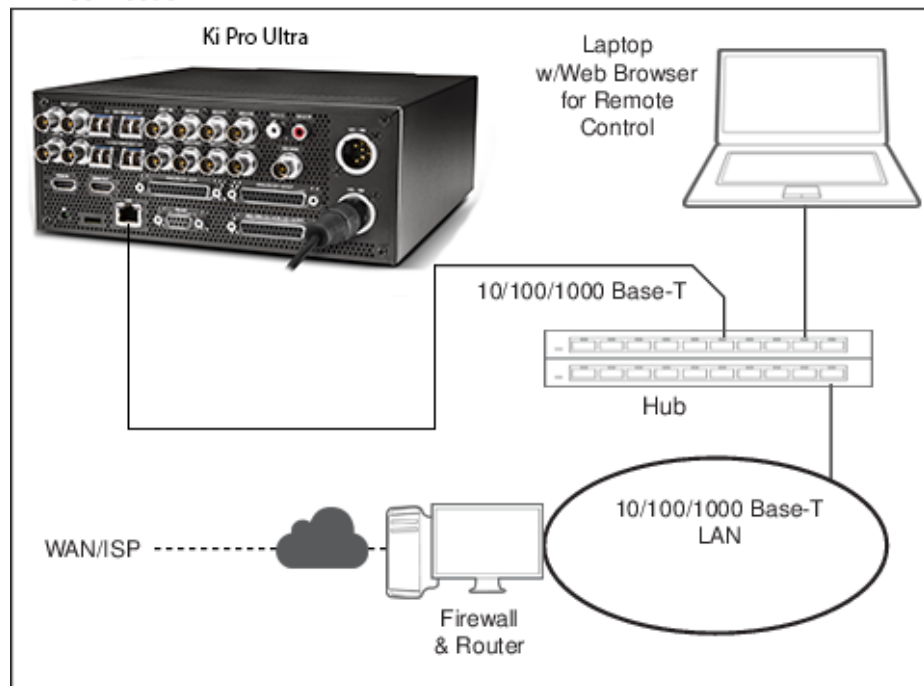
Ki Pro Ultra is a low-wattage device so many batteries can power Ki Pro Ultra for several hours at a time.

In the event of sudden power loss, recordings that are in progress will not be written properly to the media. There is a "Low Battery" warning prompt and you should stop recording before battery failure. Ki Pro Ultra can sometimes manage to close the file before the battery failure, but this is not always possible. We recommend the use of batteries with metering or remaining power indications. When possible, for very long recordings, use the supplied AC power supply instead of battery power.

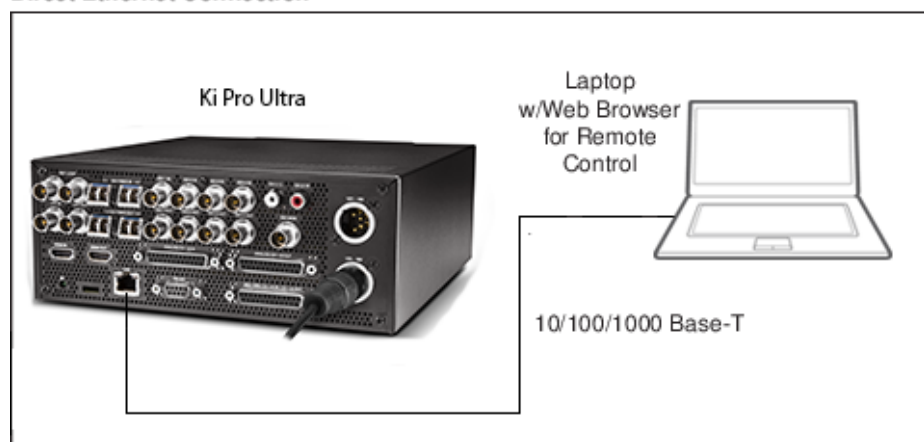
## Remote Network Control

Figure 6. Ki Pro Ultra Networking Examples

### LAN Connection



### Direct Ethernet Connection



## Network Connections

Ki Pro Ultra can be networked to a computer using a single CAT-5 Ethernet cable (straight or cross-over) or using an Ethernet 10/100/1000 local area network (LAN) connection to the Ethernet RJ-45 connector.

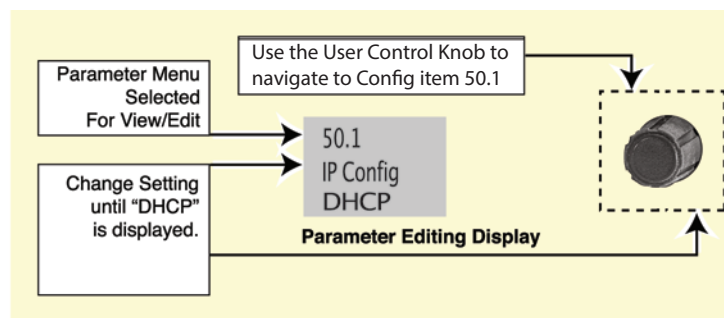
If connecting via a LAN, connect the Ki Pro Ultra's Ethernet connector to a LAN hub or switch. A LAN is a shared network that includes other Ethernet devices all attached via a hub or digital switch. LANs may be divided into zones, and devices on a LAN may have fixed or dynamically assigned (DHCP) IP addresses. Before connecting Ki Pro Ultra to the LAN, talk to your network administrator to find out how they want it connected (static IP or DHCP).

## TCP/IP Information You'll Need

If your LAN has a DHCP server that assigns IP addresses dynamically, you don't have to configure anything (Ki Pro Ultra defaults to DHCP). If your IT administrator prefers an assigned IP address that is fixed (called a "static IP"), get the IP address and you will enter it in the "IP Config parameter." If your LAN requires static IP addresses, also ask your IT administrator for the Subnet Mask and default gateway IP address (your LAN's internet router). DHCP or via a static IP addressing are discussed in the following two topics.

## Networking via DHCP

The default configuration (from the factory) automatically looks for a DHCP server to issue an IP address. As long as your network has a DHCP server (usually part of your router), you need to do nothing other than plug the Ki Pro Ultra into the net. If you need to manually select DHCP, use the User Control Knob to navigate to the parameter 50.1 IP Config, press the knob to activate the menu list, scroll to DHCP and press the knob again to select it.



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

1. Use the User Control Knob to navigate to parameter 50.2. Make note of the DHCP supplied IP address shown to enter in your browser (Step 2).
2. With your laptop or desktop computer DHCP enabled and connected to the same LAN, type the IP address from step 1 into the browser address bar. You should now see Ki Pro Ultra's browser status screen.

If Ki Pro Ultra cannot get an address from the DHCP server, it will automatically drop back to a preset factory IP address of 192.168.0.2. If this happens, you can follow the steps below:

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 Ultra's browser status screen.

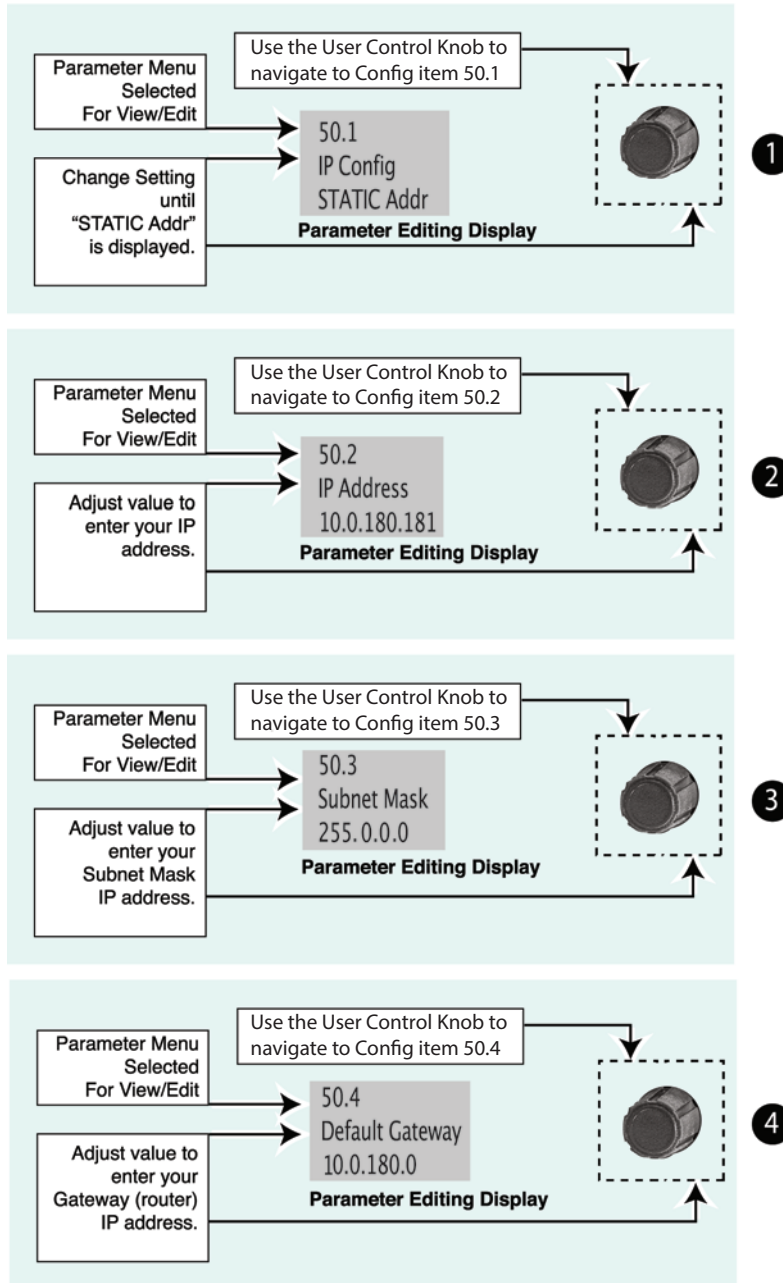


**NOTE:** If Ki Pro Ultra fails to find a DHCP server via its network connection, it will fall back to using the factory default static IP of 192.168.0.2—or whatever IP address you’ve previously defined. AJA recommends you define a Static IP address with parameter 50.2 so you’ll be prepared in the event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

## Networking Ki Pro Ultra using a Static IP Address

To set a static IP address for Ki Pro Ultra, 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 Ultra with a Static IP Address



**NOTE:** For parameters 50.2, 50.3, and 50.4, you will be setting IP addresses using the User Control Knob and the Alphanumeric Keypad. Then you will click on SAVE to keep your entries.

Figure 8. Ki Pro Ultra User Interface Alphanumeric Keypad



## Networking Ki Pro Ultra Using the Factory Default IP

If you don't want to use DHCP to network Ki Pro Ultra 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 is useful for quickly connecting directly to a laptop or computer. Here are the steps to set this up:

1. Use the User Control Knob to navigate to parameter "50.1 IP Config", push the knob to enter the menu, then scroll 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 change it).
4. Run a browser on the computer and type 10.65.74.65 (the Default factory IP address). You should now see Ki Pro Ultra's browser status screen.

## Controlling Ki Pro Ultra From a Web Browser

To control Ki Pro Ultra from a web browser on a network attached computer, you must enter Ki Pro Ultra's IP address as a URL in the browser. For example, if Ki Pro Ultra'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 5 Browser Remote Control" on page 60](#).

## Installing Optional SFP I/O Modules

The optional AJA SFP I/O modules are purchased separately from the Ki Pro Ultra. Install the optional SFP I/O modules by inserting them into the rectangular cages on the back panel with the electrical connectors facing downward. Press gently but firmly until the modules seat in the inside connectors.

You must remove any connected fiber or coaxial cables from the SFP modules before you remove the modules from the Ki Pro Ultra. Pull down the SFP lever to free the module before you withdraw the module from the cage.

For additional installation and operation details, see the instructions provided with the SFP modules.

# Chapter 4 – Front Panel Operation

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## Overview

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There are two ways to control Ki Pro Ultra—from the front panel or remotely from a web browser connected via the Ethernet RJ-45 connector. This chapter discusses controlling Ki Pro Ultra from its front panel. See ["Chapter 5 Browser Remote Control" on page 60](#) for information about web browser operation.

## Control Panel Operation

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There are two basic front panel modes:

- Transport (default mode) - PLAY, STOP, FFWD, REV, REC. These functions are active at all times. By default the unit starts in a "record standby" or "transport idle" state.
- Display - when you press the display button, an overlay is placed on the LCD screen. When you push one of the remaining menu buttons (Status, Config, or Media) Ki Pro Ultra will display:
  - Status/Alarm reports
  - Configuration menus
  - Media formatting operations

## Display Button Sequence

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Press the Display button twice to bring up audio VU meters. Pressing a third time brings up the last menu selected. Press again to turn the overlay off.

## User Control Knob Functions

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### Transport Mode Operations

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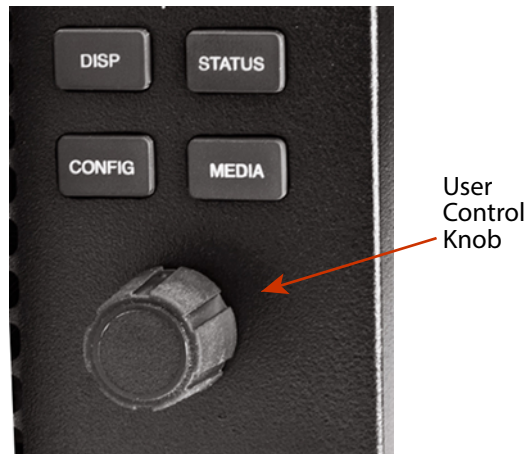
Transport mode is the default mode—it controls basic functions of PLAY, STOP, FFWD, REV, etc. In the Transport mode, you can turn the User Control Knob to cycle through the clips in the currently selected storage slot and push the knob in

once to enter JOG mode which allows single-stepping through frames of the clip forward or backward.

## Display Mode Operations

In Status, Config, and Media modes, you use the User Control Knob to scroll through menu items (rotating) and make selections (pressing the knob).

*Figure 9. Ki Pro Ultra User Control Knob*

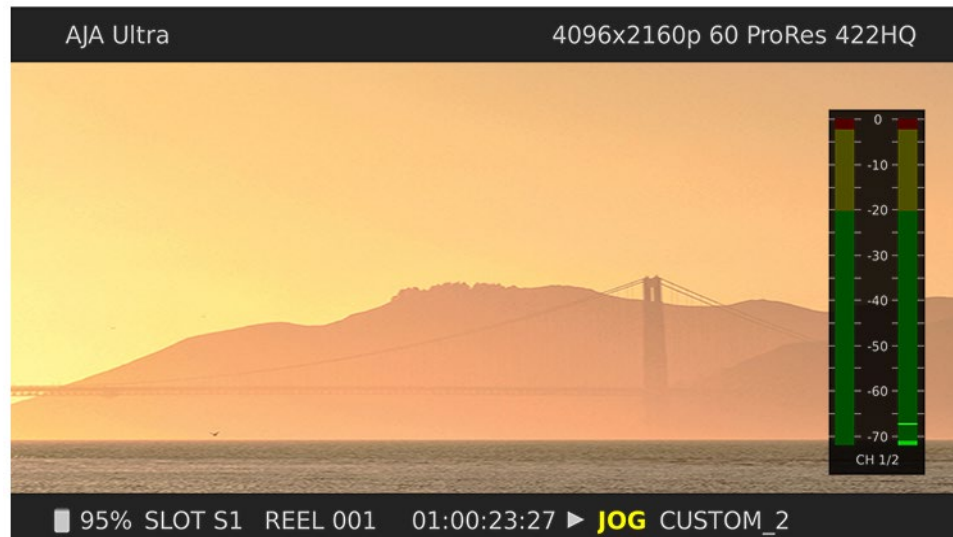


## Overlay Display Content

### Initial Overlay

The figure below shows the initial overlay display with video content behind.

*Figure 10. Initial Display Overlay with Clip Displayed*



#### **Top Line**

Displays the current clip format information.

#### **Bottom Line**

Displays:

- Percentage of media capacity available
- Current media Slot number

- Current reel number
- Timecode for the clip being recorded or played
- Current clip name

The three Display modes accessed via the STATUS, CONFIG, and MEDIA buttons are described below.

### Status Display

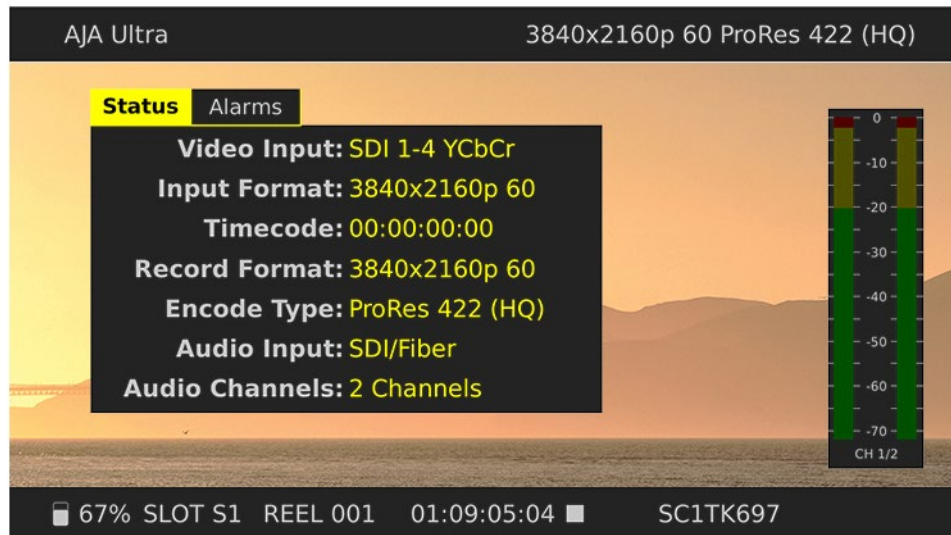
In the Status menu, the User Control Knob will toggle between the two tabs: Status and Alarms. These are Read-Only displays.

