ImagePRO–4K Video Processor

User's Guide

BARCO

Changes

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Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

FCC responsible: Barco Inc.

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EN55032/CISPR32 Class A MME (MultiMedia Equipment)

Warning : This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

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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 adequate measures.

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Please refer to *www.barco.com/about-barco/legal/patents*

Introduction

1

Overview

- About this guide
- Record of changes
- Symbols, pictures and fonts

1.1 About this guide

This manual

This user's guide describes how to install and operate the ImagePRO–4K video processor. The user's guide is designed to be a reference tool in the everyday work of the user with the product. It contains a complete description of the hardware components and the control software. The manual also includes all the necessary instructions on how to upgrade firmware, install spare parts and perform any hardware upgrades.

> Barco provides a 3-year parts and labor warranty for all hardware components. Please refer to "Warranty", page 123 for specific details regarding the warranty terms.

Available system documentation

This guide is part of the documentation set describing the ImagePRO–4K product.

Guide	Article number
Quick Start Guide	26-1602004-00
User Guide	R5906167
Service Guide	R5906168 (Available only to Customer Service partners)
Safety Guide	R5906169

A printed copy of the safety guide and the quick start guide is included in the shipping box of the ImagePRO–4K video processor. Please check online for the other documents.

> Always check for the latest version of all documents on *www.barco.com*.
> The latest versions of firmware and software can be found at *www.barco.com* or on *ftp://ftp.folsom.com*.

1.2 Record of changes

Overview

Revision	Changes
00	Initial version

1.3 Symbols, pictures and fonts

Symbol overview

The following icons are used in the manual:

⚠	Caution
⚡	Warning
ⓘ	Info, term definition. General info about the term

	Note: gives extra information about the described subject
	Tip: gives extra advice about the described subject

Picture overview

Images and pictures given in the manual are used as illustration. The content of the images can be slightly different from the reality, e.g. version numbers, device types, installed modules, and the form and position of software windows on screen.

Safety

2

About this chapter

Please read this chapter carefully. It contains important information to prevent personal injury while installing and operating ImagePRO–4K video processor. Furthermore, it includes several cautions to prevent damage to the device. Ensure that you understand and follow all safety guidelines, safety instructions and warnings mentioned in this chapter before you begin installation. After this chapter, additional "warnings" and "cautions" are given depending on the installation procedure. Read and follow these "warnings" and "cautions" as well.

Overview

- General considerations
- Certificates
- Important safety instructions

2.1 General considerations

General safety instructions

• Before operating these devices please read this manual thoroughly and retain it for future reference.
• All warnings in the documentation manual should be adhered to.
• All instructions for operating and use of these devices must be followed precisely.
• All local installation codes should be adhered to.

Notice on safety

This equipment is built in accordance with the requirements of the international safety standards IEC60950-1, EN60950-1, UL60950-1 and CAN/CSA C22.2 No.60950-1, which are the safety standards of information technology equipment including electrical business equipment. These safety standards impose important requirements on the use of safety critical components, materials and insulation, in order to protect the user or operator against risk of electric shock and energy hazard and having access to live parts. Safety standards also impose limits to the internal and external temperature rises, radiation levels, mechanical stability and strength, enclosure construction and protection against the risk of fire. Simulated single fault condition testing ensures the safety of the equipment to the user even when the equipment's normal operation fails.

2.2 Certificates

CE mark

Image 2-1: CE mark

These products comply with the essential requirements of Council Directives 2004/108/EC or 2014/30/EU (EMC), 2006/95/EC or 2014/35/EU (LVD) and 2011/65/EU (RoHS).

KCC statement (사용자안내문)

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Image 2-2: KCC mark

2.3 Important safety instructions

To prevent risk, personal injury, and ImagePRO–4K video processor damage

Please read this chapter carefully. It includes several cautions to prevent damage to Event Master devices. Ensure that you understand and follow all safety guidelines, safety instructions and warnings mentioned in this chapter before installing Event Master devices. After this chapter, additional "warnings" and "cautions" are given depending on the installation procedure. Read and follow these "warnings" and "cautions" as well.

• Read and follow all installation and operation instructions.
• Only trained technicians may install ImagePRO–4K products.
• Only use attachments/accessories specified by the manufacturer.
• CAUTION: Troubleshooting must be performed by a trained technician. To reduce the risk of electrical shock, do not attempt to service this equipment unless you are qualified to do so.

- Refer all servicing to qualified service personnel. Servicing is required when the system has been damaged in any way, such as liquid has been spilled or objects have fallen into the system, or the system has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Do not remove any covers or panels during normal operation. Removal any of these items will expose sensitive electronic circuits and the unit may be damaged.
- During maintenance operations, always switch off the device and unplug power cords before removing one of the covers.
- Always wear a wrist band which is connected to the ground while handling the ESD sensitive parts.
- Wear insulating gloves during the execution of the installation and maintenance actions to avoid short-circuit.
- Be careful never to drop anything into the device assembly during the service procedures.
- Be careful to always follow the procedures during maintenance operations (spare parts replacement).
- This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.
- This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation. For 120V installations the power supply cord should be rated at 13 amps. For 230V installations the power supply cord should be rated 10 amps.
- Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.
- Replace spare parts only with the same parts supplied by Barco.
- Save the original shipping carton and packing material. They will come in handy if you ever have to ship your equipment. For maximum protection, repack your set as it was originally packed at the factory.
- Rated maximum ambient operating temperature, ta= 40°C (104°F).
- Do not operate this product in an area containing explosive materials.

Safety Data Sheets for Hazardous Chemicals

For safe handling information on chemical products, consult the Safety Data Sheet (SDS). SDSs are available upon request via safetydatasheets@barco.com.

Safety

General

3

About this chapter

This chapter is designed to introduce you to the ImagePRO–4K video processor.

Overview

- ImagePRO–4K video processor overview
- ImagePRO–4K video processor features
- Terms and definitions
- Unpacking and inspection
- Installation requirements

3.1 ImagePRO–4K video processor overview

About the ImagePRO–4K video processor

Image 3-1: The ImagePRO–4K video processor

- Superb performance
  In 2004 the Folsom ImagePRO revolutionized HD video processing for live events. The ImagePRO–4K continues and extends that legacy, processing signals from XGA to full 4K60p 4:4:4 10-bit.
  The latest I/O connectors enable you to convert HDMI 2.0, DP 1.2 and 3G – 12G SDI signals, while also enabling output image rotation.
- Road-ready and reliable
  Like all Barco image processing products, the ImagePRO–4K is built for life on the road. Assembled and tested for extreme use and abuse, the ImagePRO–4K performs just as well at the gig as it does in the shop. The live-source view on the front panel provides you with a clear view of the incoming signal giving you the confidence you need to execute your event.
- LED at your fingertips
  Need to slice and dice LED signals? The ImagePRO–4K can either chop up single inputs across several connectors, or drive multiple walls from multiple sources. The LED set-up menu guides you through the process.
- External control
  You can remotely control all ImagePRO–4K features from a computer, using the Event Master Toolset (EMTS) GUI. With the easy-to-use pages, menus and graphics of the EMTS, you can, for example, upgrade system firmware, run test patterns, and control inputs and outputs. For more information about the EMTS GUI, refer to "Event Master Toolset", page 101.
  You can also operate the ImagePRO–4K remotely using a Barco Event Master EC-30/50/200/210 controller.

3.2 ImagePRO–4K video processor features

Features of the ImagePRO–4K video processor

The ImagePRO–4K video processor provides the following features:

- Chassis
  - 1 RU
  - Two modular slots
    ◦ One slot supports Generation 2 Event Master Input cards.
    ◦ One slot supports Generation 2 Event Master Output cards.
  - Single power input
  - One Gigabit Ethernet (GbE) connection with a lockable Ethercon™ connector
- Control
  - Front-panel control
  - External control
    ◦ Event Master Toolset (EMTS) GUI
    ◦ Event Master EC-30/50/200/210 controller
- Inputs
  - Input slot supporting Generation 2 Event Master input module
    ◦ Up to 6 inputs, with Tri-Combo Input card
    ◦ Up to 4 inputs with a quad connector card (will be supported in a future software release)
  - External Genlock Reference Input on BNC connector
    ◦ Fixed internal 75 ohm termination
    ◦ SD NTSC or PAL Blackburst

SMPTE 274M-2008
- ◦ Composite SD NTSC or PAL Bi-level Sync (No Blackburst)
  SMPTE 296M-2001
- ◦ Composite HD Tri-level sync
  SMPTE 274M-2008
- • Outputs
  - - Output slot supporting Generation 2 Event Master output module
    - ◦ Up to 6 inputs, with Tri-Combo Output card
    - ◦ Up to 4 outputs with a quad connector card (will be supported in a future software release)
  - - Genlock reference output on BNC connector
  - - Output rotation
  - - Image sizing
  - - Custom timing formats
- • Video transition types
  - - Fade through matte
  - - Fade through unscaled logo
  - - Cut to new source

3.3 Terms and definitions

Area of Interest (AOI)

The portion of the output display that a video image occupies.

Computer Video

A generic term indicating video that originates from a computer platform. A progressive scan signal that follows VESA (Video Electronics Standards Association) standards, with typical resolutions of 800 x 600, 1024 x 768, 1280 x 1024, etc.

DisplayPort (DP)

Digital display interface developed by the Video Electronics Standards Association (VESA). This royalty-free interface is primarily used to connect a video source to a display device such as a computer monitor, though it can also be used to transmit audio, USB, and other forms of data. VESA designed it to replace VGA, DVI, and FPD-Link. Backward compatibility to VGA and DVI by using active adapter dongles enables users to use DisplayPort fitted video sources without replacing existing display devices.

Event Master Toolset (EMTS)

Event Master Toolset Software is an easy to use GUI running on a PC or MAC. It provides all the Event Master series processors with control and configuration.

High-Definition Multimedia Interface (HDMI)

HDMI is a compact audio/video interface for transferring uncompressed video data and compressed/uncompressed digital audio data from a HDMI-compliant device ("the source device") to a compatible computer monitor, video projector, digital television, or digital audio device. HDMI is a digital replacement for existing analog video standards.

High-Bandwidth Digital Content Protection (HDCP)

A standard for encryption, defined by Intel Corporation to prevent copying of encrypted digital audio and video content.

Logo

A full-screen still image that you can capture, import, and store for subsequent display by the ImagePRO–4K video processor.

Menu

A scrollable list of options available on the front-panel display or the EMTS GUI.

National Television Standards Committee (NTSC)

The oldest standard for color picture broadcasting. NTSC is a standard definition format that operates at a frequency of 59.94Hz, with 525 lines, 59.94 fields and 29.97 frames per second.

Phase Alternating Line (PAL)

PAL is the predominant TV standard in Europe. PAL is a standard definition format that operates at a frequency of 50Hz, with 625 lines, 50 fields, and 25 frames per second.

RGB

A color space that represents color as the red, green, and blue color signal components.

Serial Digital Interface (SDI)

SDI is a serial link standardized by the Society of Motion Picture and Television Engineers (SMPTE). SDI transmits uncompressed digital video over 75-ohm coaxial cable within studios, and is seen on most professional video infrastructure equipment.

Society of Motion Picture and Television Engineers (SMPTE)

A professional association that develops and publishes video-related standards.

YCbCr

A color space that represents color as brightness and two color difference signals. Y is the brightness (luma), Cb is the blue-difference (blue minus luma: B-Y) and Cr is the red-difference (red minus luma: R-Y).

3.4 Unpacking and inspection

General

Before shipment, all the devices were inspected and found to be free of mechanical and electrical defects. As soon as the devices are unpacked, inspect for any damage that may have occurred in transit. Save all packing material until the inspection is completed. If damage is found, file claim with carrier immediately. The Barco Sales and the Service office should be notified as soon as possible.

Unpacking

At delivery, Event Master devices are packed in a shipping case. Place the shipping case of the device on a stable (solid), flat and insulated support during all the unpacking. Open the case from the top. Remove the device that is packaged in an antistatic bag. Check the box content after unpacking.

> After unpacking let the device acclimate to the room temperature which must be higher than 0°C (32°F) and lower than 40°C (104°F). Neglecting this may result in startup failure of the device.

> When shipping an ImagePRO–4K video processor in a Barco-supplied case, make sure that the rear connector protectors are installed to prevent damage.

> Save the original shipping case and packing material, these will be necessary if you ever have to ship your device. For maximum protection, repack your device as it was originally packed at the factory.

Box content

After unpacking an ImagePRO–4K device, it is recommended that it be checked to see if all accessories were included. The following accessories should be included.

Product	Contains	Accessories included
R9004795 (Image-PRO–4K)	1RU rack mount chassis	ImagePRO–4K assembly
	1x 14-9750004-90	European Power Cord CEE7 (not included with units shipped to China)
	1x B1959864	US Power Cord NEMA 5/15 (not included with units shipped to China)
	1x B1959865	China Power Cord GB 2099 (only included with units shipped to China)
	1x R9871179	Rear Rack Mount Support Kit, includes brackets, side support plates, screws, and washers
	2x 09-0904021-90	Rear connector protectors
	4x 13-0211010-90	8-32 x .38 Pan Head Screws for rear connector protectors (x2 per protector)
	B561132	USB Thumb Drive (Contains Users Guide, System Software and Control GUI)

Mechanical check

This check should confirm that there are no broken parts and the unit is free of dents or scratches. Your Barco Sales representative should be notified as soon as possible if this is not the case.

3.5 Installation requirements

Environmental conditions

The unit must always be mounted in a manner which ensures both air inlets and outlets are free. For installations in environments where the device is subject to excessive dust, it is highly advisable to take measures to prevent the dust from reaching the unit. If this is not a feasible, then the unit should be relocated to a different dust-free location.

It is the customer's responsibility to ensure at all times that the device is protected from the harmful effects of hostile airborne particles in the environment of the device. The manufacturer reserves the right to refuse repair if a device has been subject to negligence, abandon or improper use.

The table below summarizes the physical environment in which the ImagePRO–4K video processor may be safely operated or stored.

Environment	Operating	Non-Operating
Ambient Temperature	0°C (32°F) to 40°C (104°F)	-10°C (14°F) to 60°C (140°F)
Air cleanliness	Clean office environment (equivalent with cleanroom standard ISO 14644-1 ISO Class 9)	n.a.
Humidity	5% to 85% RH Non-Condensed	0% to 95% RH Non-Condensed
Altitude	-60 (-197Ft) to 2000m (6561Ft)	-60 (-197Ft) to 10000m (32810Ft)

Site preparation

The environment in which you install your ImagePRO–4K video processor should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

Do not install the device in a site near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or humidity. Be aware that room heat rises to the ceiling; check that temperature near the installation site is not excessive.

Rack-mount installation

The ImagePRO–4K chassis is designed to be rack mounted and is supplied with front rackmount hardware.

> 📄 The ImagePRO–4K chassis can also be used in a "tabletop" configuration, without rack mounting.

When rack mounting the ImagePRO–4K chassis, remember the following important points:

• The ImagePRO–4K chassis is 1RU in height.
• The maximum ambient operating temperature is 40°C (104°F).
• Leave at least one inch of space (front and rear) to ensure that the airflow through the fan and vent holes is not restricted.
• When installing multiple units into a rack, distribute them evenly to prevent hazardous conditions that may be created by uneven weight distribution.
• Connect the unit only to a properly rated supply circuit.
• Reliable grounding (earthing) of rack-mounted equipment should be maintained.
• Rack mount the unit from the front rack ears using four rack screws (not supplied). Threads may be metric or otherwise, depending upon the rack type.

ImagePRO– 4K units are shipped with side rails included in the shipping case and not installed onto the chassis. These side rails, when they are properly installed and adjusted, assist with the distribution of chassis (and cable) weight within your rack. Use the following steps to properly adjust the side rails:

1. Measure and install the two supplied mounting brackets on your rear rack rails.

Image 3-2: Mounting bracket

2. Measure the distance between the front and rear rack rails. Remove the mounting screws that secure each side rail to the chassis, and then adjust the spacing of each side rail as necessary. The ImagePRO–4K uses two mounting screws on each side rail.
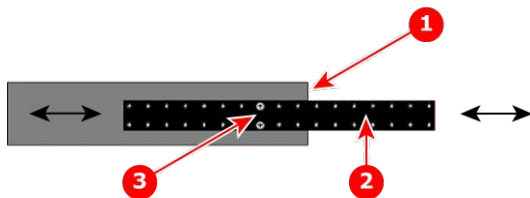
Image 3-3: ImagePRO–4K chassis with side rail and mounting screws

1. Chassis rear
2. Side rail
3. Mounting screws

3. Re-install the mounting screws. When properly adjusted, the end of each side rail will protrude through the slot in the rear mounting bracket, once the chassis is rack mounted.
4. Lift the chassis, and while supporting it, slide the side rails through the slots in the rear mounting brackets.
5. While continuing to support the chassis, install and tighten the two lower screws.
6. Finally, install and tighten the two uppers screws in the rack rail.

Cable and adapter information

The table below provides information regarding cables used with the ImagePRO–4K. When connecting to an ImagePRO–4K, use high-quality shielded cables.

Cable	Description	Notes
RJ-45 Ethernet cable	For use with external controllers or Web Interface and EMTS GUI	For remote connections; customer supplied
AC power cord	AC Power, 7 foot, 10A	For power connection; 1 cord supplied

Power cord and line voltage selection

The ImagePRO–4K is rated to operate with the following specifications:

- Input Power: 100-240 VAC, 50-60 Hz
- Power Consumption: 2A maximum

The ImagePRO– 4K performs line voltage selection automatically. No user controls are required. The AC power cords must be accessible so that they can be removed during field servicing.

> **WARNING:** When used above 230 volts, a UL listed line cord rated for 250 volts at 15 amps must be used and must conform to IEC-227 and IEC-245 standards. This cord will be fitted with a tandem prong-type plug.
> The rear panel ON/OFF switch does not disconnect the unit from input AC power. To facilitate disconnection of AC power, the power cord must be connected to an accessible outlet near the unit.
>
> Building Branch Circuit Protection: For 115 V use 20 A. For 230 V use 8 A.

Hardware Orientation

4

About this chapter

This chapter explains the ImagePRO–4K video processor's hardware in detail.

Overview

- Front panel
- Rear panel

4.1 Front panel

About the front panel

See Image 4-1 for an illustration of the ImagePRO–4K front panel.

Image 4-1: Front panel

1. USB port
2. Display screen
3. Adjust knob
4. Menu/Monitor mode toggle button
5. LED setup button
6. Escape button

7. Test pattern button
8. Source buttons: SRC 1 through SRC 8
9. Output buttons: OUT 1 through OUT 6
10. Freeze button
11. Take button

Following are descriptions of each front panel control feature:

1. USB port
   The USB port supports uploading and downloading system configurations and upgrading ImagePRO–4K firmware.

2. Display screen
   The LCD color video display shows all ImagePRO-4K menus, sub-menus, and messages. The display can be toggled between Menu mode and Monitor mode.

3. Adjust knob
   • Turn the Adjust knob to scroll up or down through the menus.
      - Turn the knob clockwise to scroll down.
      - Turn the knob counter-clockwise to scroll up.
   • Press the Adjust knob to select menu items.

4. Menu/Monitor mode toggle button
   The Menu/Monitor mode toggle button toggles the display between Menu mode and Monitor mode.

5. LED setup button
   The LED setup button accesses the Setup Menu.

6. ESC (Escape) button
   Press the ESC button to exit a menu without making changes, to cancel an operation, to answer No to menu queries, or to return to the Status Menu. Each press takes you back up the menu tree one level.

7. Test pattern button
   The Test pattern button sets up a test pattern on the selected output.

8. Source buttons: SRC 1 through SRC 8
   Source buttons 1 through 6 default to the input sources on the Tri-Combo input card; SRC 7 defaults to "Matte"; and SRC 8 defaults to "Logo." All of the source buttons can be re-mapped, and they can be mapped as Presets.

9. Output buttons: OUT 1 through OUT 6
   Output buttons 1 through 6 default to the outputs on the Tri-Combo output card. OUT 1 is mapped as Aux Channel A, OUT 2 as Aux Channel B. OUT 3 – 6 are not mapped.

10. FRZ (Freeze) button
   FRZ (FREEZE) enables you to freeze a displayed image.

11. Take button
   The Take button executes transitions in Preview mode.

4.2 Rear panel

About the rear panel

See Image 4-2 for an illustration of the ImagePRO–4K rear panel.
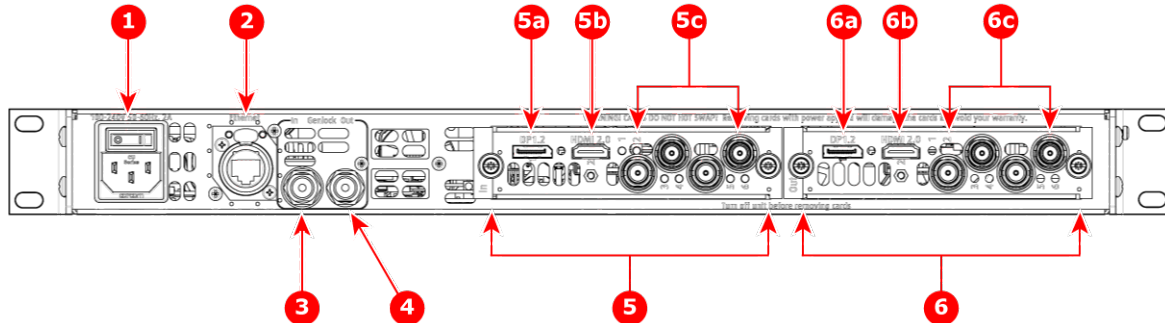
Image 4-2: Rear panel

1. AC power
2. Ethernet port
3. BNC: Genlock In
4. BNC: Genlock Output
5. Tri-Combo input card
5a. DisplayPort 1.2

5b. HDMI 2.0
5c. SDI 1 through SDI 4
6. Tri-Combo output card
6a. DisplayPort 1.2
6b. HDMI 2.0
6c. SDI 1 through SDI 4

Following are descriptions of each rear-panel control feature:

1. AC power
   A single AC connector with a power switch connects the ImagePRO–4K to your facility's AC power source through the supplied power cord. The integral switch turns the unit on and off.
   100-240 VAC, 50/60Hz, 125w

2. Ethernet port
   One RJ-45 connector provides 1000/100/10 Mbps Ethernet communications with the ImagePRO–4K. Use the Ethernet port for running the Web Interface, for diagnostics, and for connection to an external device. The Ethernet connector is compatible with:
   • Standard RJ-45 Ethernet cables
   • Neutrik EtherCon® series cables

3. BNC: Genlock In
   Genlock analog reference input is through a BNC connector with fixed 75 ohm termination and supports Blackburst and Bi-level at SD and supports Tri-level at HD.

4. BNC: Genlock Output
   An internal sync generator, capable of Bi-level and Tri-level sync signals, provides Genlock reference output, which is capable of Bi-level and Tri-level sync signals.

5. Tri-Combo input card:
   a) DisplayPort 1.2.
   b) HDMI 2.0.
   c) SDI 1 through SDI 4.

   This card provides one 20-pin DisplayPort connector, supporting DisplayPort video signal; one 19-pin HDMI connector, supporting an HDMI video signal; and 4 BNC connectors, supporting Single Link and Quad Link signals, in SD, HD, 3G, 6G, and 12G SDI formats.
   The features of this card include:
   • Up to six (6) independent signals.
   • One channel of DisplayPort video on a full-size DisplayPort connector.
   • One channel of HDMI video on a Type A connector.
   • Up to four independent SDI signals with support for SD, HD, 3G, 6G, and 12G in Single Link or Quad Link (3G).
   • An LED on each input channel that turns green when a valid sync is detected.

6. Tri-Combo output card:
   a) DisplayPort 1.2.

b) HDMI 2.0.

c) SDI 1 through SDI 4.

This card provides one 20-pin DisplayPort connector, supporting DisplayPort video signal; one 19-pin HDMI connector, supporting an HDMI video signal; and 4 BNC connectors, supporting Single Link and Quad Link signals, in SD, HD, 3G, 6G, and 12G SDI formats.
The features of this card include:

- Up to six (6) independent signals.
- One channel of DisplayPort video on a full-size DisplayPort connector.
- One channel of HDMI video on a Type A connector.
- Up to four independent SDI signals with support for SD, HD, 3G, 6G, and 12G in Single Link or Quad Link (3G).

Specifications of input and output video connections

On the system's rear panel, each of the input and output connectors maps to a corresponding source or output button on the front panel.

DisplayPort specifications

- DisplayPort per 1.2 specification
- Pixel clock up to 620 MHz
  - Max pixel clock at 24 bits/pixel = 620 Mpix/sec
  - Max pixel clock at 30 bits/pixel = 576 Mpix/sec
  - Max pixel clock at 36 bits/pixel = 480 Mpix/sec
- Supported formats
  - Formats up to 4096x2160@60 (30 bits)
  - 4K/UHD supported:
    ◦ 3840x2,400/ 50/59.94/60 via 1x DP
    ◦ 4096x2,160/ 50/59.94/60 via 1x DP
    ◦ 3840x2,160/ 50/59.94/60 via 1x DP
- Supply up to 500 mA @ 3.3V on pin 20
  - Allows the DP connector to power an external device.
  - Overcurrent protection provided by means of an auto re-settable fuse.
- Multi-Stream Transport (MST)—not supported
- EDID version 1.3 compatible
- HDCP version 1.3 compatible

HDMI specifications

- HDMI per 2.0 specification
- Pixel clock up to 600 MHz
  - Max pixel clock at 24 bits/pixel = 600 Mpix/sec
  - Max pixel clock at 30 bits/pixel = 480 Mpix/sec
  - Max pixel clock at 36 bits/pixel = 400 Mpix/sec
- Supported formats:
  - Formats up to 2560x1600@60 and 3840x1200@60 (30 bits)
  - 4K/UHD supported:
    ◦ 3840x2400/ 50/59.94/60 input via 1x HDMI
    ◦ 4096x2160/ 50/59.94/60 input via 1x HDMI
    ◦ 3840x2160/ 50/59.94/60 input via 1x HDMI
- EDID version 1.3 compatible
- HDCP version 1.4 and version 2.2 compatible

SDI specifications

- Supported formats:

Signal type	Min. BNC connector number	Max channels per card	Standard	Examples
SD	1	4	SMPTE 259M-C	480i, 576i (NTSC/PAL)
HD	1	4	SMPTE 292M	1920x1080 @ 59.94i/50i 1920x1080psf @ 23.98/24/25/29.97/30 720x480 @ 60p/50p
3G	1	4	SMPTE 424M Barcolink	1920x1080 @ 60p/50p 1920x1200 @ 60p/50p
6G	1	1	SMPTE 2081-10	3840x2160 @ 23.98/24/25/29.97/30 4096x2160 @ 23.98/24/25/29.97/30
12G	1	1	SMPTE 2082-10	3840x2160 @ 50/59.94/60 4096x2160 @ 50/59.94/60
4K / UHD	4	1	SMPTE 292M SMPTE 2048-2	**Image mapping: Quadrants** 3840x2160 @ 23.98/24/25/29.97/30 as 4x HD-SDI 4096x2160 @ 23.98/24/25/29.97/30 as 4x HD-SDI
4K / UHD	4	1	SMPTE 424M SMPTE 2048-2	**Image mapping: Quadrants** 3840x2160 @ 50/59.94/60 as 4x 3G-SDI 4096x2160 @ 50/59.94/60 60 as 4x 3G-SDI Level A and B supported
4K / UHD	4	1	SMPTE ST 425-5	**Image mapping: 2 Sample Interleave Subdivision (2SI)** 3840x2160 @ 23.98/24/25/29.97/30 as 4x HD-SDI 4096x2160 @ 23.98/24/25/29.97/30 as 4x HD-SDI 3840x2160 @ 50/59.94/60 as 4x 3G-SDI 4096x2160 @ 50/59.94/60 60 as 4x 3G-SDI Level A and B supported

Genlock input connector

The genlock input supports NTSC and PAL Blackburst, as well as SD bi-level and HD tri-level sync signals, per SMPTE 274M and SMPTE 296M.

When the ImagePRO–4K is genlocked and the lock source is lost for some reason, the output of the unit automatically switches to a "coasting" state without any discernible "glitching" on the output display device. The user interface still indicates that the genlock source is "Lock to External." The system does not, however, automatically relock to the external source. The user must reselect **Lock to External**. This prevents constant glitching of the outputs if the genlock source is not stable.

Once the genlock source is restored, the user can then re-select **Lock to External** to re-lock to the external source.

> Selecting **Lock to External** may cause the outputs to temporarily glitch, while the system is synchronizing to the new source. If the genlock source has been permanently removed, it is advisable to manually switch the system to **Freerun** to ensure a stable output.
> Any time genlock settings are changed, there is a chance of a momentary glitch to the outputs.

Setup and operation

5

About this chapter

This chapter describes how to quickly set up and begin operating your system, follow the steps in this section. Links are provided to the appropriate sections in this guide, if you require more information.

Overview

- Rear-panel connections
- Front-panel operation
- Factory reset

5.1 Rear-panel connections

> 📄 Refer to "Rear panel", page 23 for the location of the power, input, and output connections and for the location of the power switch.

Rear panel

1. **Connect power**—Ensure that power is properly connected to the ImagePRO–4K video processor.
2. **Connect inputs**—Connect all input sources to the ImagePRO–4K.
3. **Connect outputs**—Connect the output(s) on the ImagePRO–4K to your projector(s) or other target devices.
4. **Turn on power**—Turn on power to the ImagePRO–4K, your connected display devices, and to all peripheral equipment.

5.2 Front-panel operation

Front-panel features

> 📄 Refer to "Front panel", page 22 for the location and description of the front-panel features.
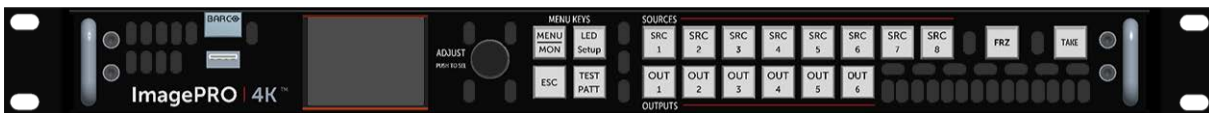
Image 5-1: ImagePRO–4K front panel

Display screen

The display screen is a 45 mm by 35 mm LED screen that displays the status of the system and the menus and submenus of the system. The display screen can also monitor the input to or the output from the system.

At power-up, the display screen displays the status of the system.


```
IP: 192.168.000.190
Input: DPInput1-1
1920x1080p @60
CHA: 1920x1080p @59.94
CHB: 1920x1080p @59.94
Genlock: Freerun
Push Adjust knob for menus
```
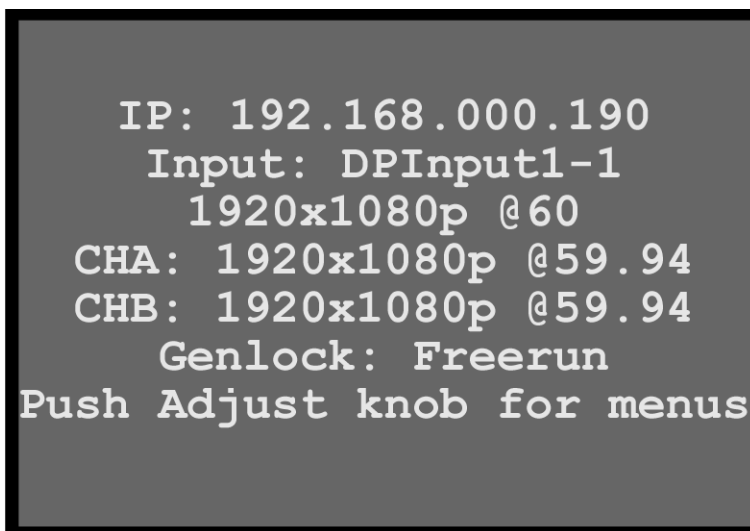
Image 5-2: Display screen showing status

Push the Adjust knob to enter the Setup menu.
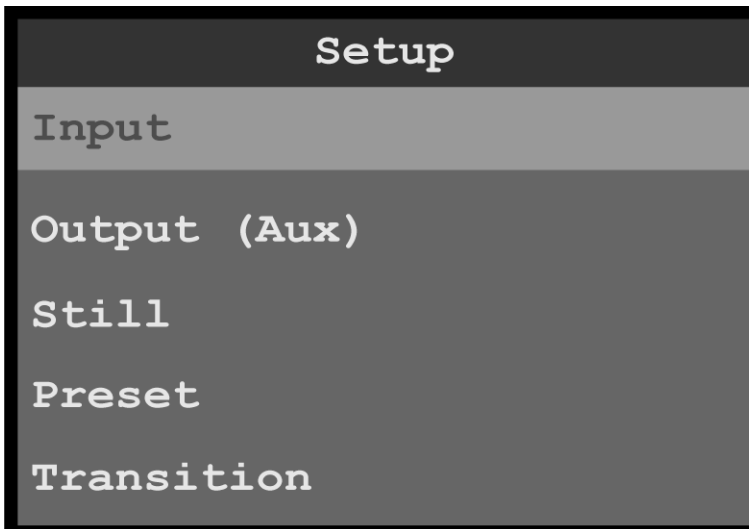
Image 5-3: Display screen showing Setup menu

Push the **MENU/MON** menu key to toggle the display screen between menu mode and monitor mode.
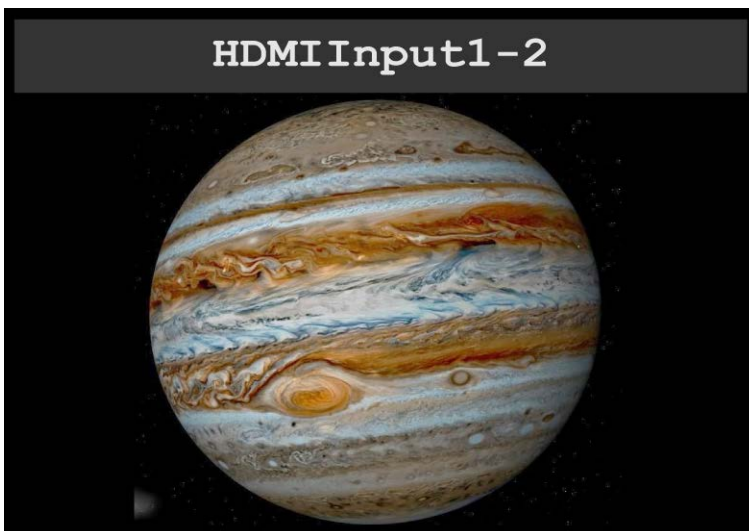
Image 5-4: Display screen monitoring HDMI input

Display screen controls

The display-screen controls include the adjust knob and the menu keys: **MENU/MON**, **LED Setup**, **ESC**, and **TEST PATT**.