The Status page shows the status of recording or playing including:

- Input type and format
- Timecode settings for recording (set in Config parameter 8.0)
- Recording Format and Encoding type
- Audio Input and number of Channels

The following figure shows the display for the Status menu. Note that the Display button has been pressed twice to include the VU meters.

Figure 11. Status Overlay Display



### Config and Media Displays

In the Config and Media menus, the User Control Knob scrolls through various adjustable parameters, and pressing the knob activates menu field for scrolling through the choices (yellow outline indicates the field is active). When entering a menu, the system remembers and returns to the last selected parameter. The following figure shows the displays for the Config and Media menus.



Figure 12. Config Menu, Record Type



Figure 13. Media Menu, Media State



## Transport Mode (default)

Transport mode is the default mode for Ki Pro Ultra operation. Transport functions are always functional except during some basic configuration operations as noted below. When you power up Ki Pro Ultra, the first level overlay display will provide information for any clip that previously was recorded and it can be played.

The display shows settings you've made in the Media menus. You'll always know you are in Transport mode when the MENU buttons (STATUS, CONFIG, or MEDIA) are not highlighted—if one is highlighted, then you are in that menu.

When in the Idle mode (not playing or recording), you can access the Config and Media set-up menus to adjust various parameters that determine Ki Pro Ultra's operation.

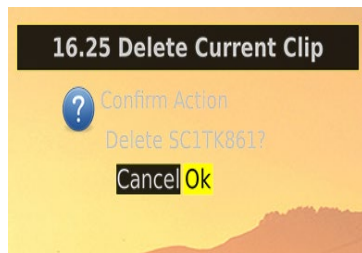
Note that you must be in STOP, not PAUSE (Stop button flashing) to access these menus—if you try to access these menus without first having stopped playback, a “PRESS STOP” prompt will appear on the LCD display.

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.

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.

To protect from inadvertent actions, several operations (for example, Format Media) may result in a “CONFIRM ACTION” display. This ensures that accidental button presses don’t cause problems. When you answer OK to a prompt, the display then changes to an “in progress display”, and automatically returns to the menu when the operation is complete.

Figure 14. Confirm Action Dialog



When recording, Ki Pro Ultra is in an E-to-E state.

Certain parameters are stored in non-volatile memory so that the parameter is remembered between power cycles, for example: system name and date/time.

## Recording a Clip

There is more than one way to record a clip since you can control Ki Pro Ultra in various ways. Here is an example of just how simple a recording can be:

1. Press the STATUS button (see [Figure 11 on page 30](#)). You’ll see the currently selected input and input format and the chosen recording format and audio input.
2. If these settings are acceptable, then push the red RECORD button below the display.
3. The green LED slot indicator (and the green LED on the Pak Media) will begin blinking indicating a recording is in progress. You will also see the timecode changing on the UI display.
4. When you’ve finished recording, press the STOP button.

You can, of course, customize your configuration via the Config and Media menu parameters.

To change the Encoder Type (Apple ProRes, DNxHD) prior to recording, Press MEDIA, and then using the Control Knob, scroll until you see 14.1 Encode Type. Then press the knob to enter the menu. Scroll to the desired setting and press the knob again to select it, and press MEDIA or STOP to exit the menu.

**IMPORTANT:** To insure successful recording with the Ki Pro Ultra it is good practice to use new, high-quality media that has been freshly formatted in the device. For best results, use qualified, AJA Pak Media only. When recording ProRes HQ 4K or UltraHD at high frame rates (59.94 – 60 fps), Pak 256 (R1), Pak 512 (R1), Pak 1000 or Pak 2000 media is required.



To select a different video input, press CONFIG, then scroll with the User Control Knob to 2.1 Video Input—then press the knob and scroll to a desired video input connector and press the knob to select. To select a different audio input, use the knob to access 2.2 Audio Input. Repeat the selection procedure to choose a desired audio input connector.

## Recording Notes

---

Ki Pro Ultra 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.

## Playing Back a Clip

---

To playback recorded media, select a clip and press PLAY. If the clip you wish to playback is not currently selected, use the User Control Knob to scroll until the clip name appears on the bottom right of the display. Like recording, there is more than one way to initiate playback (front panel or 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 Slot, Reel, and Clip name).
2. Turn the User Control Knob until you find the clip you are looking for.
3. Press the PLAY (>) button.
4. When playing back a clip (PLAY, FFWD, 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 Ultra’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.

## Transport Buttons

---

During playback you can use the FFWD, REV, SELECT, or User Control Knob 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 highlighted, 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.

### **User Control Knob**

While in Transport mode, the User Control Knob will scroll through the clips in the active media. 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.

### JOG Mode

While in Transport mode, and in either a “STOP” or “pause” state, the User Control Knob will “single step” the current clip one frame per scroll-click.

## Deleting Clips

---

To delete a previously recorded clip:

1. In Transport mode, use the User Control Knob to browse through the clips on the current media. When a clip is on another media you will press SLOT until it's selected.
2. When you find a clip you want to delete, press the Media button, scroll to 16.25 to delete the current clip and press the knob.
3. Ki Pro Ultra asks, “CONFIRM ACTION.” Choose OK and press the User Control Knob to confirm deletion. Pressing any other button, will abort the deletion.

*NOTE: When deleting large clips, Ki Pro Ultra will display a progress status window on the front panel and the WEB UI. Large clips can take up to 30 seconds to delete. To remove all clips on a drive, it is faster to format the drive.*

## Status Menus

---

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. Use the User Control Knob to toggle between the tabs for Status display and ALARMS display. Press the STATUS button or any transport button to return to Transport mode, where an action could still be occurring (like playback or even recording).

### Record Mode

---

As mentioned earlier in this chapter transport display provides the following:

#### Top Line

Displays the current clip Format information.

#### Bottom Line

Displays:

- Percentage of media capacity available
- Current media Slot number
- Current reel number
- Timecode for the clip being recorded or played
- Current clip name
- If closed captioning is present [CC]

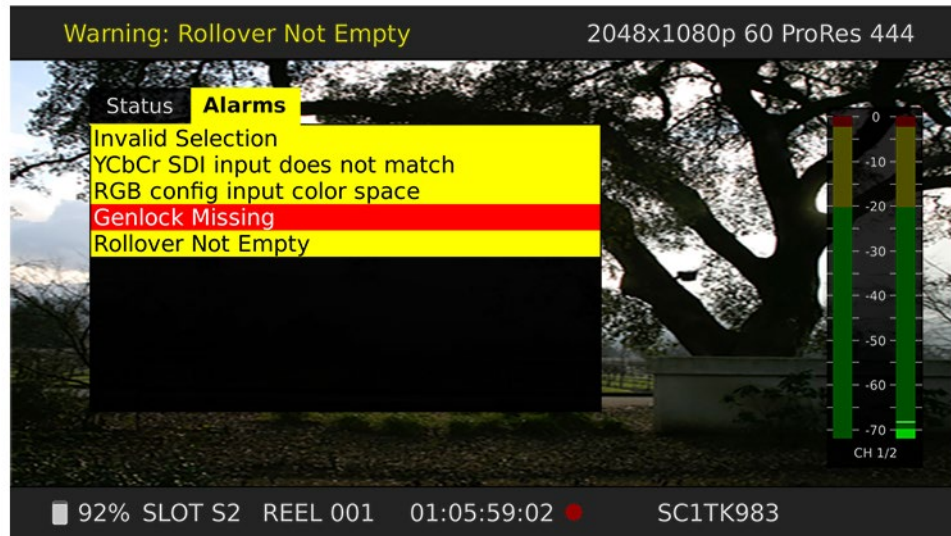
### Alarm Status

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The Alarm menu displays warnings and alarms. Some alarms will automatically be shown on the top bar of the display. Others will be indicated by the STATUS button flashing.

Examples of ALARM displays are shown below.

Figure 15. Warning Examples



Once there is a Ki Pro Ultra alarm active, the STATUS button light will blink 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 check the ALARMS display by pressing the STATUS button and using the User Control Knob to scroll to the ALARMS tab.

If you enter the Config or Media menus after an alarm notification, the alarm display will go away. Pushing any button always returns Ki Pro Ultra to its pre-alarm state—however, if you are unable to correct the alarm condition after this initial button push, when you leave these menus, the alarm notification will reappear on the display.

Ki Pro Ultra features a variety of alarms to help you diagnose the condition of the unit, possible configuration issues, or possible signal issues.

**Warning: Input Format Changed** - This prompt appears if a recording is started and the signal is lost or changed. If this occurs, Ki Pro Ultra stops the recording that is in progress (unless the Loss of Video Config menu parameter is set to continue recording.)

**Warning: No Video Input** - May appear if there is no video input to Ki Pro Ultra. No recording will be performed in this state.

**Warning: Input Error** - May appear if a format or frame rate that is not supported is supplied to the Ki Pro Ultra or a link of a multi-link signal (dual link or quad link) is missing; no recordings will be produced if this alarm appears.

**Warning: Dropped Frames** - May appear if media is under-performing and cannot keep up with the data rate required to make a recording or perform a playback. If you see this prompt during recording, recordings will stop. If this prompt appears, you might consider backing up your current recordings and formatting the media. For playback, you might simply re-attempt playback.

**Warning: Media Low** - Appears 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 use media while another operation is still taking place. Wait for the operation to finish and then try again or press STOP.

**Warning: Media Not Present** - May appear if media has been physically removed and the user hits the slot button.

**Warning: Media Unformatted** - May appear if Ki Pro Ultra does not recognize the file system on the SSD media or the media has never been formatted.

**Warning: Storage Removed** - Appears if the media is removed without first hitting the SLOT button to properly unmount it. In the event this happens, media immediately re-inserted into the Ki Pro Ultra may show clips as “N/A” and subsequent recordings may not be possible. To resolve this issue, mount the media on an Apple computer under Mac OSX, then remove and re-insert the media into your Ki Pro Ultra. If the media does not read properly, you will need to format it. Additionally, this alarm will lead to the “Please Reboot” prompt.

**Warning: Please Reboot** - Appears if media was removed without the use of the slot button and the Ki Pro cannot continue operating and must be rebooted.

**Warning: Backup and Reformat** - May appear if the media has issues being mounted by the Ki Pro Ultra. As the prompt indicates, it is best to back up the media by copying it to another hard 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 Ultra does not result in a recording.

**Warning: Rollover Not Empty** - Appears if media for a rollover is not empty and contains existing recordings; the rollover feature requires empty media to operate.

**Warning: Rollover Media Unformatted** - Appears if media for a rollover is not formatted or recognized.

**Warning: Name in Use** - Appears if the clip name specified in the naming parameters already exists on the media; this happens when take 999 is reached and no more take numbers are available. Ki Pro Ultra will refuse to overwrite the clip; you will have to delete the clip or select a new name.

**Warning: No Clip Name** - Appears if you attempt to record in gang mode using a non-existent custom clip name.

**Warning: Genlock Missing** - Appears if you choose “Input” or “Ref In” for 6.1 Genlock and you attempt to play a clip and no genlock is detected on the selected input.

**Warning: 2 Channel Format** - Appears if the number of channels selected in 2.3 Audio Channels is eight, but the selected audio input only supports two channels.

**Warning: Invalid Selection** - May appear if unsupported menu selections are made for video input, record type, encode type, etc.

## Media Menus

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The Media menu parameters affect media storage and the type of encoding to be used. Menus are also available for naming reels, clips and takes.

### Media Menu Parameters

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#### 12.1 Media State

---

This parameter applies to using the Ki Pro Ultra to transfer data.

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

For normal video operation, select Record-Play. For data transfer using an Ethernet LAN, choose Data-LAN. The Data Media State allows valid media to be copied to or from the Ki Pro Ultra.

Valid Transfer Files

Valid media files must have Ki Pro Ultra. supported video formats and frame rates, be full raster, and must use 24-bit 48kHz audio, if audio is included. Files copied to Ki Pro Ultra that do not meet these criteria may not appear in the web UI or front panel UI when you review clips.

Ki Pro Ultra files are only transferred to and from the "AJA" folder on Pak Media. Files located elsewhere on that Pak Media, even if they are valid, will not appear in the Ki Pro Ultra web UI or front panel UI.

Media State Modal Operation

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 the 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 Ultra to a host computer via the Ethernet connection. The Ki Pro Ultra will allow access to the selected media designated by the highlighted LED. In other words, if the #2 media module is selected on the Ki Pro Ultra, that would be the volume mounted by the host computer operating system.

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

*IMPORTANT: When the Ki Pro Ultra is in the Media State and the Data - LAN selection is used, only the web UI for control and configuration of the Ki Pro Ultra 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.*

12.2 Rollover

This parameter determines whether the Ki Pro Ultra is configured to support recordings that continue when the selected Pak Media becomes full.

OFF (default)	The Ki Pro Ultra performs recordings normally and do not continue onto additional media.
ON	When a Ki Pro Ultra recording reaches the 10% of capacity "Media Full" point, "appended" files on additional Pak Media are created for rollover recording.

Example

A recording is begun on the first piece of Pak Media, S1, and is called "SC1ATK1". When this piece of Pak Media reaches capacity, the second piece of Pak Media (S2) is seamlessly engaged and begins an appended recording, "SC1ATK1+1". This can continue until this piece of media reaches capacity.

*IMPORTANT: If a piece of media is inserted for a rollover and it does not meet the following criteria, rollover recordings will not be possible:*

- The rollover media needs to have already been formatted in the Ki Pro Ultra

- The rollover media needs to be completely empty; no clips can already be on the media

If the Rollover parameter is set to ON and rollover media does not meet the criteria noted, warning alarms may appear such as:

- Warning: Media Unformatted
- Warning: Rollover Media Not Empty

### 12.3 Record Minutes (max)

This parameter specifies the maximum record length of clips. The range is 5 minutes to 240 minutes (4 hrs).

When the max clip time is reached Ki Pro Ultra automatically continues to record and creates a new clip. The clip naming convention is the same as Rollover record (appending +n to the file name). During playback, Ki Pro Ultra will play the clips as if they are one continuous recording. When these clips are imported into a NLE, they can be seamlessly combined into a single clip without audio or video drop out.

5 to 240 (default = 240)	Press Control Knob and scroll up or down to change the Record Minutes (max) value.
-----------------------------	--

### 14.1 Encode Type

This parameter defines the encoding method.

ProRes 444 (default)	Record media as Apple ProRes 444 files.
ProRes 422 HQ	Record media as Apple ProRes 422 HQ files.
ProRes 422	Record media as Apple ProRes 422 files.
ProRes 422 LT	Record media as Apple ProRes 422 LT files.
ProRes 422 PX	Record media as Apple ProRes 422 PX files.
DNxHD HQX (220x)	Record media as Avid DNxHD HQX (220x) files.
DNxHD SQ (145)	Record media as Avid DNxHD SQ (145) files.
DNxHD LB (36)	Record media as Avid DNxHD LB (36) files.
DNxHR HQX	Record media as Avid DNxHR HQX files.
DNxHR SQ	Record media as Avid DNxHR SQ files.
DNxHR LB	Record media as Avid DNxHR LB files.

### 14.2 File Format

This parameter defines the encoding file format. The MXF format becomes available when a DNx encode type is selected above.

MOV	Record media as MOV.
MXF	Record media as MXF.

**NOTE:** DNxHR is only supported with MXF file types.

## 15.1 Play Media

This parameter determines behavior during playback.

One (default) All Playlist	Plays one clip and then stops playback All/Playlist—Plays the current clip and then continues playing the next clip on the Ki Pro Ultra media or the playlist. Note that with this setting, Ki Pro Ultra will play all 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.

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

## 15.3 Playlist

This parameter displays the name of the selected playlist.

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.

CONTINUE STOP	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.
------------------	--

## 16.0 File System Formatting

This parameter is used to select the type of file system for formatting the media.

HFS+ (default) ExFAT	Select HFS+ formatting (Mac). Select ExFAT (PC)
-------------------------	--

## 16.1 Format Media

This parameter is used to format the currently selected media using the file system type selected in the previous menu.

CANCEL (default) Format Media	No action (do not format the media selected) Format the selected media: press Control Knob and CONFIRM ACTION to Format the media)
----------------------------------	---

## 16.2 Delete Clips

This parameter can be used to delete all of the clips on the media.

KEEP CLIPS (default) DELETE CLIPS	No action (do not delete clips) Press Control Knob and CONFIRM ACTION to Delete all clips on the storage device
--------------------------------------	--

Ki Pro Ultra media can be used to hold data other than QuickTime recordings. If other files are saved to the PAK media, 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.

## 16.25 Delete Current Clip

This parameter can be used to delete the currently selected clip on the media (see the bottom display for clip name).

KEEP CLIPS (default) DELETE SELECTED CLIP	No action (do not delete the selected clip) Press Control Knob and CONFIRM ACTION to Delete this clip from the storage device
--	--

## 17.0 Preset Reel Name

This parameter determines the reel name associated with all clips generated while using this setting.

001 to 999 (default = 001)	Press Control Knob and scroll 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 determines the name that the media will have if it is formatted and will appear when the media is mounted on a computer.

## 17.1 Unit Designation

This parameter defines a letter designation for recordings when using the 17.7 Combined Name menu parameter.

- A to Z – Selects a value between A and Z

*NOTE: The Unit name is not part of a clip name unless the 17.7 Combined Name menu parameter is enabled.*

SELECT A USER DESIGNATION LETTER	Press Control Knob and scroll to the desire alphabetic letter (A – Z) your unit designation. Press the knob again to select.
-------------------------------------	--

## 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".

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



## Clip Naming—Two Examples

---

The following two examples show how 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 Ultra 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 various non-linear editors such as Final Cut Pro 7’s Browser window, Final Cut Pro X’s Events, Avid Media Composer’s Bins, etc. 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

### 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.

1 to 999 (default = 1)	Press Control Knob and scroll 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.

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 present when parameter 17.4 Clip Append is used to append a text value after the Clip Number.

A to Z (default = A)	Press Control Knob and scroll up or down to change the Alpha Append value from A to Z. Alphabetic values increment with A and Z wrapping around.
-------------------------	--

## 17.6 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.

1 to 999 (default = 1)	Ki Pro Ultra automatically generates a Take number. Press Control Knob and scroll up or down to change the Take value from 1 to 999, if you want a value other than the automatically generated value.
---------------------------	--

Ki Pro Ultra follows these Clip and Take rules when using standard naming conventions:

- Ki Pro Ultra will not overwrite an existing clip.
- 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.
- If the number is at “999”, Ki Pro Ultra will record a clip with take 999, but then cannot auto advance so the second attempt to record will generate 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.

## 17.7 Combined Name

This parameter combines the Camera Name, the Reel Name, Clip Name, Clip Number, Clip Append, Alpha Append and Take into a single file name.

OFF (default) ON	The combined clip name is not enabled. The combined clip name is enabled
---------------------	---

Example: A001SC1ATK1

## Custom Clip Naming

Users can elect to give their clips names other than the standard criteria provided by AJA. **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.*

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 User Control Knob. Users may find that the more efficient method to perform custom clip naming is via the web UI entry fields.

### 19.1 Custom Clip

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.

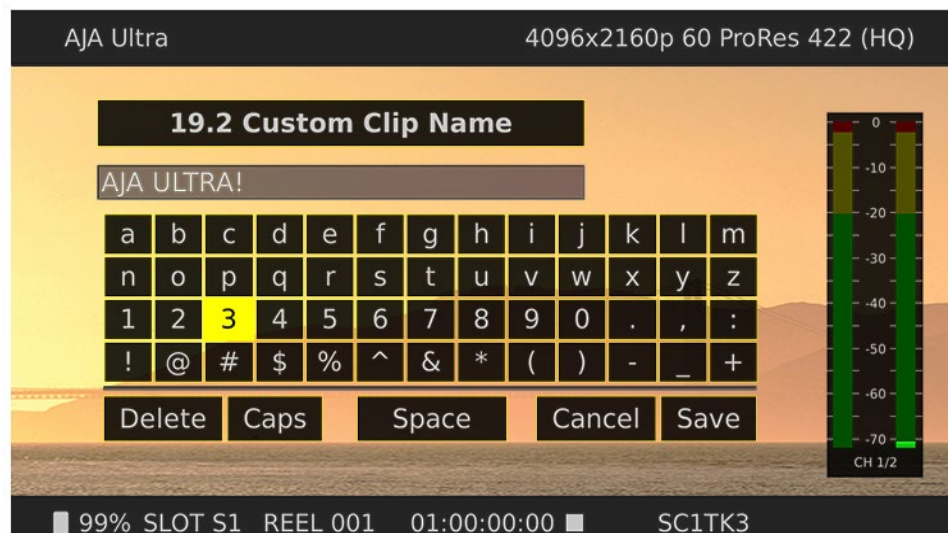
OFF (default) ON	Enable defining of custom clip name Disable defining of custom clip name
---------------------	---

### 19.2 Custom Name

This parameter defines a custom clip name. The custom name is defined via the front panel User Control Knob. The default is "CUSTOM".

variable	When entering characters for a custom clip name, you must press the User Control Knob to bring up alpha-numeric keypad. Use the Control Knob to scroll and press to select the characters you want. Save or Cancel when finished. Default: CUSTOM
----------	--

Figure 16. Custom Name Screen with Keypad Active



## 19.4 Custom Take

This parameter defines a custom take. The custom take number is defined via the front panel User Control Knob.

1 to 999 (default = 1)	Press the Control Knob and scroll 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 and/or Ki Pro Ultras (refer to Controlling Multiple Ki Pros later in this manual). 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 "Subordinate Name" should be selected. Selecting "Subordinate Name" means that the recording will take its name from the individual Ki Pro's parameters and not accept the value pushed to the Subordinate by the Master Ki Pro.

Master Name (default) Subordinate Name	Enable clips to be named the same across all Ki Pro ganged units Name clips independently on Ki Pro units
---	--

*NOTE: Most gang controls are only available in the web user interface.*

## 22.4 Captions

This parameter is used to capture of CEA-708 Closed Captioning data as QuickTime movie tracks.

On recording, Ki Pro Ultra extracts CEA-708 (including 608 within 708) packets contained in the vertical ANC data embedded in the SDI input (BNC or Fiber) signal. The packets are processed and inserted into a QuickTime track (CLCP) as part of the recorded QuickTime container.

Disabled (default) Enabled	No caption track will be created nor will any arriving captions be written to the clip. Writes any captioning data that arrives during the recording into a QuickTime track (CLCP).
-------------------------------	--

On playback, Ki Pro Ultra will process the QuickTime container file, process the CLCP track if present and insert/embed closed captioning data on the main SDI outputs (BNC or Fiber) VANC. No user configuration is required for caption playback.

*NOTE: Closed captioning is not supported on HDMI inputs/outputs or the SDI monitor output.*

## Config Menus

As in the Media menus already presented, pressing the User Control Knob and scrolling changes the current Config parameter's value to a new one from the Ki Pro Ultra's list of choices—repeating the list if you continue to scroll—or adjusting a numerical value up or down.

The exact choices displayed will vary depending on the parameter. Most adjustment choices made with the Control Knob take effect immediately and will be subsequently stored into the Ki Pro Ultra's non-volatile memory if they remain unchanged for 3 seconds.

The Config menu is for system set-up and configuration. Each parameter is numbered, in the same manner as the Media menus.

## Config Menu Parameters

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

### 1.1 Record Type

This parameter defines the frame recording method. Record Type can be configured to record the incoming video signal in a "NORMAL" manner (a standard format) or "PsF" progressive format.

NORMAL (default) PsF	Record standard format as input Record progressive segmented frame
-------------------------	---

**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 Progressive Playback.

### 1.3 Progressive Playback

This parameter defines the format applied when progressive media is played from storage.

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

**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 sets input conversion to one of the available selections..

None (default) 4K Crop to UltraHD 4K/UltraHD to 2K/1080	The input is not converted Converts and crops 4K input to UltraHD Converts 4K input to 2K or UltraHD input to HD
---	--

Note that the 4K Crop to UltraHD selection and the 4K /UltraHD to 2K/1080 selections have no impact if 2K or 1080 video is input. By default, the Ki Pro Ultra will output 2K on the SDI monitor and HDMI monitor outputs if the incoming signal is 4K (4096x2160) or 2K (2048x1080) and no "In Convert" is applied. Also by default, if the incoming signal is UltraHD (3840x2160) or HD 1920x1080P, the Ki Pro Ultra outputs 1080 HD on the SDI and HDMI Monitor outputs.

Also, if the 4K Crop to UltraHD "In Convert" selection is used, the Ki Pro Ultra will output 1080 HD on the SDI and HDMI Monitor outputs.

## 1.5 Out Convert

This parameter sets output conversion to one of the available selections.

None (default) 2K Crop to 1080 4K Crop to UltraHD	The output is not converted Converts and crops 2K output to 1080 HD Converts and crops 4K output to UltraHD
---	---

**NOTE:** *The 4K Crop to UltraHD selection has no impact if a 2K or 1080 video source is used. Also, the 2K Crop to 1080 has no impact if a UltraHD or 1080 video source is used.*

When the Ki Pro Ultra uses its factory defaults, the HDMI output video will reflect the format of the input video, unless the input signal is either a 4K 50Hz or UltraHD 50Hz signal and above. In the latter two cases, the video format will either be 2K or 1920 respectively if downstream the HDMI monitor is not capable of receiving a YCbCr 4:2:0 stream. Otherwise, the monitor will receive the full resolution of the video format, except that the YCbCr signal will be 4:2:0 instead of 4:2:2. The HDMI Out and HDMI/EDID Override menus allows the user to change the video format and the chroma resolution when the downstream HDMI monitor does not transmit its EDID, or capabilities, correctly.

The SDI Monitor output, on the other hand, will always decimate the frame size when the input source is either UltraHD or 4K. Additionally, the user may select the Monitor Output's Out Convert option, which will mirror the selection made in the Out Convert menu, 1.5. In other words, if the input format is 2K, the user can choose "2K Crop to 1080" option in menu 1.5 and the "Out Convert" option in menu 1.8 to yield a 1080 output for downstream monitors that cannot accept a 2K signal.

## 1.6 SDI Out

This parameter sets the SDI output format. These are the options:

SDI 1 RGB SDI 1 YCbCr SDI 1-2 RGB SDI 1-2 YCbCr SDI 1-4 RGB (default) SDI 1-4 YCbCr	Sets SDI 1 to RGB (supports up to 2K 29.97fps) Sets SDI 1 to YCbCr (supports up to 2K 59.94fps) Sets SDI 1-2 outputs to RGB (supports up to 2K 29.97fps) Sets SDI 1-2 outputs to YCbCr (supports up to 2K 59.94fps) Sets SDI 1-4 outputs to RGB (supports up to 4K 29.97fps) Sets SDI 1-4 outputs to YCbCr (supports up to 4K 59.94fps)
--	--

**NOTE:** *SDI 1 RGB and SDI 1 YCbCr high frame rates (in excess of 29.97fps) are supported by 3G-SDI. Be sure to connect the AJA Ki Pro Ultra to a 3G-SDI capable device in these cases. If a 3G-SDI capable device is not available, RGB and high frame rate YCbCr may be output via SDI 1 and SDI 2 as "dual link" 1.485Gbps."*

### 1.64 3G SDI Level

This parameter allows the 3G SDI output to be configured for either Level A or Level B. While many 3G SDI devices will support both Level A and Level B, some devices may need a specific 3G SDI selection to operate as expected.

Level B (default) Level A	For use with devices that accept or require Level B. For use with devices that accept or require Level A.
------------------------------	--

## 1.65 Playback Image Division

This parameter is used to select between Square Division or Two Sample Interleave output format (4K and UltraHD signals only). Menu options are:

Auto (default)	In EtoE mode, follow the input signal image division format.
Square	In Playback mode, follow the input signal format configuration.
2SI	Forces the output to use Two Sample Interleave.

**NOTE:** For ProRes recorded files, there is no way to record image division format information (VPID data is not recorded).

**NOTE:** If Menu 1.6 "SDI Out" has one of the following SDI outputs selected, playback is automatically selected and the "Playback Image Division" parameter setting has no effect.

- SDI 1 RGB
- SDI 1 YCbCr

## 1.66 HDMI Out

This parameter determines whether cropped, scaled or full raster video will be output.

**NOTE:** Full Raster output disables the Super Out feature; superimposed timecode and transport state is not possible with a 4K or UltraHD HDMI output.

Crop	If the raster is 4K the HDMI Out is cropped to UltraHD. If 2K the HDMI Out is cropped to 1080. Other rasters are unchanged.
Crop and Scaled	HDMI Out is cropped and scaled where applicable. If the raster is 2K/UltraHD/4K cropping and scaling is applied so the output is 1080.
Scaled (Default)	If the raster is 4K the HDMI Out is scaled to 2K. If the raster is UltraHD the HDMI Out is scaled to 1080.
Full Raster	No cropping or scaling is applied. The HDMI Out raster is 1:1 and may be 4K or UltraHD.

Helpful HDMI configuration guidelines:

- Determine your video source format and frame rate.
- Decide whether you want a Full Raster or Scaled output.
- Determine whether your connected device can support 4096x2160 or 3840x2160.
- Remember that the Progressive Playback menu parameter needs to be configured for Progressive for HDMI output.

## 1.68 HDMI/EDID Override

This parameter determines whether the HDMI Output is auto-negotiated with the receiving device via EDID (extended display identification data) or via a specified output type.

These are the options:

- Auto (default) – The HDMI output is negotiated automatically with the receiving device via EDID
- 10-bit YCbCr – Configures the HDMI output for 10-bit YCbCr
- 8-bit RGB – Configures the HDMI output for 8-bit RGB
- 4K 4:2:0 (High FR)

**NOTE:** Typically, you will want to simply leave the selection configured for Auto so that the negotiation between the devices is handled automatically.



## 1.8 SDI Monitor Output

Sets the format of the SDI Monitor outputs.

Normal (default) Out Convert	No conversion is applied to the monitoring output Scaled video is additionally cropped to 1080 (if the source is not already 1080)
---------------------------------	---

## 1.90 Super Out

This parameter provides superimposition of timecode and transport state (Record, Pause, etc.) onto the SDI monitor output. Note that Super Out applies only to the 2K/1080 SDI monitor output, not the 4x 3G-SDI outputs. The 4x 3G-SDI outputs are always “clean” outputs.

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

## 1.93 LCD Overlay Opacity

This parameter adjusts the opacity of the Display Overlays.

- 100%
- 75%
- 50%
- 25%

## 2.1 Video Input

This parameter selects a video input source from the video input connectors that are available. This selection impacts the type of video that can be recorded and/or passed through.

SDI 1 YCbCr	Sets SDI 1 to YCbCr input
SDI 1 RGB	Sets SDI 1 to RGB input
SDI 1-2 YCbCr	Sets SDI 1-2 to YCbCr input
SDI 1-2 RGB	Sets SDI 1-2 to RGB input
SDI 1-4 YCbCr	Sets SDI 1-4 to YCbCr input
SDI 1-4 RGB	Sets SDI 1-4 to RGB input
Fiber 1 YCbCr	Sets Fiber 1 to YCbCr input
Fiber 1 RGB	Sets Fiber 1 to RGB input
Fiber 1-2 YCbCr	Sets Fiber 1-2 to YCbCr input
Fiber 1-2 RGB	Sets Fiber 1-2 to RGB input
Fiber 1-4 YCbCr	Sets Fiber 1-4 to YCbCr input
Fiber 1-4 RGB	Sets Fiber 1-4 to RGB input
HDMI	Sets input to HDMI connector

**NOTE:** Choosing the correct video input is a key component of successfully using the AJA Ki Pro Ultra. Be sure to determine the correct signal type being provided by your camera or video source before configuring the 2.1 Video Input selection; if an incorrect selection is made, unexpected or undesirable recordings may result. If you are unsure of your signal type, you may use the built-in confidence monitor and the Status menu to help determine the correct selection.

## 2.15 Image Division Input

This parameter is used to select between Square Division or Two Sample Interleave input format (4K and UltraHD signals only). Ki Pro Ultra can be set to use VPID to determine the input format. However, external equipment does not

always report the correct VPID. Therefore, it may be necessary to force the input to Square Division or 2SI. Menu options are:

Auto (default)	Attempts to use VPID to determine the input format. If there is a signal/format mismatch a warning/alarm is raised.
Square	Forces the input to Square Image Division.
2SI	Force the input to 2SI image division.

*NOTE: If Menu 2.1, "Video Input" is one of the formats below, input is automatically selected and the "Image Division Input" parameter setting has no effect.*

- SDI 1 YCbCr
- SDI 1 RGB
- Fiber 1 YCbCr
- Fiber 1 RGB
- HDMI

## 2.2 Audio Input

This parameter selects an audio input source from the audio input connections available, including embedded audio.

AES	Selects AES digital audio input from the DB-25 input connector
HDMI	Selects embedded audio from the HDMI input
SDI/Fiber (default)	Selects SDI embedded audio from the SDI or Fiber input connector (if SDI video input is selected)
Analog	Selects Analog audio input from the DB-25 input connector

*NOTE: This setting can affect which audio channels are embedded to the live SDI and HDMI Outputs during recording.*

## 2.3 Audio Channels

This parameter selects the use of either two, eight, or 16 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- or 16-channel audio may be the appropriate choice in such situations.

*NOTE: Not all devices support 8- or 16-channel audio, and Ki Pro Ultra does not provide a mixdown to 2-channel audio option. Be sure to match the number of audio channels to the capabilities of the downstream devices.*

2 Channels (default)	Selects recording of 2 audio channels
8 Channels	Selects 8 audio channels (valid for HDMI and SDI embedded audio only)
16 Channels	Selects 16 audio channels (valid for SDI embedded audio only)

*NOTE: This setting can affect which audio channels are embedded to the live SDI and HDMI Outputs during recording.*

## 2.4 Headphone Audio

This parameter allows you to select one of four audio pairs to monitor through the headphone port. This setting also affects the rear RCA audio monitor jacks and the front panel VU meters. The options are:

- Channels 1 & 2
- Channels 3 & 4
- Channels 5 & 6

- Channels 7 & 8
- Channels 9 & 10
- Channels 11 & 12
- Channels 13 & 14
- Channels 15 & 16

## 2.5 16 Ch - 8 Ch Audio Map

This parameter allows you to select the input channel mapping for 8 channel Audio destinations (HDMI, AES, and Analog Audio). There are two options:

Lower (Chs 1-8) (default)	Selects input channels 1-8.
Upper (Chs 9-16)	Selects input channels 9-16

For 8 Channel Audio Inputs (AES, Analog Audio and HDMI), the 8 channels are always mapped to the lower 8 channels on SDI (BNC and Fiber) outputs. You cannot map the 8 channels of input to the upper 8 channels (9-16) of your SDI destination.