Adjust knob

1. Press the Adjust knob to enter the Setup menu.
2. Turn the Adjust knob to scroll up or down through the menus.
   - Turn the knob clockwise to scroll down.
   - Turn the knob counter-clockwise to scroll up.
3. Press the Adjust knob to select menu items.

MENU/MON key

1. Press the **MENU/MON** menu key to toggle between menu mode, in which the display screen shows the menus, and monitor mode, in which the display monitors either input or output. The system has two types of monitor: it can monitor the output, or it can monitor the input. If an output button is amber, the system is monitoring that output. If the output buttons are green, the system is monitoring **input**.

LED
Setup

LED Setup key

1. Press the **LED Setup** menu key to enter the LED Setup.
2. Scroll through the LED Setup menu to select the Aux channel, the wall sizing, and the image sizing.
3. Select **Save All** to save your settings.

TEST
PATT

TEST PATT key

1. Press the **TEST PATT** menu key to enter the Test Pattern menu.
2. Scroll through the Test Pattern menu to select the Aux channel and the type of test pattern and to set the AOI Raster Box, the Output Raster Box, and the Diagonal Motion on or off. The test-pattern types are:
   - Off
   - Horizontal Ramp
   - Vertical Ramp
   - 100% Color Bars
   - 16x16 Grid
   - 32x32 Grid
   - Burst
   - 75% Color Bars
   - 50% Gray
   - Horizontal Steps
   - Vertical Steps
   - White
   - Black
   - SMPTE Bars
   - H Alignment
   - V Alignment
   - HV Alignment
   - Circle Alignment
   - Red
   - Green
   - Blue

- **SMPTE Bars** can be used to determine if the signal chain has a full or reduced range.
- **Circle Alignment** can be used to determine if the signal chain is horizontally or vertically scaled. The horizontal and vertical grid spacing, grid color, grid orientation, and grid width can all be adjusted.
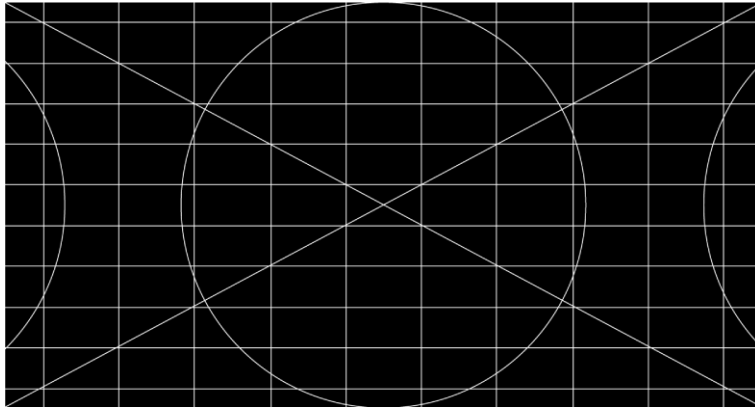
Image 5-5: Circle Alignment test pattern

Circle Alignment also has an LED mode.
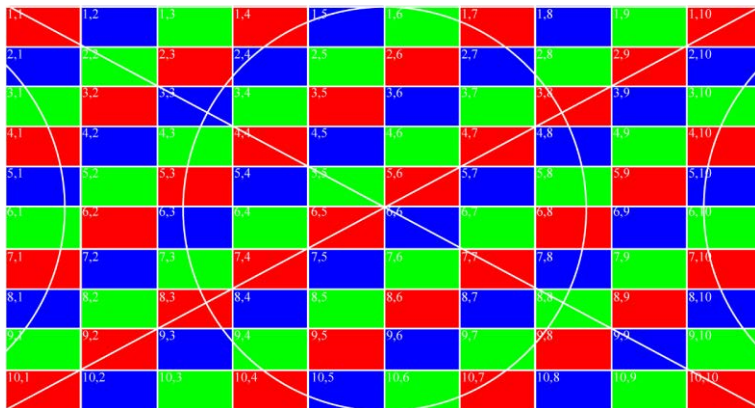
Image 5-6: Circle Alignment test pattern in LED mode

ESC key

ESC

1. Press the **ESC** (escape) menu key to deactivate a selection, to move back one level in a menu, or to exit a menu.

📄 Press the **Adjust knob** to enter the Setup menu.

1. **Factory reset**—If you are using the ImagePRO–4K for the first time, or if you are using an ImagePRO–4K that has just returned from another event, perform a full factory reset to restore default system configurations.
Press the Adjust knob to enter the Setup menu, then select **Reset / Factory** on the display screen. **Reset / Soft Reset** keeps the user settings.
2. **Native Rate**—On the front panel, press the Adjust knob to enter the Setup menu, then select Setup / System menu and select the desired Native Rate.
The Native Rate should be set to the frame rate in frames per second of the main output.
3. **Assign primary output**—If the primary output is DP, proceed to the next step.
If your primary output is HDMI/SDI, go to **Setup / Output (AUX) / Primary Output** and update the primary output.
4. **Adjust output format**—Go to **Setup / Output (AUX) / Aux Adjustment** and update the output format.
5. **Test output**—Turn on a test pattern, verify that you have an image, and make any necessary adjustments. When complete, turn off the test pattern.
6. **Position and adjust the image**— Use the LED Setup Menu to position the image on the LED wall or other display device, scale the image, adjust **Pan** and **Zoom** settings, and save your view.

Note: The preceding step provides a reliable shortcut when your setup does not require complex adjustments. Use this step instead of or in conjunction with steps 7 through 9.

7. **Set and adjust inputs / sources**— Select inputs / sources and make any necessary adjustments to color balance, timings, and any other settings necessary.

8. **Save input / source configurations**— After adjusting an input / source, save the input /source configuration.
Repeat steps 7 and 8 for each input / source.

9. **Adjust and save system settings**—Adjust system parameters such as Ethernet settings and HDCP parameters.

10. **Save All** — Select **Save All**.
Save All is the last menu item on the Setup page. Save All writes system settings to non-volatile memory.

5.3 Factory reset

Perform a factory reset

If you are using the ImagePRO–4K for the first time, or if you are using an ImagePRO–4K that has just returned from an event, perform a full factory reset (**Reset / Factory**) to restore default system configurations.

1. Press the Adjust knob to enter the Setup menu.
2. Turn the adjust knob to scroll to **Reset**.
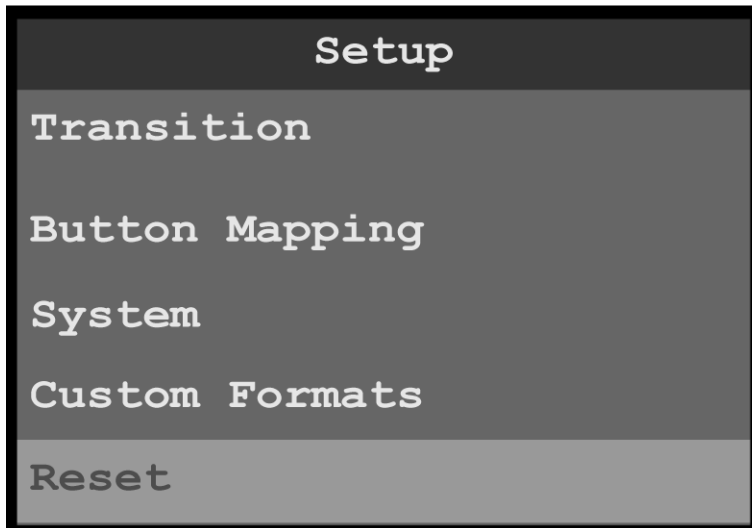
Image 5-7: Setup menu: Reset

3. Refer to "Reset menu", page 95 for instructions on using the Reset menu.

Menu orientation

6

About this chapter

This chapter describes the ImagePRO–4K system menus, including how they are accessed and the functions or parameters that are available. The principal menu trees are presented in block diagram format throughout the chapter.

Overview

- Power-up initialization
- ImagePRO–4K menus
- Input menu
- Output (Aux) menu
- Still menu
- Preset menu
- Button Mapping menu
- System menu
- Custom Formats
- Reset menu
- Firmware upgrade menu
- Tech Support menu
- Save All menu

6.1 Power-up initialization

How to power up the ImagePRO–4K

Connect power to the ImagePRO–4K, then locate the power switch on the rear panel and turn power **On**. While the system is initializing, the front-panel buttons light up, and the Barco logo and the following messages are displayed.

Image 6-1: Barco logo screen
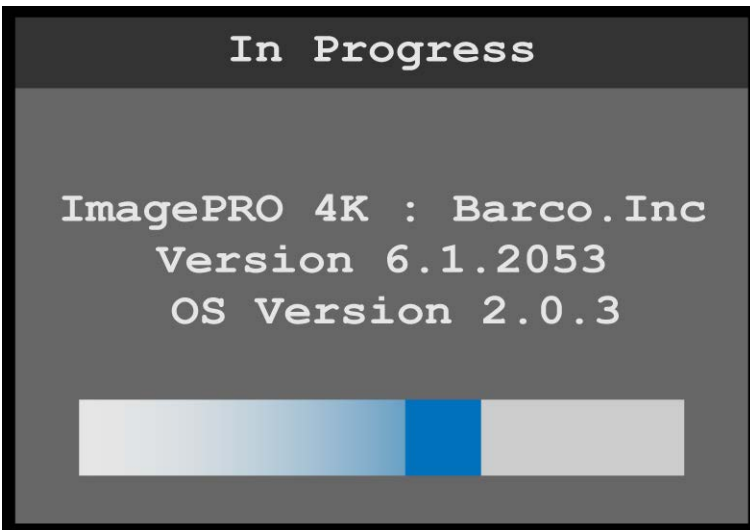
Image 6-2: System initialization "In Progress"

The "In Progress" message shows the software version that is installed and the operating system version. This version number changes as you install software upgrades.

When initialization is complete the ImagePRO–4K displays the status of the system.

```
    IP: 192.168.000.190
      Input: DPInput1-1
        1920x1080p @60
   CHA: 1920x1080p @59.94
   CHB: 1920x1080p @59.94
       Genlock: Freerun
Push Adjust knob for menus
```

Image 6-3: System status

The status screen displays the IP address and the status of the inputs, output channels A and B, and the Genlock status. The status screen also displays a message telling the user to push the Adjust knob to access the menus.

6.2 ImagePRO–4K menus

ImagePRO–4K menu tree

The diagram on the following pages illustrates the entire ImagePRO–4K menu tree. Use this diagram for reference as you learn how to operate the system.

Status Menu

Setup Menu

Input
- Input
- Input Configuration
- Source
- Source Configuration
- SDI Setup

Output (AUX)
- Select AUX
- AUX Adjustment
- Color/ Sample/Bit
- Output Mapping
- Primary Output
- SDI Setup

Still
- Capture New Still
- Select Still
- Set Selected as Logo
- Delete Selected

Preset
- Save New Preset
- Select Preset
- Overwrite Selected
- Recall Selected
- Delete Selected
- Button Mapping

Transition
- Mode
- Transition Time
- Matte Color
- Logo Index

Button Mapping
- Source Buttons
- Output Buttons
- Auto Map All Buttons
- Unmap All Buttons

System
- Unit Mode
- Black on Invalid Video
- Native Rate
- Genlock
- Reference Output
- USB Backup/ Restore
- Ethernet
- Display Brightness
- Button Brightness
- Lock Front Panel
- Flash Display
- Diagnostics

Custom Format
- Create New Format
- Select Format
- Delete

Reset
- Factory
- Factory/ Save IP
- Factory/ Save IP/ EDID
- Soft Reset

Firmware Upgrade
- USB Upgrade

Image 6-4: Menu tree

Image 6-5: Menu tree (Continued)

6.3 Input menu

General

This section provides information about setting up and using inputs. To enter the Input menu from the Setup menu, scroll to and select **Input**.
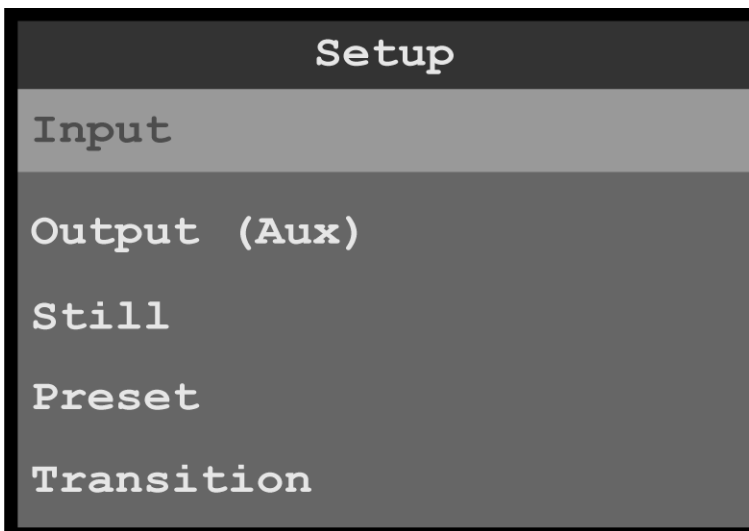
Image 6-6: Setup menu: Input

Use the Input Menu to adjust all parameters relating to inputs. Using this menu, you can set all of the configuration options for the selected input.

Input menu tree

Refer to Image 6-7 and Image 6-8 for an illustration of the Input menu tree.
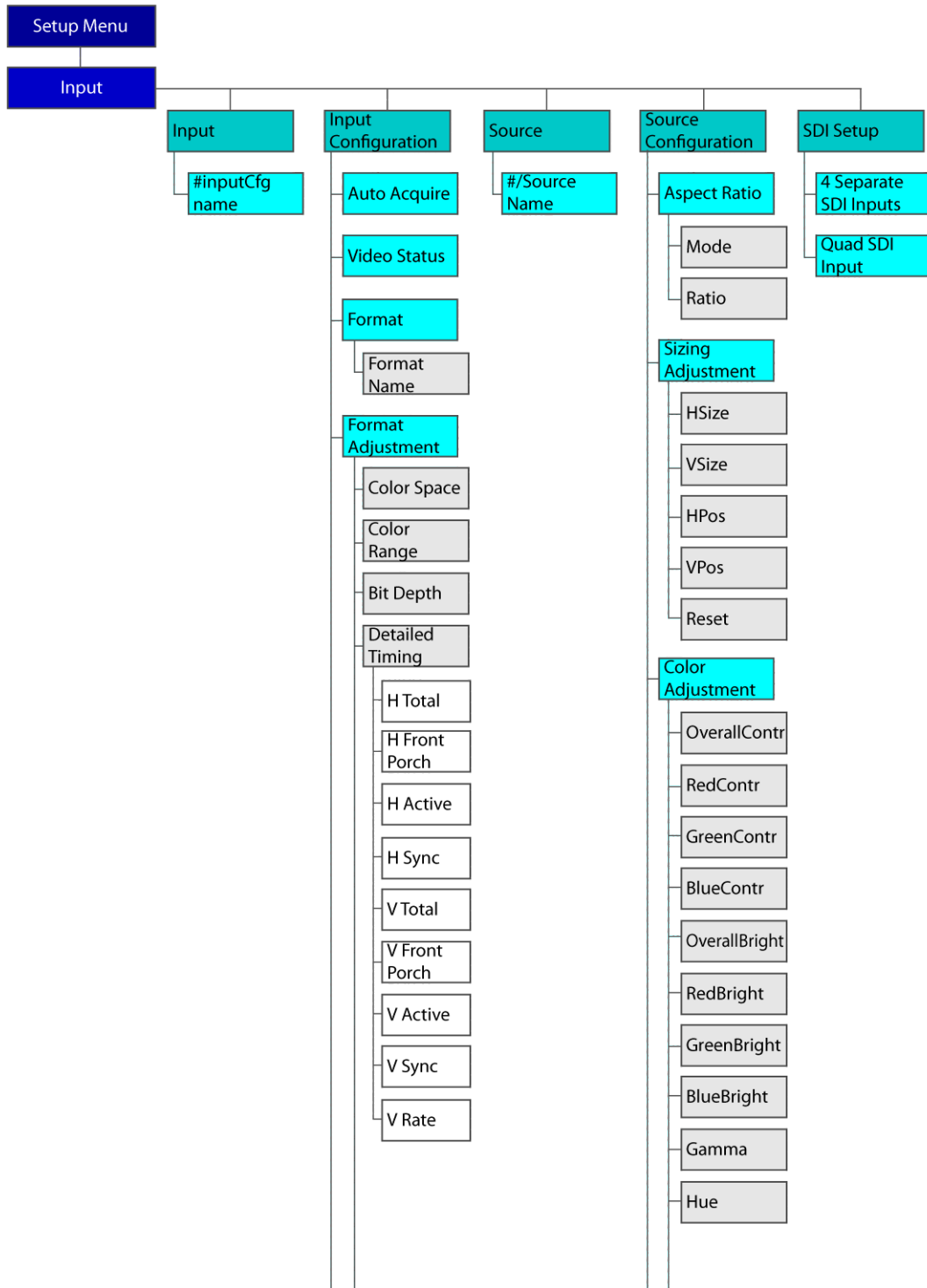
Image 6-7: Input menu tree
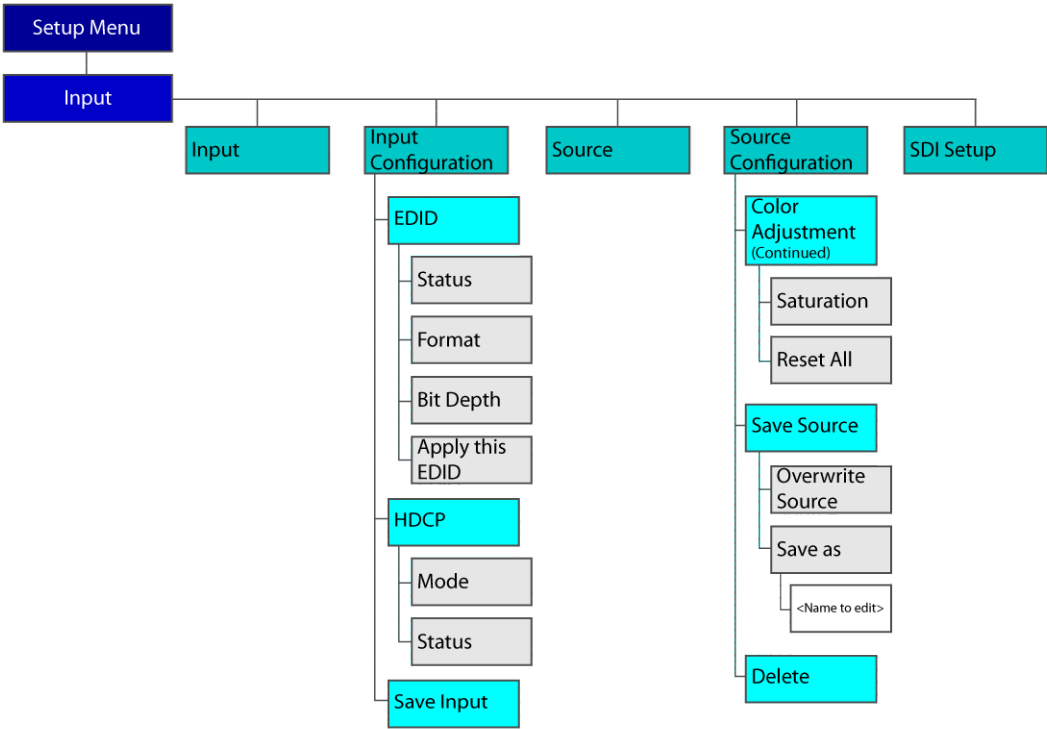
Image 6-8: Input menu tree (Continued)

Input

1. Select **Input** on the Input menu.
   Once Input is selected, the highlight bar turns from gray to cyan. Turning the adjust knob scrolls through the available inputs.
2. Scroll to and select the input to be configured.
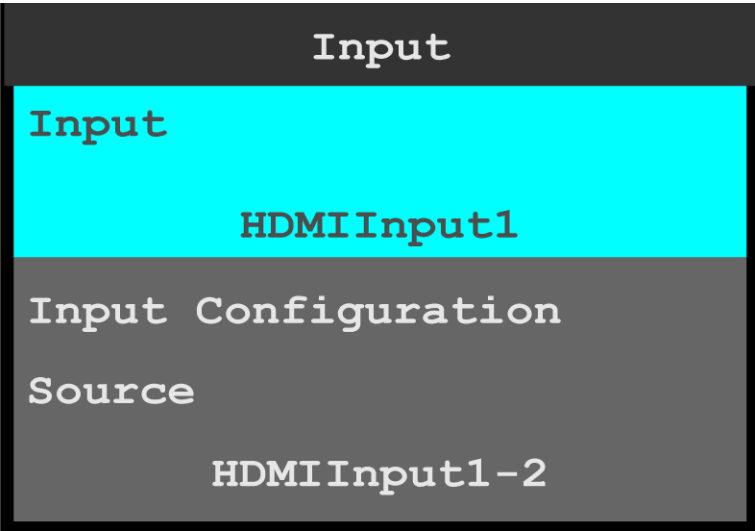
Image 6-9: Input selection

Input Configuration

1. Scroll to and select **Input Configuration**.
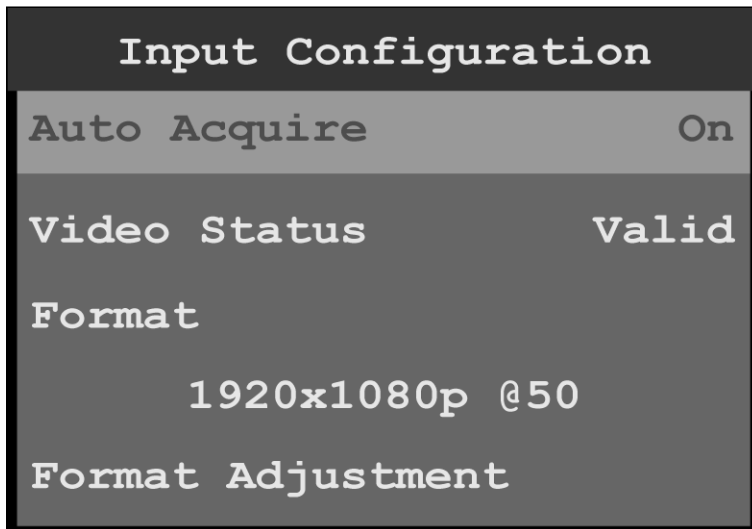
Image 6-10: Input configuration

The Input Configuration screen displays the current system settings for Auto Acquire, Video Status, and Format; and allows users to adjust the Format, EDID, and HDCP settings. Save Input allows users to save the selected input settings.

2. Scroll to and select **Auto Acquire**.
   - If Auto Acquire is **On**, the system detects and acquires the input type and resolution. Default is **On**.
   - If Auto Acquire is **Off**, the input type and resolution must be selected.
3. If necessary, scroll to and select **Format** to adjust the resolution and refresh rate.
4. Scroll to and select **Format Adjustment** to view or adjust the Color Space, Color Range, Bit Depth, and Detailed Timing.
   The options for these adjustments are:

Color Space	• RGB • SMPTE
Color Range	• Full Range • Reduced Range
Bit Depth	• 8, 10, or 12
Detailed Timing	• H Total: Total pixel count per line • H Front Porch: The offset between the end of the active area and the beginning of H sync • H Active: The horizontal size in pixels of the active area • H Sync: H sync width in pixels • V Total: Total line count per frame • V Front Porch: The offset in lines between the end of the output active area and the beginning of V sync • V Active: The vertical size of the output active area • V Sync: V sync width in lines • V Rate: Vertical frame rate in frames per second These are status and informational menus. No adjustments can be made on the Detailed Timing screen.

Input Configuration

1920x1080p @50

Format Adjustment

EDID

HDCP

Save Input
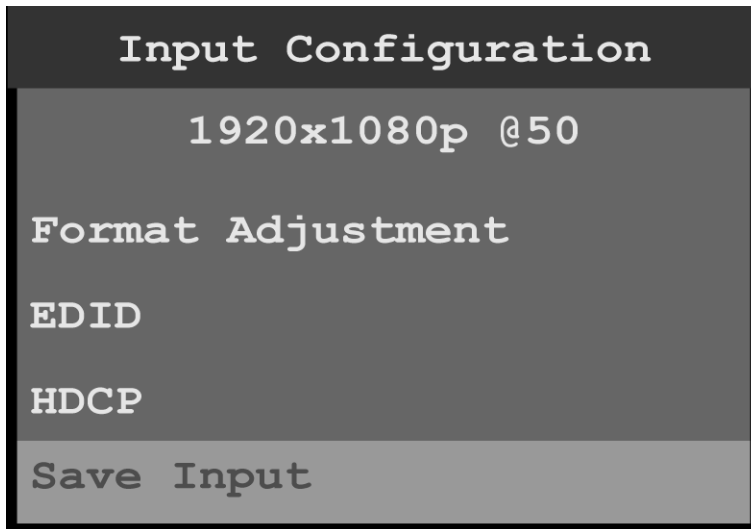
Image 6-11: Input configuration (Continued)

5. Scroll to and select **EDID** to set up and apply an EDID for the input.
EDID is not applicable to SDI inputs.
6. Scroll to and select **HDCP** to set up and apply HDCP settings for the input.
The default HDCP mode setting for DisplayPort, DVI, and HDMI is **Off**. HDCP Mode is not applicable to SDI inputs.
7. Scroll to and select **Save Input** to save the selected input settings.

Source

The Input Source menu allows users to select from available source configurations for an input.

Input

Input Configuration

Source

HDMIInput1-2

Source Configuration

SDI Setup
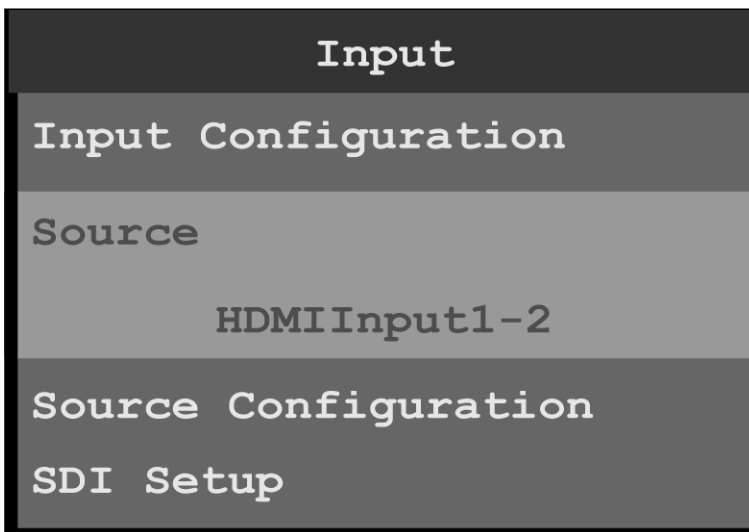
Image 6-12: Input Source

Source Configuration

1. Scroll to and select **Source Configuration** on the Input menu to adjust the aspect ratio, sizing, and color of the input source.
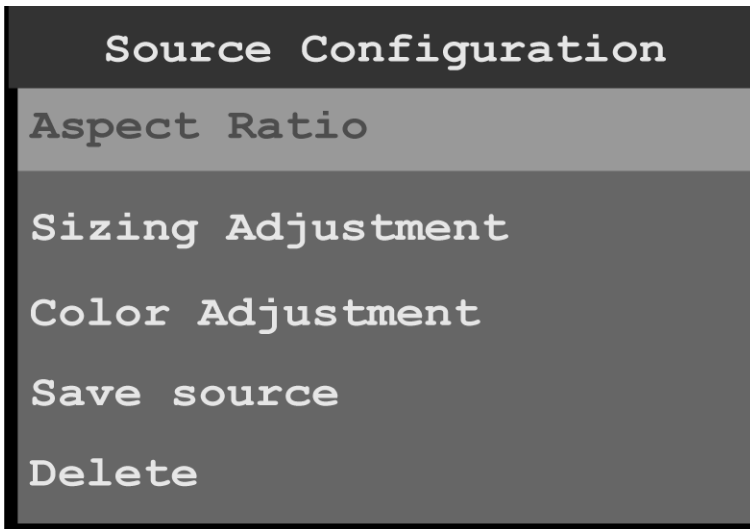
Image 6-13: Source Configuration menu

2. Scroll to and select **Aspect Ratio** to adjust the aspect ratio of the input source.
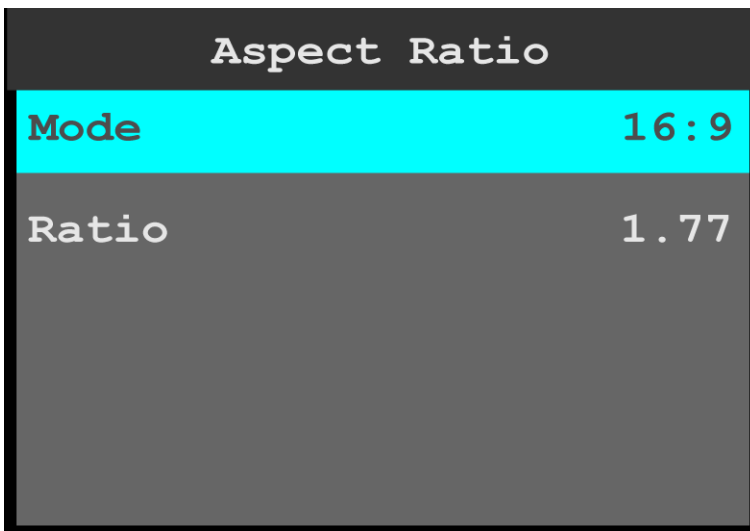
Image 6-14: Source Configuration: Aspect Ratio

   a) Use **Mode** to select the general aspect ratio of the input source.
      The modes are:
      • 3:1
      • 16:9
      • 16:10
      • 3:2
      • 4:3
      • 5:4
      • 1:1
      • Custom
   b) Use **Ratio** to adjust the ratio of the height of the input source to its width.
      If, for example, the Mode is 3:1, the Ratio is 3.00. Turning the adjust knob counter-clockwise, users can adjust the ratio to any custom setting, for example from 2.99 to 1.78. Setting the Ratio to 1.77 sets the Mode to 16:9.

3. Scroll to and select **Sizing Adjustment** to adjust the H Size, V Size, H Pos, and V Pos of the input source. Reset returns the sizing adjustments to their initial settings.

4. Scroll to and select **Color Adjustment** to adjust the following color aspects of the input source:
   • Overall contrast – Range: 50 to 150; Default: 100
   • Red contrast – Range: 50 to 150; Default: 100
   • Green contrast – Range: 50 to 150; Default: 100

- Blue contrast – Range: 50 to 150; Default: 100
- Overall brightness – Range: 25 to 150; Default: 100
- Red brightness – Range: 25 to 150; Default: 100
- Green brightness – Range: 25 to 150; Default: 100
- Blue brightness – Range: 25 to 150; Default: 100
- Hue – Range: –90 to 90; Default: 0
- Gamma – Range: 0.30 to 3.30; Default: 1.00
- Saturation – Range: 0 to 150: Default: 100
- Reset returns the color adjustments to their initial settings.

5. Scroll to and select **Save Source** to save any adjusted source settings.
   a) **Overwrite Source** overwrites the current source configuration with the adjusted settings.
   b) Save As saves the adjusted settings to a new source configuration.
      Source configurations are chosen from the from the Input Source menu.
6. Scroll to and select **Delete** to delete the currently selected source.

SDI Setup

1. Scroll to and select **SDI Setup** on the Input menu to set up the SDI inputs.
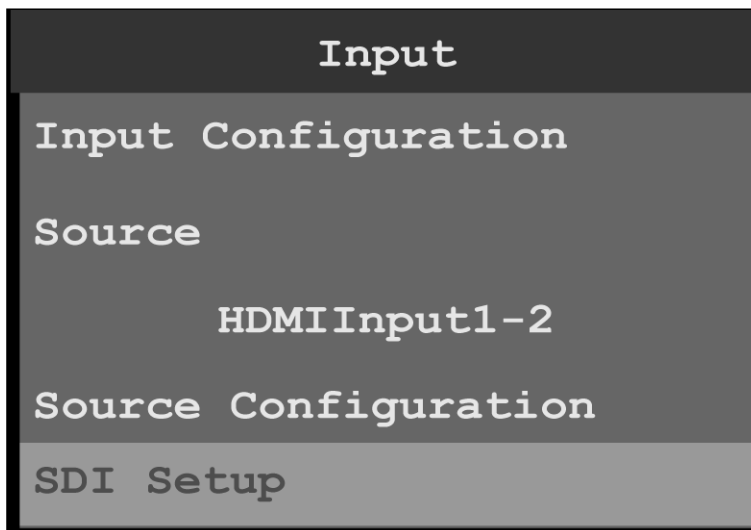
Image 6-15: Input menu: SDI Setup

SDI may be set up in two configurations:
- Four separate SDI inputs.
- A single Quad SDI input.
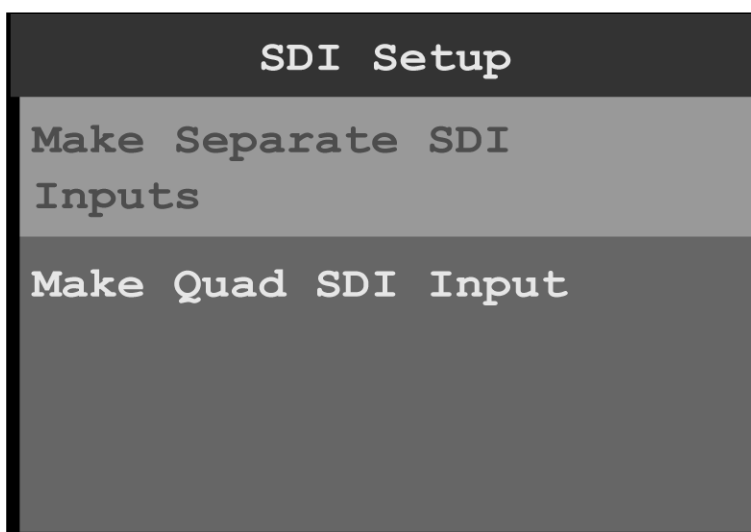
Image 6-16: SDI Setup

2. Scroll to and select **Make Separate SDI Inputs** to create four separate SDI inputs.

3. Scroll to and select **Make Quad SDI Input** to create a single Quad SDI input.

6.4 Output (Aux) menu

General

This section provides information about setting up and using outputs (Auxes). To enter the Output (Aux) menu from the Setup menu, scroll to and select **Output (Aux)**.
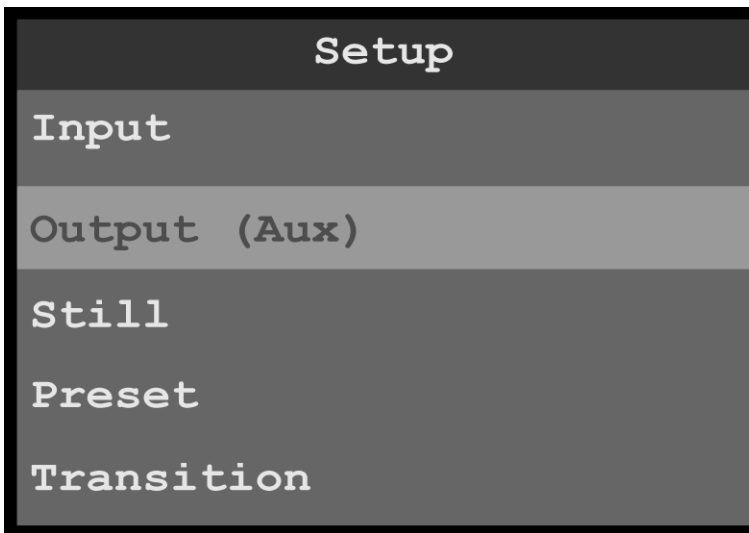
Image 6-17: Setup menu: Output (Aux)

Use the Output (Aux) Menu to adjust all parameters relating to outputs (Auxes). Using this menu, you can set all of the configuration options for the selected output (Aux).

Output (Aux) menu tree

Refer to Image 6-18 and Image 6-19 for illustrations of the Output (Aux) menu tree.
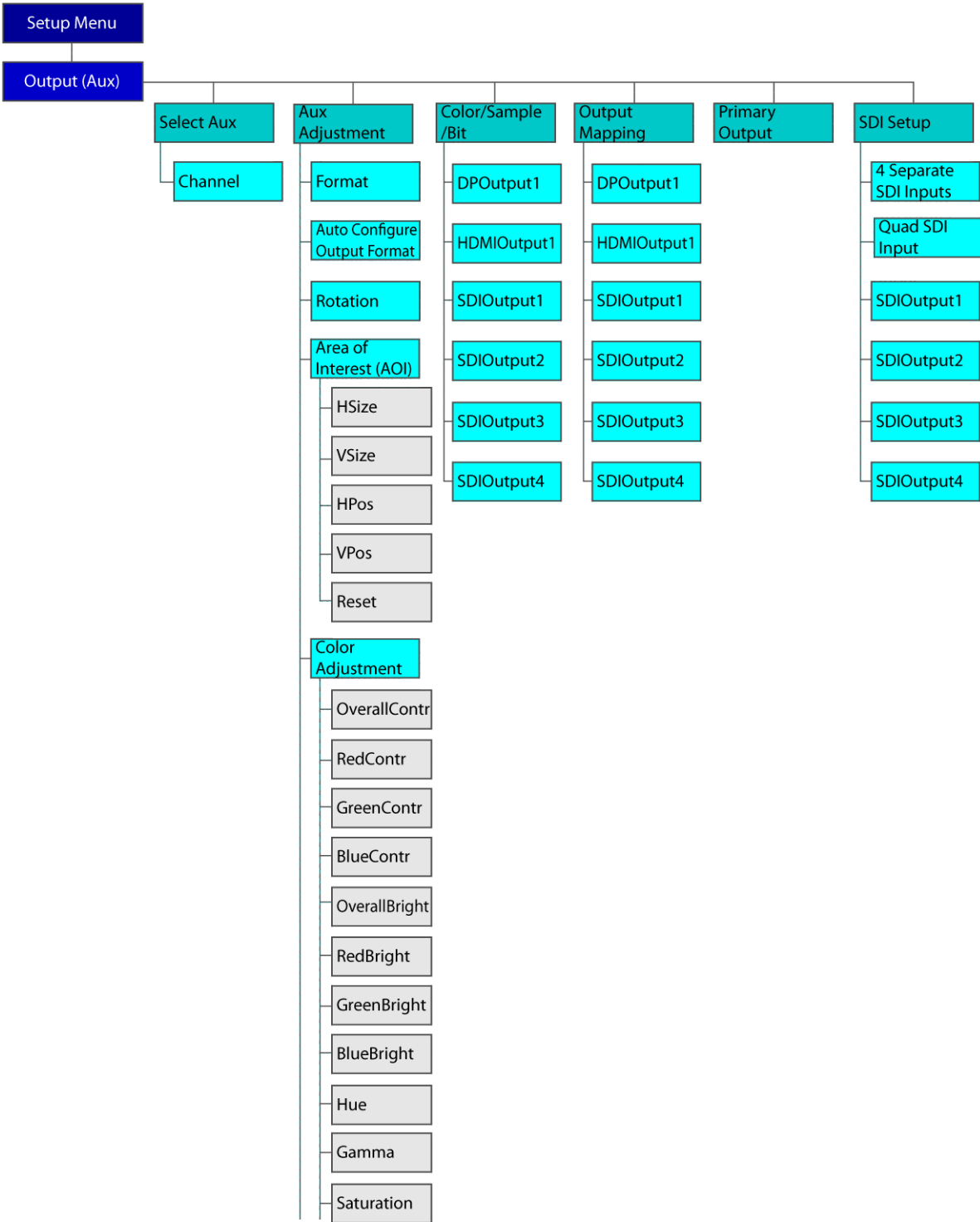
Image 6-18: Output (Aux) menu tree
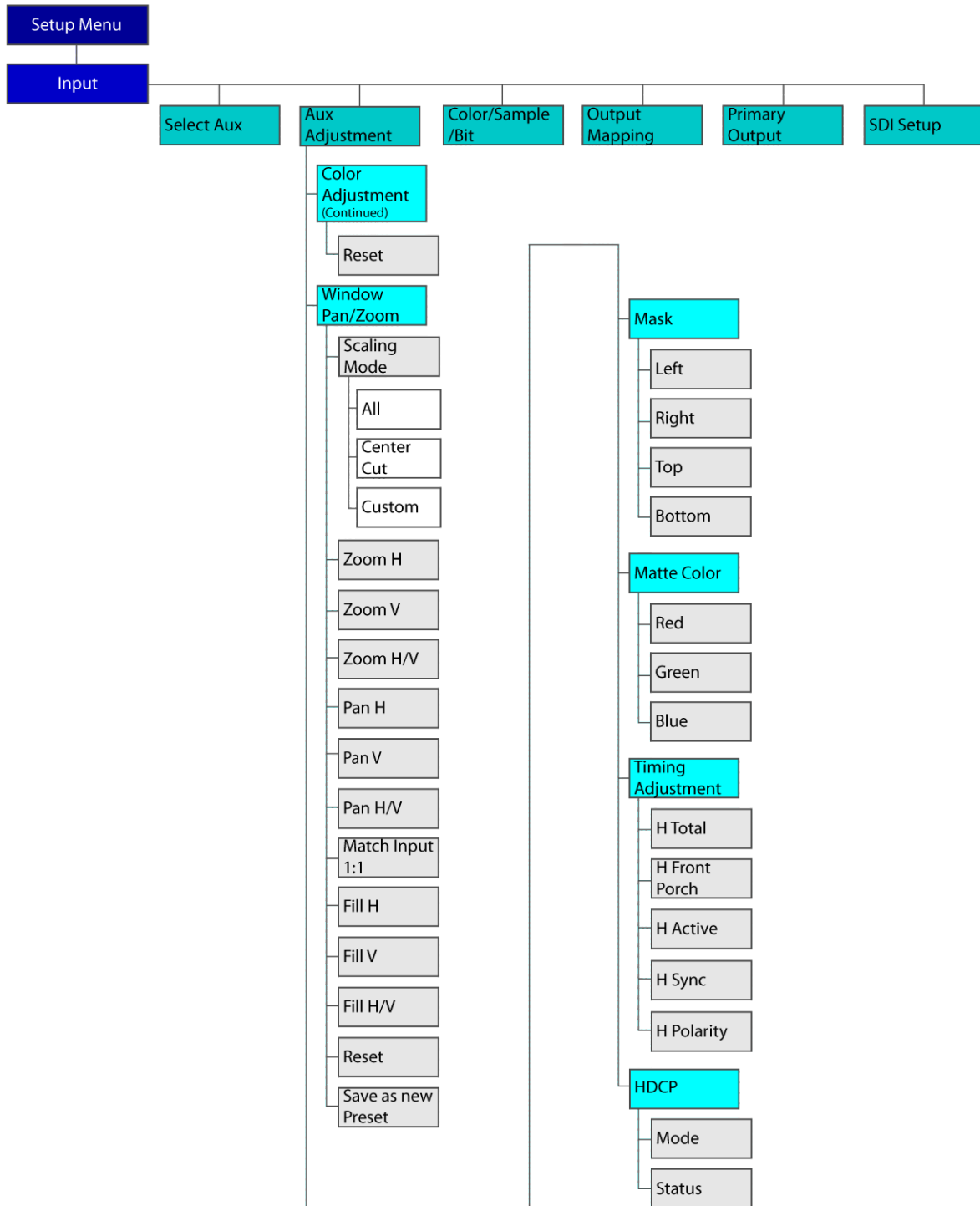
Image 6-19: Output (Aux) menu tree (Continued)

Select Aux

1. Select **Select Aux** on the Output (Aux) menu.
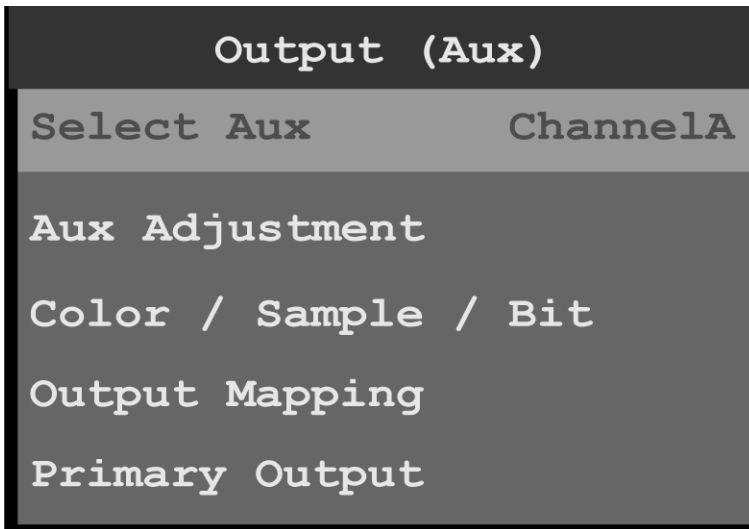
Image 6-20: Output (Aux): Select Aux

Once Select Aux is selected, the highlight bar turns from gray to cyan. Turning the adjust knob scrolls through the available channels.

2. Scroll to and select the channel to be configured.
ChannelA or ChannelB may be selected.
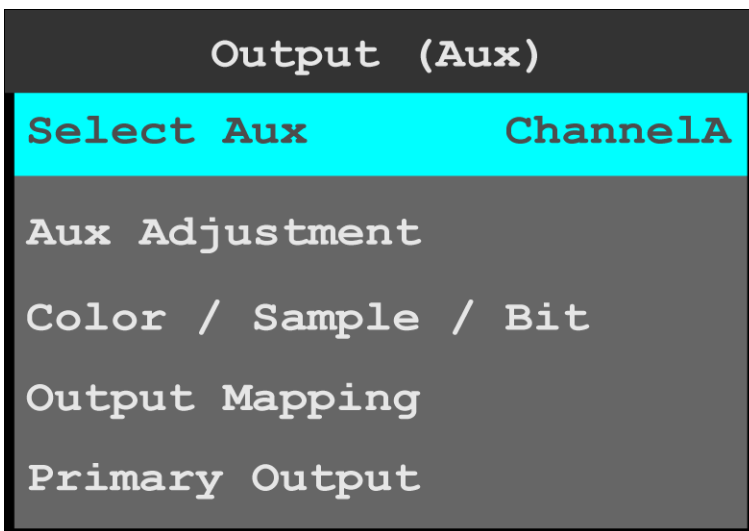
Image 6-21: Output (Aux): channel selection

Aux Adjustment

1. Scroll to and select **Aux Adjustment**.
The Aux Adjustment menu allows users to manually format the resolution and refresh rate, to auto configure the output format, to rotate the output image, to adjust the area of interest (AOI), adjust the color, to pan or zoom the window, create a mask, adjust the matte color, make timing adjustments, and select HDCP settings.

2. Scroll to and select **Format** to adjust the resolution and refresh rate.
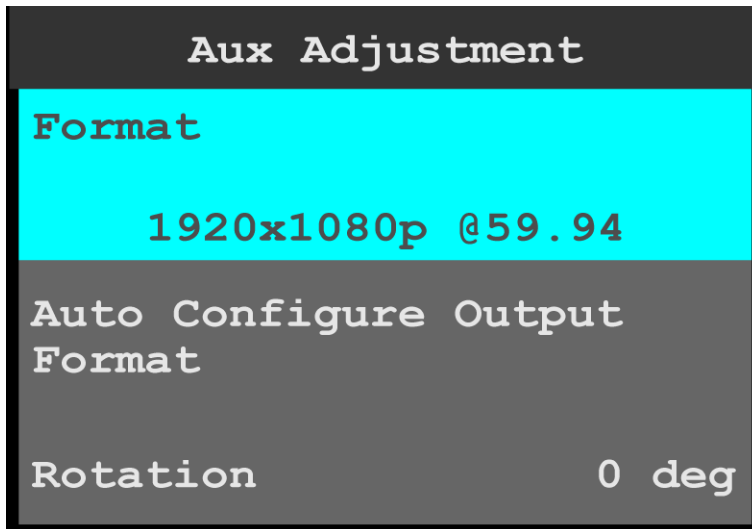
Image 6-22: Aux Adjustment: Format

3. Scroll to and select **Auto Configure Output Format** to auto-configure the output format.
4. Scroll to and select **Rotation** to rotate the selected Output (Aux) channel.
   The rotation options are 0, 90, 180, and 270 degrees.
5. Scroll to and select **Area of Interest** to adjust the H Size, V Size, H Pos, and V Pos of the area of interest (AOI).
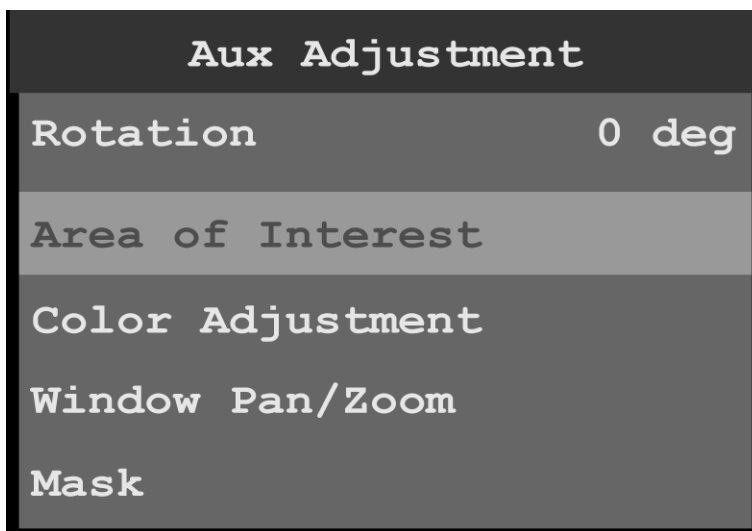
Image 6-23: Aux Adjustment: Area of Interest

   • H Size adjusts the horizontal size of the AOI.
   • V Size adjusts the vertical size of the AOI.
   • H Pos adjusts the horizontal position of the AOI.
   • V Pos adjusts the vertical position of the AOI.
   • Reset returns all adjustments to their initial settings.
6. Scroll to and select **Color Adjustment** to adjust the following color aspects of the output (Aux):
   • Overall contrast – Range: 50 to 150; Default: 100
   • Red contrast – Range: 50 to 150; Default: 100
   • Green contrast – Range: 50 to 150; Default: 100
   • Blue contrast – Range: 50 to 150; Default: 100
   • Overall brightness – Range: 25 to 150; Default: 100
   • Red brightness – Range: 25 to 150; Default: 100
   • Green brightness – Range: 25 to 150; Default: 100
   • Blue brightness – Range: 25 to 150; Default: 100
   • Hue – Range: –90 to 90; Default: 0

- Gamma – Range: 0.30 to 3.30; Default: 1.00
- Saturation – Range: 0 to 150: Default: 100
- Reset returns the color adjustments to their initial settings.

7. Scroll to and select **Window Pan/Zoom** to view or adjust panning and zooming options.
   Scaling Mode can be set to **All**, **Center Cut**, or **Custom**. For custom configurations, other adjustments can be made.
   - **Zoom H** zooms in or out on the horizontal center of the image.
     Increasing this setting "stretches" the image to the right and left along the horizontal plane. Decreasing this setting brings the right and left edges in toward the center of the active area.
   - **Zoom V** zooms in or out on the vertical center of the image.
     Increasing this setting "stretches" the image up and down along the vertical plane. Decreasing this setting brings the top and bottom edges in toward the center of the active area.
   - **Zoom H/V** adjusts both horizontal and vertical zoom settings at the same time.
   - **Pan H** moves the image to the left or right.
     You can adjust Pan settings only after adjusting Zoom settings.
   - **Pan V** moves the image up or down.
     You can adjust Pan settings only after adjusting Zoom settings.
   - **Match Input 1:1** fills the AOI with the unscaled input image.
     If you created an Area of Interest that is smaller than the default active area for the input, a portion of the image is not displayed. You can then use the Pan settings to display the portion of the image you want to show.
   - **Match Program** matches the selected view in PVW to its corresponding layer in PGM.
   - **Reset** restores the default settings.

8. Scroll to and select **Mask** to view or adjust masking options.
   Scaling Mode can be set to **All**, **Center Cut**, or **Custom**. For custom configurations, other adjustments can be made.
   Custom Mask values are given in percentages, and range from 0% to 100%. The default mask value is 0%.
   - **Left** masks the left edge of an image.
   - **Right** masks the right edge of an image.
   - **Top** masks the top of an image.
   - **Bottom** masks the bottom of an image.
   - **Reset** restores the default settings.

9. Scroll to and select Matte Color to view or adjust the matte-color options.
   - Red – Range: 0 to 1023; default is 0.
   - Green – Range: 0 to 1023; default is 0.
   - Blue – Range: 0 to 1023; default is 0.

10. Scroll to and select **Timing Adjustment** to view and adjust the output timing options.
    Note that users should be familiar with how the adjustments they are making may affect the video format. The user should use a timing calculator to determine the correct numbers for timing. Incorrect settings can cause unstable or asynchronous video output.
    - **H Total:** Total pixel count per line.
    - **H Front Porch:** The offset between the end of the active area and the beginning of H sync.
    - **H Active:** The horizontal size in pixels of the active area.
    - **H Sync:** H sync width in pixels.
    - **V Total:** Total line count per frame.
    - **V Front Porch:** The offset in lines between the end of the output active area and the beginning of V sync.
    - **V Active:** The vertical size of the output active area.
    - **V Sync:** V sync width in lines.
    - **V Rate:** Vertical frame rate in frames per second.
    - **Save as Custom Format** saves the custom format, which can now be chosen from the **Aux Adjustment > Format** menu.

11. Scroll to and select **HDCP** to set up and apply HDCP settings for the input.
    The default HDCP mode setting for DisplayPort, DVI, and HDMI is **Off**. HDCP Mode is not applicable to SDI inputs.

Color/Sample/Bit

1. Scroll to and select **Color / Sample / Bit** to view and adjust the color space (RGB or YCbCr), sampling rate (4:4:4), and bit depth (8, 10, or 12) of the output (Aux) signal.
The Color / Sample / Bit menu allows users to view and adjust the color space, sampling rate, and bit depth of the output (Aux) signal.
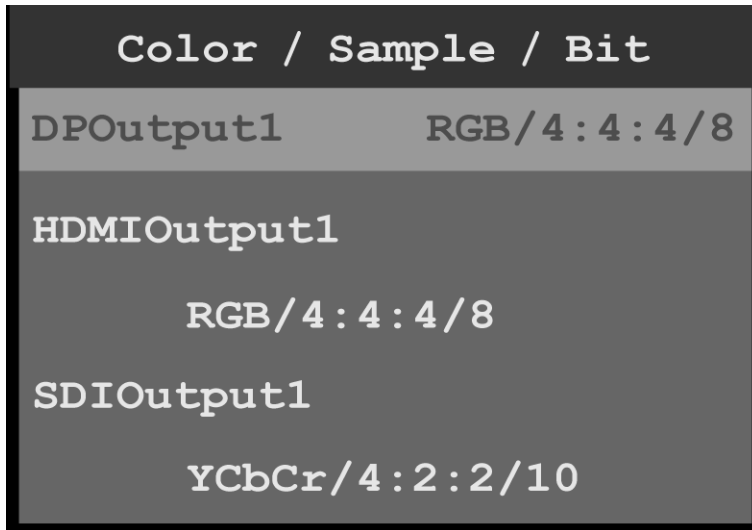
Image 6-24: Output (Aux): Color / Sample / Bit

The Color / Sample / Bit menu displays the current color space, sampling rate, and bit depth settings of the output (Aux) signal.

2. Scroll to and select **DPOutput1**.
Once the output is selected, the highlight bar turns from gray to cyan.
3. Turn the adjust knob to scroll through the possible color space, sampling rate, and bit depth settings for the selected output.
4. Press the adjust knob to select the desired color space, sampling rate, and bit depth settings for the selected output.
5. Repeat steps 2 through 4 for any desired output.
Color/Sample/Bit choices for DP, HDMI, and SDI are:

DP	HDMI	SDI
RGB/4:4:4/8	RGB/4:4:4/8	–
RGB/4:4:4/10	RGB/4:4:4/10	–
RGB/4:4:4/12	RGB/4:4:4/12	–
YCbCr/4:4:4/8	YCbCr/4:4:4/8	–
YCbCr/4:4:4/10	YCbCr/4:4:4/10	–
YCbCr/4:4:4/12	YCbCr/4:4:4/12	–
–	YCbCr/4:2:2/12	–
–	–	YCbCr/4:2:2/10
–	YCbCr/4:2:0/8	–
–	YCbCr/4:2:0/10	–

Output Mapping

1. Scroll to and select **Output Mapping** to view and adjust the output channel (A or B) for any output.
2. Scroll to and select an output, for example **HDMIOutput1**.
Once the output is selected, the highlight bar turns from gray to cyan.

```
           Output Mapping
  DPOutput1           ChannelA

  HDMIOutput1         ChannelB

  SDIOutput1          ChannelA

  SDIOutput2          ChannelA

  SDIOutput3          ChannelA
```
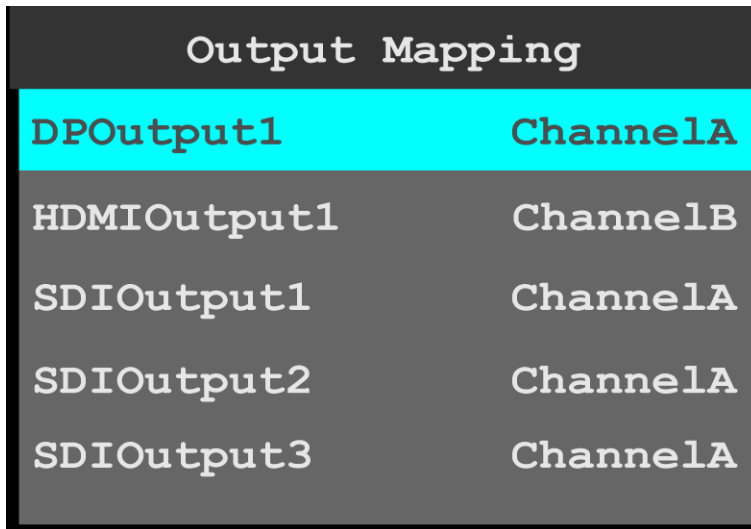
Image 6-25: Output (Aux): Output Mapping

3. Turn the adjust knob to scroll to either **ChannelA** or **ChannelB**.
4. Press the adjust knob to select the desired channel.
5. Repeat steps 2 through 4 for any desired output.

Primary Output

1. Scroll to and select **Primary Output** to view and adjust the primary output.
    Once the Primary Output is selected, the highlight bar turns from gray to cyan.

```
          Output (Aux)
  Color / Sample / Bit

  Output Mapping

  Primary Output

        DPOutput1

  SDI Setup
```
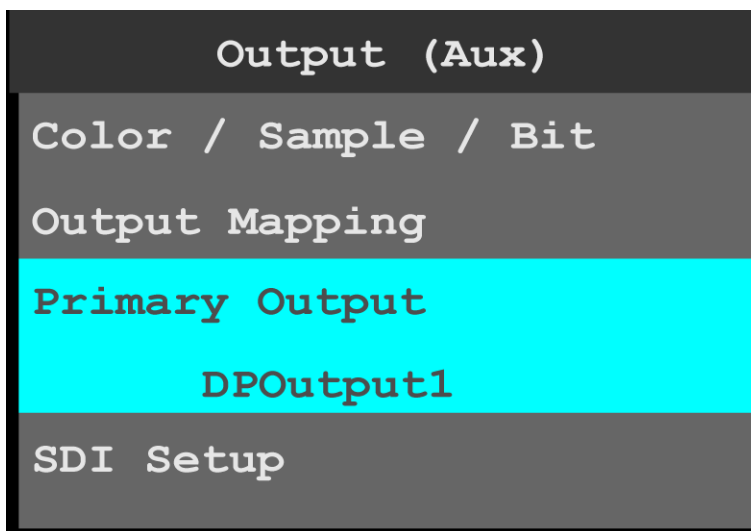
Image 6-26: Output (Aux): Primary Output

2. Turn the adjust knob to scroll through the outputs.
3. Press the adjust knob to select the desired output.

SDI Setup

1. Scroll to and select **SDI Setup** on the Output (Aux) menu to set up the SDI outputs.
    SDI may be set up in two configurations:
    • Four separate SDI outputs.
      If four separate outputs are created, each of the outputs can be individually configured to either Level A
      or Level B.
    • A single Quad SDI output.
      If a single quad SDI output is created, that output can be configured to either Level A or Level B.
2. Scroll to and select **Make Separate SDI Outputs**.
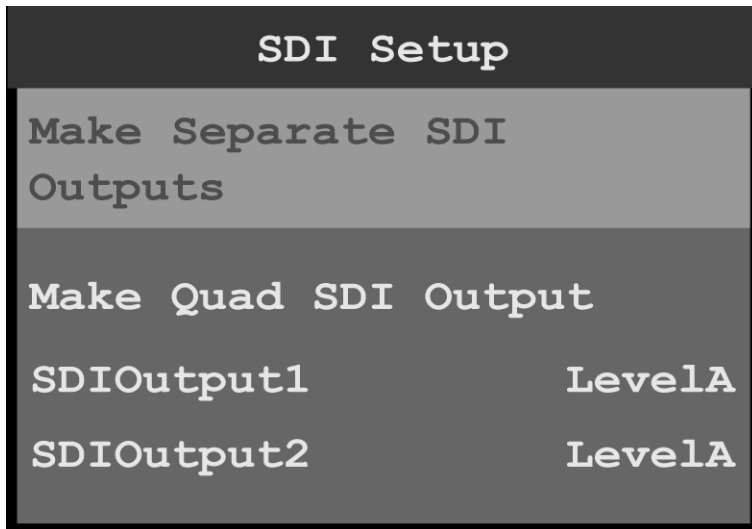
Image 6-27: SDI Setup: separate SDI outputs

3. If necessary, scroll to and select an individual SDI output, for example **SDIOutput1**.
   Once an output is selected, the highlight bar turns from gray to cyan.
4. Use the adjust knob to scroll through the levels (A and B) and to select the desired level.
5. Scroll to and select **Make Quad SDI Output**.
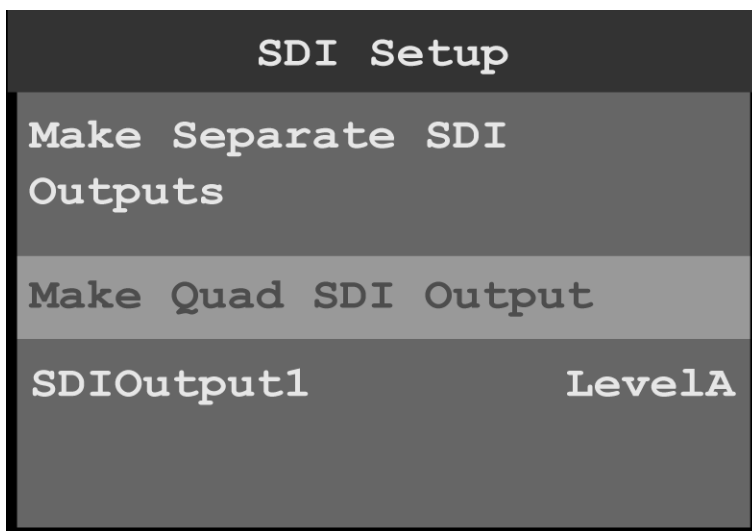
Image 6-28: SDI Setup: quad SDI output

6. If necessary, scroll to and select the quad SDI output.
   Once the output is selected, the highlight bar turns from gray to cyan.
7. Use the adjust knob to scroll through the levels (A and B) and to select the desired level.

6.5 Still menu

General

This section provides information about capturing and using stills. To enter the Still menu from the Setup menu, scroll to and select **Still**.
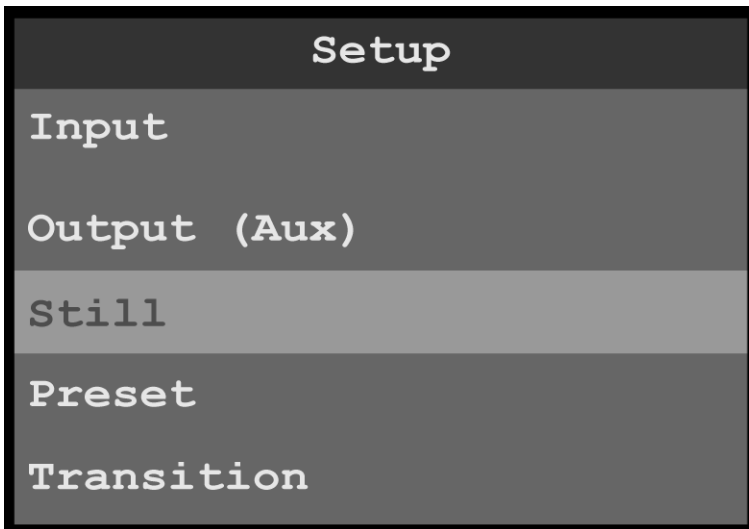
Image 6-29: Setup menu: Still

Still menu tree

Refer to Image 6-30 for an illustration of the Still menu tree.
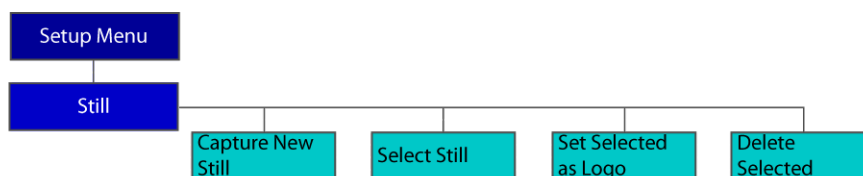
Image 6-30: Still menu tree

Capture New Still

1. Select **Capture New Still** on the Still menu.

Image 6-31: Setup menu: Still

The system displays a progress screen.

Image 6-32: Still: In Progress

Once the still has been captured, the system displays a message that includes the name of the still.

Image 6-33: New Still captured

Select Still

1. Select **Select Still** on the Still menu.
   Once the Select Still is selected, the highlight bar turns from gray to cyan.