For Ki Pro Ultra encoding, you cannot route the upper 8 channels (9-16) to your encoded clip unless 16 Channel audio is selected in 2.3 Audio Channels.

## 4.1 Analog Audio

This parameter configures the analog audio signal levels for input and output.

+24dBu (default)	Selects pro-level USA signal levels of +24dBu
+18dBu	Selects pro-level Europe signal levels of +18dBu
+15dBu	Selects pro-level German signal levels of +15dBu
+12dBu	Selects consumer signal levels of +12dBu
	NOTE: Maximum amplitude (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. 0 dBu = 0.775 VRMS.

## 6.1 Genlock

This parameter selects the source of reference to genlock to during playback.

*NOTE: Ki Pro Ultra always genlocks to the selected video input during capture; genlock may only be needed during some playback configurations (such as in a facility with a variety of other equipment).*

For general monitoring purposes, genlock is not required.

Input	Use the currently selected input as the Genlock source
Freerun (default)	Free run mode: Ki Pro Ultra 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 from those available.

TC Value (default)	Uses the value specified in parameter 8.1 TC Value
SDI RP188	Uses the value from the SDI input
LTC	Uses the value from the LTC input
TIME OF DAY	Sets timecode to the device clock value (55.6 Time Set)

## 8.1 TC Value

This parameter selects an hour value from which timecode begins incrementing.

00:00:00:00 to 23:00:00:00 (Default: 01:00:00:00)	Use the User Control Knob to select a timecode hour. For example: 01:00:00:00, 02:00:00:00, etc.
--	---

## 8.2 TC Type

This parameter selects drop frame or non-drop frame timecode.

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

*NOTE: If the menu parameter 8.0 TC In is set to SDI RP188 or LTC, the TC Type selection does not apply. TC Type only applies to the TC Value or the Time of Day value generated by the Ki Pro Ultra.*

## 8.3 Arm Recording

This parameter selects how recording may be initiated, either by pressing the physical record button (or the web "record" button), or via timecode.

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

If arm recording on timecode, parameters 8.0, 8.1, and 8.2 must be set to a qualified source and type of timecode. You should use timecode that starts and stops, like that produced by record run timecode; freerun timecode is not viable for this feature since it does not produce start and stop values.

## 9.0 Interval Record

The Ki Pro Ultra can be used to create timelapse recordings via the 9.0 Interval Record, 9.1 Interval Frames and 9.2 Interval Time selections.

OFF (default)	Normal recordings are produced.
ON	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 "under cranked" 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. "Over cranking" 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.

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.

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.

## 32.0 Loss of Video

This parameter selects whether recording continues when valid video is not present.

Stop Rec (default)	Recording stops when video is lost
Cont Rec	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

This parameter is for setup of remote RS-422 machine control.

Local Only (default)	Enables local control only. RS-422 is disabled.
RS-422 Only	Enables RS-422 control

### Control from RS-422

To control the Ki Pro via the RS-422 port, this Configuration option must be set to RS-422 Only. If this option is not set, the device will look to the controller as if the tape is ejected. Once a clip is selected, frame accurate playback control of the current clip is immediately possible. The timecode format delivered via RS-422 will be dependent upon the current clip. Note that the device will allow you to shuttle to anywhere in the full 24-hour timecode, but the current clip will exist at the clip's own timecode. Playlists are supported as long as the clips are of the same format and frame rate.

### Capture Control from RS-422

To perform an edit-to-tape function, the selected clip must be in the format, rate, and timecode you want to capture. If you don't yet have a clip in your input format, you can create one by manually capturing a short clip of the input you'll be editing. Once this clip is selected, you can then shuttle to any point in the 24-hour timecode. Your edit can take place anywhere in the 24-hour timecode. The device does not differentiate between insert or assemble, nor does it support video, audio or timecode only edits. Each edit operation will produce a new clip at the edit in point with a duration equal to the edit. The clip will contain all video and audio fed to the device. You will not be able to insert into an existing clip. Be

aware that you should set your pre-roll to five (5) seconds or greater to allow the device sufficient time to lock to the video input.

## 41.1 Video SG Frmt

This parameter determines the video format output from Ki Pro Ultra'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 Ultra.

*NOTE: While the Ki Pro Ultra may be configured for a YCbCr or RGB signal generator, the output is ultimately determined by the selection made in the 1.6 SDI Out menu parameter.*

### Example

The 41.1 Video SG Frmt is set to 1080p 23.98 RGB and the 1.6 SDI Out is set to SDI 1 RGB, then the output will be RGB. If the 41.1 Video SG Frmt is set to 1080p 23.98 RGB and the 1.6 SDI Out is set to SDI 1 YCbCr, then the output will be YCbCr even though the signal generator was configured for RGB.

Select the video format desired for the test signal output:

720p 50	2K p23.98	UltraHD p23.98
720p 59.94	2K p23.98 RGB	UltraHD p23.98 RGB
720p 60	2K p24	UltraHD p24
1080i 25	2K p24 RGB	UltraHD p24 RGB
1080i 29.97	2K p25	UltraHD p25
1080i 30	2K p25 RGB	UltraHD p25 RGB
1080PsF 23.98	2K p29.97	UltraHD p29.97
1080PsF 24	2K p29.97 RGB	UltraHD p29.97 RGB
1080PsF 25	2K p50	UltraHD p50
1080PsF 29.97	2K p59.94	UltraHD p59.94
1080p 23.98	2K p60	UltraHD p60
1080p 24	2K PsF 23.98	4K p23.98
1080p 25	2K PsF 23.98 RGB	4K p23.98 RGB
1080p 29.97	2K PsF24	4K p24
1080p 23.98 RGB	2K PsF24 RGB	4K p24 RGB
1080p 24 RGB	2K PsF25	4K p25
1080p 25 RGB	2K PsF25 RGB	4K p25 RGB
1080p 29.97 RGB	2K PsF29.97	4K p29.97
1080p 30 RGB	2K PsF29.97 RGB	4K p29.97 RGB
1080PsF 23.98 RGB		4K p50
1080PsF 24 RGB		4K p59.94
1080PsF 25 RGB		4K p60
1080PsF 29.97 RGB		
1080p 30		
1080p 50		
1080p 59.94		
1080p 60		

## 41.2 Video SG

This parameter determines the video signal output from Ki Pro Ultra'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 Ultra.

OFF (default) Black 75% Bars	Turn test signal output OFF. Video test signal output is color black. 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.

*NOTE: The signal generator acts as a "substitute" for the video input. Because of this, if the Video SG is configured for Black, 75% Bars or 100% Bars, you may record these signal generators as a file. Additionally, if the 41.1 Video SG Frmt parameter is configured for an RGB format, then the 1.6 SDI Out menu parameter should be set up for an RGB output if RGB is desired. Note that it is also possible to configure the SDI Out for YCbCr when the Video SG Frmt is configured for RGB, but a color space conversion will be applied to the video output.*

## 41.3 Audio SG

This parameter determines the audio signal output from Ki Pro Ultra's internal test signal generator.

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

Static ADDR DEFAULT ADDR DHCP (default)	Assign a static IP address manually (parameters 50.2, 50.3, and 50.4 will have to be entered to accomplish this). Use the factory default static IP address: 10.65.74.65 Select automatic IP address assignment from DHCP server on LAN. <b>NOTE:</b> if Ki Pro Ultra 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 will be saved and activated when the menu is exited.*



## 50.2 IP Address

This parameter determines the static IP address used by Ki Pro Ultra for TCP/IP networking.

variable	Using the User Control Knob, 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
----------	--

*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., 10.0.181.0). To edit these, press the User Control Knob to access the alpha-numeric keyboard to enter the desired IP Address. When complete click the SAVE function.*

## 50.3 Subnet Mask

This parameter determines the subnet mask used by Ki Pro Ultra for TCP/IP networking.

variable	Using the User Control Knob, 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
----------	--

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 Ultra on your LAN for TCP/IP networking.

Figure 17. Static Gateway Screen with Keypad



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 DHCP, the default gateway will be assigned by the DHCP server. NOTE: If 50.1 is set to Default Addr, the default gateway is: 10.0.0.1.
----------	--

**NOTE:** Without a properly configured default gateway (whether you have a router/gateway or not), Ki Pro Ultra will be unable to see other Ki Pros on the network, although you may still be able to control the Ki Pro Ultra 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 or FS1s on the network.

50.5 System Name

This parameter defines a name for Ki Pro Ultra and gives it a unique identifier. This same name is used both when displaying systems via the web interface.

variable	Using the User Control Knob, enter a name for Ki Pro Ultra. Using the User Control Knob, select the characters for each of the up to 20-character name. The character set allowed is: 0 through 9, ‘-’, ‘,’ , A through Z (uppercase) and a through z (lowercase). <i>Default: Ki Pro Ultra</i>
----------	--

50.6 MAC Address

This parameter is an read-only field showing the MAC address of the Ki Pro Ultra’s Ethernet adapter.

Information only display	Selecting this parameter allows you to view Ki Pro Ultra’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.
--------------------------	--

## 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 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.

## 55.4 Date/Time

This parameter manually sets the calendar date of the internal Ki Pro Ultra clock. The value is defined as month/day/year/hour/minute.

variable	Using the User Control Knob, enter a calendar date for Ki Pro Ultra. Scroll and click the for each element (M/D/Y/HR/D). When finished, the scroll to SAVE and press of the knob.
----------	---

## 55.7 Time Zone

This parameter manually selects the time zone for the internal Ki Pro Ultra clock.

*Table 2. Ki Pro Ultra Time Zone Options*

GRASS VALLEY (default)	AZORES	KUWAIT	BEIJING
LOS ANGELES	LISBON	JEDDA	MANILA
DENVER	LONDON (GMT)	MOSCOW	TAIPEI
MEXICO CITY	MADRID	TEHRAN	SEOUL
DALLAS	PARIS	ABU DHABI	TOKYO
CHICAGO	AMSTERDAM	KABUL	GUAM
DETROIT	ROME	NEW DELHI	SYDNEY
WASH DC	BERLIN	COLOMBO	AUCKLAND
NEW YORK	VIENNA	DHAKA	HONOLULU
MONTREAL	ATHENS	BANGKOK	ANCHORAGE
BOSTON	HELSINKI	HANOI	SEATTLE
CARACAS	CAIRO	SINGAPORE	
BUENOS AIRES	TEL AVIV	JAKARTA	
RIO DE JANEIRO	BEIRUT	HONG KONG	

## 55.71 Daylight Savings

This parameter manually sets the internal Ki Pro Ultra clock for either Daylight Savings or Standard Time. The options are:

- Daylight Savings ON
- Daylight Savings OFF

## 70.10 Screen Saver Timeout

This parameter sets the number of minutes before Screen Saver dims the Ki Pro Ultra LCD display.

variable from 1 to 60 minutes	Push the User Control Knob to enter the time scale and scroll to choose the setting. Press the knob to exit.
-------------------------------	--

## 70.2 Display Intensity

This parameter determines the brightness of the alphanumeric LCD display and front panel back-lit buttons. A dimmer display uses less power.

variable	Push the User Control Knob to enter the intensity scale. You can scroll to dim or brighten the alphanumeric display and activity indicator LEDs in steps from 1 (dim) to 8 (brightest) Default: 6 Push the knob to exit.
----------	--

## 80.1 Serial Number

This parameter displays this Ki Pro Ultra's unique serial number (Read-only).

## 80.2 SW Version

This parameter displays Ki Pro Ultra's software version level (Read-only).

## 91.1 Recall Preset

This parameter recalls the Ki Pro Ultra to a previously saved preset configuration stored using parameter 92.1. Push the User Control Knob to enter the Preset Recall scale and scroll to choose the Preset (1 to 20). Press the knob to select and confirm action by scrolling and clicking on OK or Cancel.

## 92.1 Store Preset

This parameter saves a preset configuration to the selected storage register. Use the User Control Knob to scroll to the number of the Preset register. To store, press the knob, and then select and press OK. The message [COMPLETE] is displayed after a successful store.

## 99.1 Factory Reset

Selecting this parameter and then pressing the User Control Knob brings up the Confirm Action screen. Press on OK to recall Ki Pro Ultra's factory default settings.



**Caution!** *Selecting this parameter and recalling factory defaults overwrites the current settings.*

Recalling factory defaults does not affect these settings:

Encode Mode	IP Config	System Name
Encode Type	IP Address	Date and Time
	Subnet Mask	

## Signal Routing Examples

Since the Ki Pro Ultra can receive a variety of signals via quad, dual or single link SDI, what follows are examples of how the In Convert, Out Convert, SDI Output and Video Input work in combination with each other.

### Example 1

The source device is outputting quad link 3G-SDI at up to 29.97fps, and 4x 3G-SDI connections are made between the source and the Ki Pro Ultra. The user wants to encode the incoming material as Apple ProRes 422 HQ at a 4K raster size. The incoming signal will be encoded to an Apple ProRes 422 HQ file on the Ki Pro Ultra recording media.

These example menu parameters and settings would do it:

1.4	In Convert	None
1.5	Out Convert	2K Crop to 1080
1.6	SDI Out	SDI 1-4 YCbCr
1.8	SDI Monitor Output	Out Convert
2.1	Video Input	SDI 1-4 YCbCr

No In Convert has been selected, so the signal that is recorded on the Ki Pro Ultra media is at a 4K raster size. An Out Convert selection has been made, so the SDI Monitor output and the HDMI Monitor output are cropped to 1080. The SDI output is set to SDI 1-4 YCbCr so that the incoming signal is passed back out of the Ki Pro Ultra as quad link SDI with YCbCr values. The Video Input is set to SDI 1-4 YCbCr and the encoding is set to Apple ProRes 422 HQ. In this particular example.

### Example 2

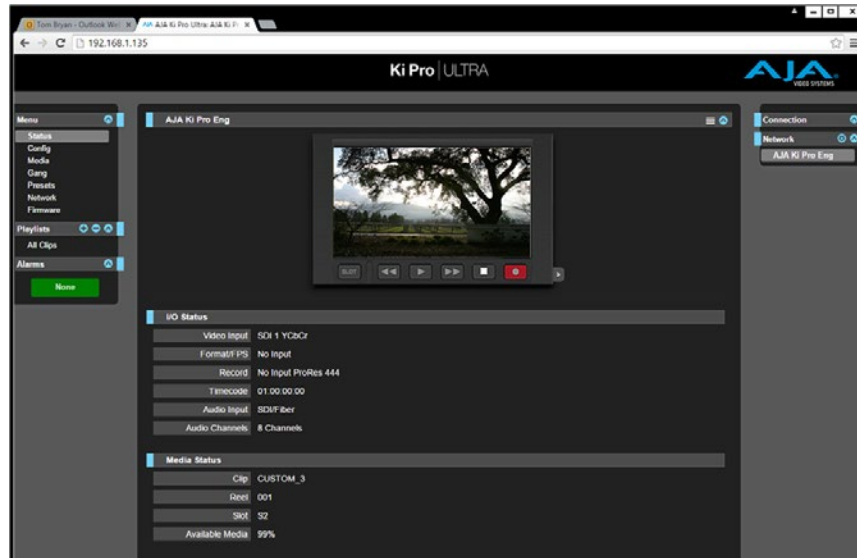
The source device is outputting single link 3G SDI that is 4:2:2 1080p 59.94. A 1 x 3G SDI connection is made between the source and the Ki Pro Ultra. The user wants to encode the incoming material as Apple ProRes 422 HQ.

These example menu parameters and settings would do it:

1.4	In Convert	None
1.5	Out Convert	None
1.6	SDI Out	SDI 1 YCbCr
1.8	SDI Output	None
2.1	Video Input	SDI 1 YCbCr

No In Convert has been selected so the signal that is recorded on the Ki Pro Ultra media is the same as what is output by the camera. An Out Convert selection has also not been made because the parameter does not allow conversion if the incoming video signal is 1080; if a conversion were selected, the output signal would not be affected. The SDI output is set to SDI 1 YCbCr. The only valid output selections would be SDI 1 YCbCr operating at 3G or SDI 1-2 YCbCr operating at dual link 1.485Gbps.

# Chapter 5 – Browser Remote Control



## Overview

An optimized web server running on Ki Pro Ultra 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 Ultra cable connection, or even exposed through a firewall to a broadband WAN.

**NOTE:** *Exposing Ki Pro Ultra on a broadband WAN is not generally recommended since anyone on the internet could potentially access Ki Pro Ultra.*

The LAN connection on Ki Pro Ultra uses a standard RJ-45 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.

Preferred web browsers for Ki Pro Ultra control include:

### Mac OS

- Safari
- Firefox

### Windows OS

- Chrome
- Firefox

**NOTE:** *Other web browsers may work, but AJA cannot guarantee consistent operation for all web browsers or web browser versions. If you do experience an unexpected behavior when using a particular web browser or web browser version to interact with Ki Pro Ultra, consider using an alternate web browser and report any issues experienced to AJA Technical Support.*

To control Ki Pro Ultra remotely, connect a computer to the Ki Pro Ultra's LAN connector, an RJ-45 socket, via a CAT5 Ethernet cable.