Image 6-34: Still menu: Select Still

2. Use the adjust knob to scroll through the stored stills and to select the desired still, for example **StillStoreHDMIInput1-2**.

Set Selected as Logo

1. Select the still to be used as a logo.
2. Select **Set Selected as Logo** on the Still menu.
    The system displays a message that says that the selected still has been set as a logo.

Image 6-35: Still menu: Still Set as Logo

Delete Selected

1. Select the still to be deleted.
2. Select **Delete Selected** on the Still menu.
    The system displays a message that asks if you really want to delete the still.
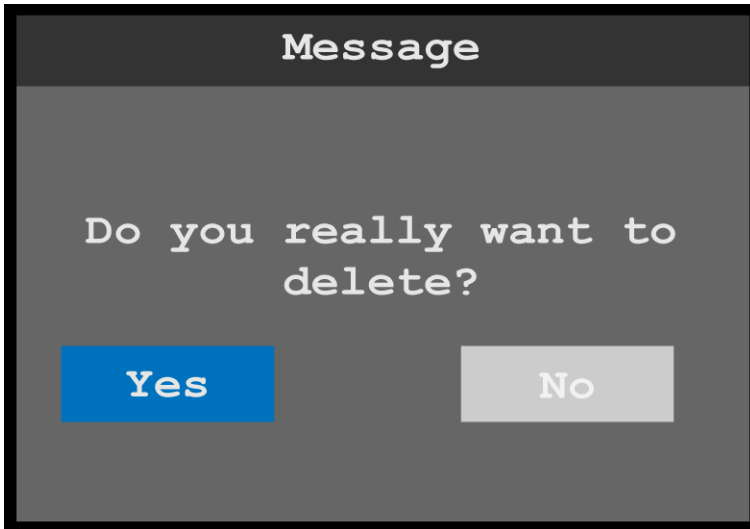
Image 6-36: Still menu: Delete message

3. Select **Yes** to delete the selected still.
   Select **No** to keep the still.
   Once the still has been deleted, the system displays a message that says that the still has been removed.

Image 6-37: Still menu: Still removed

6.6 Preset menu

General

This section provides information about setting up and using presets. A preset is a register that enables you to store destination setups and to recall them. Any configuration — different input sources, mapped output channels, masks, etc.—can be saved as a preset and recalled.

To enter the Preset menu from the Setup menu, scroll to and select **Preset**.
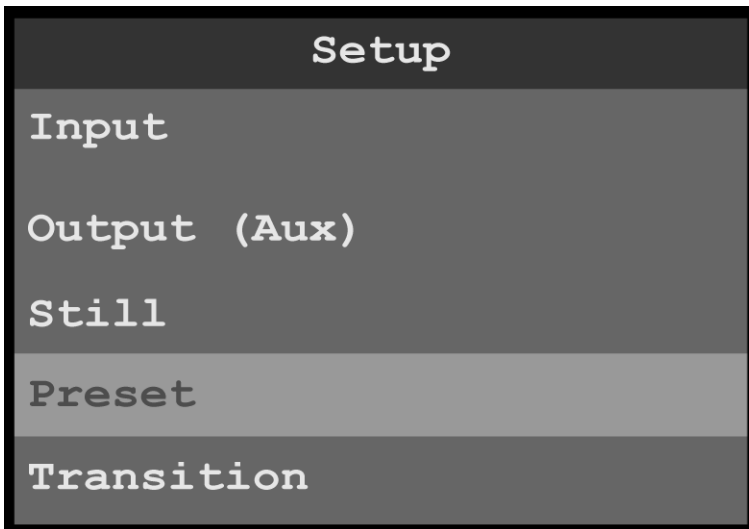
Image 6-38: Setup menu: Preset

Use the Preset menu to create, select, recall, and delete presets.

Preset menu tree

Refer to Image 6-39 for an illustration of the Preset menu tree.
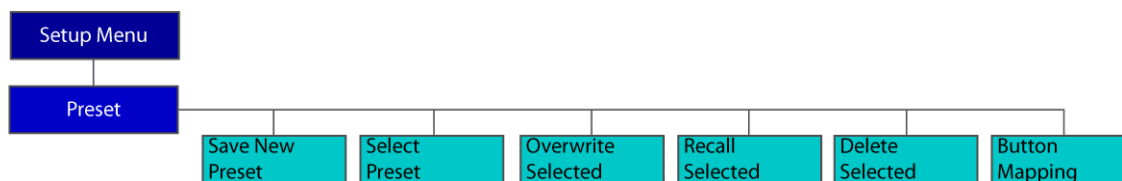
Image 6-39: Preset menu tree

Save New Preset

1. Select **Save New Preset** on the Preset menu.
   Once Input is selected, the highlight bar turns from gray to cyan. Turning the adjust knob scrolls through the available inputs.
2. Scroll to and select the input to be configured.
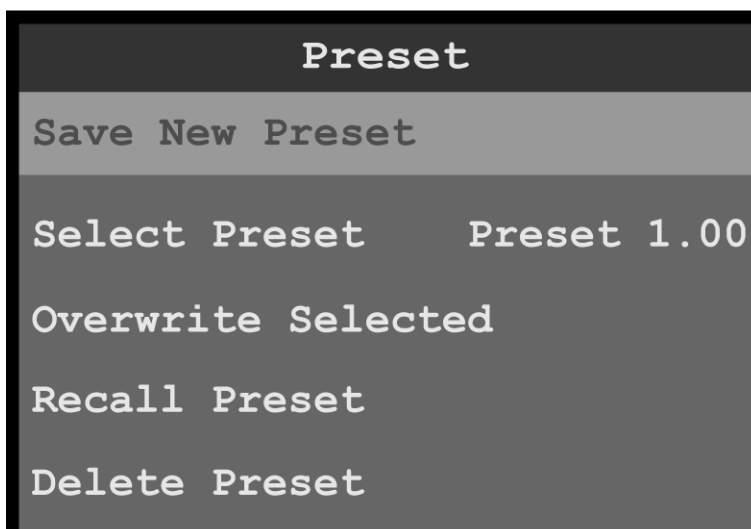
Image 6-40: Preset: Save New Preset

Once Save New Preset is selected, the system saves the current configuration as a preset and assigns it a number. Once the preset is saved, the system displays a message that says that the preset has been added.
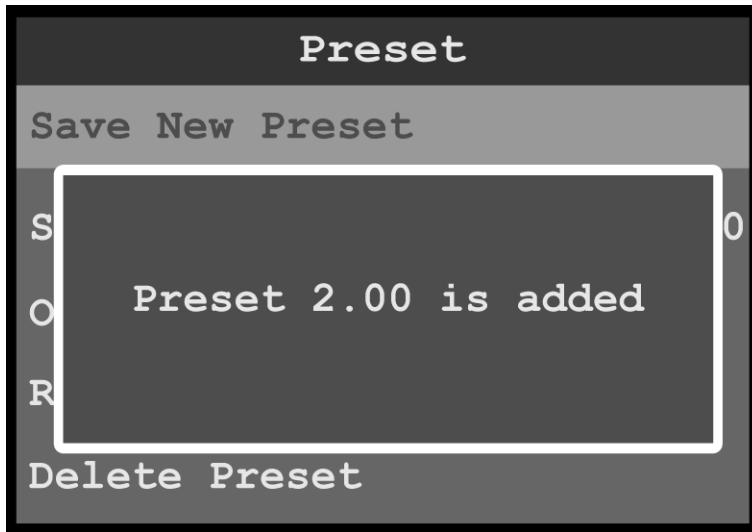
Image 6-41: Preset saved message

Select Preset

1. Select **Select Preset** on the Preset menu to select a preset.
   Once Select Preset is selected, the highlight bar turns from gray to cyan. Turning the adjust knob scrolls through the available presets.
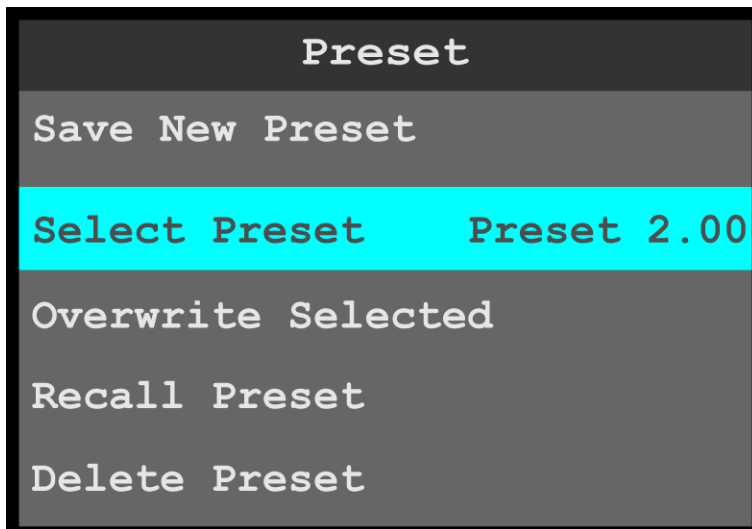
Image 6-42: Preset: Select Preset

2. Use the adjust knob to scroll to and select the desired preset.
3. Select **Recall Preset** to recall the newly selected preset.

Overwrite Preset

1. Select **Overwrite Preset** on the Preset menu to overwrite the currently displayed preset with the currently selected preset.
   For example, if Preset 1.00 is currently displayed and Preset 2.00 is currently selected, selecting Overwrite Preset overwrites Preset 1.00 with Preset 2.00. Preset 1.00 is not renumbered, but the properties of Preset 1.00 are overwritten with the properties of Preset 2.00, so that the two presets now have the same effect.

Recall Preset

1. Select **Recall Preset** to recall the currently selected preset and make it active.

Delete Preset

1. Select **Delete Preset** to delete the currently selected preset.
   The system displays a message that asks if you really want to delete the preset.
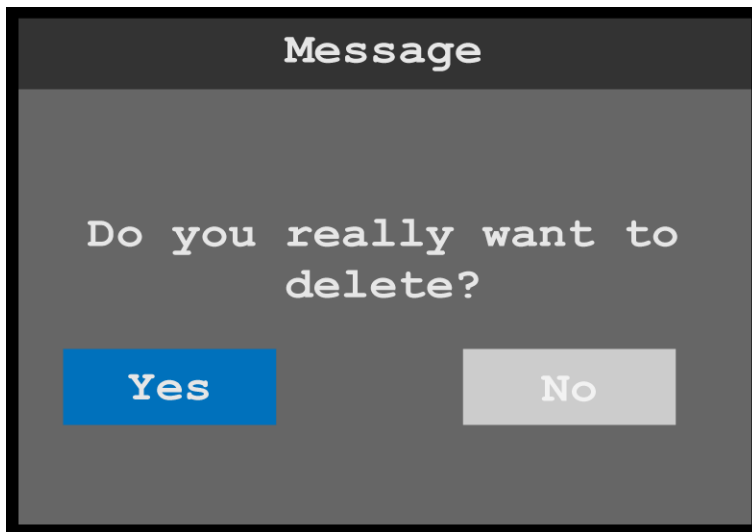
Image 6-43: Preset menu: Delete message

2. Select **Yes** to delete the selected preset.
   Select **No** to keep the preset.
   Once the preset has been deleted, the system displays a message that says that the preset has been removed.

Image 6-44: Preset menu: Preset removed

Button Mapping

1. Select **Button Mapping** to map and unmap source and output buttons.
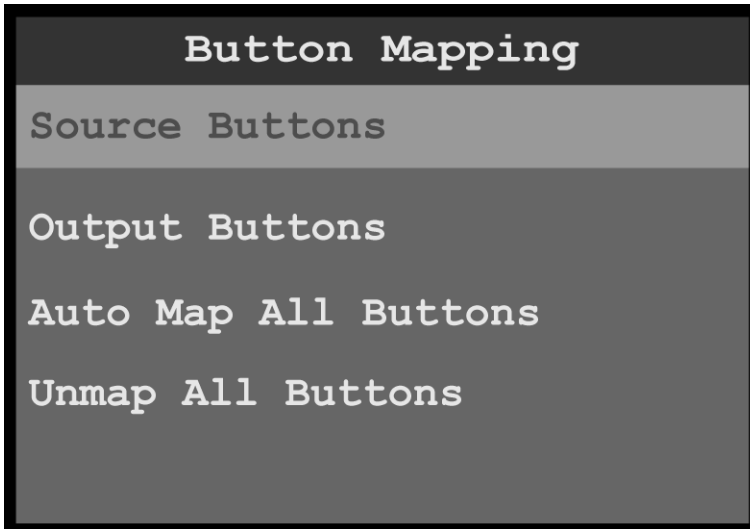
Image 6-45: Preset menu: Button Mapping

This menu is identical with the **Setup / Button Mapping** menu.

6.7 Button Mapping menu

General

This section provides information about mapping the front-panel buttons.

To enter the Button Mapping menu from the Setup menu, scroll to and select **Button Mapping**.
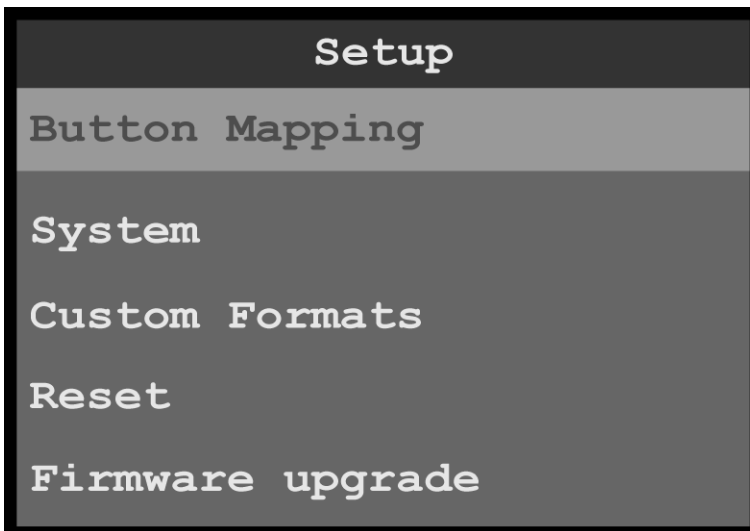
Image 6-46: Setup menu: Button Mapping

Use the Button Mapping menu to map the front-panel buttons to sources (input, still, and logo) and outputs.

Button Mapping menu tree

Refer to Image 6-47 for an illustration of the Button Mapping menu tree.
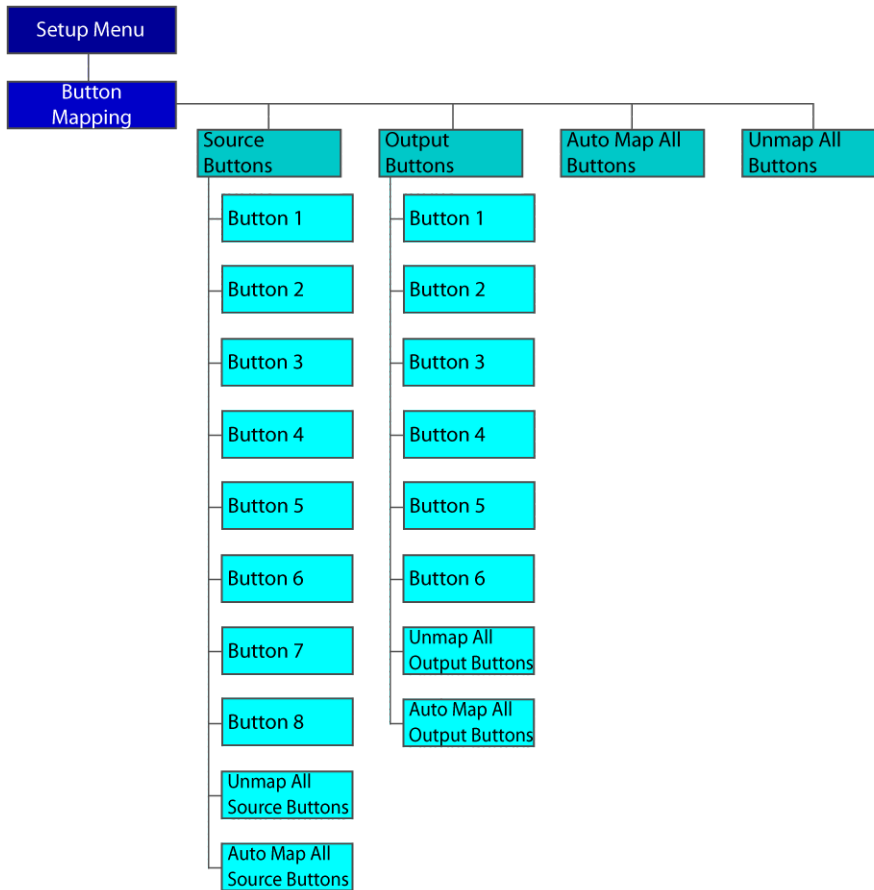
Image 6-47: Button Mapping menu tree

Source Buttons

1. Select **Source Buttons** on the Button Mapping menu.
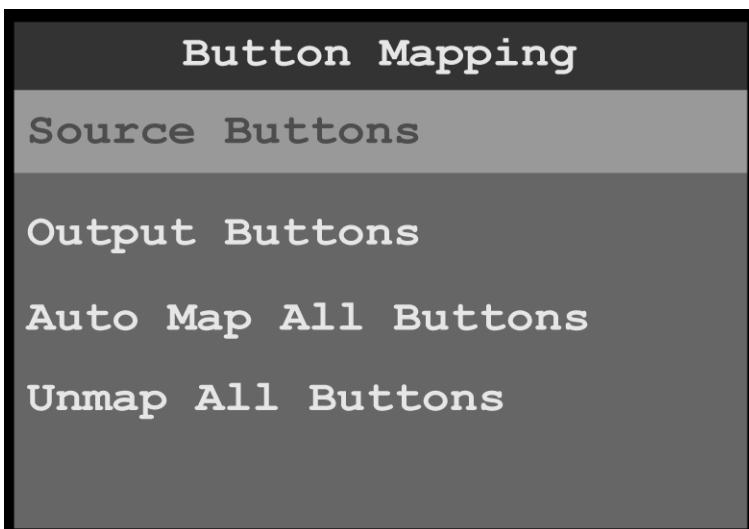
Image 6-48: Button Mapping menu: Source Buttons

2. Scroll to and select the input to be configured.
   Once the input to be configured is selected, the highlight bar turns from gray to cyan. Turning the adjust knob scrolls through the sources available to that button.
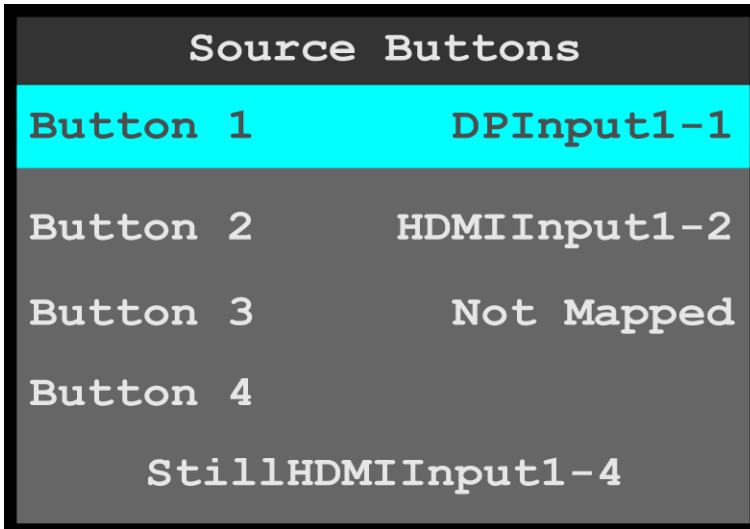
Image 6-49: Source Buttons menu

3. Scroll to and select the source that is to be mapped to the selected button.
4. Repeat steps 2 and 3 for each button that is to be mapped.
   The default mapping for Button 7 is "Matte," and the default mapping for Button 8 is "Logo."
5. To unmap all of the source buttons, scroll to and select **Unmap All Source Buttons**.
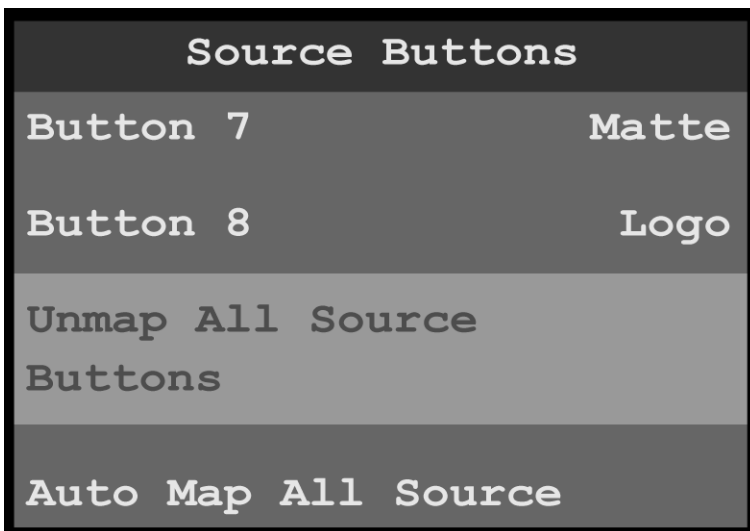
Image 6-50: Unmap All Source Buttons

6. To automatically map all of the source buttons, scroll to and select **Auto Map All Source Buttons**.
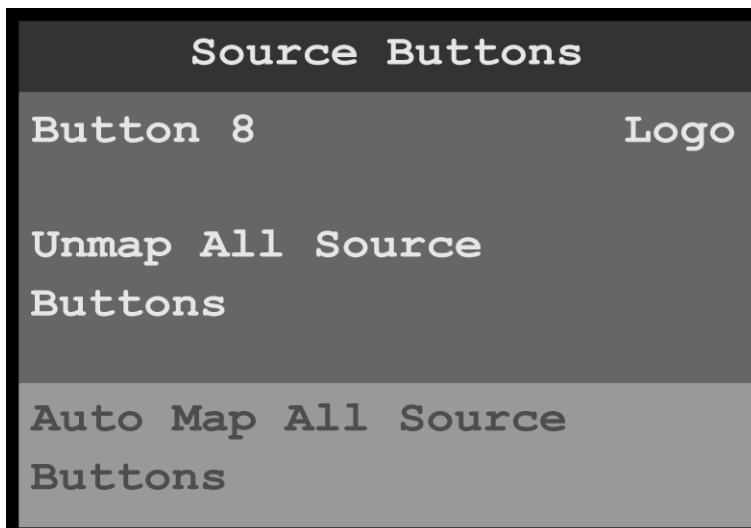
Image 6-51: Auto Map All Source Buttons

The system unmaps all currently mapped source buttons and automatically remaps them. When the remapping is finished, the system displays a message.
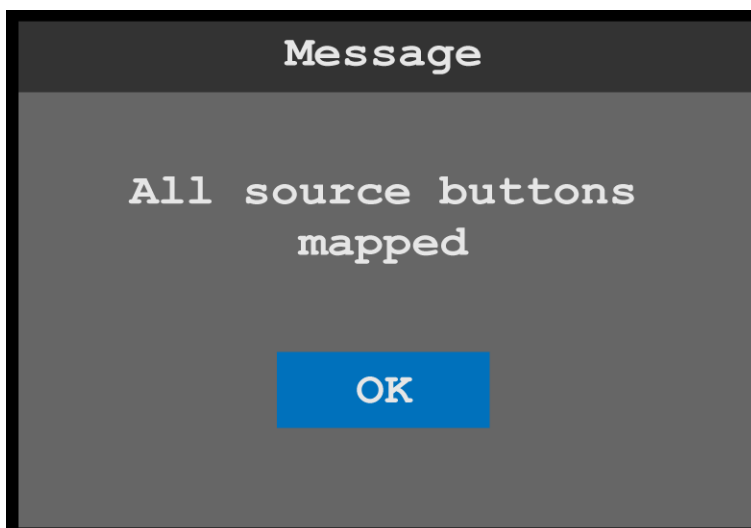
Image 6-52: All source buttons mapped message

7. Select **Yes** to complete the auto-mapping of the source buttons.

Output Buttons

1. Select **Output Buttons** on the Button Mapping menu.
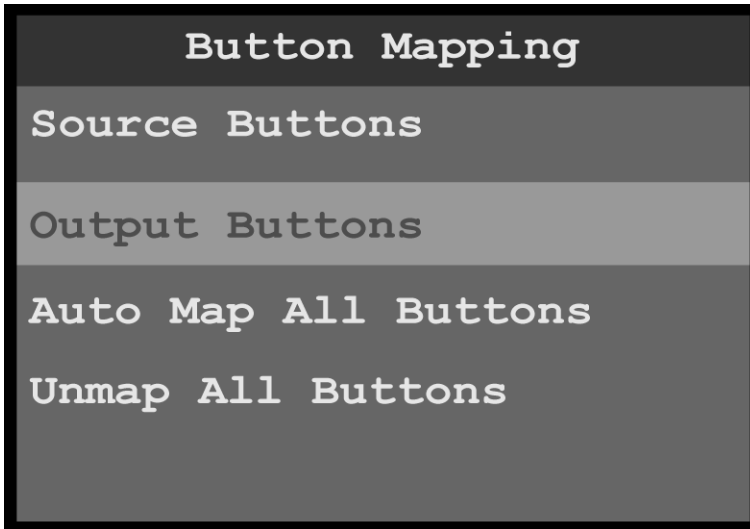
Image 6-53: Button Mapping menu: Output Buttons

2. Scroll to and select the output button to be configured.
    Once the output to be configured is selected, the highlight bar turns from gray to cyan. Turning the adjust
    knob scrolls through the channels available to that button.
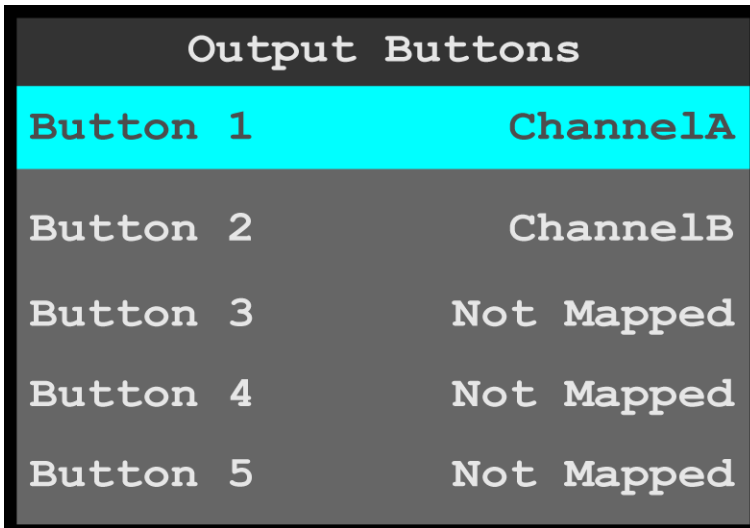
Image 6-54: Output Buttons menu

3. Scroll to and select the channel (A or B) to be configured.
    You may also select the option "Not Mapped."
4. Repeat steps 2 and 3 for each button that is to be mapped.
5. To automatically map all of the output buttons, scroll to and select **Auto Map All Output Buttons**.
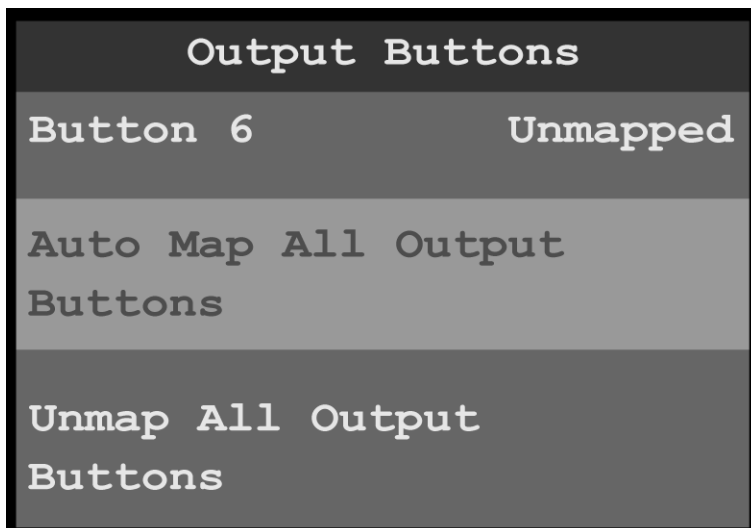
Image 6-55: Auto Map All Output Buttons

The system unmaps all currently mapped output buttons and automatically remaps them. When the remapping is finished, the system displays a message.
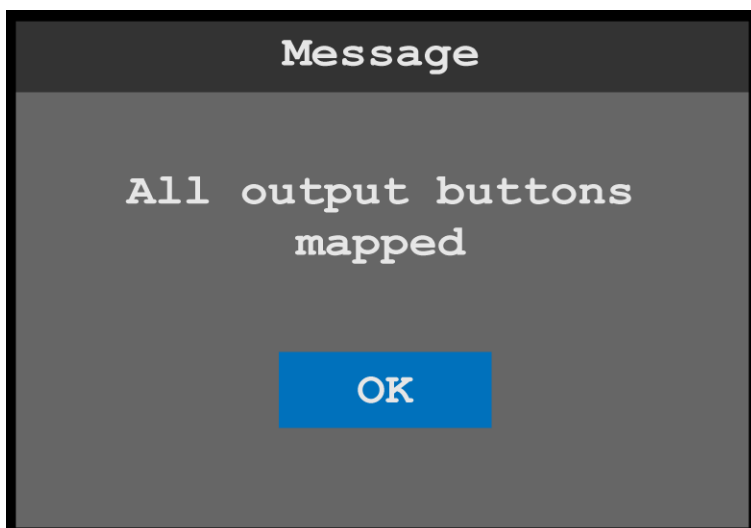
Image 6-56: All output buttons mapped message

6. Select **Yes** to complete the auto-mapping of the output buttons.
7. To unmap all of the output buttons, scroll to and select **Unmap All Output Buttons**.
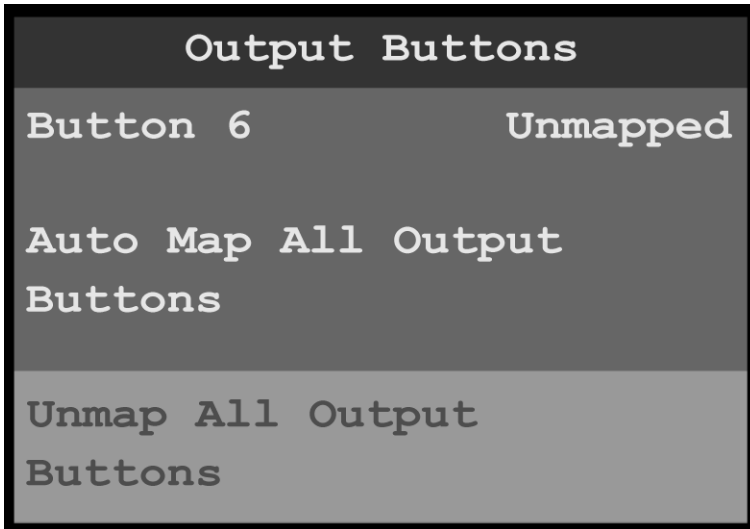
Image 6-57: Unmap All Output Buttons

Auto Map All Buttons

To allow the system to automatically map the front-panel buttons to all available sources and outputs…

1. Select **Auto Map All Buttons** on the Button Mapping menu.
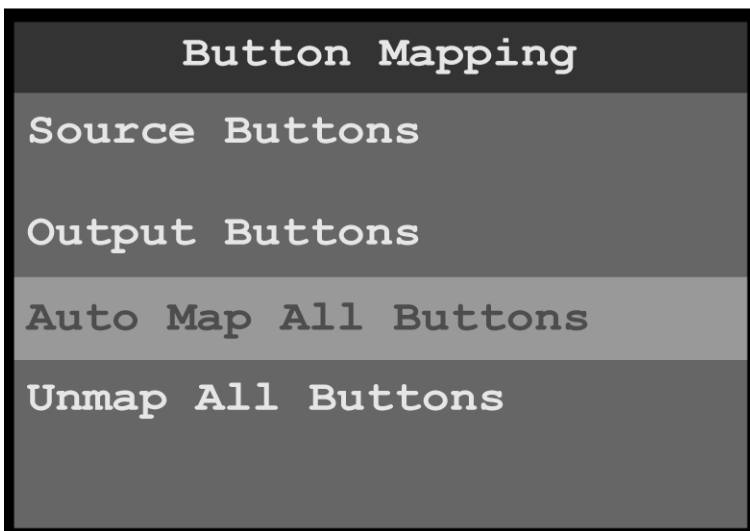
Image 6-58: Auto Map All Buttons

The system unmaps all currently mapped source and output buttons and automatically remaps them. When the remapping is finished, the system displays the message "All buttons mapped."
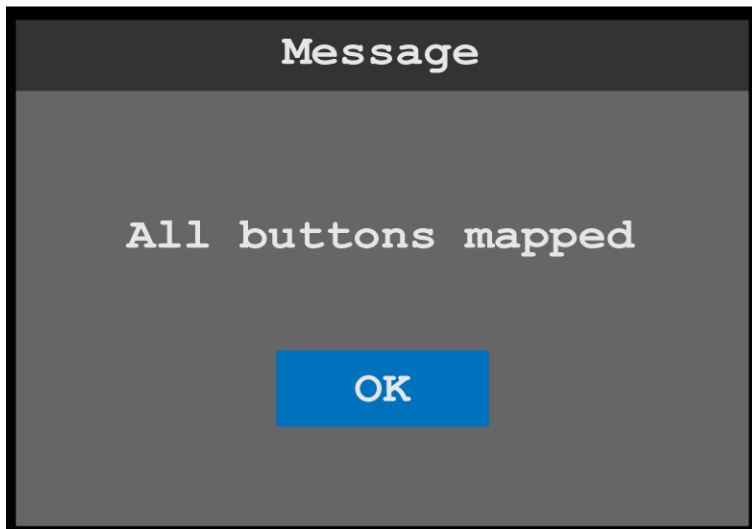
Image 6-59: All buttons mapped message

2. Select **Yes** to complete the auto-mapping of all source and output buttons.
   The default mapping for SRC 1 through 6 is input 1 through 6 on the TCI card. The default mapping for SRC 7 is "Matte," and the default mapping for SRC 8 is "Logo." The default mapping for OUT 1 through 6 is output 1 through 6 on the TCO card.
   Once the system maps all of the source and output buttons, the buttons on the front panel are lit.
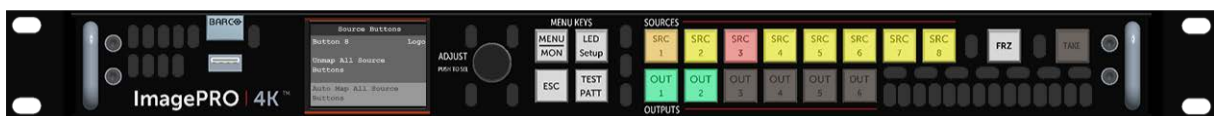
Image 6-60: Front-panel source and output buttons auto-mapped

Button states

Color and brightness indicate the state of the front-panel source and output buttons.

Source-button states

- Brightly lit—Button is selected.
  - Green: Signal is active and assigned to PVW.
  - Yellow: Input source, still, logo, or matte color is present.
  - Amber: Source is active on the PGM outputs.
  - Red: Loss of sync (LOS).
  - Blue: Source is frozen.
  - Cyan: A cue is mapped to the button. (Cues will be supported in a future software release.)
  - Magenta: A user key is mapped to the button. (User keys will be supported in a future software release.)
  - White: A preset is mapped to the button.
- Dimly lit—Source is mapped but not active.
- Not lit—Button is not mapped.

Output-button states

- Lit—Button is mapped, selected, or frozen.
  - Green: Button is mapped to an Aux.
  - Amber: Aux is selected to view in the front-panel monitor.
  - Blue: Aux is frozen.
- Dimly lit—Source is mapped but not active.
- Not lit—Button is not mapped.

Unmap All Buttons

To unmap all source and output buttons…

1. Select **Unmap All Buttons** on the Button Mapping menu.
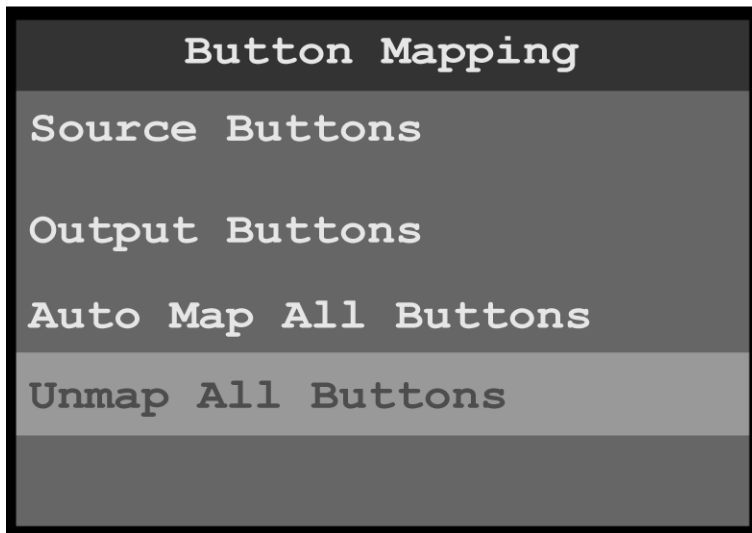
Image 6-61: Unmap All Buttons

Once the system unmaps the source and output buttons, the buttons on the front panel are unlit.

Image 6-62: Front-panel source and output buttons unmapped

6.8 System menu

General

This section provides information about the System menu.

To enter the System menu from the Setup menu, scroll to and select **System**.
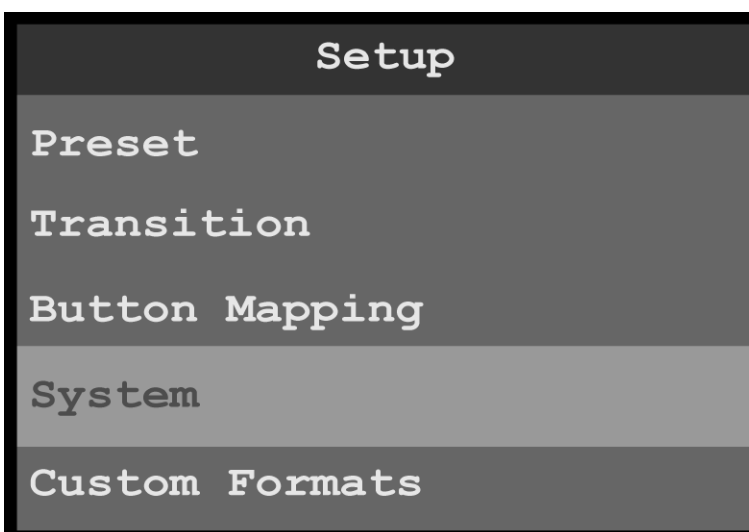
Image 6-63: Setup menu: System

Use the System menu to control system settings, such as Unit Mode, Native Rate, Genlock, Ethernet, Display and Button Brightness and to access the System Diagnostics.

System menu tree

Refer to Image 6-64 and to Image 6-65 for an illustration of the System menu tree.
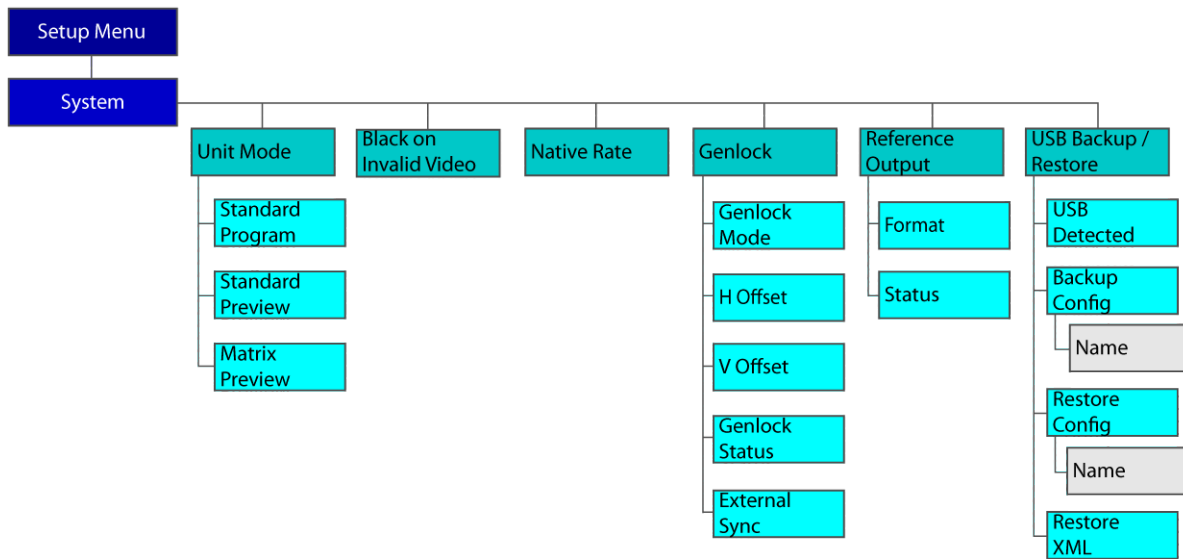
Image 6-64: System menu tree
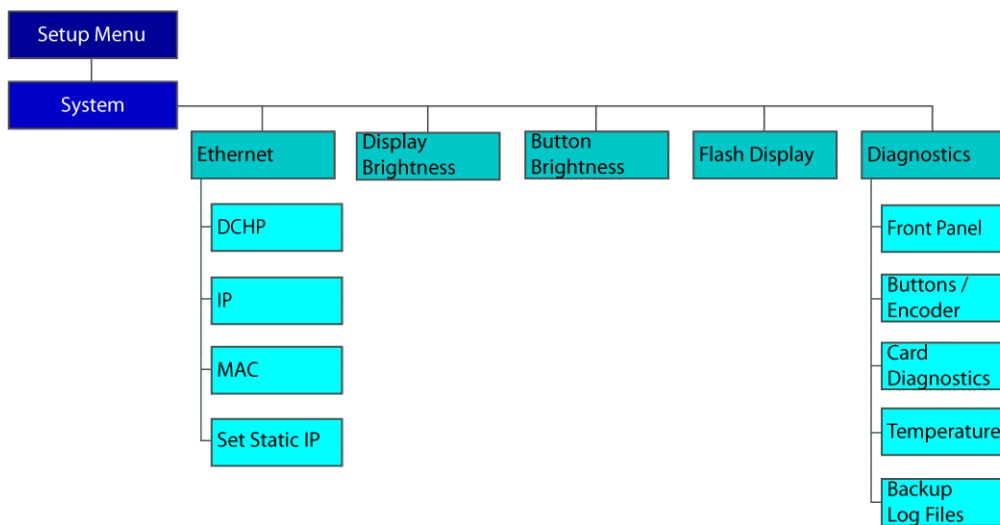
Image 6-65: System menu tree (Continued)

Unit Mode

The ImagePRO–4K video processor can operate in one of three unit modes.

• In **Standard Program** mode, when the operator selects a source from the front panel that source is automatically transitioned to both Aux outputs.
• In **Standard Preview** mode the operator can preview the input on the Display screen, before taking it to program by pressing the **Take** button.
  Note that to preview the selected input on the display screen, the **MENU/MON** menu key must be set to monitor mode.
• In **Matrix Preview** mode the ImagePRO–4K video processor acts as if it were a scaling matrix switcher. Matrix Preview mode may be selected from the front panel of the unit, but it must be used through the EMTS GUI.

Standard Program and Standard Preview modes allow for a single input to route to up two Aux channels out. Because only one source is routed to both Aux channels at the same time, all six inputs can have a 4K60p

source connected. The system dynamically allocates input connector capacity as each source is actively switched. Each output connected to a display must be assigned to one of the two Aux channels. Even though all six output connectors can possibly show a picture, the output rate and "area of interest" are defined in the Aux channel(s).

Matrix Preview mode is capable of providing a single input to multiple outputs, as well as multiple inputs to multiple outputs. Because this mode is capable of routing more than one input to the outputs, the signal bandwidth capacities for each connector must be defined by the user. Each output can have a different signal rate from the others, as well as a unique "area of interest."

To select the unit mode…

1. Select **Unit Mode** on the System menu.
   Once Unit Mode is selected, the highlight bar turns from gray to cyan. Turning the adjust knob scrolls through the available unit modes.
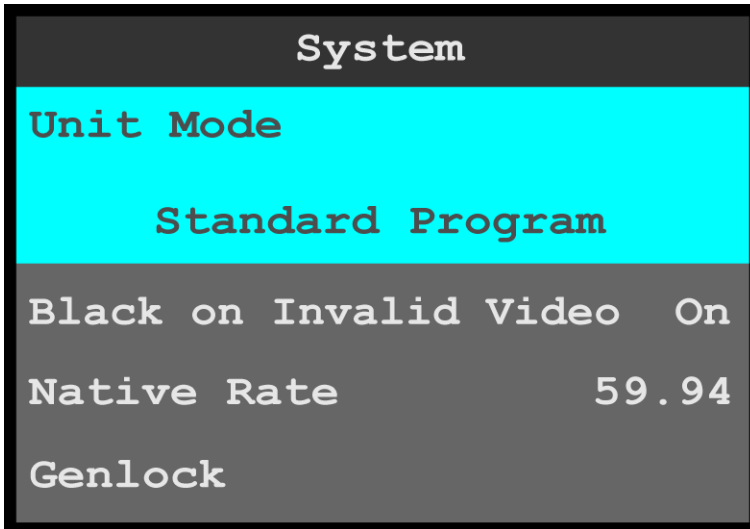
Image 6-66: System menu: Unit Mode

2. Scroll through and select the desired unit mode: **Standard Program**, **Standard Preview**, or **Matrix Preview**.

Black on Invalid Video

Black on Invalid Video outputs a black screen if system cannot process the input source (for example if there is a loss of sync). The default setting is **On**.

1. Select **Black on Invalid Video** on the System menu.
   Once Black on Invalid Video is selected, the highlight bar turns from gray to cyan.
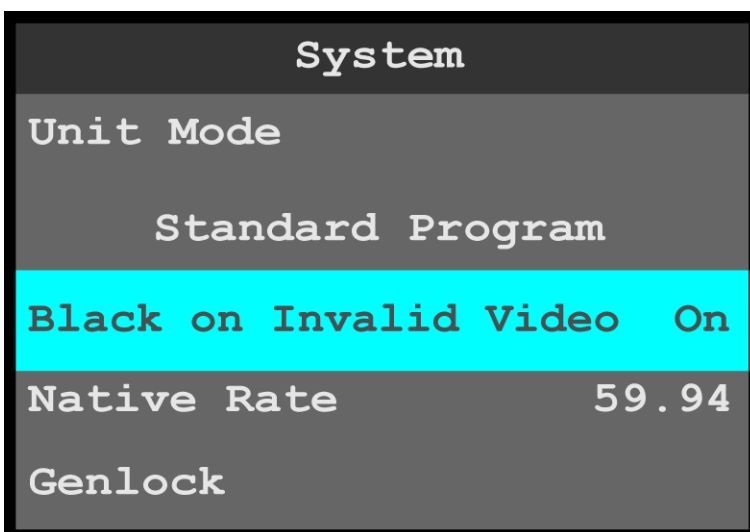
Image 6-67: System menu: Black on Invalid Video

2. Use the adjust knob to scroll to and select either **On** or **Off**.
    If Black on Invalid Video is set to **Off**, unpredictable output may result.

Native Rate

Native Rate allows the operator to adjust the native rate of the system.

1. Select **Native Rate** on the System menu.
    Once Black on Invalid Video is selected, the highlight bar turns from gray to cyan.


```
              System

   Unit Mode

        Standard Program

   Black on Invalid Video   On

   Native Rate           59.94

   Genlock
```
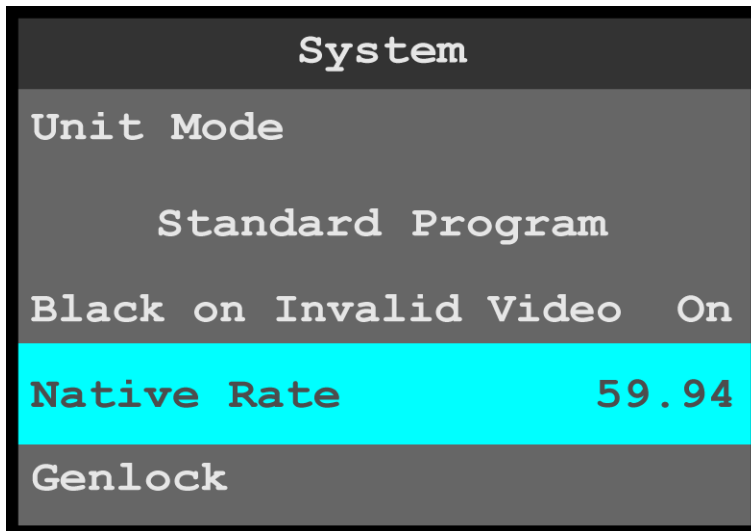
Image 6-68: System menu: Native Rate

2. Scroll through and select from among the native rate options.
    The native rate of the system is measured in Hz (cycles per second). Available selections are:

23.98	47.95
24.00	48.00
25.00	50.00
29.97	59.94
30.00	60.00

The native rate must match the general frame rate in the event where the unit is used.

Genlock

Genlock allows the operator to adjust the Genlock parameters of the system.

1. Select **Genlock** on the System menu.
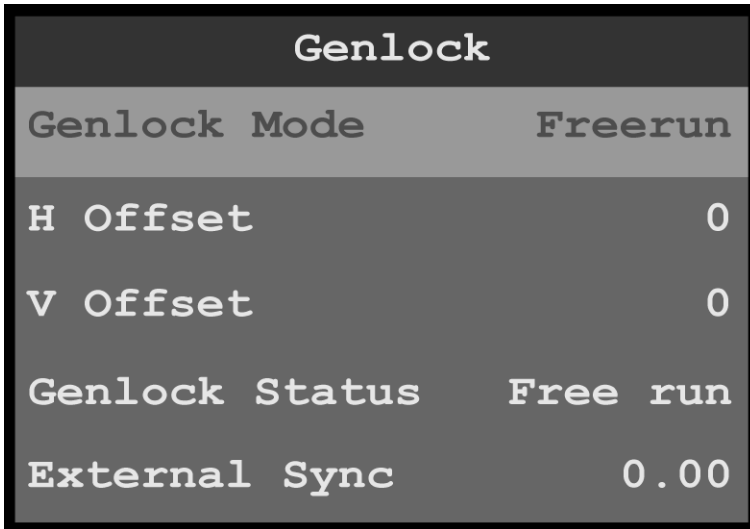
Image 6-69: System menu: Genlock

- • The **Genlock Mode** options are Freerun and Lock to External.
  The default setting is Freerun.
- • Use the **H Offset** to adjust the H Sync to match a Genlock situation.
  The adjustment is in ms.
- • Use the **V Offset** to adjust the V Sync to match a Genlock situation.
  The adjustment is in ms.
- • **Genlock Status** reports the status of the system's Genlock Mode.
- • **External Sync** displays the detected rate, in Hz, of the incoming reference signal, if present.

2. Scroll to and select the desired Genlock parameter.
   Once a parameter is selected, the highlight bar for that parameter turns from gray to cyan.

3. Scroll through and select the options for the desired Genlock parameter.

Reference Output

Reference Output allows the operator to adjust the format of the reference output.

1. Select **Reference Output** on the System menu.

2. Select **Format** on the Reference Output menu.
   Once Format is selected, the highlight bar turns from gray to cyan.
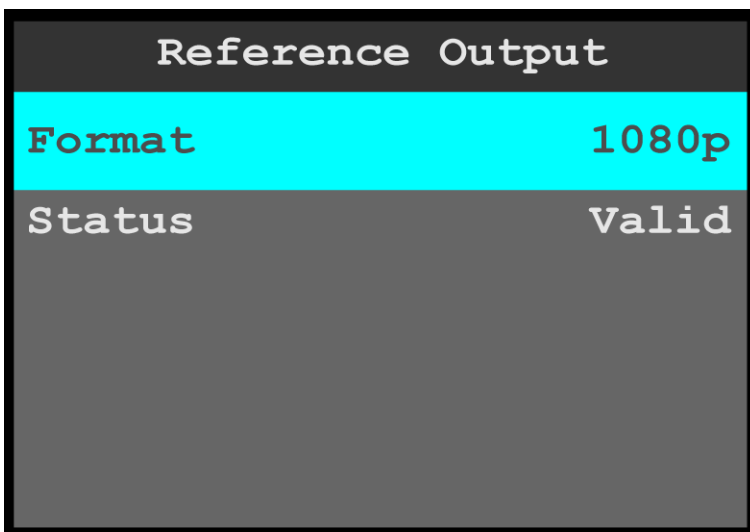
Image 6-70: Reference Output menu: Format

3. Scroll through and select the desired reference-output format.
   Status displays whether the selected reference-output format is valid or invalid.

USB Backup/Restore

USB Backup/Restore allows the operator to create a system backup file, and it allows the operator to use that system backup file to restore the system.

1. Insert a FAT32-formatted USB drive in the front-panel USB port.
2. Select **USB Backup/Restore** on the System menu.
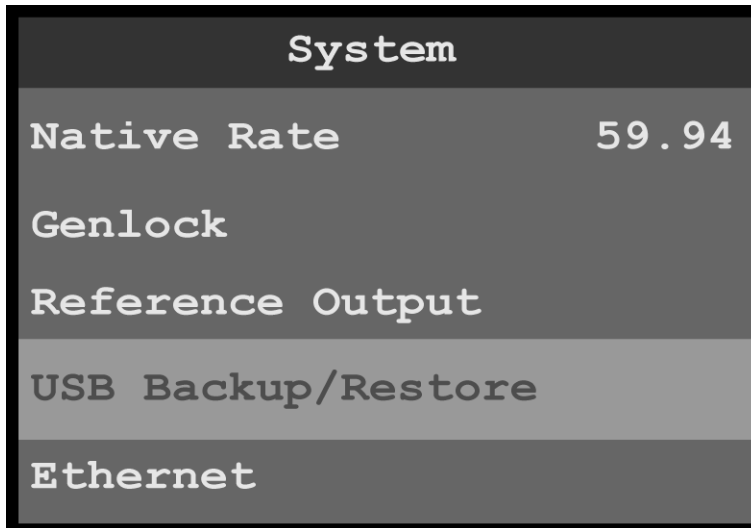
Image 6-71: System menu: USB Backup/Restore

The system detects if a FAT32-formatted USB drive is in the front-panel USB port. If the system detects no USB drive in the USB port, the top line of the USB Backup/Restore menu reads, "USB Detected – No." If the system detects a USB drive in the USB port, the top line of the USB Backup/Restore menu reads, "USB Detected – Yes."
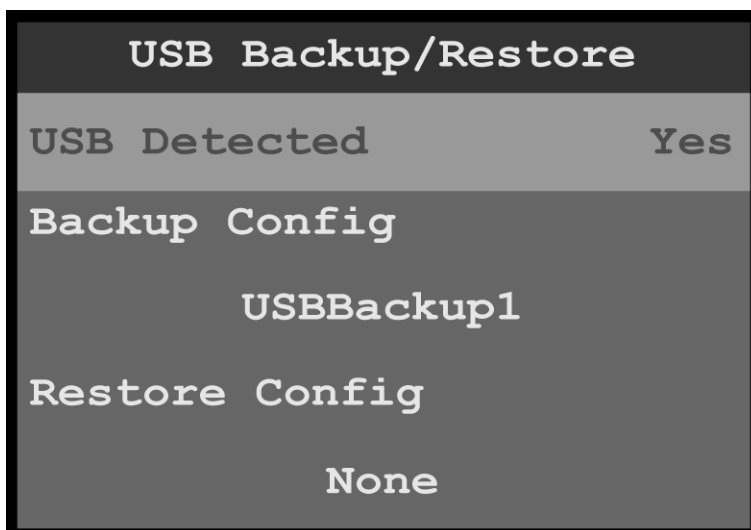
Image 6-72: USB Backup/Restore: USB Detected

To create a backup file…

1. Select **Backup Config** on the USB Backup/Restore menu.
   Once Backup Config is selected, the highlight bar turns from gray to cyan, and the first character of the backup config file name is highlighted in green.
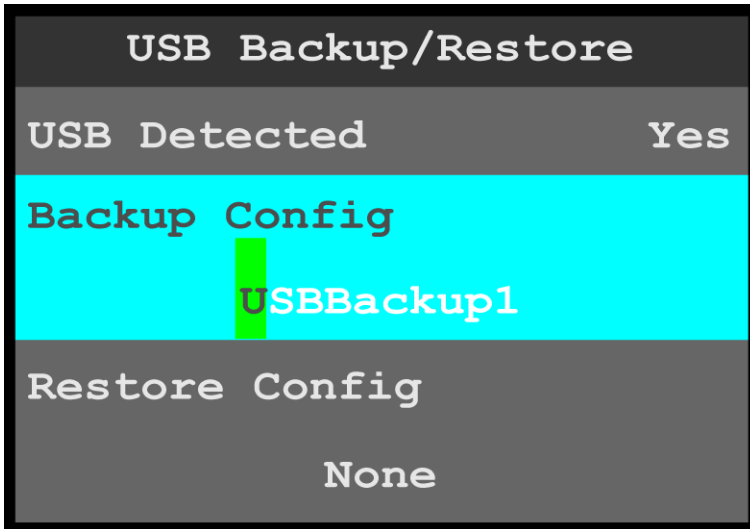
Image 6-73: USB Backup/Restore: Backup Config

2. Either…
   a) Press the adjust knob to accept the default backup config file name.
      or…
   b) Use the adjust knob to adjust the first character of the backup config file name, and press the adjust knob when the desired character is reached.
      The available characters are:
      • A – Z
      • a – z
      • 0 – 9
      • - (hyphen)
      • . (period)
      • / (slash)

If the USB drive has an EM folder, the system creates a backup file (for example, *USBBackup1.tar.gz*) and places it in a folder named EM\backup\sys.
If the USB drive does not have an EM folder, the system creates a folder named EM\backup\sys and places the backup file in the folder named EM\backup\sys.

To restore the system with a backup file…

1. Select **Restore Config** on the USB Backup/Restore menu.
   Once Restore Config is selected, the highlight bar turns from gray to cyan.
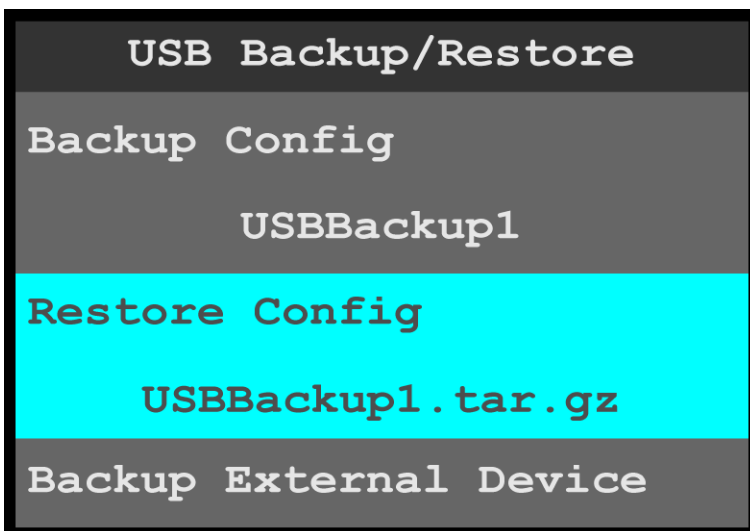
Image 6-74: USB Backup/Restore: Restore Config

2. Use the adjust knob to scroll through and select the desired backup config file.

The system displays a message that says that the backup is "In Progress," and "Do NOT power cycle."
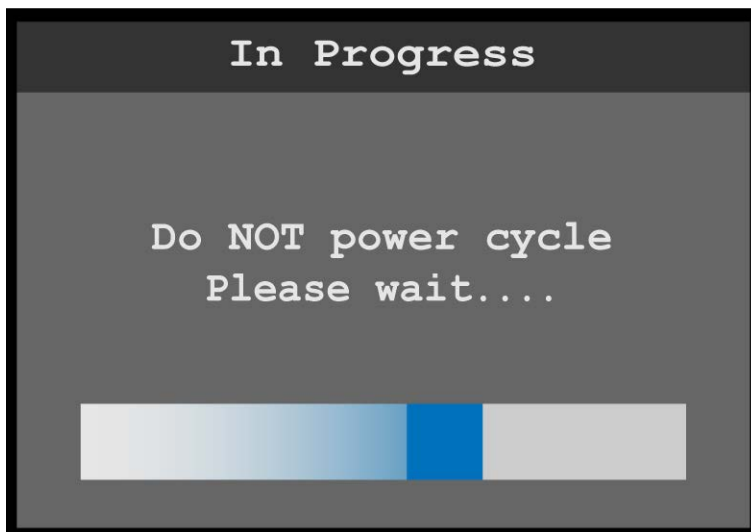
Image 6-75: Backup In Progress message

When the restore operation is finished, the system then displays a message that asks, "Restart Unit Now?"
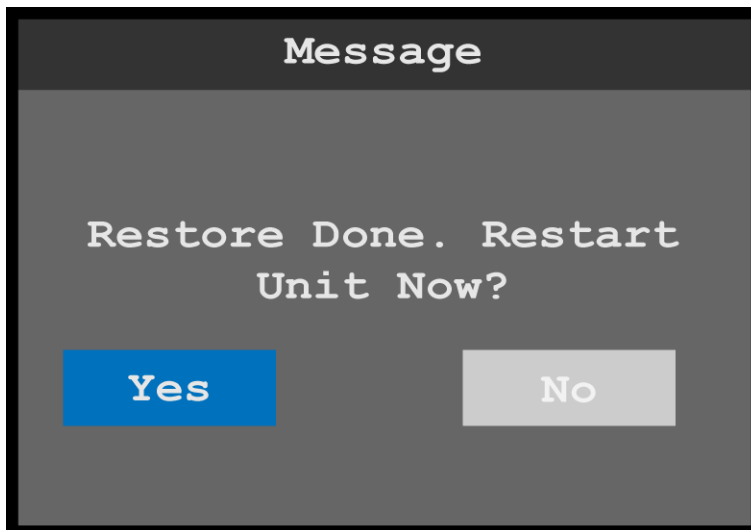
Image 6-76: Restore Done Restart message

3. Select **Yes**.
   The system displays a resetting message.

Image 6-77: Resetting message

After a few minutes, the system resets, restarts, and displays the status menu.

Backup External Device and Restore External Device

Backup External Device and Restore External Device operate similarly to Backup Config and Restore Config.

Restore XML

Restore XML allows the system to upload a backup xml folder.

Ethernet

Ethernet allows the operator to adjust the Ethernet parameters of the system.

1. Select **Ethernet** on the System menu.
2. Scroll to and select the desired Ethernet parameter, for example DHCP (Dynamic Host Configuration Protocol).
   Once Ethernet parameter is selected, the highlight bar for that parameter turns from gray to cyan.
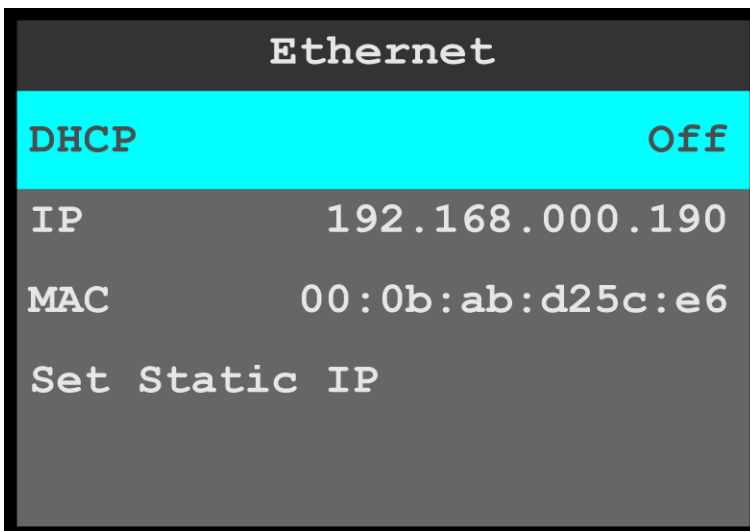
Image 6-78: Ethernet menu

- **DHCP** allows the operator to choose whether or not to use the Dynamic Host Configuration Protocol.
  The default DHCP setting is **Off**.
  When DHCP is set to **On**, a device can have a different IP address every time it connects to the network.
- **IP** reports the current IP address of the system.
- **MAC** reports the current MAC address of the system.

• **Set Static IP** allows the operator to set the **IP Address**, **Subnet Mask**, and **Gateway Mask**.

To set a Static IP address…

1. Select **Set IP Address** from the Set Static IP menu.
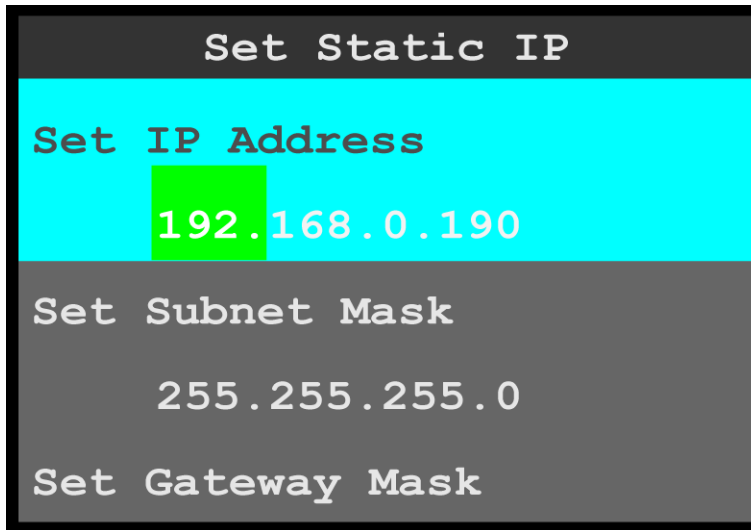
Image 6-79: Ethernet menu: Set Static IP

Once Set IP Address is selected, the highlight bar turns from gray to cyan, and the first portion of the IP address is highlighted in green.

2. Use the adjust knob to adjust the first portion of the IP address, and press the adjust knob when the desired number is reached.
3. Repeat Step 2 for each portion of the IP address.
4. Select **Set Subnet Mask** from the Set Static IP menu.
5. Use the adjust knob to adjust the first portion of the Subnet Mask, and press the adjust knob when the desired number is reached.
6. Repeat Step 5 for each portion of the Subnet Mask.
7. Select **Set Gateway Mask** from the Set Static IP menu.
8. Use the adjust knob to adjust the first portion of the Gateway Mask, and press the adjust knob when the desired number is reached.
9. Repeat Step 8 for each portion of the Gateway Mask.