To access Ki Pro Ultra, enter its URL in the web browser. The URL will be the IP address defined in Ki Pro Ultra's Network parameter menus (Note that Config menu parameters 50.1 through 50.4 must all be configured correctly to access

Ki Pro Ultra on your network). If Ki Pro Ultra is using DHCP (the default), the IP address can be found by going to parameter 50.2 and reading it there. When Ki Pro Ultra is shipped from the AJA factory, it defaults to DHCP operation. The DHCP selection is most useful in studio settings where the camera or cameras may be connected to an existing IT infrastructure.

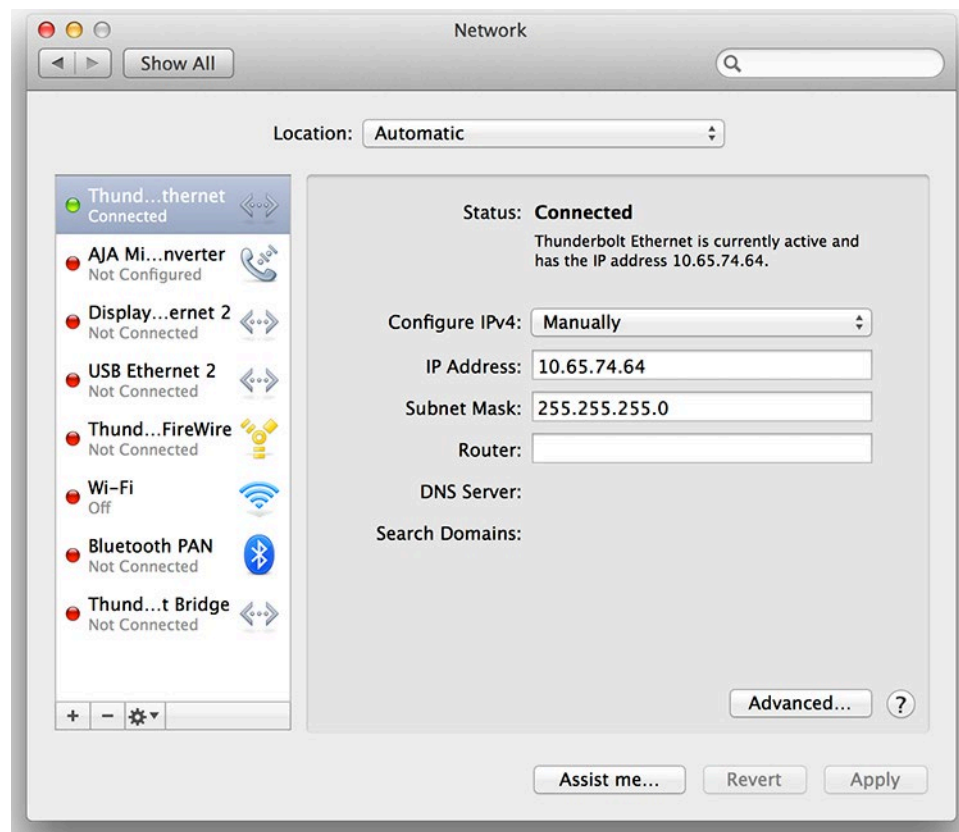
If 50.1 is set to DHCP, and the DHCP server on the network fails to grant an IP address, then Ki Pro Ultra's 50.2 DHCP Address menu parameter will display 0.0.0.0. No connection to the device can be made with this address. Check with your network administrator if you experience issues connecting to the device over a DHCP network.

If 50.1 is set to Default Addr, the factory default static IP address 10.65.74.65 is used. So, if 50.1 is set to Default Addr, to see Ki Pro Ultra's web interface, you would type the following in the web browser:

**http://10.65.74.65**

*NOTE: Your computer or network must be configured to access this IP address. You may need to make changes to your network settings on your host computer to access this IP address.*

Figure 18. Default IP Address Configuration



For direct connections between a computer and Ki Pro Ultra, you may elect to use the Static Addr selection. This allows you to select an IP address for Ki Pro Ultra and apply it. For example, you could enter 192.168.0.2 as an IP address. Then, to see Ki Pro Ultra's web interface, you would type the following in the web browser:

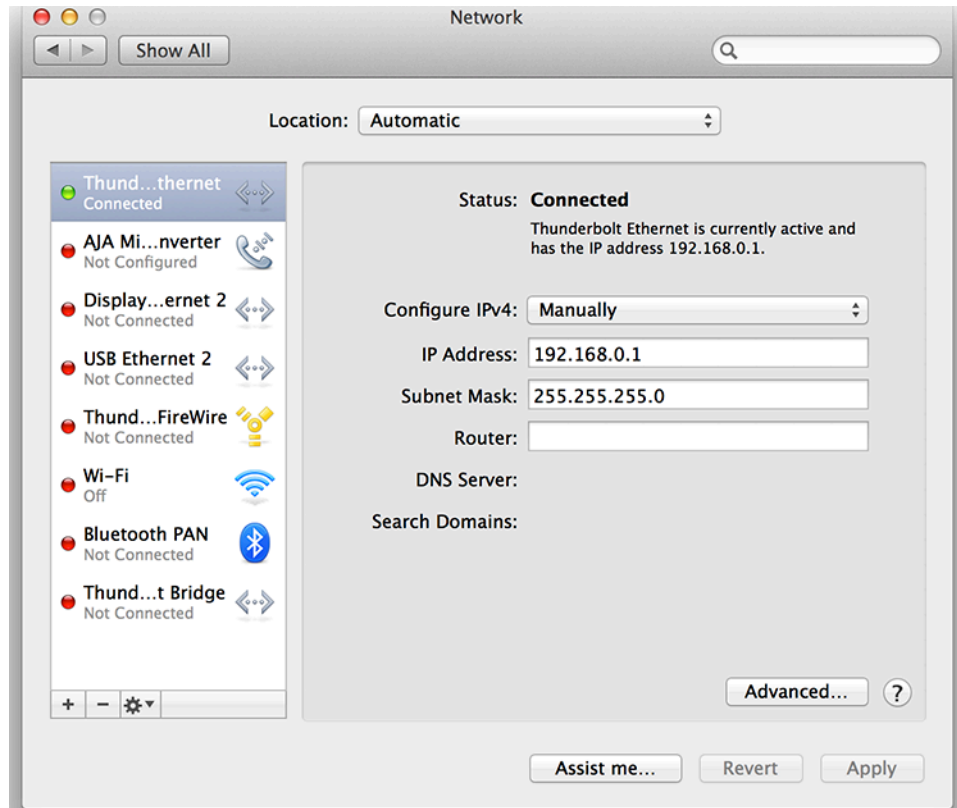
**http://192.168.0.2**

*NOTE: Your computer or network must be configured to access this IP address. You may need to make changes to your network settings on your host computer to access this IP address.*



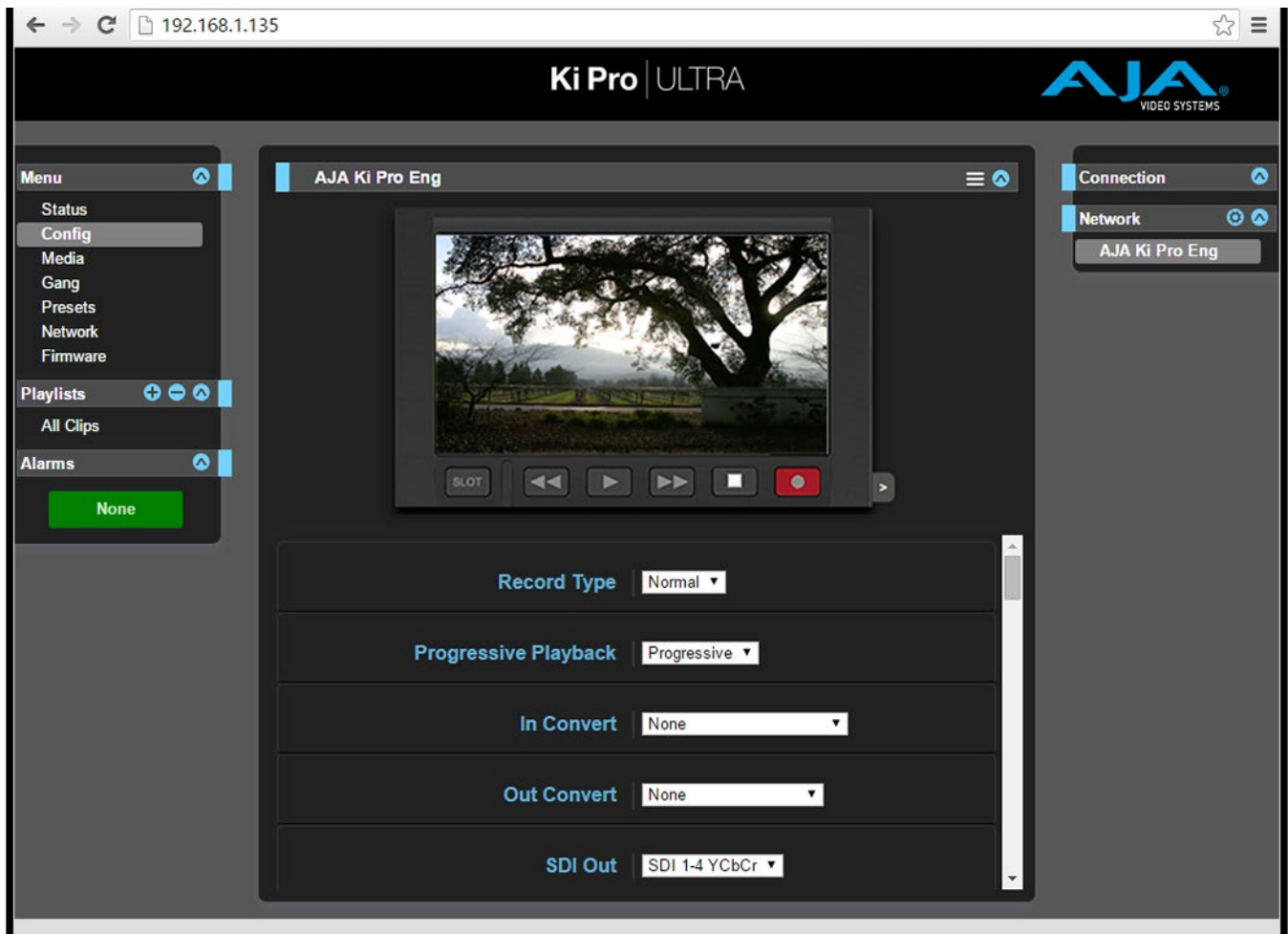
*NOTE: If you change the Static IP address of the Ki Pro Ultra camera, you may need to power cycle the Ki Pro Ultra so that the host computer correctly identifies the new IP address.*

*Figure 19. Static IP Address Configuration*



All Ki Pro Ultra web screens have certain areas in common. On the left of each screen is a Menu panel listing all the available Ki Pro Ultra screen choices. Click any of these items 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 and Ki Pro Ultra'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.

Figure 20. Ki Pro Ultra Web UI Config Screen



Below the Connection panel, the Network panel shows the Ki Pro Ultra systems on the network and allows you to switch control between systems. See ["Gang Recording" on page 6665](#) for additional information.

In the middle of each screen are menu choices and information pertaining to the subject matter of that screen. At the top of each screen is an emulation of the Ki Pro Ultra user interface.

Ki Pro Ultra web screens closely mirror the parameter menus displayed on its front panel.

If you are unsure about the operation of a menu parameter, hovering your mouse over the parameter name will bring up a tooltip for that parameter. Additionally, a pulldown menu above the emulation of the Ki Pro Ultra user interface area allows you to turn on tooltips for the buttons in this area.

The buttons in this area can also be used to access the menu parameters in the same way that the menu bar on the left hand side of the UI may be used. The transport buttons in this area may be used for clip playback operation. The UI Control Knob emulation in this area may be clicked to toggle from navigating clips to a jog playback mode. To navigate or jog, use a scroll wheel-based mouse or swipe up or down on a trackpad.

# Operations Unique to the Web UI

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## Playing, Jogging and Selecting Clips

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Clicking on the blue arrow icon on the top right of the screen opens and closes a Transport pane. A graphical representation of the Ki Pro Ultra front panel is shown, with operational transport buttons. Simply click on a button to rewind, play, fast forward, stop, or a loaded clip, or record a new clip.

Clicking on the small gray arrow on the lower right opens a JOG/Clips control. Clicking on that control toggles between JOG and Clips operation.

*Figure 21. JOG Control*



With JOG selected ([Figure 21](#)), hovering the cursor over the icon allows jogging the currently loaded clip forwards and backwards one frame at a time using the scroll wheel on your mouse (if so equipped).

*Figure 22. Clips Control*



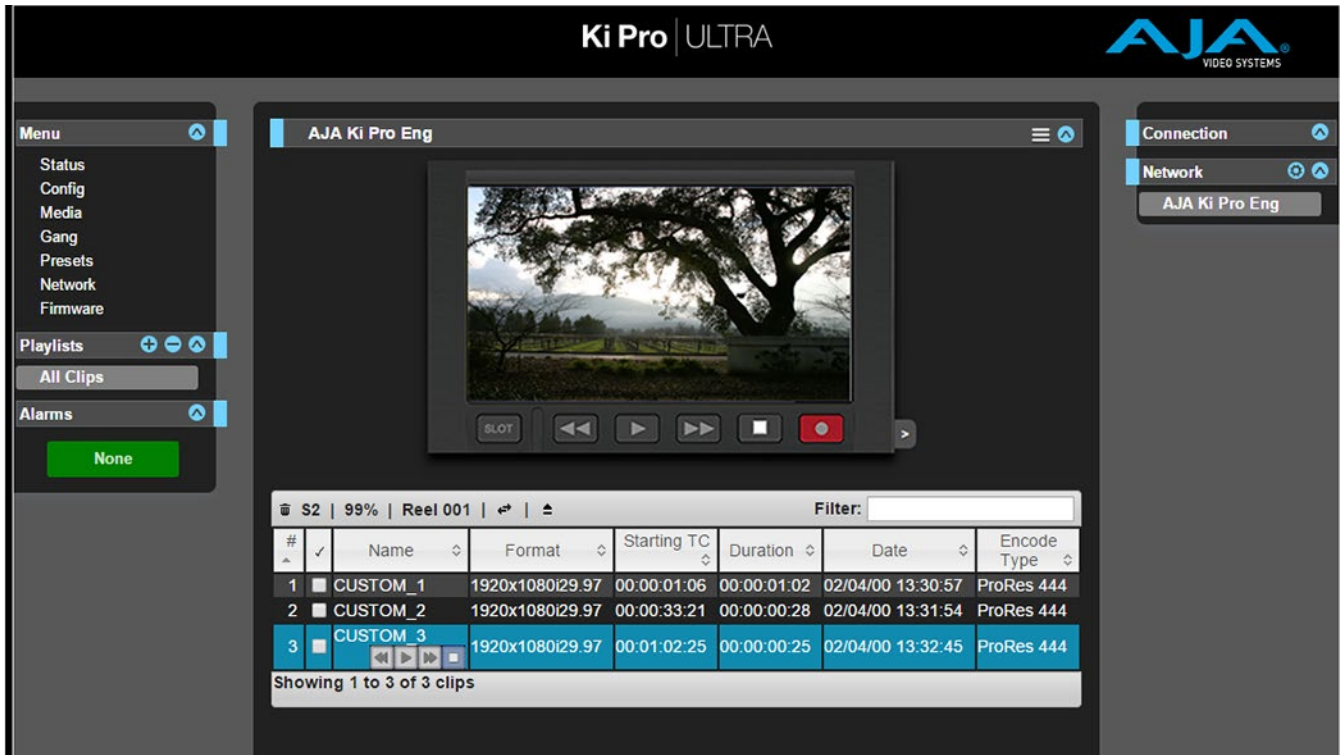
With Clips selected ([Figure 22](#)), hovering the cursor over the icon allows you to scroll through the clips currently available using the mouse's scroll wheel.

## 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 Ultra unit.

Figure 23. All Clips Playlist Screen



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

### Quick Cueing

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 Ultra. To play back the clip, simply open the Transport page of the web UI and begin playback with the Play button. Or you can use the "mini-player" from within the playlist. You can also 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 Ultra outputs.

### Creating Playlists

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. 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:** 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.

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.

### Change the Order of Clips

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.

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 Ultra media alongside the clips.

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.*

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.

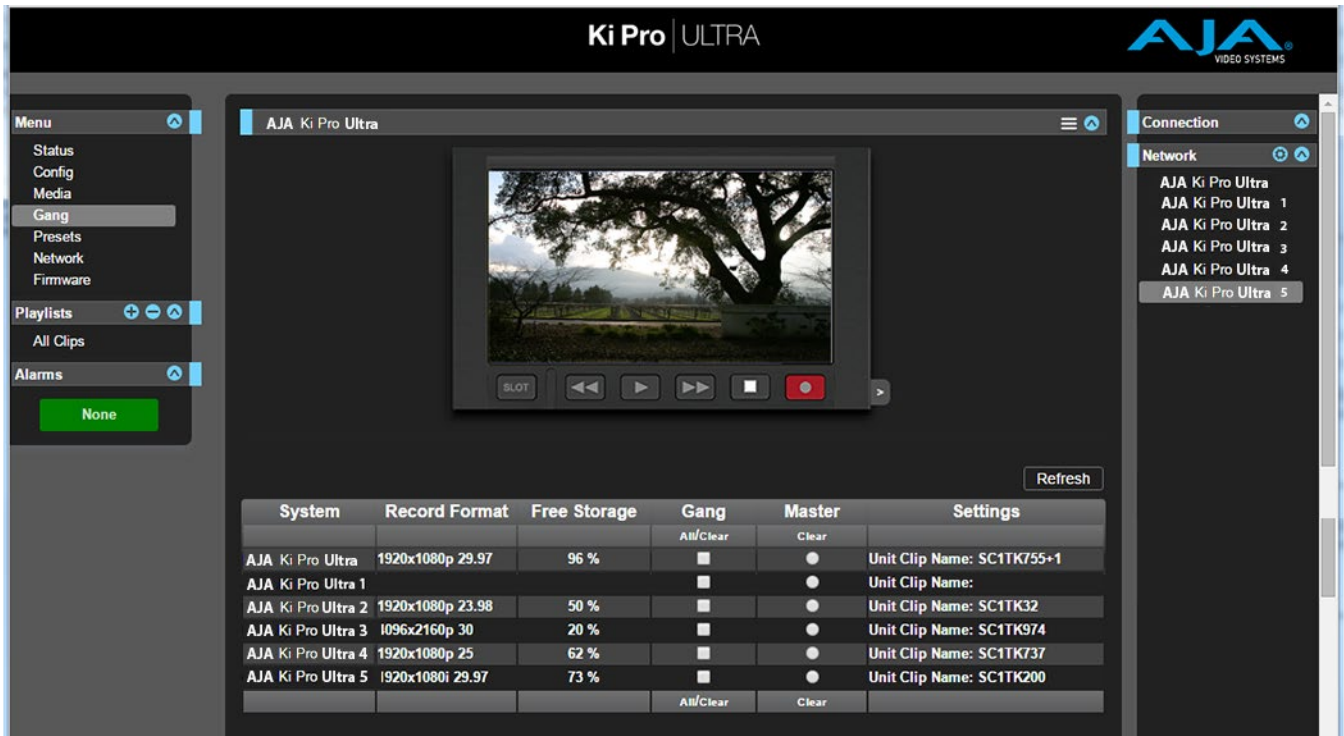
Management of the playlists is made possible via the web UI; creation and management of playlists from the front panel is not supported. An indication of a selected playlist is presented on the front panel UI via menu parameter 15.3 Playlist. The selection of a playlist does not survive reboots of the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

## Gang Recording

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At-a-glance you can see all of the Ki Pro Ultra systems that are present on the same local LAN in the Connection section of the web UI. Their system names are shown in the Network panel on the right side of the screen.

Figure 24. Gang Recording Screen



Click a system name to switch the browser to that particular Ki Pro Ultra system.

**NOTE:** You must have a properly configured default gateway to see the Ki Pro Ultras. If the Default Gateway (parameter 50.4) is not configured properly, other Ki Pro Ultras will not be listed.

Multiple Ki Pro Ultra units can be used in unison to produce recordings via the Gang Control feature. This feature is only available via the web UI when Ki Pro Ultra 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 Ultra units in a gang use the same firmware version.

### Example

You have a Ki Pro Ultra “Master” a Ki Pro Ultra “Subordinate” both attached on a network where their static IP addresses are 192.168.0.2 and 192.168.0.3, both 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 Ultra by entering 192.168.0.2 in the URL field of the browser. The Ki Pro Ultra “Master” unit web UI should appear. Locate the Gang Controls area in the user interface.

Parameters for each available Ki Pro Ultra will appear in the Gang Controls area. These include:

- System – displays Ki Pro Ultra units that may be added to a gang
- Record Format – type of video format/frame rate each system is configured to record
- Free Storage – at-a-glance view of the capacity of the media in each unit
- Gang – units can be added or removed from the gang
- Master – allows the promotion of a Ki Pro Ultra unit to the controlling role
- Settings – allows for the configuration of clip names on the Master and Subordinate Ki Pro Ultra units



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

There can be only one Master in a gang; typically, the IP address for the Ki Pro Ultra 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 web page above the columns.

A Master Ki Pro Ultra unit can send three items to the subordinate Ki Pro Ultra units within a gang; a record start command, a stop command, and clip naming.

The Settings area is where the Ki Pro Ultra clip name for each unit is decided. By default, Ki Pro Ultra 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 you want to use the standard clip naming convention, leave this set to OFF, but if you want 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 Ultra of 1 through 999 and then the enter/return key must be hit. 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 pulldown and an OK button. Take operates like the Clip Number, where a valid value of 1 to 999 can be entered and the enter/return key needs to be hit for confirmation of the value. For custom clip naming considerations, see ["19.1 Custom Clip" on page 43](#).

Note that for Subordinate Ki Pro Ultra units, the Settings column provides a selection of either Use: Master Name or Subordinate Name. Clicking on the default value of Master Name pulls up a pulldown selection of Master Name or Subordinate Name with an OK confirmation button. If the desire is to have clips named the same across all Ki Pro Ultra units' recordings, then select Use: Master Name. If the desire is to have clips named independently on Ki Pro Ultra units, then select Subordinate Name. Selecting Subordinate Name means that the recording will take it's name from the individual Ki Pro Ultra's parameters and not accept the value pushed to the Subordinate by the Master Ki Pro Ultra.

*NOTE: Ki Pro Ultra 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 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: Ki Pro Ultra does not provide simultaneous playback of media; only record start and stop functions are available.*

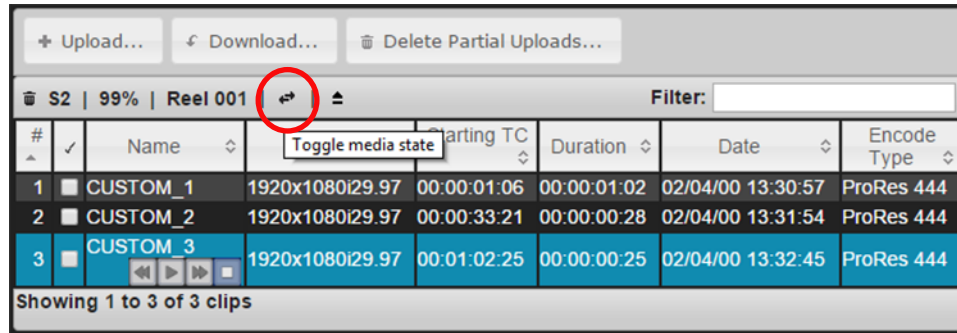
## Data Transfer via LAN

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There are two ways to access Data Transfer mode:

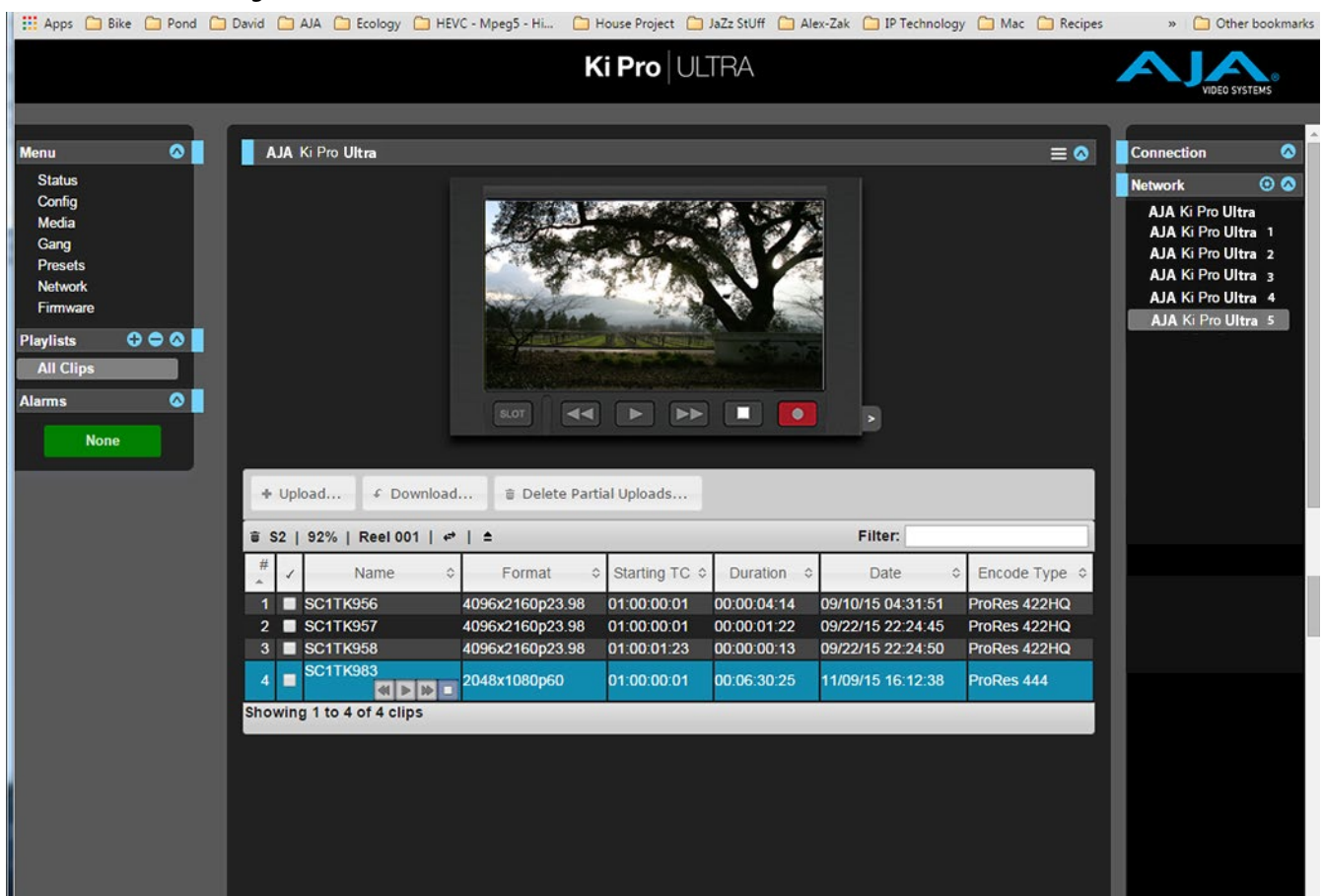
- Use the Ki Pro Ultra front panel UI to set Media State to Data-LAN (see ["12.1 Media State" on page 36](#)).
- Access the Playlist web page and the All Clips mode then click on the media state toggle icon.

Figure 25. Toggle to Data-LAN Media Transfer Mode



Appropriately encoded files may be uploaded to the Ki Pro Ultra or downloaded from the Ki Pro Ultra.

Figure 26. Data LAN Screen



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:** If an upload is canceled or interrupted for any reason, the transfer may be resumed by selecting the clip that was transferring again and re-starting the transfer. If you have canceled 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.



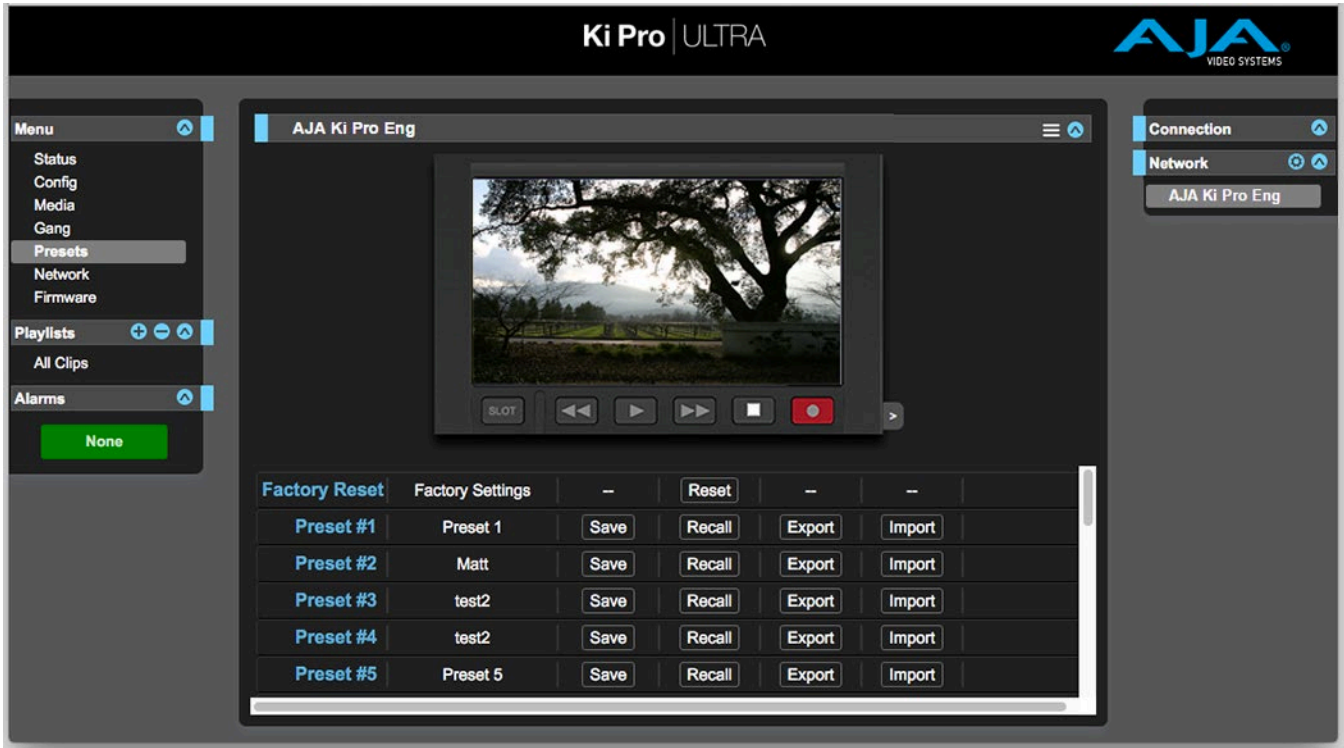
See ["Appendix A Specifications" on page 75](#) for a complete list valid media files that can be copied to Ki Pro Ultra. Files copied to Ki Pro Ultra that do not meet these criteria may not appear in the web UI or front panel UI when you review clips.

**NOTE:** Not all combinations of formats, frame rates and codecs are supported.

## Presets

The Presets screen allows you to save Preset Configurations into 20 separate memory registers and recall the presets whenever needed.

Figure 27. Presets Screen



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.

### Save Buttons

The Save 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.

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.

### Import Buttons

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.

Import Presets 1-20 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.

### Export Buttons

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.

Export Presets 1-20 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.

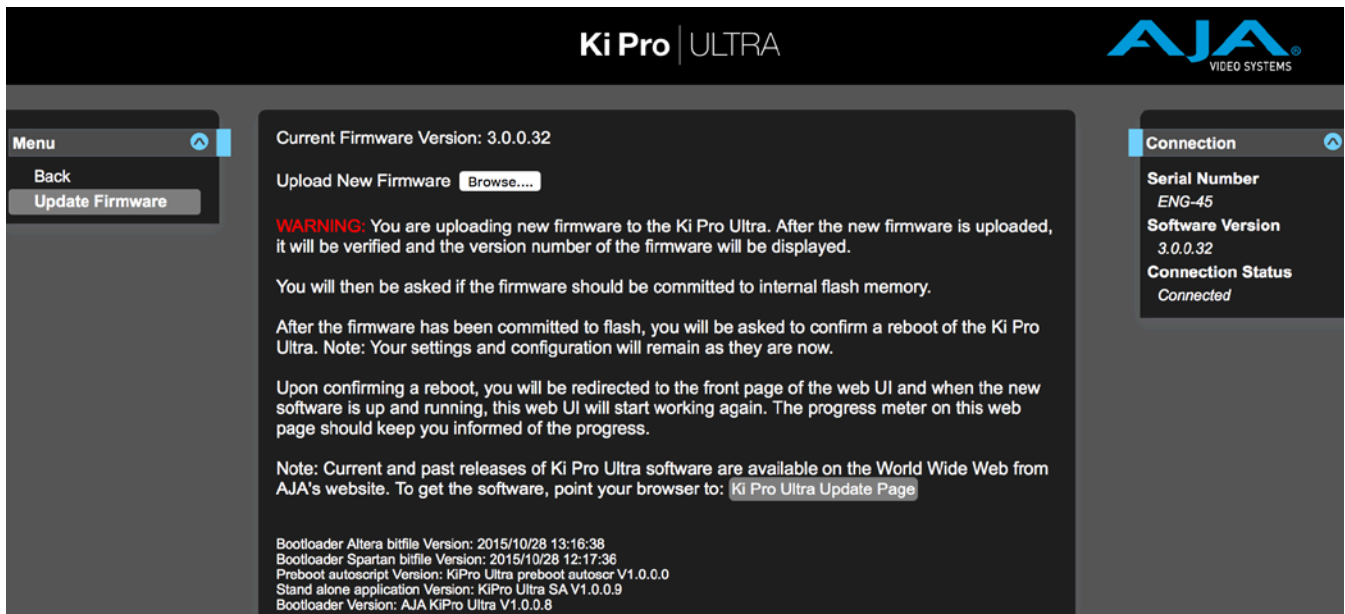
### Recall Factory Preset

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.

## Updating Firmware

The Update Firmware screen allows you to update your Ki Pro Ultra 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 28. Update Firmware Screen



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

**NOTE:** AJA recommends a Factory Reset under the Config menu prior to updating firmware.

1. Download the Latest Ki Pro Ultra firmware.

Current and past releases of Ki Pro Ultra firmware are available from AJA's website. To get the firmware, point your browser to:

<https://www.aja.com>

Access the support page and once you're at the update page, select the Ki Pro Ultra firmware files for Mac or PC for download.