Display Brightness

1. Select **Display Brightness** on the System menu to adjust the brightness of the display screen.
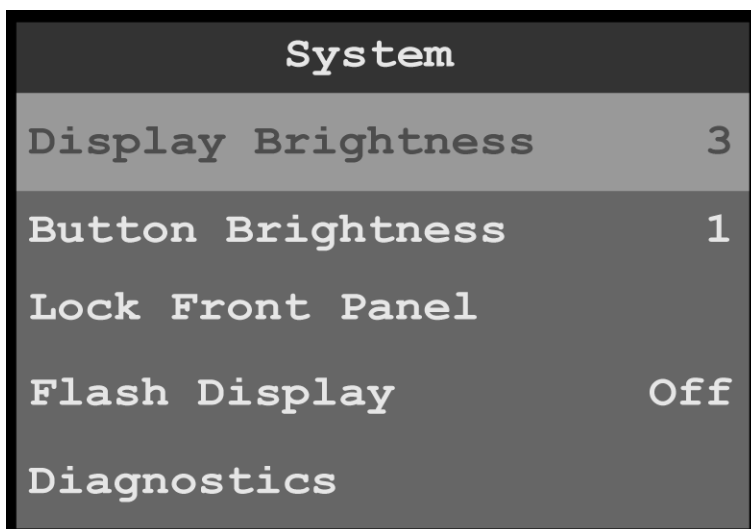
Image 6-80: System menu: Display Brightness

Once Display Brightness is selected, the highlight bar turns from gray to cyan.

2. Scroll through the display-brightness settings, from 0 to 6, and select the desired brightness.
    The default brightness setting is **3**.

Button Brightness

1. Select **Button Brightness** on the System menu to adjust the brightness of the front-panel buttons.
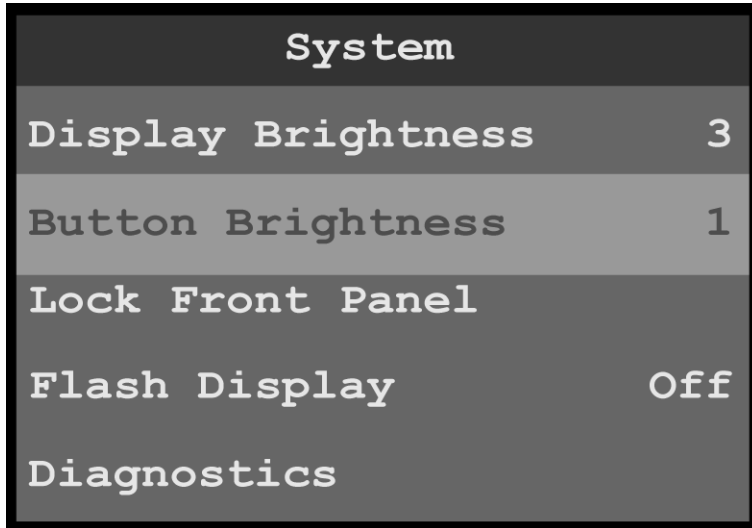
Image 6-81: System menu: Button Brightness

Once Button Brightness is selected, the highlight bar turns from gray to cyan.

2. Scroll through the button-brightness settings, from 0 (off) to 6.
    The default brightness setting is **1**.

Lock Front Panel

1. Select **Lock Front Panel** on the System menu to lock the front-panel buttons.
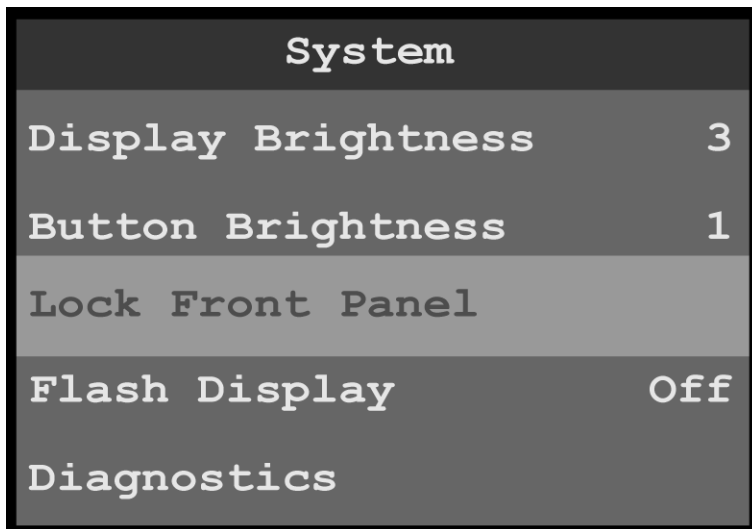
Image 6-82: System menu: Lock Front Panel

Once Lock Front Panel is selected, the system displays the following message, "Front Panel Locked Press and hold 'Menu/Mon' and 'ESC' buttons to unlock."
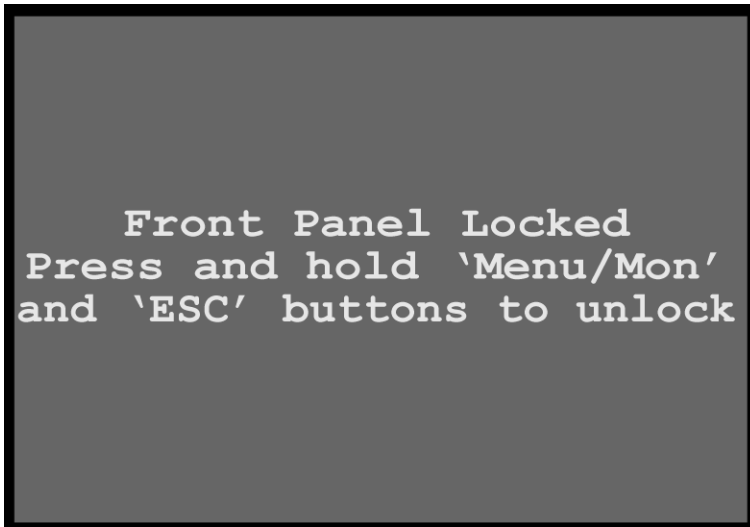
Image 6-83: Lock Front Panel message

2. Press and hold the **MENU/MON** and **ESC** menu keys to unlock the front-panel buttons.

Flash Display

1. Select **Flash Display** on the System menu to choose between not flashing and flashing the display screen.
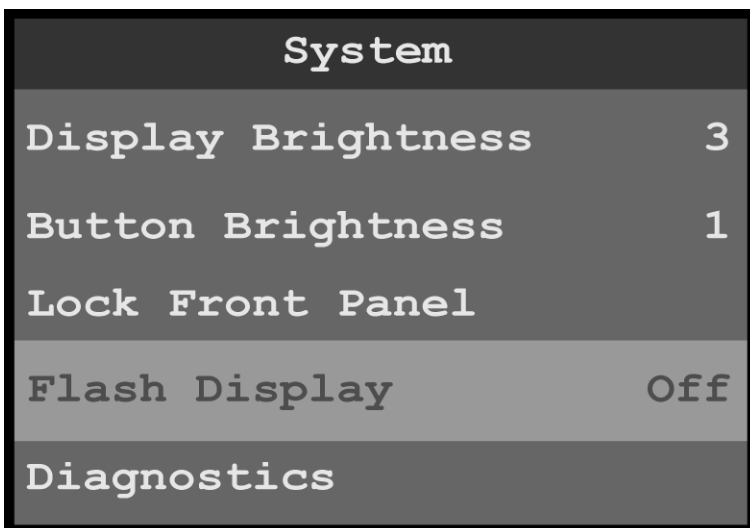
Image 6-84: System menu: Flash Display

Once Flash Display is selected, the highlight bar turns from gray to cyan.

2. Scroll between **Off** (default) and **On**, and select the desired setting.
When Flash Display is set to **On**, the display flashes from dark, to dim, to bright.

Diagnostics

The **Diagnostics** menu allows an operator to check if the ImagePRO–4K unit is functioning normally. Front panel and card operations can be checked. Various system temperatures can be monitored and backup log files can be saved for customer service troubleshooting.

1. Select **Diagnostics** on the System menu to enter the Diagnostics menu.
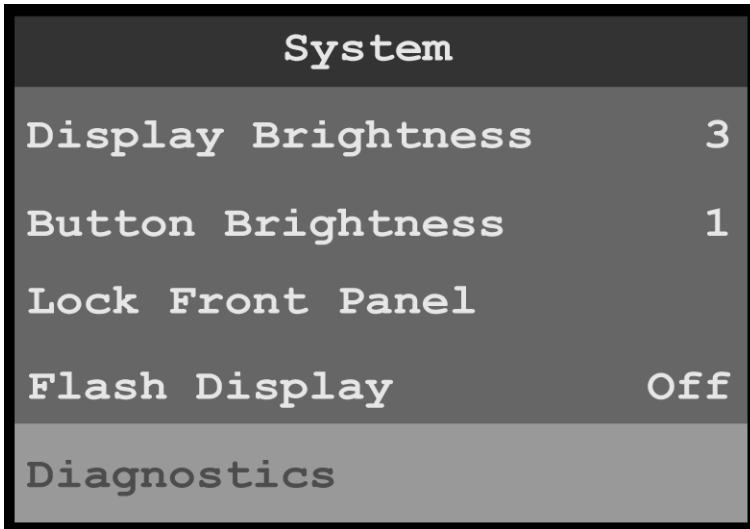
Image 6-85: System menu: Diagnostics

2. Scroll to and select the diagnostic to be performed.

> 📄 Do not perform diagnostics while running a show; the A/V outputs may be disrupted.

Front-panel diagnostics

1. Scroll to and select **Front Panel** from the Diagnostics menu.
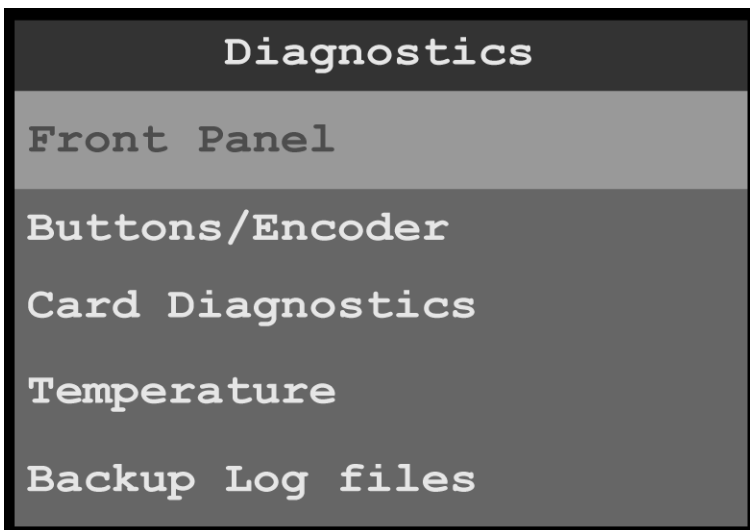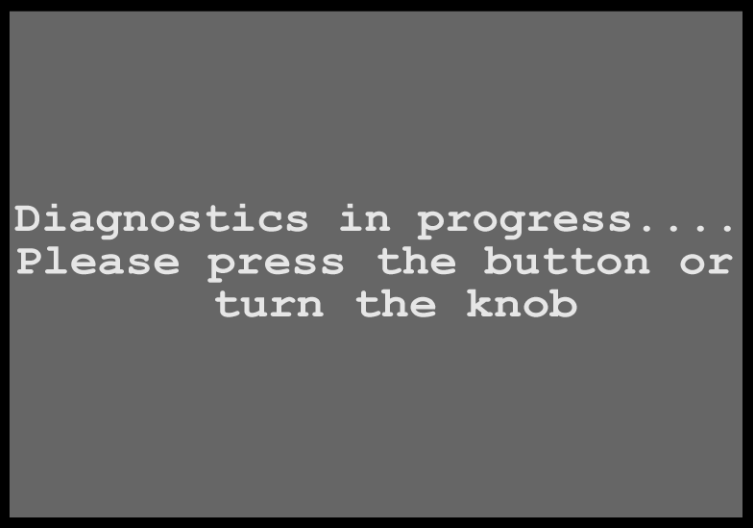
Image 6-86: Diagnostics menu: Front Panel

When Front Panel is selected, the system displays the message "Diagnostics in progress…," and the display screen and the front-panel buttons flash red, then blue, then green.
When the front-panel diagnostic is finished, the system displays a message.

Image 6-87: Diagnostics in Progress

2. Turn the adjust knob or press any front-panel button, for example the **ESC** button.
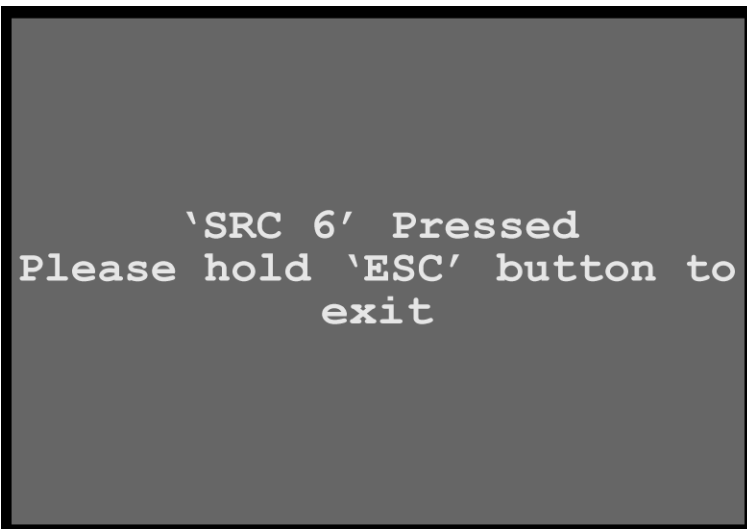

Image 6-88: Exit front-panel diagnostics

3. Press and hold the **ESC** button to return to the Diagnostics menu.

Buttons/Encoder diagnostics

1. Scroll to and select **Buttons/Encoder** from the Diagnostics menu.
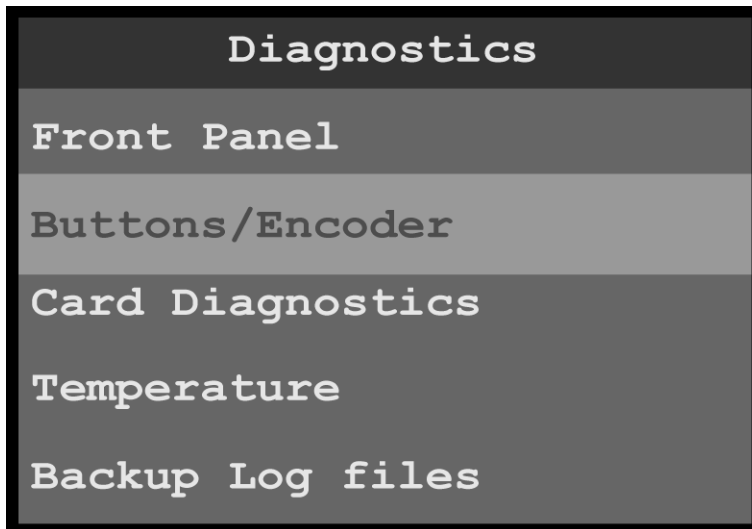
Image 6-89: Diagnostics menu: Buttons/Encoder

When Buttons/Encoder is selected, the system displays the message "Diagnostics in progress…Please press the button or turn the knob..."
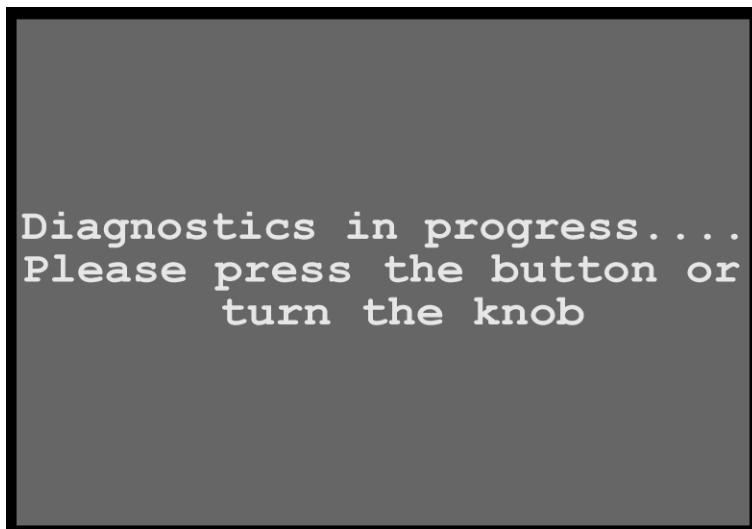
Image 6-90: Diagnostics in Progress

2. Turn the adjust knob or press any front-panel button, for example the **SRC 6** button.

Image 6-91: Exit front-panel diagnostics

3. Press and hold the **ESC** button to return to the Diagnostics menu.

Card diagnostics

1. Scroll to and select **Card Diagnostics** from the Diagnostics menu.
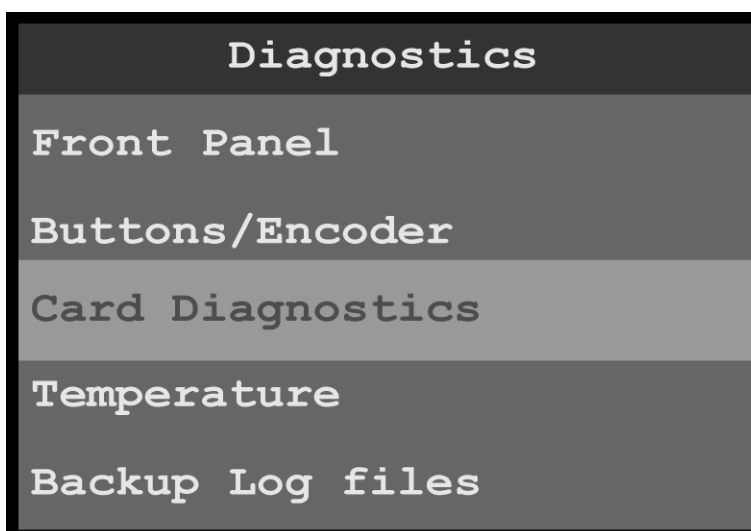
Image 6-92: Diagnostics menu: Card Diagnostics

2. Select **Slot** from the Card Diagnostics menu.
   Once Slot is selected, the highlight bar turns from gray to cyan.
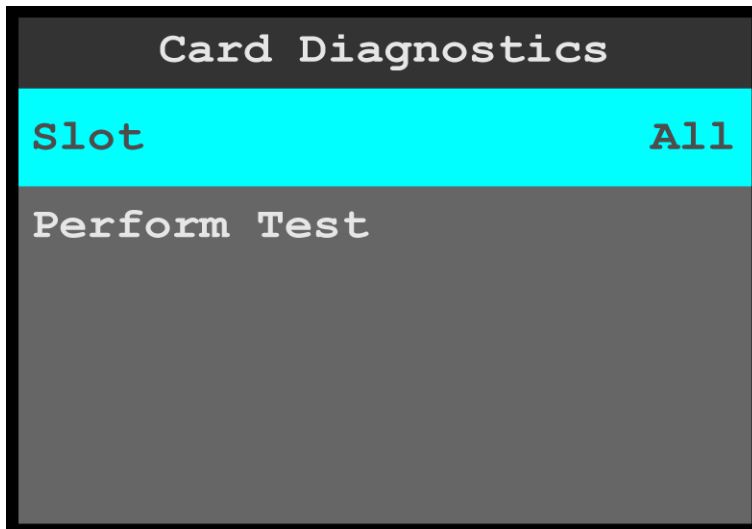
Image 6-93: Card Diagnostics menu: Slot

3. Scroll through and select the desired slot.
    The slot options are **All**, **2**, and **3**.
4. Scroll to and select **Perform Test**.
    The system displays the following warning message.
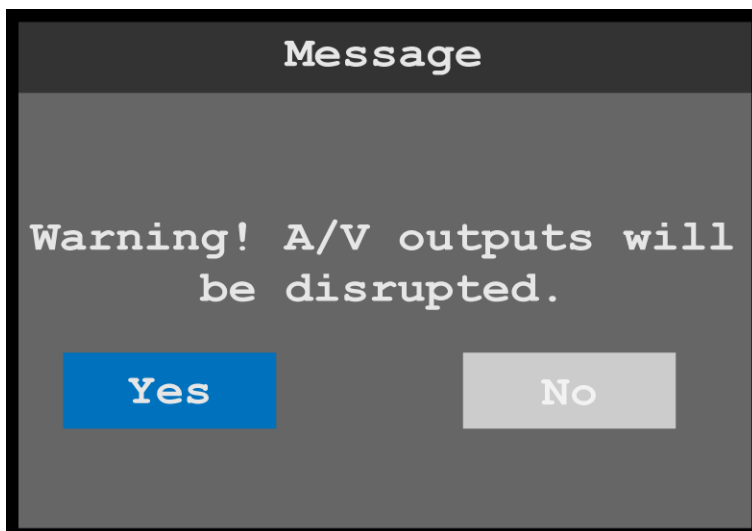
Image 6-94: Card Diagnostics: Slot warning message

5. Select **Yes** to perform the card diagnostics.
    •   If **No** is selected, the system returns to the Card Diagnostics menu.
    •   If **Yes** is selected, the system performs the diagnostics and displays a progress screen.
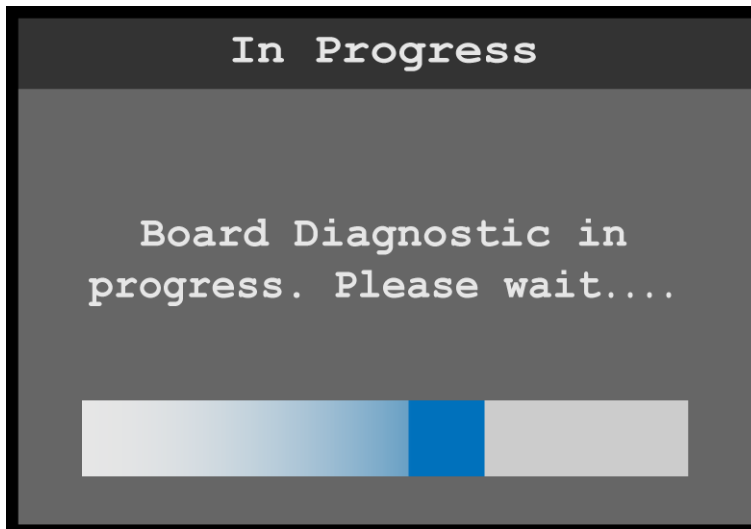
Image 6-95: Board Diagnostic in Progress message

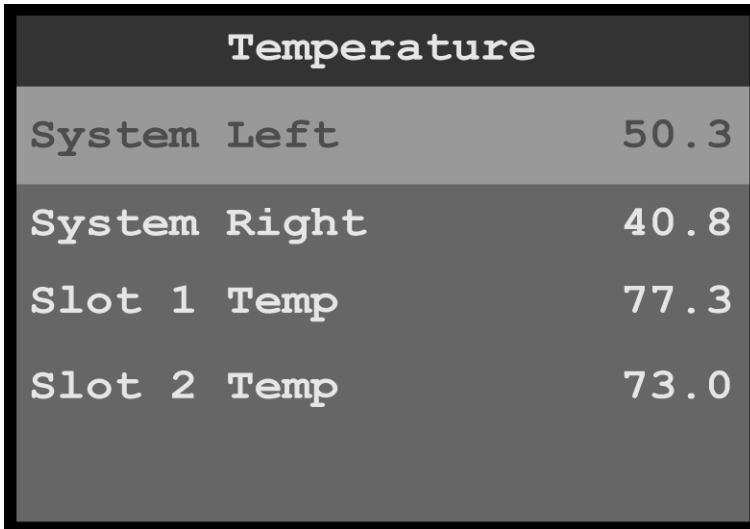When the diagnostic is finished, the system displays the results.

Image 6-96: Board diagnostics results

6. Press the **ESC** key to return to the Card Diagnostics menu.

Temperature diagnostics

1. Scroll to and select **Temperature** from the Diagnostics menu.
    The system performs the temperature diagnostics and displays the results.

Image 6-97: Temperature diagnostic results

2. Press the **ESC** key to return to the Diagnostics menu.

Backup Log Files

1. Insert a FAT32-formatted flash drive in the front-panel USB slot.
   If there is no USB drive in the USB slot when you attempt to create backup log files, the system displays the message "USB drive not found. Please check USB connection and retry."
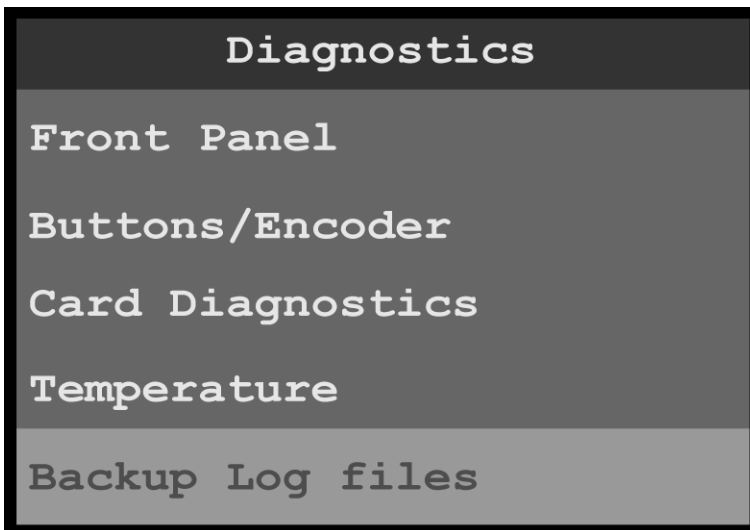2. Scroll to and select **Backup Log Files** from the Diagnostics menu.

Image 6-98: Diagnostics menu: Backup Log Files

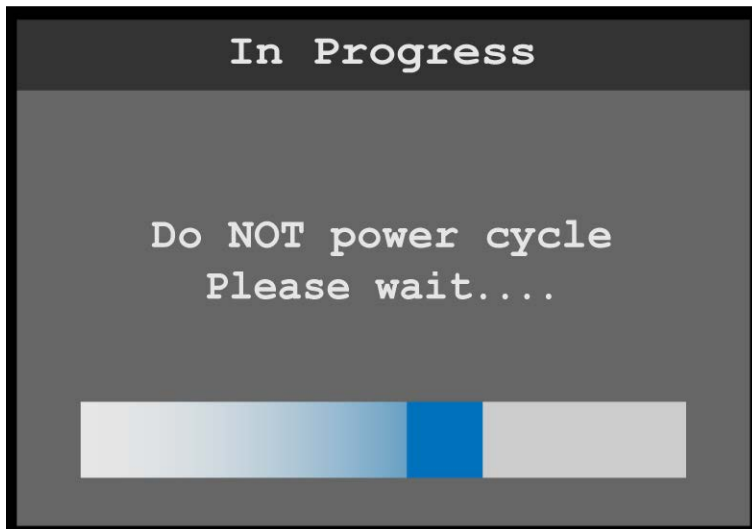The system displays a progress screen.

Image 6-99: Backup in progress

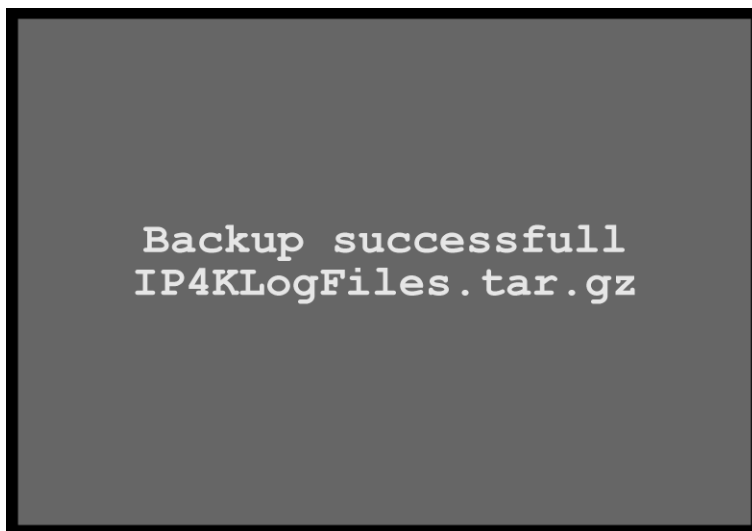When the backup is finished, the system displays a message that contains the name of the backup file.

Image 6-100: Backup successful message

The system stores the backup file—IP4KLogFiles.tar.gz—in the EM folder on the USB drive.

6.9 Custom Formats

General

This section provides information on creating and selecting custom formats.

To enter the Custom formats menu from the Setup menu, scroll to and select **Custom formats**.
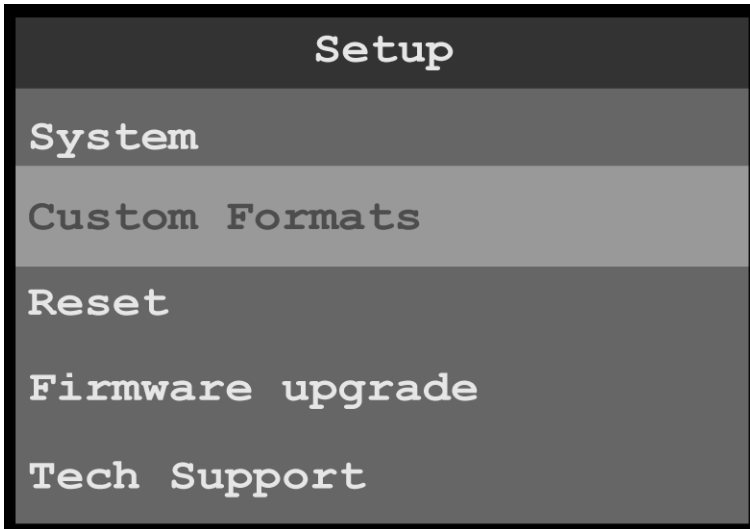
Image 6-101: Setup menu: Custom Formats

Use the Custom Formats menu to create custom formats to match different output devices.

Custom Formats menu tree

Refer to Image 6–102 for an illustration of the initial Custom Formats menu tree. This reflects how the Custom Formats menu appears on the display screen, before any custom formats are created.
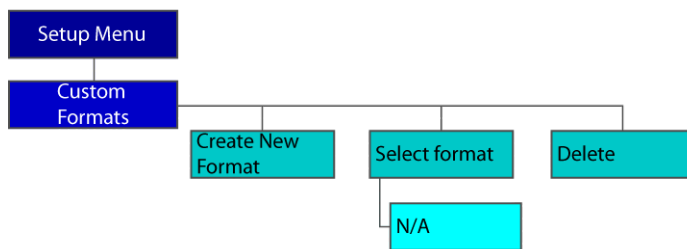

Image 6-102: Custom Formats menu tree: with no custom formats

Refer to Image 6–103 for an illustration of the Custom Formats menu tree that reflects how the Custom Formats menu appears on the display screen, after one or more custom formats have been created.
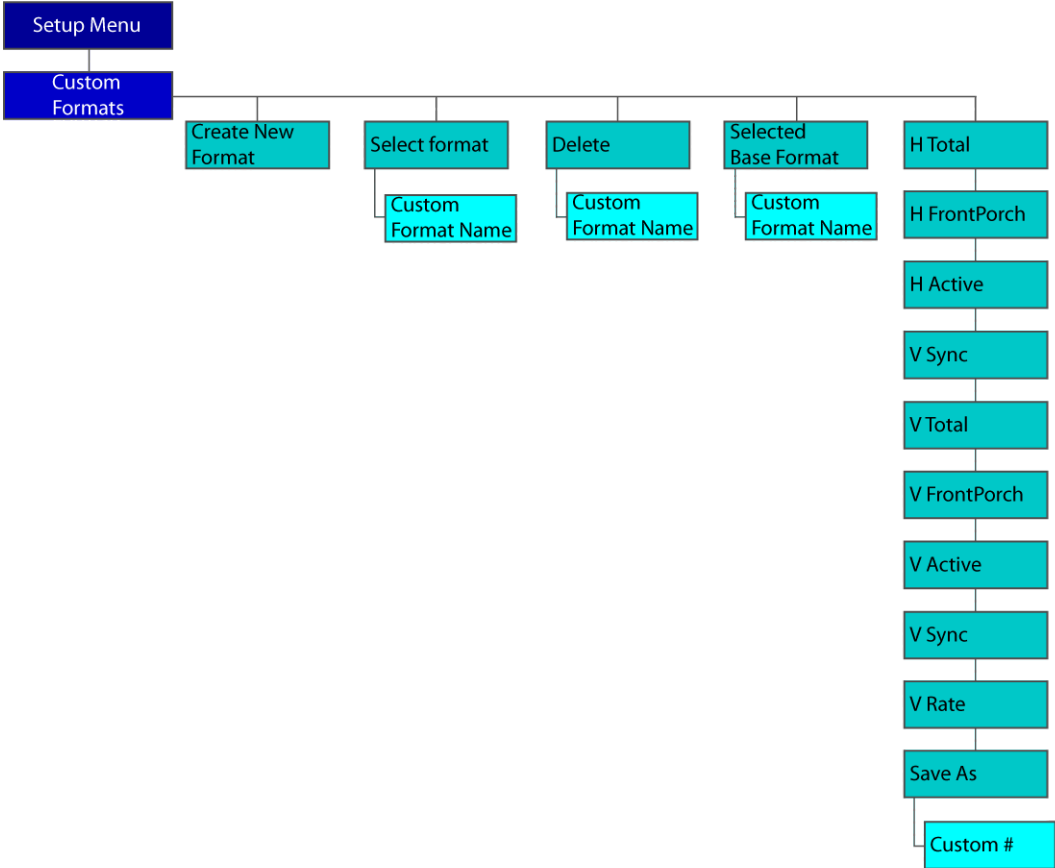
Image 6-103: Custom Formats menu tree: with custom formats

Create New Format

To create a custom format…

> Prior to creating a custom format or modifying an existing format, users should be familiar with how the adjustments they are making may affect the video format. The user should use a timing calculator to determine the correct numbers for timing. Incorrect settings can cause unstable or asynchronous video output.