## 2. Unpack the Software

Ki Pro Ultra software update files are "ZIP" files, which you can open with a number of standard and third-party applications. In some cases, these files may "decompress" automatically, such as when using Safari and Mac OS X. The firmware image that you'll install on Ki Pro Ultra is a file with a name like Ki ProUltra\_1.0.0.153.bin or similar.

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

Uploading and installing the firmware update only requires a PC or Mac that can "see" the Ki Pro Ultra via its Ethernet connection. To install the firmware:

1. Be sure that you have configured your IP address information so that you can see Ki Pro Ultra with your web browser.
2. Once you have entered Ki Pro Ultra's IP address, choose the "Update Firmware" page link on the left side of any Ki Pro Ultra web page.
3. Click the "Browse..." button to select the file you previously downloaded. For example: Ki ProUltra\_1.0.0.153.bin file.
4. When you have selected a valid Ki Pro Ultra .bin image file, click the "Upload" button in the web browser.

The file you select will upload to Ki Pro Ultra and be tested for validity. Incomplete, corrupted, or non-Ki Pro Ultra firmware files will be rejected.

5. Agree to the steps and confirmation prompts as they are presented. Wait for the procedure to complete—it will take only a few minutes.

When done, Ki Pro Ultra will prompt you to restart your machine. After restart, Ki Pro Ultra will be running the new software. Progress is shown on the front panel.

6. Once these steps are complete, Ki Pro Ultra will be running the firmware you just uploaded until the next time you upgrade it.

**NOTE:** You may ensure the new software is running by bringing up the Ki Pro Ultra 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 firmware 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 firmware upgrade was successful. If the old version appears, click Retry.

If there is a power outage or glitch during the firmware download, Ki Pro Ultra will boot the older software version and the upgrade process can then be re-started. This happens because Ki Pro Ultra 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 Ultra when on mains power, or with a fully charged battery.

# Chapter 6 – Ki Pro Ultra Accessories

## Overview

Ki Pro Ultra's design allows a variety of accessories to be used with the device. AJA provides some of these accessories as optional items that may be purchased separately. The Ki Pro Ultra's handle and desktop feet are included with the unit and, if wanted, are easily installed.

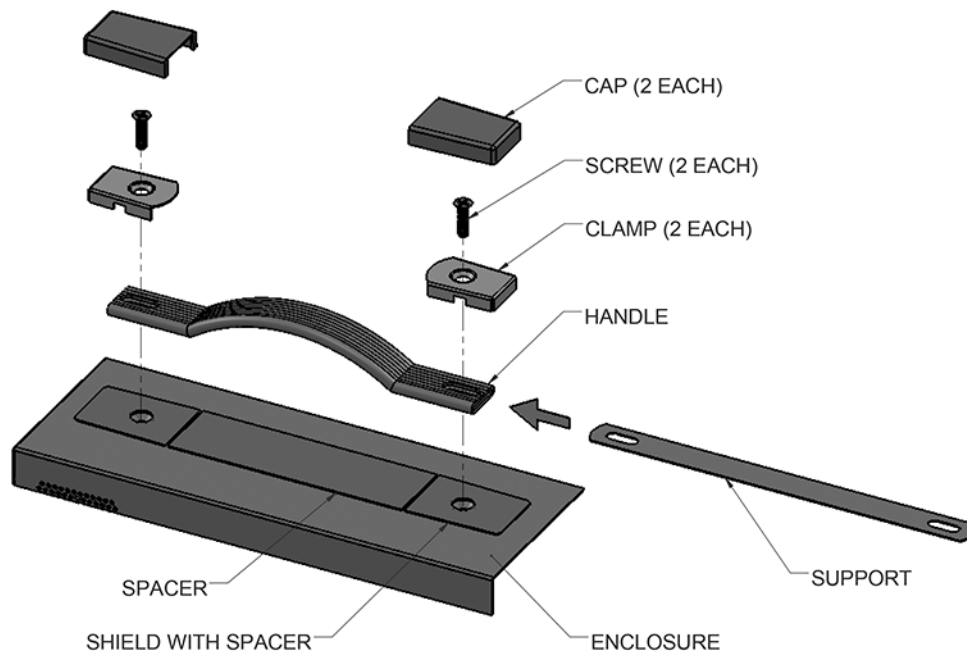
## Ki Pro Ultra Handle

For units that will be moved often, AJA offers the sturdy handle option.

*Figure 29. Ki Pro Ultra with Handle*



*Figure 30. Ki Pro Ultra Handle Assembly*



1. Place the Shield with Spacer (temporary) on top of the Enclosure, aligning the holes.
2. Slide the Support into the Handle.

3. Place the Handle on top of the Shield, aligning the holes.
4. Place the Clamps on top of the Handle, aligning the holes.
5. Insert the two screws through the Clamps, Handle, Support, and Shield and into the enclosure.
6. Snap the Caps over the Clamps and tear away the Spacer from the Shield.

## Ki Pro Ultra Shelf

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AJA offers this rackmount shelf accepting two Ki Pro Ultra units in a 2RU footprint.

*Figure 31. Ki Pro Ultra in Rackmount Shelf*



## Ki Pro Ultra SFP Modules

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See <https://www.aja.com/software/configurator> for an online tool you can use to select compatible SFP modules.

# Appendix A – Specifications

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## Ki Pro Ultra Tech Specs

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### Video Formats

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- (4K) 4096 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (4K) 4096 x 2160PsF 23.98, 24, 25, 29.97\*
- (UltraHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (UltraHD) 3840 x 2160PsF 23.98, 24, 25, 29.97\*
- (2K) 2048 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1080i 50, 59.94, 60
- (HD) 1080PsF 23.98, 24, 25\*\*, 29.97\*\*
- (HD) 720p 50, 59.94, 60
- \*Only 4x 1.5G-SDI, 10-bit 4:2:2 YCbCr, Square Division
- \*\*25 and 29.97 requires Record Type>PsF selection

### Codec Support

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- Apple ProRes 4444, 4K/UltraHD/2K/HD up to 30 fps
- Apple ProRes 422 (HQ)
- Apple ProRes 422
- Apple ProRes 422 (LT)
- Apple ProRes 422 (Proxy)
- Avid DNxHR HQX up to 4K/29.97 fps
- Avid DNxHR SQ up to 4K/29.97 fps
- Avid DNxHR LB up to 4K/29.97 fps
- Avid DNxHD HQX (220x) up to 1080p 59.94 fps
- Avid DNxHD SQ (145) up to 1080p 59.94 fps
- Avid DNxHD LB (36)\*\*
- \*\*Avid DNxHD 36 only supported for 1080p

### Codec Container

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- Apple ProRes .MOV
- AVID DNX MXF or .MOV
- AVID DNxHR MXF only

### Removable Storage

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- 2x slots, AJA SSD media Pak 256, Pak 512, Pak 1000, Pak 2000
- Pak-Adapt-eSATA\*, Pak-Adapt-CFast\*
- \*Only with AJA qualified media

## Video Input Digital

- 4x 3G-SDI, SMPTE-292/296/424, 10-bit (12-bit input supported)
- 4x Fiber LC\*, 3G-SDI, SMPTE-297, 10-bit
- 4K/UltraHD 4:2:2 or 4:4:4 (4x BNC or Fiber LC\*)
- Dual Link 4:2:2, 4:4:4 (2x BNC or Fiber LC\*)
- Single Link 4:2:2, 4:4:4 (1x BNC or Fiber LC\*)
- 1x HDMI standard type A connector
- HDMI v2.0 YCbCr, 4:2:0 only at 4K/UltraHD 50, 59.94, 60
- HDMI v1.4b, RGB or YCbCr
- \*Optional SFP Modules

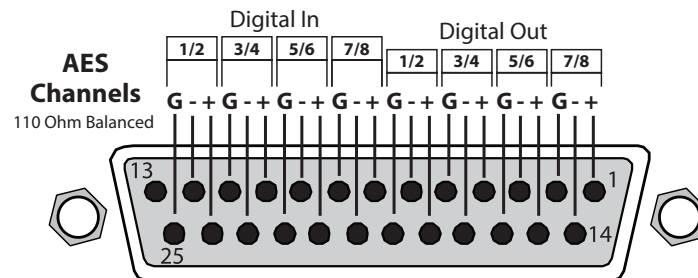
## Video Output Digital

- 4x 3G-SDI, SMPTE-292/296/424, 10-bit
- 4x Fiber LC\* 3G-SDI, SMPTE-297, 10-bit
- 4K/UltraHD 4:2:2 or 4:4:4 (4x BNC or Fiber LC\*)
- Dual Link 4:2:2 or 4:4:4 (2x BNC or Fiber LC\*)
- Single Link 4:2:2 or 4:4:4 (1x BNC or Fiber LC\*)
- 1x HDMI standard type A connector
- HDMI v2.0 YCbCr, 4:2:0 only at 4K/UltraHD 50, 59.94, 60
- HDMI v1.4b, RGB or YCbCr
- \*Optional SFP Modules

## Audio Input Digital

- 16-Channel, 24-bit SDI/Fiber embedded audio, 48 kHz sample rate, synchronous
- 8-Channel, 24-bit HDMI embedded audio, 48 kHz sample rate, synchronous
- 8-Channel, AES/EBU via (1/2x DB-25 TASCAM pinout)

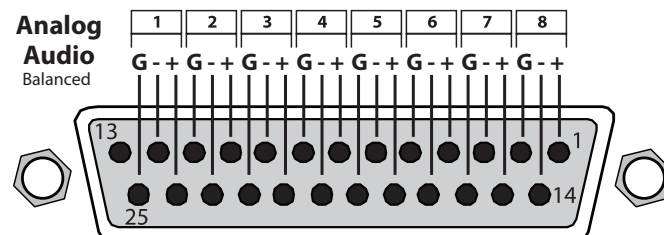
Figure 32. Digital Audio Connector Pinout



## Audio Input Analog

- 8-Channel, 24-bit A/D analog audio, 48 kHz sample rate (1x DB-25 TASCAM Pinout)
- +24 dBu full scale digital
- +/- 0.2 dB 20 Hz to 20 kHz frequency response

Figure 33. Analog Audio Connector Pinout





## Audio Output Digital

---

- 16-Channel, 24-bit SDI/Fiber embedded audio, 48 kHz sample rate, synchronous
- 8-Channel, 24-bit HDMI embedded audio, 48 kHz sample rate, synchronous
- 8-Channel, AES/EBU via (1/2x DB-25 TASCAM pinout)

## Audio Output Analog

---

- Stereo unbalanced headphone jack (1x 3.5mm jack) with volume control
- 8-Channel, 24-bit D/A analog audio, 48 kHz sample rate (1x DB-25 TASCAM pinout)
- 2-Channel unbalanced 2 x RCA connectors

## Timecode

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- SDI RP188/SMPTE 12M via SDI BNC
- LTC input (1x BNC)
- LTC output (1x BNC)

## Reference Input

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- External, 2x BNC
- Looping, nonterminating
- Blackburst or tri-level sync

## Network Interface

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- 10/100/1000 Ethernet (RJ-45)
- Embedded web server for remote control via REST
- Video Confidence Monitor via Web Interface
- Clip upload/download via Web Interface in DATA-LAN mode
- Configuration and Transport Control via WEB Interface

## Machine Control

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- RS-422, 1 x DE-9 female connector, Sony 9-pin protocol
- 9-pin D-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

## User Interface

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- Rotary selector knob
- Dedicated, backlit transport controls and menu buttons
- Large 1280 x 720 TFT LCD display with Video Monitor and Menu/Status Overlays

## Closed Captioning Support

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- CEA-708, CEA-608



## File System Support

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- HFS+, exFAT

## Size (w x d x h)

---

- 8.64" x 9.34" x 3.31" (219.46 x 237.24 x 84.08 mm)

## Weight

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- 5.6 lbs (2.6 kg)

## Power

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- Dual, redundant, 5.4A max, 35W-60W typical-65W Max
  - 100-240 VAC 50/60 Hz (adapter)
  - 12-18Vdc 4-pin XLR (chassis)

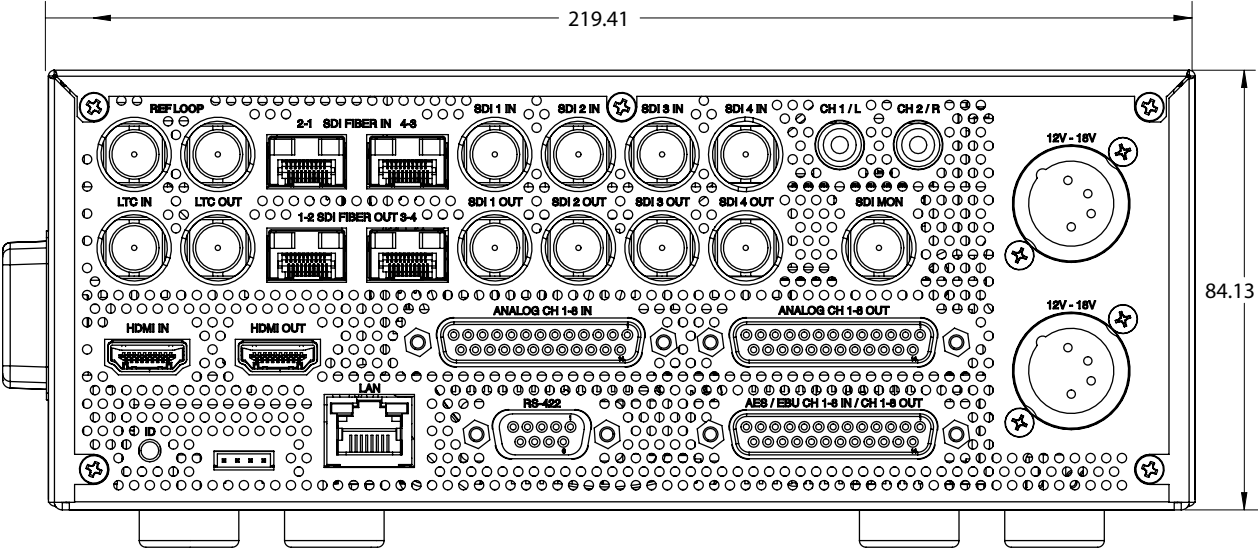
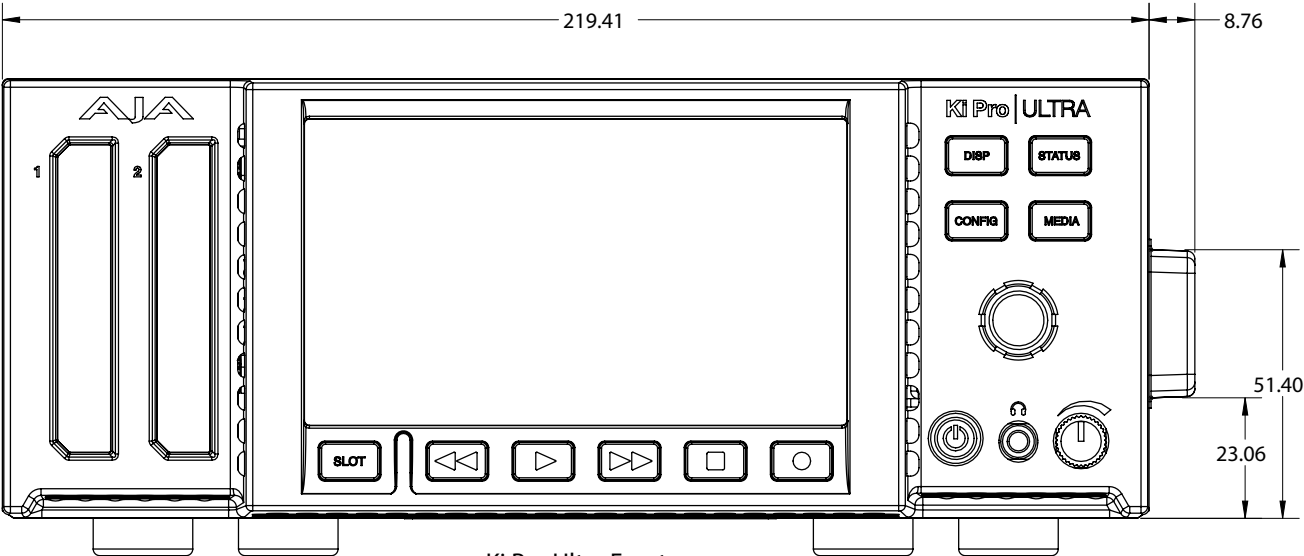
## Environment

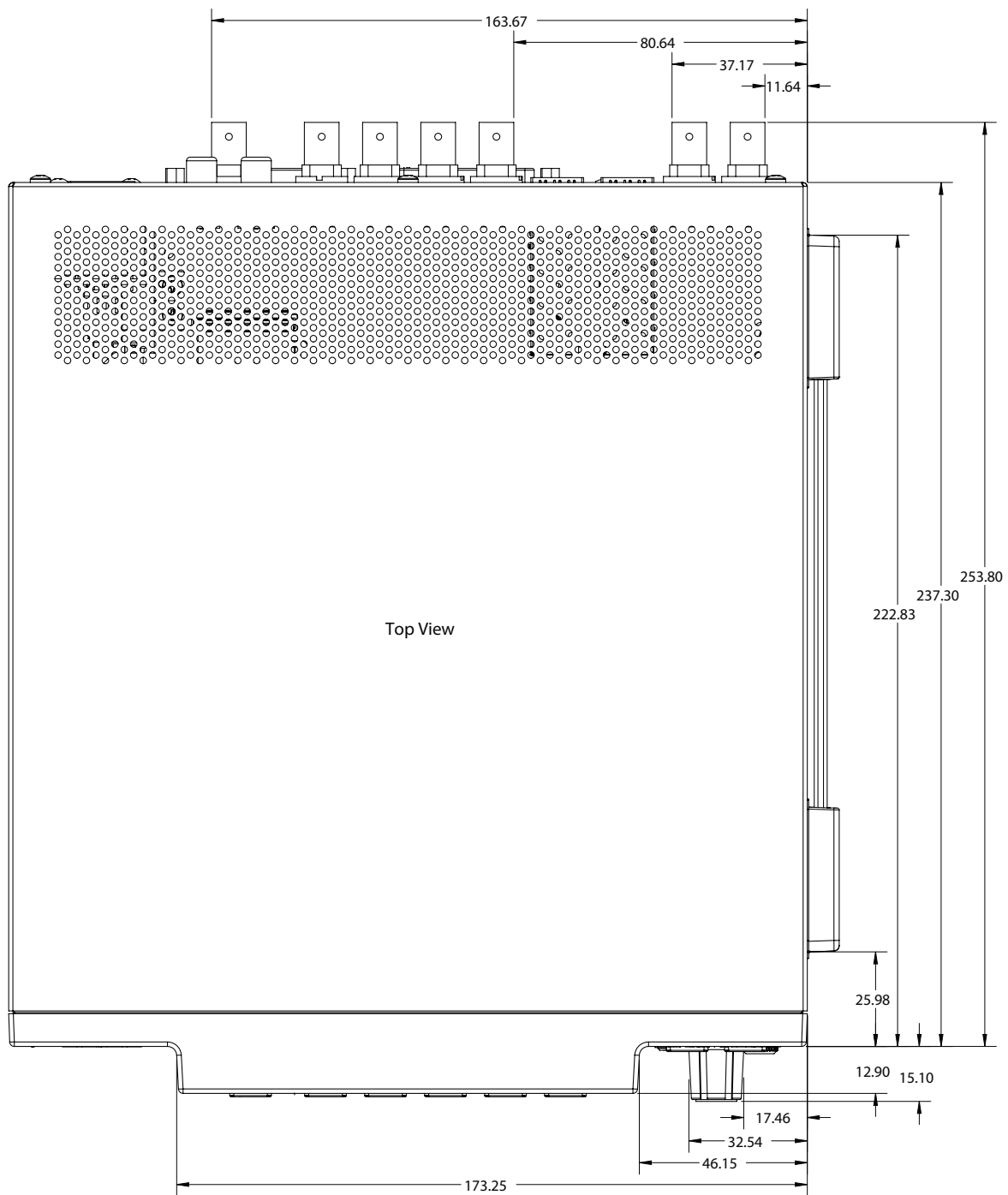
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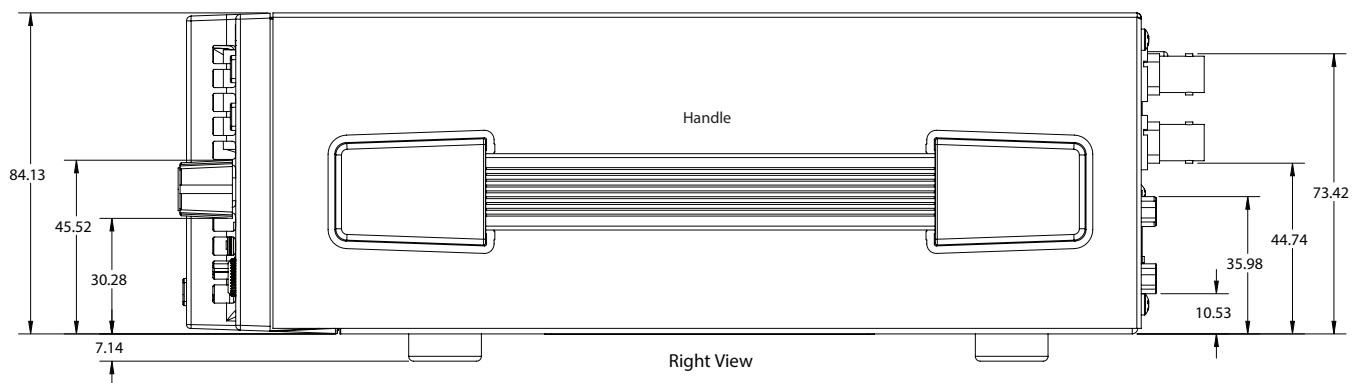
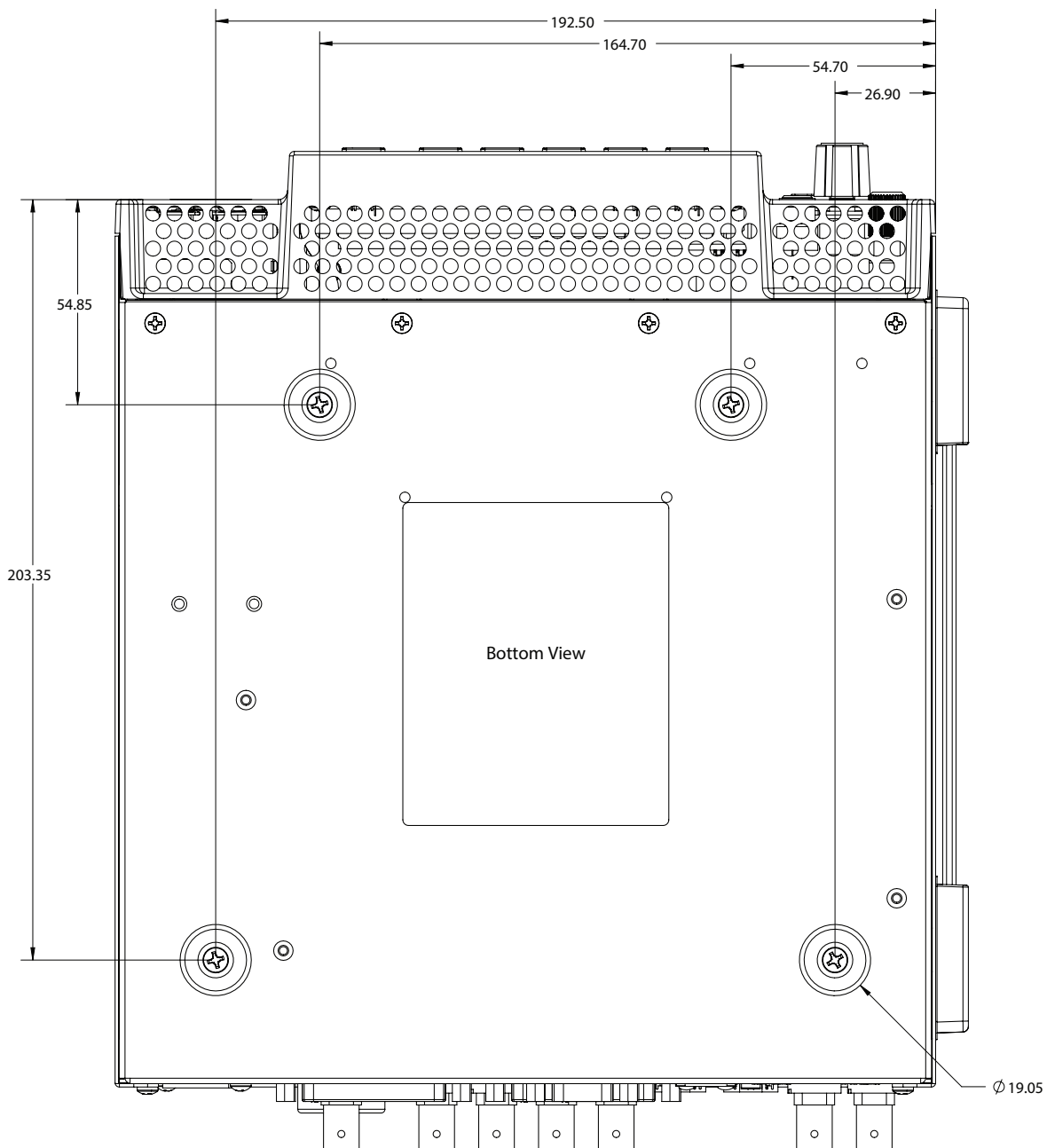
- Safe Operating Temperature: 0 to 40 C (32 to 104 F)
- Safe Storage Temperature (Power OFF): -40 to 60 C (-40 to 140 F)
- Operating Relative Humidity: 10-90% noncondensing
- Operating Altitude: <3,000 meters (<10,000 feet)

# Dimensions

Dimensions in millimeters







# Appendix B – Safety and Compliance

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## Federal Communications Commission (FCC) Compliance Notices

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### Class A Interference Statement

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This equipment has been tested and found to comply with the limits for a Class A 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 commercial 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. 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

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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 A 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 A digital apparatus complies with Canadian ICES-003.

### Règlement sur le brouillage radioélectrique du Quadstère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du Quadstère des Communications du Canada. Cet appareil numérique de la Classe A 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 2014/30/EU.



This equipment meets the following conformance standards:

### Safety

EN 60065: 2014 (T-Mark License)

IEC 60065: 2014 (CB Scheme Report/Certificate)

Additional licenses issued for specific countries available on request.

### Emissions

EN 55032: 2012, CISPR 32: 2015,

EN 61000-3-2: 2014, EN 61000-3-3: 2013

### Immunity

EN 55103-2: 2009, EN 61000-4-2:2009,

EN 61000-4-3:2006 + A1:2008 + A2:2010, EN 61000-4-4:2004 + A1:2010,

EN 61000-4-5:2006, EN 61000-4-6:2009, EN 61000-4-11:2004

Environments: E2, E3 and E4

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



**Warning!** This is a Class A 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 A. 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 A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées..

## Recycling Notice



This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.

## Korea KCC Compliance Statement

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

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 A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## Japan Compliance Statement

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

This is a Class A product based on the standard of the VCCI Council (VCCI 32: 2016). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

## China Compliance Statement

This product has been tested to the following Chinese standards:

GB13837-2012, GB8898-2011, and GB17625.1-2012

This product meets the requirements of implementation rules for compulsory certification (REF NO. CNCA-C08-01:2014) under certificate number 2016010805842057.

## Translated Warning and Caution Messages

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



**Warning!** Read and follow all warning notices and instructions marked on the product or included in the documentation.

**Avertissement!** Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.

**Warnung!** Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.

**¡Advertencia!** Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.

**Aviso!** Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.

**Avviso!** Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.



**Warning!** Do not use this device near water and clean only with a dry cloth.

**Avertissement!** N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec.

**Warnung!** Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.

**¡Advertencia!** No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.

**Aviso!** Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.

**Avviso!** Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.



**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!** 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!** 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!** 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



**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!** 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!** Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

**Avertissement!** Retirez le ou les cordons d'alimentation en CA de la source d'alimentation principale lorsque vous déplacez l'appareil.

**Warnung!** Trennen Sie die Wechselstrom-Versorgungskabel vom Netzstrom, bevor Sie das Gerät verschieben.

**¡Advertencia!** Cuando mueva la unidad desenchufe de la red eléctrica el/los cable(s) de la fuente de alimentación CA tipo brick.

**Advertência!** Remova os cabos CA de alimentação brick da rede elétrica ao mover a unidade.

**Avvertenza!** Scollegare il cavo dell'alimentatore quando si sposta l'unità.



**Caution!** The AJA Ki Pro Ultra contains a lithium battery soldered in place permanently (it is not user replaceable). If you ever dispose of the Ki Pro Ultra, ensure you follow local regulations for safe disposal. The lithium battery shall not be exposed to excessive heat, such as sunshine or fire.

**Attention !** L'AJA Ki Pro Ultra comporte une batterie au lithium rendue inamovible par soudage (elle ne peut être changée par l'utilisateur). Si jamais vous souhaitez vous débarrasser du Ki Pro Ultra, veillez à le faire en toute sécurité et dans le respect de la réglementation locale. La batterie au lithium ne doit pas être exposée à une chaleur excessive, qu'il s'agisse du soleil ou d'un feu.

**Vorsicht!** Der AJA Ki Pro Ultra enthält eine Lithiumbatterie, die dauerhaft in Stellung gelötet ist (sie kann nicht vom Anwender ausgewechselt werden). Wenn der Ki Pro Ultra jemals entsorgt wird, müssen die örtlichen Regeln bezüglich sicherer Entsorgung befolgt werden. Die Lithiumbatterie darf keiner übermäßigen Wärme ausgesetzt werden, wie z.B. Sonneneinstrahlung oder Feuer.

**Attenzione!** Il Ki Pro Ultra di AJA contiene una batteria al litio saldata in modo permanente (non può essere sostituita dall'utente). Se si elimina il Ki Pro Ultra, seguire scrupolosamente le norme locali concernenti lo smaltimento in sicurezza. La batteria al litio non deve essere esposta a calore eccessivo, come quello della luce solare diretta o del fuoco.

**Cuidado!** O AJA Ki Pro Ultra contém uma bateria de lítio soldada permanentemente no lugar (não pode ser substituída pelo utilizador). Ao eliminar o Ki Pro Ultra, certifique-se que o faz seguindo as regulamentações locais para uma eliminação segura. A bateria de lítio não deverá ser exposta a calor excessivo, como por exemplo, luz do sol ou lume.

**¡Cuidado!** El AJA Ki Pro Ultra contiene una batería de litio soldada en su lugar de forma permanente (no es reemplazable por el usuario). Si alguna vez decide deshacerse del Pro Ultra Ki, asegúrese de seguir las regulaciones locales para la eliminación segura. La batería de litio no debe exponerse a excesivo calor, como el sol o fuego.



**Warning!** Ki Pro Ultra has no user-serviceable parts. To remove power from the unit, remove the 4-pin XLR 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.

**Avertissement !** Aucun des composants du Ki Pro Ultra ne peut être remplacé par l'utilisateur. Pour mettre l'unité hors tension, déconnectez-la en débranchant le connecteur électrique XLR à quatre broches. Confiez l'entretien à du personnel de maintenance qualifié. Il faut effectuer une révision lorsque l'appareil a été endommagé de quelque façon que ce soit, par exemple lorsque le câble d'alimentation ou le connecteur est endommagé, lorsque du liquide a été renversé ou que des objets sont tombés sur l'appareil, lorsque ce dernier a été exposé à la pluie ou à l'humidité, lorsqu'il ne fonctionne pas normalement ou lorsqu'il a subi une chute.

**Achtung!** Der Ki Pro Ultra besitzt keine vom Anwender zu wartenden Teile. Um die Einheit stromlos zu schalten, den 4-Stift XLR Stromanschluss abziehen, um Abschaltung sicherzustellen. Wartung darf nur von qualifiziertem Wartungspersonal vorgenommen werden. Wartung ist erforderlich, falls das Gerät auf irgendeine Weise beschädigt worden ist, z.B. wenn das Netzkabel oder der Stecker beschädigt wurde, Flüssigkeit in das Gerät verschüttet wurde oder Gegenstände in das Gerät gefallen sind, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, es nicht auf normale Weise funktioniert oder fallengelassen wurde.

**Avvertenza!** Il Ki Pro Ultra non contiene parti su cui l'utente possa intervenire. Per spegnere il dispositivo, rimuovere il connettore di alimentazione XLR a 4 contatti. Per qualsiasi intervento rivolgersi a personale di manutenzione qualificato. È necessario intervenire sul dispositivo se questo è stato danneggiato in un modo qualsiasi, ad esempio la spina o il cavo di alimentazione ha subito danni, è stato versato liquido o sono caduti oggetti sul dispositivo oppure se il dispositivo è stato esposto alla pioggia o a umidità, non funziona normalmente o è caduto.

**Avvertenza!** In alcuni Paesi, potrebbe essere necessario fornire il corretto cavo di alimentazione. Usare solo un cavo per corrente alternata a norma IEC 320 tipo C-13 con corrente e tensione nominali di almeno 10 A a 250 V e certificato per il Paese in cui sarà usato.

**Aviso!** O Ki Pro Ultra não tem partes de manutenção pelo utilizador. Para retirar a energia da unidade, retire o conector de energia XLR de 4 pinos, para assegurar a desconexão. Indique toda a manutenção para pessoal de manutenção qualificado. A manutenção é necessária quando o dispositivo tiver sido danificado sob qualquer forma, como, por exemplo, se o cabo eléctrico ou de alimentação foi danificado, líquido foi derramado ou objectos caíram sobre o dispositivo, o dispositivo foi exposto a chuva ou humidade, não funciona normalmente ou se tiver caído.

**¡Advertencia!** Ki Pro Ultra no tiene piezas que el usuario pueda reparar. Para eliminar el potencia de la unidad, retire el conector de alimentación de 4 pines XLR para asegurar la desconexión. Diríjase a un personal calificado de servicio para toda reparación. Se requiere servicio cuando el aparato ha sido dañado de cualquier forma, por ejemplo el cable de alimentación o el enchufe está dañado, se ha derramado líquido u objetos han caído en el dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, no funciona normalmente o se ha caído.

# Warranty and Liability Information

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AJA VIDEO SYSTEMS, INC.

## Limited Warranty on Hardware

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AJA Video Systems, Inc. (AJA Video) warrants that the hardware product, not including storage modules or software components, will be free from defects in materials and workmanship for a period of three (3) years from the date of purchase. AJA Video warrants that the storage modules provided as part of the hardware product will be free from defects in materials and workmanship for a period of one year from the date of purchase. AJA Video provides a separate software warranty as part of the license agreement applicable to software components.

If a hardware product or storage module (hereafter, a “product”) proves to be defective during the applicable 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>. 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.

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