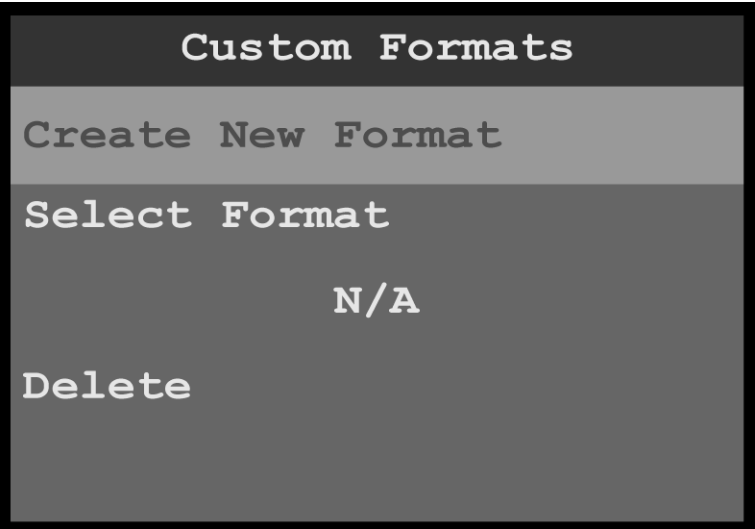1. Select **Create New Format** on the Custom Formats menu.

Image 6-104: Custom Formats menu: Create New Format

After a custom format has been created, the system updates the Custom Formats menu.


```
        Custom Formats

Create New Format

Select Format

        CustomFormat 1

Delete

Selected Base Format
```
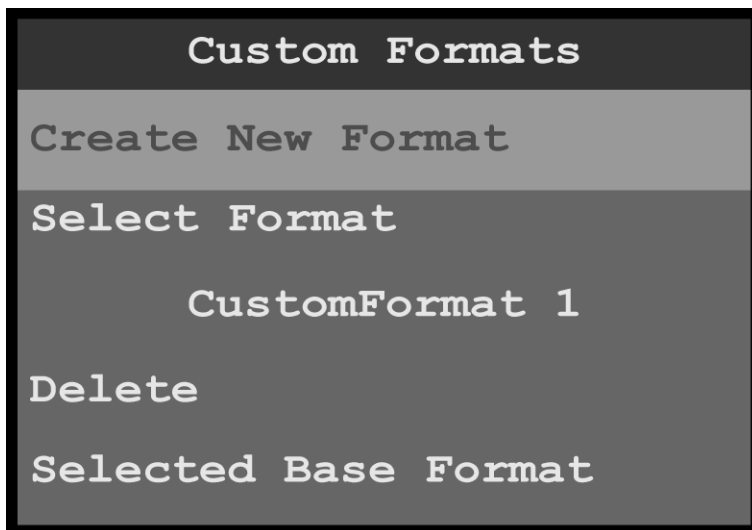
Image 6-105: Custom Formats menu: Created format

Select Format now shows the name of the first created custom format. More submenus are available below the Delete submenu. The additional submenus are:
- **Selected Base Format**—Name of the selected base format
- **H Total**—Total pixel count per line
- **H FrontPorch**—The offset between the end of the active area and the beginning of H sync
- **H Active**—The horizontal size in pixels of the active area
- **H Sync**—H sync width in pixels
- **V Total**—Total line count per frame
- **V FrontPorch**—The offset in lines between the end of the output active area and the beginning of V sync
- **V Active**—The vertical size of the output active area
- **V Sync**—V sync width in lines
- **V Rate**—Vertical frame rate in frames per second
- **Save As**—New custom format name

Select Format

To select a format…

1. Scroll to and select **Select Format**.
   Once Select Format is selected, the highlight bar turns from gray to cyan. Turning the adjust knob scrolls through the available custom formats.

Image 6-106: Custom Formats menu: Select Format

2. Scroll through and select the desired custom format, for example **CustomFormat 4**.

Delete

1. Scroll to and select Delete, to delete the selected format.

Image 6-107: Custom Formats menu: Delete

The system displays a message that asks if you really want to delete the custom format.

Image 6-108: Delete message

2. Select **Yes** to delete the selected custom format.
   Select **No** to keep the custom format.
   Once the custom format has been deleted, the system returns to the Custom Formats menu, and "Select Format" shows the first created custom format (or "N/A," if no custom formats are available).
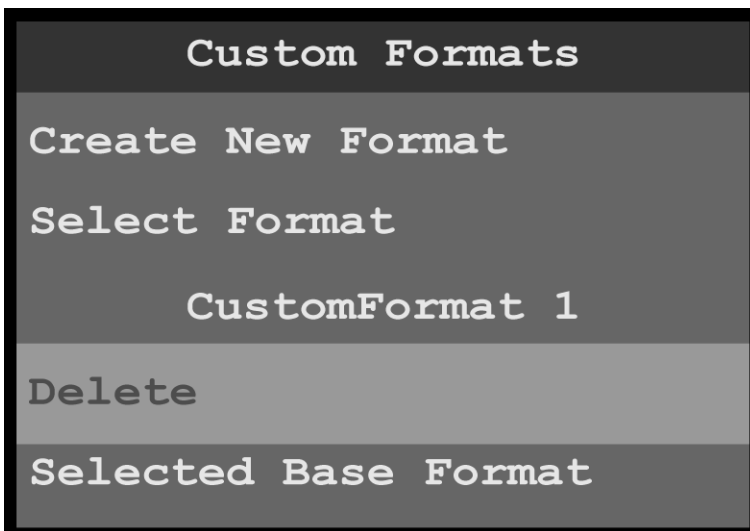
Image 6-109: Custom Formats menu: Deleted format

Selected Base Format

Any custom format can serve as a base format for another custom format. Once a selected base format is assigned to a custom format, the custom format can be adjusted further.

To select a base format…

1. Scroll to and select **Selected Base Format**.
   Once Select Format is selected, the highlight bar turns from gray to cyan. Turning the adjust knob scrolls through the available custom formats.
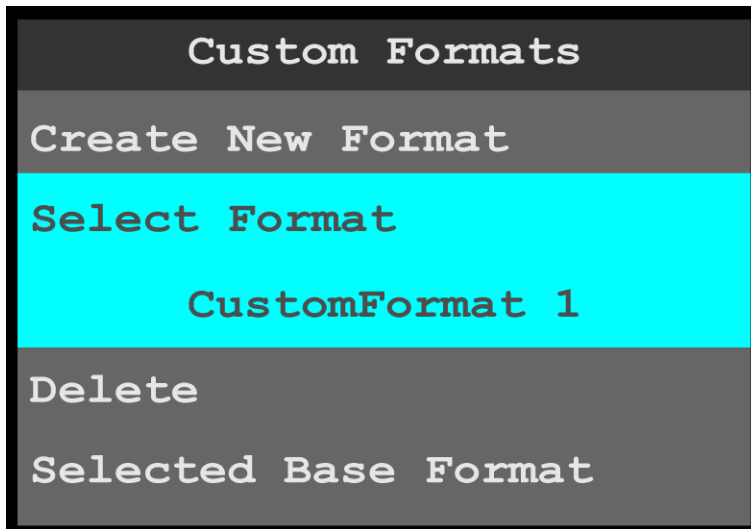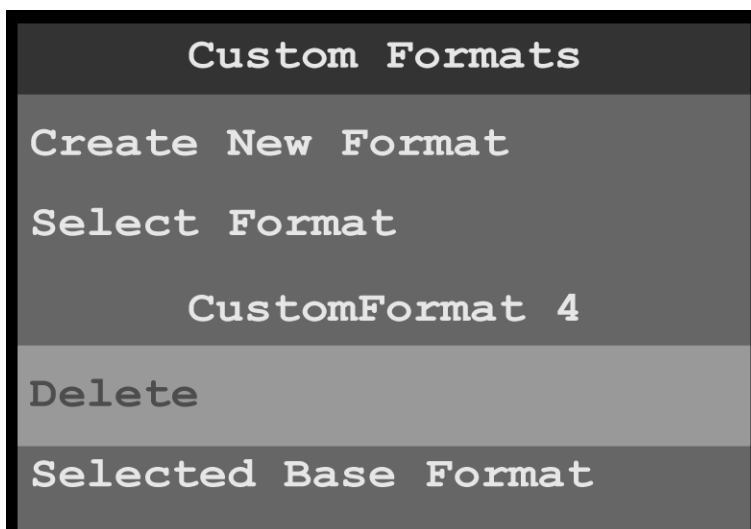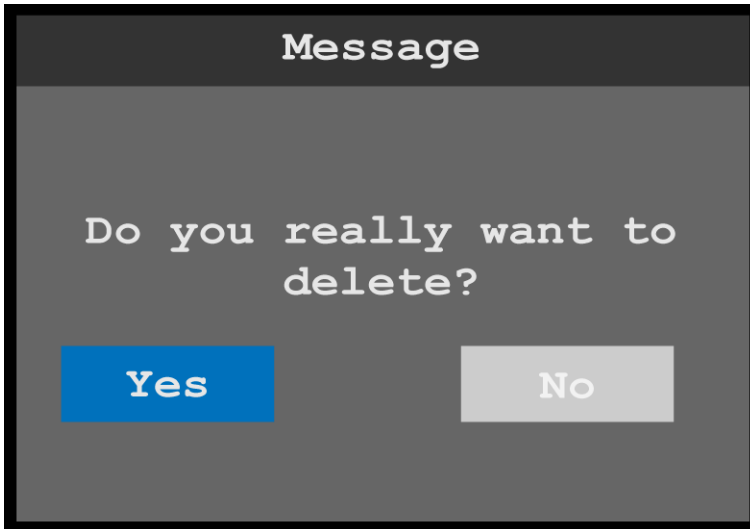
Image 6-110: Custom Formats menu: Selected Base Format

H Total through V Rate

To adjust the properties of a custom format…

1. Scroll to and select the desired property, for example **H Active**.
    Once the property is selected, the highlight bar for that property turns from gray to cyan. Turning the adjust knob scrolls through the available values for that property.
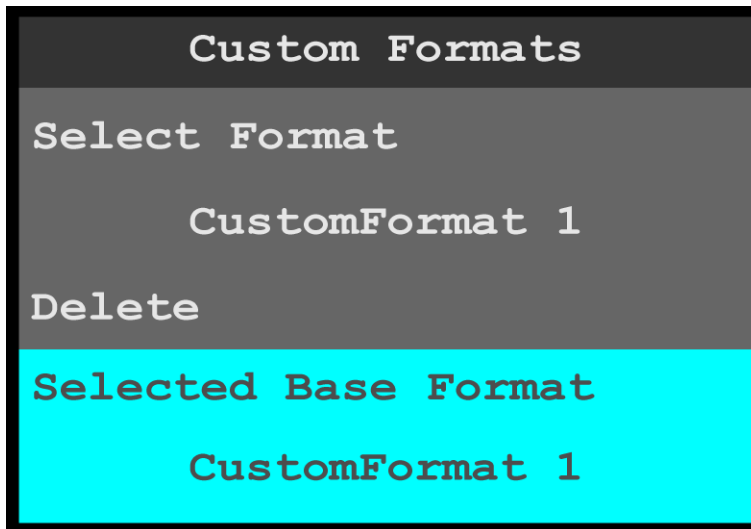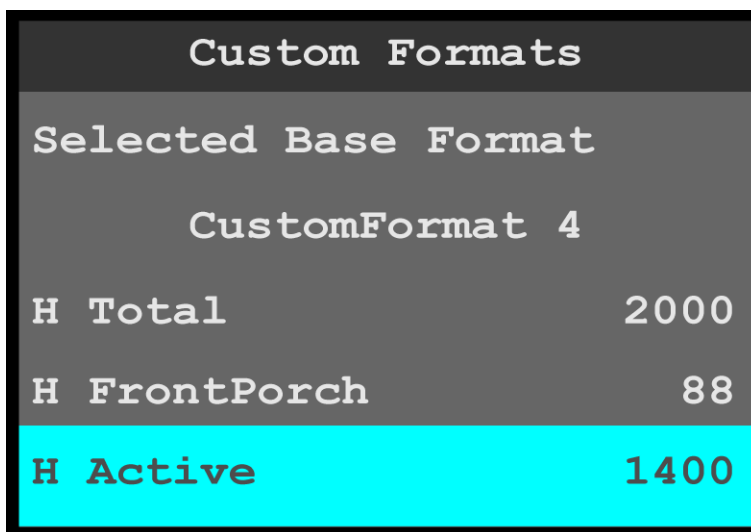

Image 6-111: Custom Formats menu: H Active

2. Turn the adjust knob clockwise to increase—or counter-clockwise to decrease—the value of the selected property.

Save As

If after adjusting the properties of a custom format you do not wish to overwrite that custom format with the new properties, use **Save As** to save the adjusted custom format with a different name.

After adjusting the properties of a custom format…

1. Scroll to and select **Save As**.
    Once Save As is selected, the highlight bar turns from gray to cyan, and the first character of the custom format name is highlighted in green.

Image 6-112: Custom Formats menu: Save As

2. Use the adjust knob to adjust the first character of the custom format name, and press the adjust knob when the desired character is reached.
   The available characters are:
   - A – Z
   - a – z
   - 0 – 9
   - - (hyphen)
   - . (period)
   - / (slash)

3. Repeat Step 2 for each character of the custom format name.
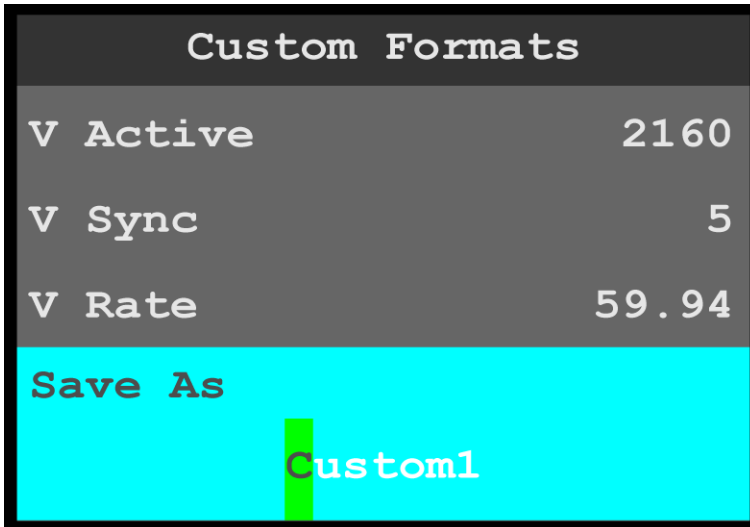   The custom format name may have up to 21 characters.

4. Press the adjust knob, once you have entered the new name for the custom format.
   The system displays a message that says that the custom format has been saved.
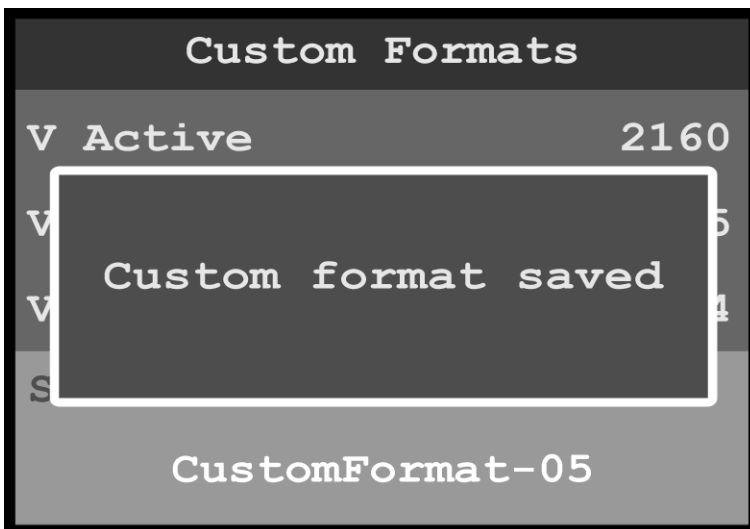
Image 6-113: Custom Formats menu: Save As

How to adjust a format

1. Scroll to and select **Select Format**.
2. Scroll through and select the desired format name.
3. Scroll through, select, and adjust the desired format properties, for example **H Active** and **V Active**.
4. If you do not wish to overwrite the currently selected format, scroll to and select **Save As**, and give the adjusted format a new name.

6.10 Reset menu

General

This section provides information about the Reset menu.

To enter the Reset menu from the System menu, scroll to and select **Reset**.
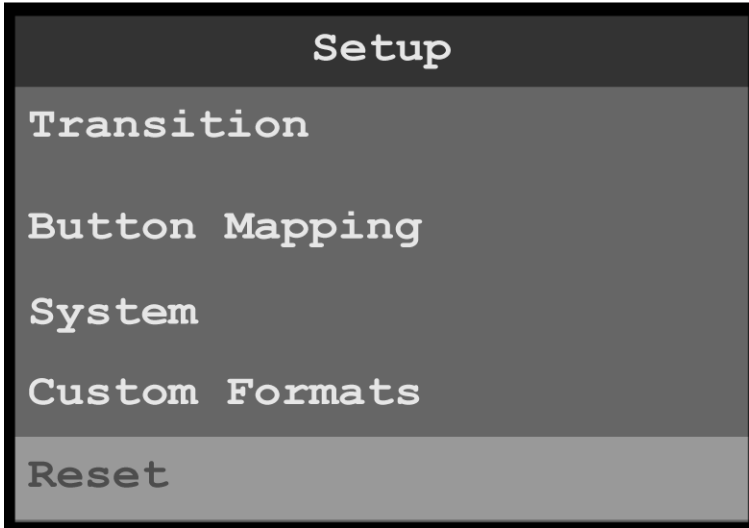
Image 6-114: Setup menu: Reset

Use the Reset menu to perform a factory reset.

Reset menu tree

Refer to Image 6-115 for an illustration of the Reset menu tree.
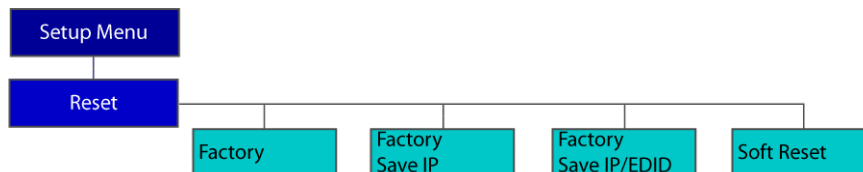
Image 6-115: Reset menu tree

Factory reset

1. Press the adjust knob to select **Reset**.
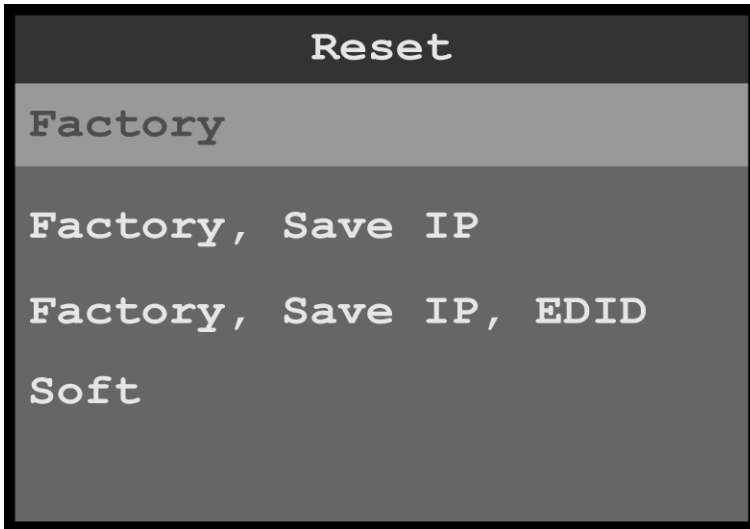
Image 6-116: Reset menu: Factory

2. Select the type of reset to perform, for example, **Factory**.
   • **Factory** restores all default system configurations.
   • **Factory, Save IP** restores all default system configurations, except that it saves the current IP address.
   • **Factory, Save IP, EDID** restores all default system configurations, except that it saves the current IP address and EDID settings.
   • **Soft** keeps the user settings.
   The system displays a screen that asks you to confirm that you want to clear all configurations and formats.
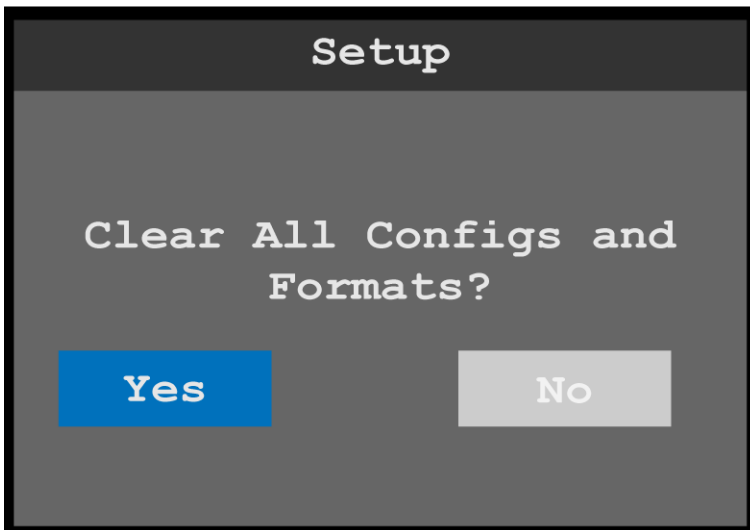
Image 6-117: Reset confirmation

3. Select **Yes**.
   The system resets, and while resetting it displays a progress bar.
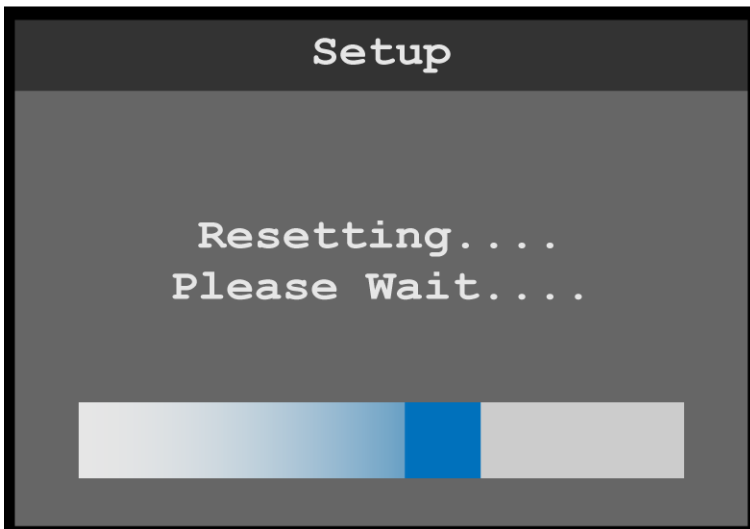
Image 6-118: Reset progress bar

When the system has been reset, the system displays a status screen.
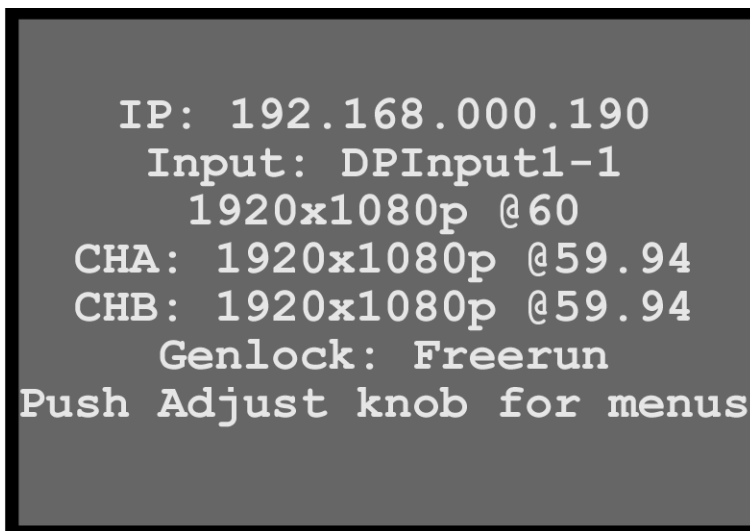
Image 6-119: Status after reset

6.11 Firmware upgrade menu

General

This section provides information about the Firmware upgrade menu.

> 📄 Refer to "Upgrading firmware", page 111 for instructions on performing a firmware upgrade.

To enter the Firmware upgrade menu from the Setup menu, scroll to and select **Firmware upgrade**.

Firmware upgrade menu tree

Refer to Image 6-120 for an illustration of the Firmware upgrade menu tree.
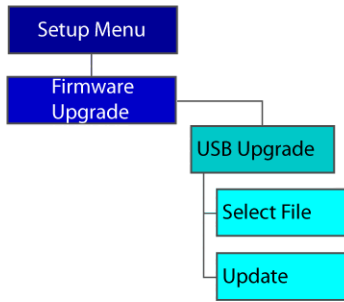
Image 6-120: Firmware upgrade menu tree

6.12 Tech Support menu

General

The Tech Support menu shows software version and operating system version for your ImagePRO–4K and provides Customer Support contact information.

To enter the Tech Support menu from the Setup menu, scroll to and select **Tech Support**.
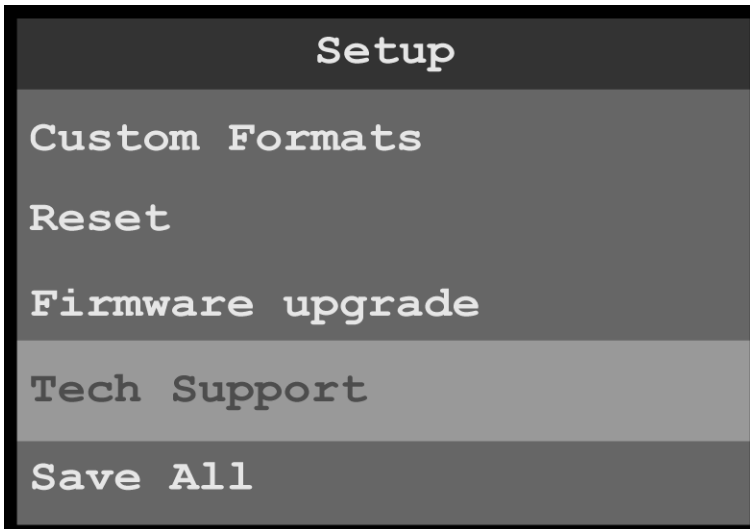
Image 6-121: Setup menu: Tech Support

Use the Custom Formats menu to create custom formats to match different output devices.

Tech Support

1. Scroll to and select **Tech Support**.
   The system displays the software version and operating system version for your ImagePRO–4K and provides the following Customer Support contact information.
   - Phone: 866-374-7878
   - Customer Support URL: *barco.com/en/esupport*
   - BarcoFolsomIP YouTube URL: *www.youtube.com/user/BarcoFolsomIP*
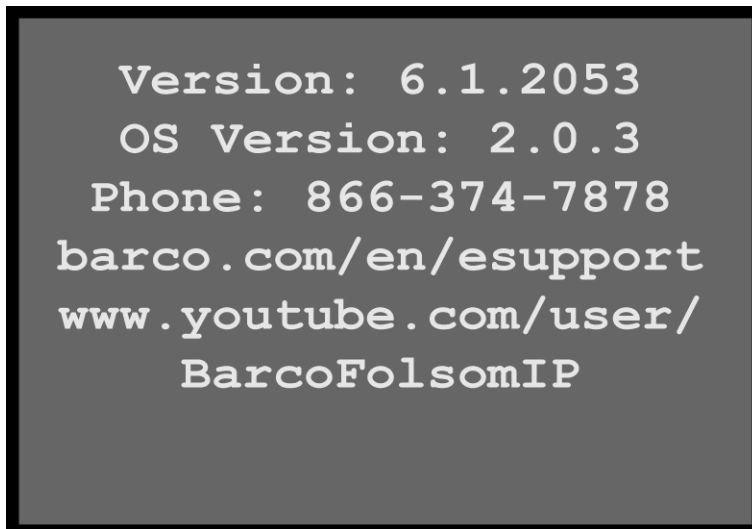
Image 6-122: Tech Support menu

6.13 Save All menu

General

The Save All menu allows the operator to save all system settings.

To enter the Save All menu from the Setup menu, scroll to and select **Save All**.
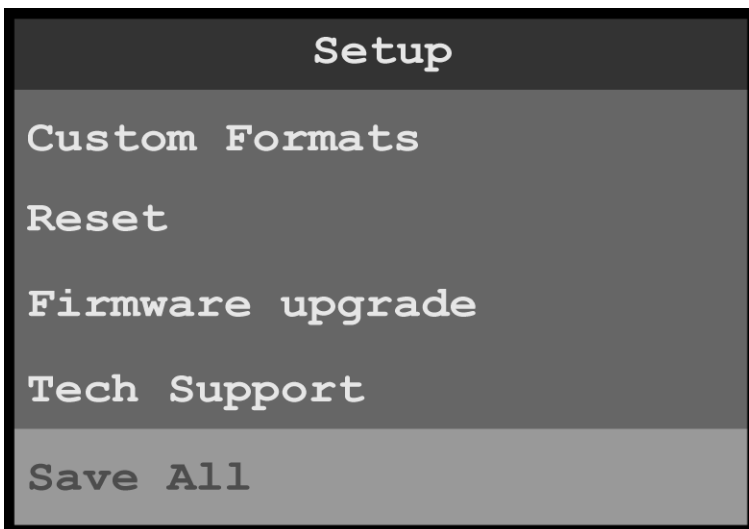
Image 6-123: Setup menu: Save All

Use the Save All menu to save all of the system settings.

Save All

1. Scroll to and select **Save All**.
   The system displays the message "Saved settings file successfully."
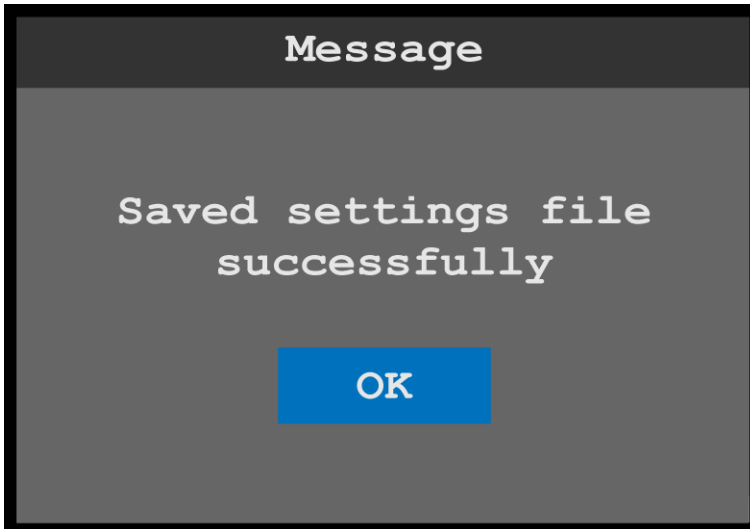
Image 6-124: Saved settings message

2. Click on **OK**.
   The system saves the settings file and returns to the Setup menu.

Event Master Toolset

7

About this chapter

As well as front panel control, the ImagePRO–4K can also be controlled remotely via Event Master Toolset (EMTS), starting with version 6.1. This toolset software release adds control for the ImagePRO–4K. Starting with version 6.2 and higher, EMTS can be used to control all Event Master processors, in addition to ImagePRO–4K. Until version 6.2 is released, E2, S3, and Ex should continue to remain on version 6.0, or earlier, firmware.

Overview

- EMTS GUI: Configuration menu
- EMTS GUI: Programming menu
- ImagePRO–4K-specific controls

General

In the EMTS GUI, add the detected ImagePRO–4K processor as a new system and click the ImagePRO–4K banner at the bottom of the represented unit. Next, click the contextual adjust tab to review the processor's main settings and reference output rate. The Setup tab allows the user to adjust the system mode, transition type, logo index, and matte color. The Status tab shows the user if the there are any temperature warnings or stalled fans.

Users can also map outputs to the Aux by clicking on the individual outputs and then updating them on the Adjust tab.

7.1 EMTS GUI: Configuration menu

Description

The Configuration menu, shown in the following illustration, is the first page you see when you access the ImagePRO–4K from the EMTS GUI.
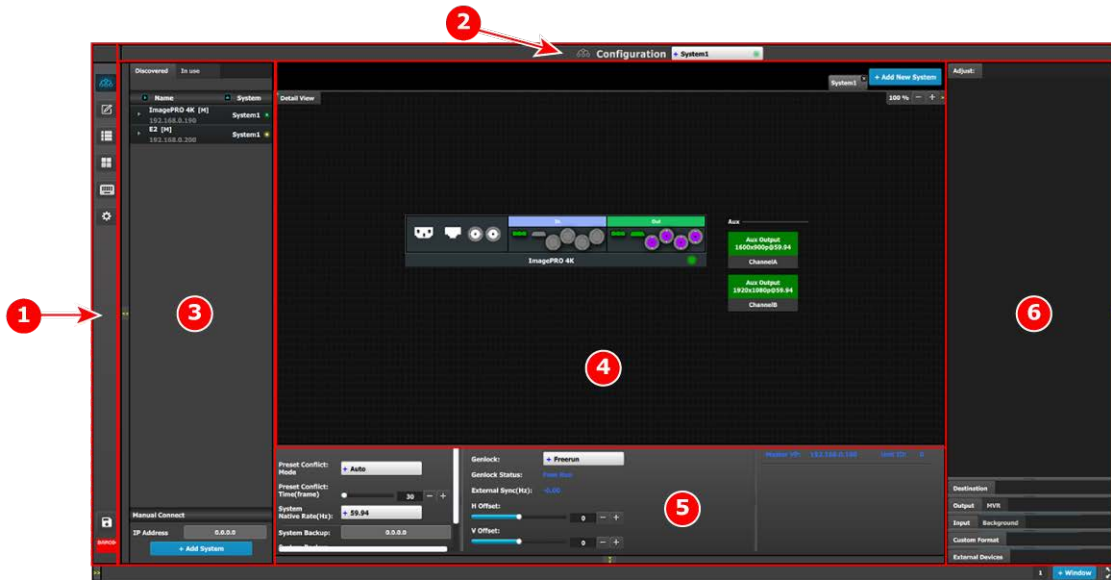
Image 7-1: EMTS GUI orientation

1. **Menu navigation bar** – The menu navigation bar allows the user to choose from among the available menus: Configuration, Programming, Cue, Multiviewer, Controller, or Settings.
2. **Title bar** – The title bar shows the current menu and the currently selected system.
3. **Selection area** – The selection area contains tabs for "Discovered" systems and systems "In use." It also contains a field for entering IP addresses and a button for adding systems.
4. **Diagram area** – The diagram area contains graphic representations of the system in use.
5. **Modifier area** – The modifier area contains system controls, such as Native Rate and Genlock status.
6. **Configuration area** — The Configuration area contains tabs and panels on which users perform all needed adjustments. This area is largely empty until the user selects an item from the Diagram area.

Image 7-2: Configuration menu: Unit Adjust tab

1. **Configuration menu icon** – This icon shows that the Configuration menu has been selected. This is the default menu that is displayed wh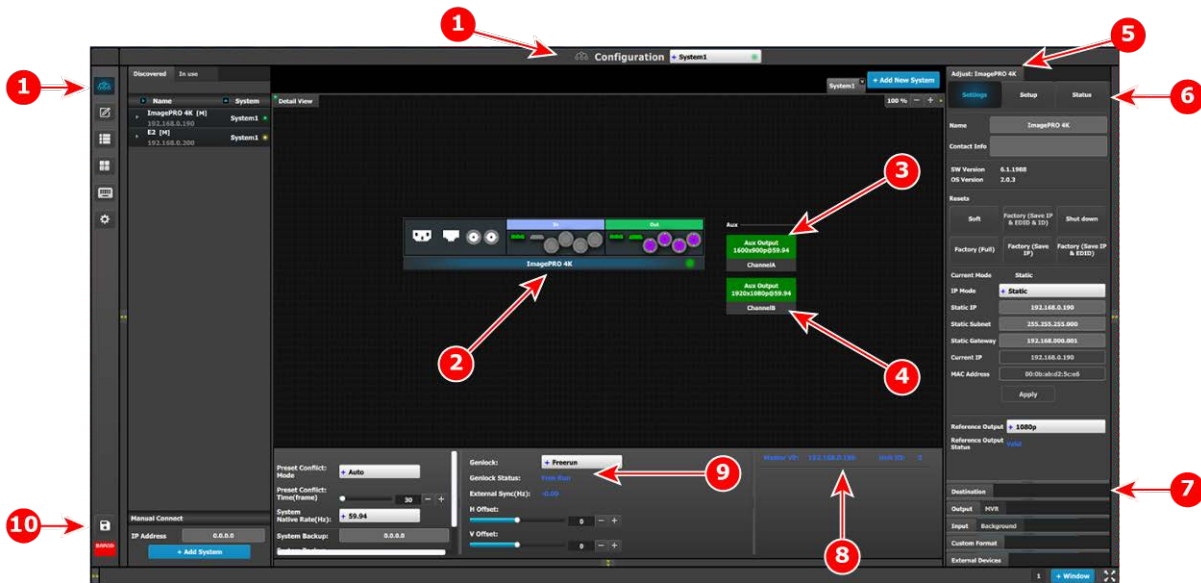en the GUI is started. The menu navigation bar allows the user to choose from among the available menus: Configuration, Programming, Cue, Multiviewer, Controller, or Settings.

2. **Graphic representation of the ImagePRO–4K unit** – The diagram area displays a graphic representation of the selected device, in this case an ImagePRO–4K video processor. To select the entire unit, click on the name of the unit at the bottom of the graphic representation. To select a specific input or output, click on that input or output.

3. **Aux / Output ChannelA** – The diagram area also displays graphic representations of the Aux /Output channels: A and B. To select an Aux / Output channel, click on that channel.

4. **Aux / Output ChannelB** – The diagram area also displays graphic representations of the Aux /Output channels: A and B. To select an Aux / Output channel, click on that channel.

5. **Adjust tab** – The Adjust tab provides panels that allow users to adjust settings for the selected unit, input, output, Aux /Output channel.

6. **Settings, Setup, and Status subtabs** — The Settings and Setup subtabs allow users to adjust system settings. The Status subtab displays the status of the selected item (unit, input, output, etc.).
These subtabs differ, depending on the item selected. For example, the subtabs of an input Adjust tab are Main, Format, Color, and Contact Info; the subtabs of an output Adjust tab are Main, Format, and Connector Settings.

7. **Selection tabs** — These tabs allow users to select different parts of a system to adjust.

8. **IP address and Unit ID** — This area displays the IP address and unit ID of the selected unit.

9. **System settings** — This area displays and allows control of Genlock status, external sync, H offset, V offset, preset conflict mode, preset conflict time, system native rate, and system backup status.

10. **Save All** – Clicking the **Save All** icon saves all currently selected system settings.

For a more complete description of the Configuration menu of the Event Master Toolset GUI, see Chapter 6 of the "*Event Master Devices User's Guide*" (found at the "*Manuals, drawings & documentation*" link on the **E2 Product Support** page at *http://www.barco.com/td/R9004698*).

7.2 EMTS GUI: Programming menu

Description

The programming page is where the event is set up and everything comes together. Users can define sources from inputs, assign layers and backgrounds into screens and create User keys and presets and more. Once programmed and defined this is where the show is played back as well.

Image 7-3: Programming menu

1. **Resources area** – This area contains the available resources for programming and playback, as inputs and sources. Also in this area the still store (logo) images are shown.
2. **Workspace / Programming Diagram area** – For each destination, super destination, or destination group, the Program and Preview screens can be viewed individually by selecting the corresponding tab. All Program and Previews screens can be viewed simultaneously by selecting the "View All" button.
The space between Program and Preview has Layouts, a function where a certain group of destinations can be laid out in the workspace.
2a. **Preview ChannelB** – Preview ChannelB shows the signal that is active on ChannelB and assigned to Preview (PVW).
2b. **Program ChannelB** – Program ChannelB shows the signal that is active on ChannelB on Program (PRG) to output.

2c. **Preview ChannelA** – Preview ChannelA shows the signal that is active on ChannelA and assigned to Preview (PVW).
2d. **Program ChannelA** – Program ChannelA shows the signal that is active on ChannelA on Program (PRG) to output.
3. **Workspace / System wide function area** – This area contains Layer alignment adjustments and controls to manage the Preview/Program screens.
4. **Adjustment area** — The menus in this area provide control of parameters for selected layer and source. These can be modified and managed. This is where creation of User Keys and presets is done.

For a more complete description of the Programming menu of the Event Master Toolset GUI, see Chapter 6 of the "*Event Master Devices User's Guide*" (found at the "*Manuals, drawings & documentation*" link on the **E2 Product Support** page at *http://www.barco.com/td/R9004698*).

7.3 ImagePRO–4K-specific controls

General

Most of the controls available through the EMTS GUI may be used with any Event Master or Image PRO–4K video processor, but some controls are specific to certain models. Controls specific to the ImagePRO–4K video processor can be found in the Configuration menu and in the Programming menu.

ImagePRO–4K-specific configuration controls

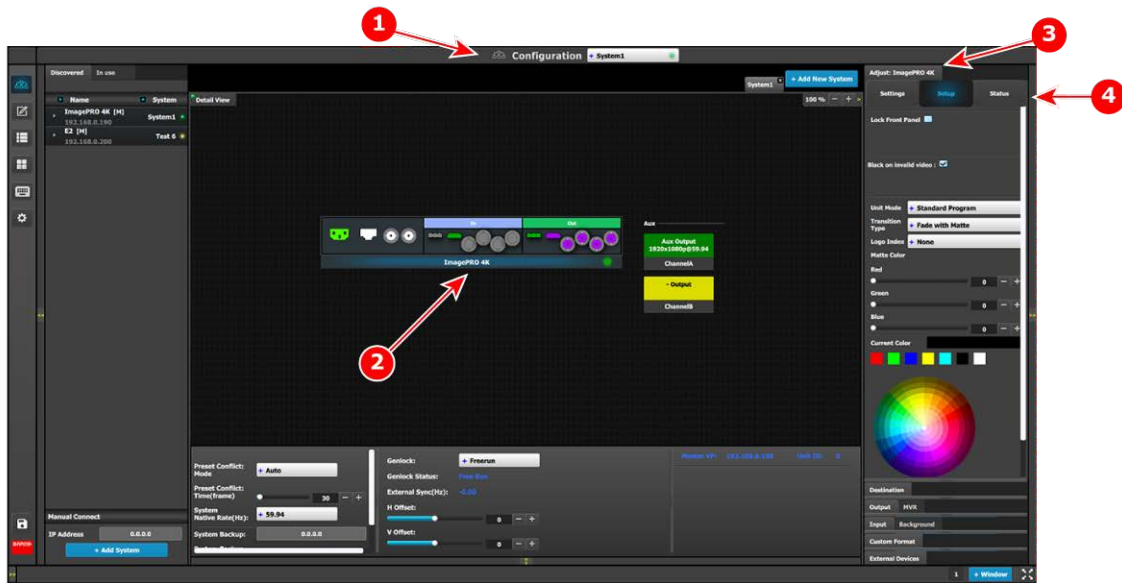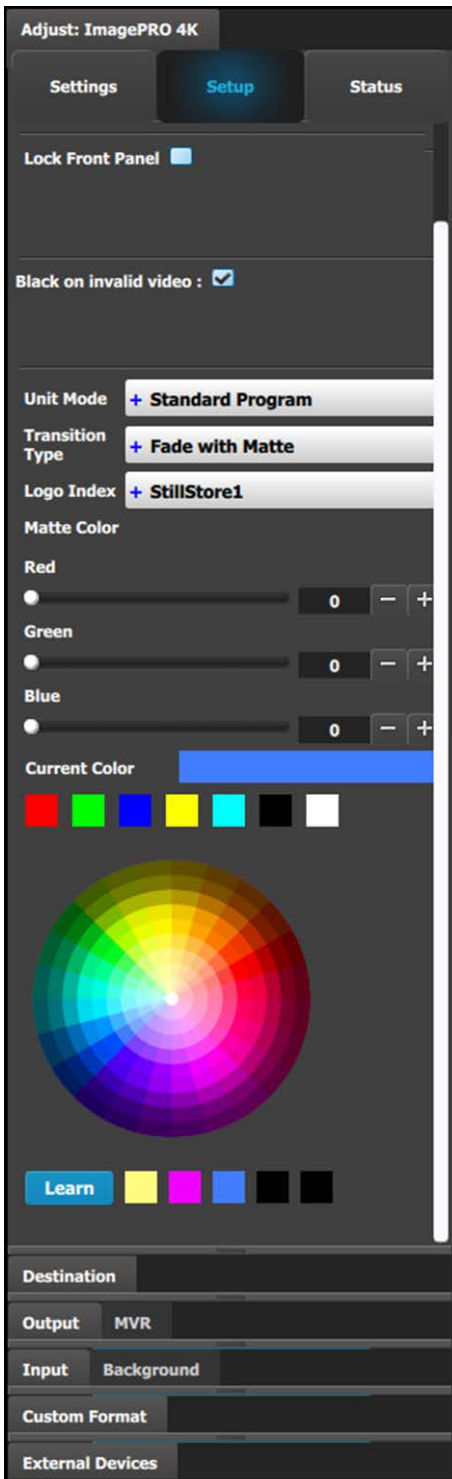The Adjustment panel of the Configuration menu has ImagePRO–4K-specific controls on the Setup tab.

Image 7-4: ImagePRO–4K-specific configuration controls

1. Configuration menu
2. Graphic representation of the ImagePRO–4K unit
3. Adjust tab
4. Setup tab

Unit Adjust panel > Setup menu

This menu provides:
- A **Lock Front Panel** checkbox.
  Check the box to lock the front panel; uncheck the box to unlock the front panel.
- A **Black on invalid video** checkbox.
- A **Unit Mode** drop-down menu.
  The options on the drop-down menu are:
  - Standard Program
  - Standard Preview
  - Matrix Preview
- A **Transition Type** drop-down menu.
  The options on the drop-down menu are:
  - Standard
  - Image Cut
  - Fade with Matte
  - Fade with Logo
- A **Logo Index** drop-down menu that allows the operator to assign an existing Still to be the logo.
- **Matte Color**.
  The matte color can be adjusted three ways.
  - Use the Red, Green, and Blue sliders to adjust the current matte color.
  - Select a standard color from among the boxes above the color wheel.
  - Use the color wheel.
    ◦ Select a color on the color wheel.
    ◦ Click the Learn button below the color wheel.
    ◦ Assign the new color to one of the boxes next to the color wheel.
    ◦ Select one of the colored boxes next to the color wheel.

Once a color is selected, it appears in the **Current Color** box.

For a more complete description of the Configuration menu of the Event Master Toolset GUI, see Chapter 6 of the "*Event Master Devices User's Guide*" (found at the "*Manuals, drawings & documentation*" link on the **E2 Product Support** page at *http://www.barco.com/td/R9004698*).

ImagePRO–4K-specific programming controls

The Resources area of the Programming menu has ImagePRO–4K-specific controls on the **IP4K** tab. From this tab the operator can assign a matte or a logo to an Output (Aux) channel.

Image 7-5: ImagePRO–4K-specific programming controls

1. Programming menu
2. IP4K tab
3. Logo

4. Matte
5. **All Trans** and **Cut** keys

Programming menu: IP4K Logo and Matte

To assign a Logo to an Output (Aux) channel…

1. Select **Logo** from the IP4K tab.
2. Drag and drop the Logo to an Output (Aux) channel, for example to the **ChannelA Preview**.
   • In Standard Program mode, the system automatically places the Logo in ChannelA Program.
   • In Standard Preview mode, the operator must use either the All Trans key or the Cut key to place the Logo in ChannelA Program.
   • The IP4K tab is not available in Matrix Preview mode.

Use the same process to assign a Matte to an Output (Aux) channel.

For a more complete description of the Programming menu of the Event Master Toolset GUI, see Chapter 6 of the "*Event Master Devices User's Guide*" (found at the "*Manuals, drawings & documentation*" link on the **E2 Product Support** page at *http://www.barco.com/td/R9004698*).

Specifications

A
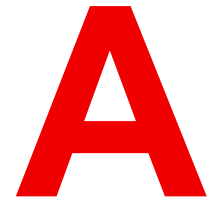
About this annex

This annex gives an overview of the specifications of the ImagePRO–4K video processor.

A.1 Specifications of ImagePRO–4K

ImagePRO–4K specifications

Live effects canvas	N/A.
Video Input	Factory-loaded with a Tri-Combo input card -supports 1x HDMI 2.0 4K60p 4:4:4 8bit, 4:2:2 10 bit, 1x DisplayPort 1.2 4K 60p 4:4:4 10bit, and 4x 12G SDI 4K 60p 4:2:2 10bit or 4x 3G SDI 1200p@60p 4:2:2 10bit.
Video Output	Factory-loaded with a Tri-Combo output card -supports 1x HDMI 2.0 4K60p 4:4:4 8bit, 4:2:2 10bit, 1x DisplayPort 1.2 4K 60p 4:4:4 10bit, and 4x 12G SDI 4K 60p 4:2:2 10bit or 4x 3G SDI 1200P@60 4:2:2 10bit.
Genlock	Analog reference input on BNC connector. Blackburst and Bi-level at SD, and Tri-level at HD-Reference output is provided by an internal sync generator capable of Bi-level and Tri-level sync signals.
Scaled Aux outputs	Up to 6 HD single scaler outputs or 2 4K60p single scaler outputs supporting independent scaling, sizing, and color correction.
Mixers	N/A.
Still stores	Up to 100 HD or 25 UHD. Import file is size dependent.
Layer effects	N/A.
Multiviewer	Video preview on front panel.
Expandability	Future support for 2nd generation Event Master input and output cards (limited functionality on non-Tri Combo cards).
HDCP	HDCP compliance determined by installed cards.
Control	Event Master screen management software for PC or MAC -Event Master controllers, WebUI, Ethernet RJ-45, 1000/100/10 Mbps autosense.
Serviceability	Field-Serviceable I/O cards (not hot-swappable).
Noise Level	Estimated 37 dBA Nominal / 45 dBA Max Fan speed is software-managed based on operating temperature. Reference ISO 7779.
Dimensions	Height: 1.72" (4.37 cm) 1 RU Rack mount Width: 19.06" (48.41 cm) Incl. rack mount Depth: 15.91" (40.41 cm).
Weight	15.2 pounds (6.8 Kg).
Power	Input power: 100-240 VAC 50/60Hz 2A max
Warranty	3 years parts and labor.
Environmental temperature	0-40 C (32-104 F).
Environmental humidity	0-95% Non-Condensing.

Upgrading firmware

B

About this annex

This annex provides information regarding the upgrading of firmware on the ImagePRO–4K.

B.1 Upgrading firmware using the USB port

Necessary tools

USB drive (Not supplied by Barco) formatted in FAT32.

How to upgrade firmware

1. Ensure that your flash drive is formatted to use the FAT32 file system. If necessary, reformat the drive as described in the following section "Formatting the flash drive".

2. Prepare the flash drive with the upgrade file as described below in the section "Preparing the flash drive with the upgrade file"

    > *Note:* Upgrading software with the USB port requires the "em_update_vp.xx.xx.tar.gz" file to be within a directory named EM.

3. When the drive is ready, refer to the chapter "Performing the firmware upgrade using the USB" describe below for the upgrade procedure.

    > ⚠️ **CAUTION:** Reformatting the flash drive erases existing data. To avoid losing data, download to a computer or a secure site any files you wish to keep, then format the drive.

How to format the flash drive

1. Insert the flash drive into a Windows PC or laptop's USB port.

2. Select a Windows Explorer or a panel allowing an overview on the disk drives and the hardware connected to your computer (e.g. **Start > Computer** on Windows 7 or **Start > My Computer** on Windows XP).

3. On this view, right-click the drive that represents the flash drive.

4. Select **Format** from the menu that appears.

    The Format Disk screen appears.

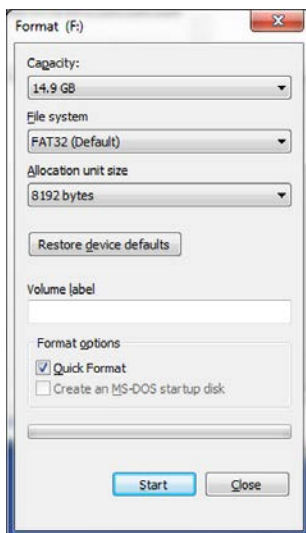Image B-1: Format Disk screen

5. Select **FAT32** as the file system, and **Quick Format** under **Format Options**, as shown above in the Format Disk screen illustration.

6. Click **Start**.

    A message appears, warning that data will be erased during the formatting process.

7. Click **OK** to continue.

    A confirmation message appears after a few seconds. The flash drive is now ready to use

📄 Upgrading software with the USB port requires the "em_update_vp.xx.xx.tar.gz" file to be within a directory named EM.

How to prepare the flash drive with the upgrade file

1. Download the software upgrade for free from Barco's website (URL: *http://www.barco.com*). Click on **myBarco** and login to get access to secured information. Registration is necessary.

   📄 *Note:* If you are not yet registered, click on **New to myBarco** and follow the instructions. With the created login and password, it is possible to login where you can download the Event Master series processor software. It is not necessary to install any other software.

2. Unzip directly the software upgrade downloaded from the Barco website to the USB drive. This operation automatically creates a directory named EM with the upgrade file inside (em_update_vp.xx.xx.tar.gz).

How to perform the firmware upgrade using the USB

1. Insert the flash drive into the unit's USB port.

2. Press the **Adjust knob** to enter the Setup menu.

3. Select **Firmware Upgrade** in the Setup Menu.

```
               Setup

 System

 Custom Formats

 Reset

 Firmware Upgrade

 Tech Support
```
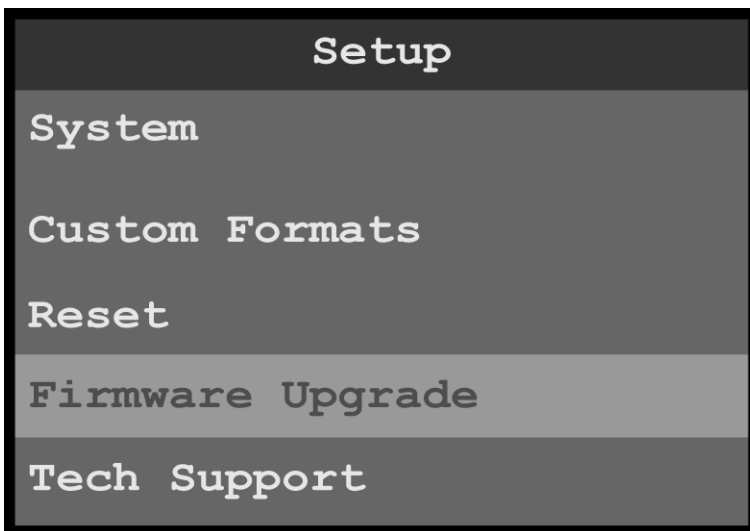
Image B-2: Setup menu: Firmware Upgrade

The Firmware Upgrade submenu appears.

4. Select **USB Upgrade**.

Image B-3: Firmware Upgrade: USB Upgrade

5. Select the upgrade file.
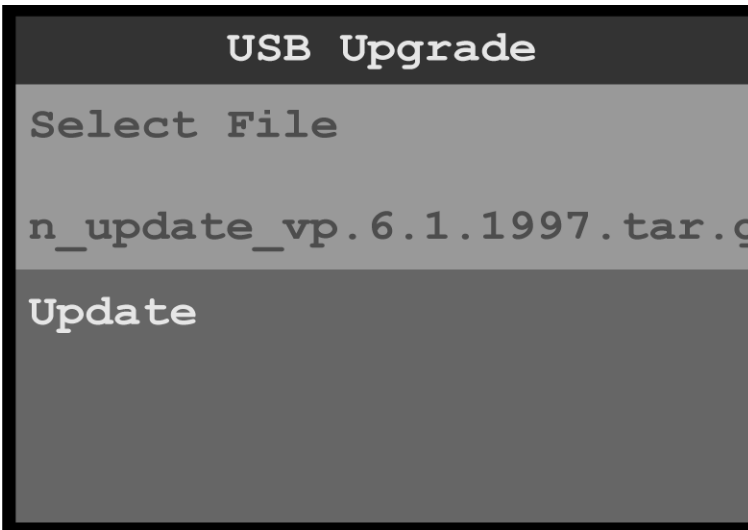
Image B-4: USB Upgrade: Select File

6. Scroll to and select **Update**.

The system displays an "In Progress" screen and a warning to NOT power cycle the unit.
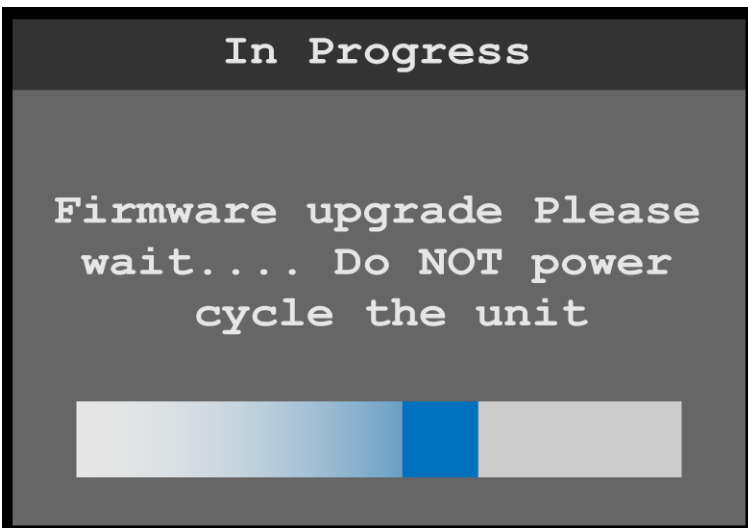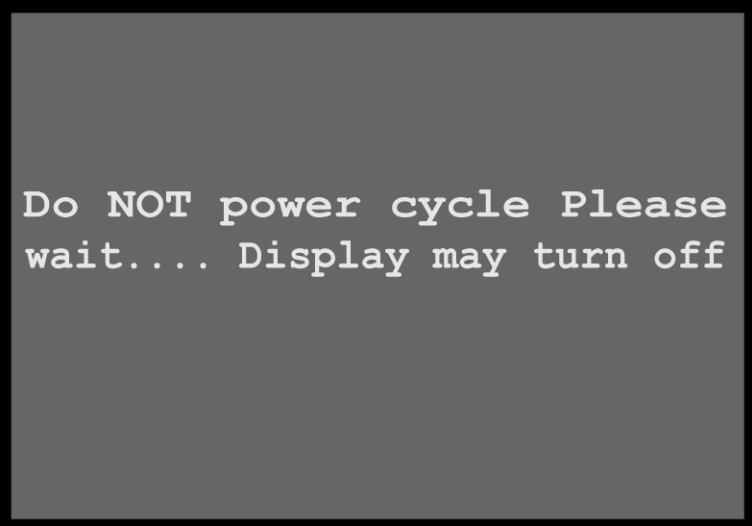
Image B-5: Firmware Upgrade: "In Progress" screen
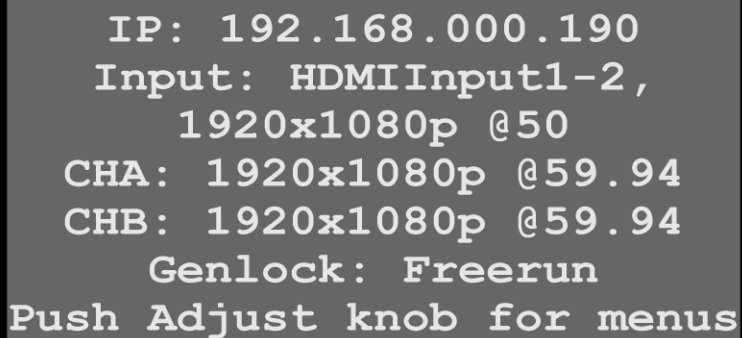
Image B-6: Warning: Do NOT power cycle

The system displays a progress bar and then the "In Progress" screen.

When the firmware upgrade is finished, the system displays a post-upgrade status screen.

Image B-7: Post-upgrade status screen

> ⚠️ **CAUTION:** Do not remove the flash drive or power down the unit until the firmware file is uploaded.

Environmental information

C

Overview

- Disposal information
- RoHS compliance
- Contact information

C.1 Disposal information

Disposal Information

Waste Electrical and Electronic Equipment

This symbol on the product indicates that, under the European Directive 2012/19/EU governing waste from electrical and electronic equipment, this product must not be disposed of with other municipal waste. Please dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

For more information about recycling of this product, please contact your local city office or your municipal waste disposal service.

For details, please visit the Barco website at: *http://www.barco.com/AboutBarco/weee*

Disposal of batteries in the product

This product contains batteries covered by the Directive 2006/66/EC which must be collected and disposed of separately from municipal waste.

If the battery contains more than the specified values of lead (Pb), mercury (Hg) or cadmium (Cd), these chemical symbols will appear below the crossed-out wheeled bin symbol.

By participating in separate collection of batteries, you will help to ensure proper disposal and to prevent potential negative effects on the environment and human health.

C.2 RoHS compliance

中国大陆 RoHS (Chinese Mainland RoHS)

根据中国大陆《电器电子产品有害物质限制使用管理办法》（也称为中国大陆RoHS），以下部分列出了Barco产品中可能包含的有毒和/或有害物质的名称和含量。中国大陆RoHS指令包含在中国信息产业部MCV标准："电子信息产品中有毒物质的限量要求"中。

According to the "Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products" (Also called RoHS of Chinese Mainland), the table below lists the names and contents of toxic and/or hazardous substances that Barco's product may contain. The RoHS of Chinese Mainland is included in the MCV standard of the Ministry of Information Industry of China, in the section "Limit Requirements of toxic substances in Electronic Information Products".

零件项目(名称) Component Name	有毒有害物质或元素 Hazardous Substances or Elements					
	铅 Pb	汞 Hg	镉 Cd	六价铬 Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE
印制电路配件 Printed Circuit Assemblies	X	O	O	O	O	O
外接电(线)缆 External Cables	X	O	O	O	O	O
散热片(器) Heatsinks	O	O	O	O	O	O
底架 Chassis	O	O	O	O	O	O
电源供应器	X	O	O	O	O	O

零件项目(名称) Component Name	有毒有害物质或元素 Hazardous Substances or Elements					
	铅 Pb	汞 Hg	镉 Cd	六价铬 Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE
Power Supply Unit						
风扇 Fan	X	O	O	O	O	O
电池(组) Batteries	X	O	O	O	O	O
螺帽,螺钉(栓),螺旋(钉),垫圈, 紧固件 Nuts, bolts, screws, washers, Fasteners	O	O	O	O	O	O

本表格依据SJ/T 11364的规定编制

This table is prepared in accordance with the provisions of SJ/T 11364.

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572 标准规定的限量要求以下.

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572.

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 标准规定的限量要求.

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in GB/T 26572.

在中国大陆销售的相应电子信息产品（EIP）都必须遵照中国大陆《电子电气产品有害物质限制使用标识要求》标准贴上环保使用期限（EFUP）标签。Barco产品所采用的EFUP标签（请参阅实例，徽标内部的编号使用于指定产品）基于中国大陆的《电子信息产品环保使用期限通则》标准。

All Electronic Information Products (EIP) that are sold within Chinese Mainland must comply with the "Marking for the restriction of the use of hazardous substances in electrical and electronic product" of Chinese Mainland, marked with the Environmental Friendly Use Period (EFUP) logo. The number inside the EFUP logo that Barco uses (please refer to the photo) is based on the "General guidelines of environment-friendly use period of electronic information products" of Chinese Mainland.

Turkey RoHS compliance

Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur.

[Republic of Turkey: In conformity with the WEEE Regulation]

C.3 Contact information

Sales and importers

To find your local Barco Sales representative or your local importer, contact Barco directly, or contact one of Barco's regional offices via the contact information given on the Barco web site, *www.barco.com*.

Factories

Barco Inc.
3000 Technology Road
Angleton, TX 77515
USA

Production date

The month and year of production is indicated on the product ID label on the product itself.

Third Party Software Acknowledgements

D

About this annex

This chapter lists the third-party software components. The third-party software components are reusable software components developed to be either freely distributed or sold by an entity other than the original vendor of the development platform.

Overview

- Third Party Software list

D.1 Third Party Software list

List and short description

The products and software applications described in this manual make use of one or more of the following third party software items:

- **Boost**: Boost software is distributed under the Boost Software License, Version 1.0, *http://www.boost.org/LICENSE_1_0.txt*
- **Qt**: The Qt GUI Toolkit is Copyright (C) 2015 Digia Plc and/or its subsidiary(-ies).
  Contact: Digia Plc (*http://www.qt.io/about-us/*).
  Qt is available under the LGPL version 2.1 (GNU Lesser General Public License version 2.1).
- **XFree86**: is a trademark of The XFree86 Project, Inc.
- **X11(TM) and X Window System(TM)**: is a trademark of The XFree86 Project, Inc.
- **Xorg**: Xorg is copyright software, provided under licenses that permit modification and redistribution in source and binary form without fee. Xorg is copyright by numerous authors and contributors from around the world. Licensing information can be found at *http://www.x.org*. Refer to the source code for specific copyright notices.
- **dfu-util**: Licensed under the GNU General Public License, Version 2
  http://www.gnu.org/licenses/old-licenses/gpl-2.0.html
  Source available from *http://dfu-util.gnumonks.org/*
- **lib-usb-1.0.dll**: Licensed under the GNU GPL Public License Version 2
  A component of MinGW whose license can be found here: *http://www.mingw.org/license*
- **LPCScrypt and image_manager executables**: are copyright software, provided under license by NXP SEMICONDUCTORS USA, INC. that permit redistribution in binary form without fee as part of supporting software for products using devices manufactured by NXP.
  The source code for the components of the Software and Separate Files are available from NXP and can be obtained from *http://www.lpcware.com/lpcxpresso/downloads/source*.

Warranty

E

About this annex

This chapter gives an overview of Warranty and conditions of RMA concerning the Event Master devices.

E.1 About Warranty and RMA

Warranty

All video products are designed and tested to the highest quality standards and are backed by a full 3-year parts and labor warranty. Warranties are effective upon delivery date to customer and are non-transferable. Barco warranties are only valid to the original purchaser/owner. Warranty related repairs include parts and labor, but do not include faults resulting from user negligence, special modifications, lightning strikes, abuse (drop/crush), and/or other unusual damages.

The customer shall pay shipping charges when unit is returned for repair. Barco will cover shipping charges for return shipments to customers.

Return Material Authorization (RMA)

RMA Conditions are listed below:

1. Prior to returning any item, you must receive a Return Merchandise Authorization (RMA) number.
2. All RMA numbers must appear on their return-shipping label.
3. RMA numbers are valid for ten (10) days from issue date.
4. All shipping and insurance charges on all RMAs must be prepaid by the customer.