ImagePRO-II™

HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE

User's Guide

- PN 26-0904000-00
- Revision 01

BARCO

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ImagePRO-II™ • User's Guide

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The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels

There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source

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.

Grounding the Product

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.

Use the Proper Power Cord

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.

Use the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

Terms In This Manual and Equipment Labeling

WARNING

Highlights an operating procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to or death of personnel.

Note	Highlights an essential operating procedure, condition or statement.

CAUTION

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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Le point d´exclamation dans un triangle equilatéral signale à alerter l´utilisateur qu´il y a des instructions d´operation et d´entretien tres importantes dans la litérature qui accompagne l´appareil.

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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	O	O	O	O	O	O
插入式印制电路配件 Plug in Printed Circuit Assembly	O	O	O	O	O	O
外接电（线）缆 External Cables	O	O	O	O	O	O
底架 Chassis	O	O	O	O	O	O
电源供应器 Power Supply Unit	O	O	O	O	O	O
內部线路 Internal wiring	O	O	O	O	O	O
显示（器） Display	O	O	O	O	O	O
散热片（器） Heatsinks	O	O	O	O	O	O
风扇 Fan	O	O	O	O	O	O
光盘说明书 CD Manual	O	O	O	O	O	O
正面（前）面板 Front panel	O	O	O	O	O	O

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 SJ/T 11363-2006 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 SJ/T11363-2006.

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Change History

The following table lists the changes to the ImagePRO-II User's Guide.

Table 0-1. Change History

Rev	Date	ECO #	Description	Approved By
00	December 2011	592648	Initial release	R. Pellicano
01	September 2013	609039	Added descriptions for Audio processing and Stereoscopic (S3D) processing	R. Pellicano

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Appendix B Remote Control Protocol. 183

Table of Contents

1. Introduction

This chapter is designed to introduce you to the ImagePRO-II and to the content of and conventions used in this guide. The following topics are included in this chapter:

Chapter Structure

The following chapters provide instructions for all aspects of ImagePRO-II operations:

- Chapter 1, **Introduction**, provides a system overview, a list of features, and discusses easy ways to use this guide.
- Chapter 2, **Hardware Orientation**, explains the ImagePRO-II's front and rear panel components in detail.
- Chapter 3, **Hardware Installation**, provides comprehensive system installation instructions.
- Chapter 4, **Menu Orientation**, explains the system's menus, and provides basic menu navigation procedures.
- Chaper 5, **Web Remote Control Operations**, provides complete details for using ImagePRO-II in a remote control configuration with a Web Interface.
- Appendix A, **Specifications**, lists the ImagePRO-II's input, output, video, mechanical and power specifications, and includes connector pinouts.
- Appendix B, **Remote Control Protocol**, lists the commands and queries used for external remote control of the ImagePRO-II.
- Appendix C, **Upgrading Firmware**, provides a detailed procedure for upgrading ImagePRO-II software.
- Appendix D, **Contact Information**, lists important contact, RMA, warranty and technical support details.

How to Use This Guide

Following are important tips for streamlining your use of this User's Guide in its electronic PDF form.

Navigating

Use Acrobat Reader's bookmarks to navigate to the desired location. All chapter files have the same bookmark structure for instant navigation to any section. Please note:

- Extensive hyperlinks are provided within the chapters.
- Use Acrobat's **Go to Previous View** and **Return to Next View** buttons to trace your complete navigational path.
- Use the **Previous Page** and **Next Page** buttons to go to the previous or next page within a file.
- Use Acrobat's extensive search capabilities, such as the **Find** tool and **Search Index** tool to perform comprehensive searches as required.

Table of Contents and Index

Use the document's **Table of Contents** bookmarks to navigate a desired topic. Click any item to instantly jump to that section of the guide.

You can also use the **Index** to jump to specific topics within a chapter. Each page number in the **Index** is a hyperlink.

Conventions

The following conventions are used throughout this guide:

- The symbol ■ denotes an operations procedure.
- The symbol ▲ denotes an example.
- Entries written in bold-face letters denote physical buttons, menus, and key features. Button names are in capital letters.

  ▲ **Example:** Press **LOGO** to begin capturing a still image.
- When a sequence of menu selections is required to complete a given procedure, either on the front panel or from the Web Interface, the "**>**" symbol is used to divide successive menu selections.

  ▲ **Example:** To access the **Set Static IP Menu**, select **System** > **Ethernet** > **Set Static IP**.

Terms and Definitions

The following terms and definitions are used throughout this guide:

- **Area of Interest** — The portion of the output display that a video image occupies.
- **Composite Video** — A color video format that combines YUV signals into one channel, transmitting brightness/luma (Y) and colors/chroma (U and V) over one cable.
- **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.
- **Logo** — A full-screen still image that you can capture, import, and store for subsequent display by the ImagePRO-II.
- **High-Bandwidth Digital Content Protection** (HDCP) — A standard for encryption, defined by Intel Corporation to prevent copying of encrypted digital audio and video content.
- **Menu** — A scrollable list of options available on the front-panel display or the Web Interface.
- **NTSC** (National Television Standards Committee) — 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 29.94 frames per second.
- **PAL** (Phase Alternating Line) — 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** — The red, green and blue color signal components.
- **RGBHV** — Defines a connection scheme with five lines: one for red, one for green, one for blue, one for the horizontal sync and one for the vertical sync. This is the standard used in VGA and other analog PC computer monitors.
- **RGBS** — Defines a connection with four signals, to transmit video and sync information. Vertical and horizontal sync are combined on a single channel.
- **RGsB** — Defines a connection with three signals, to transmit video and sync information. Here, the sync information is transmitted on the green channel.
- **SDI** (Serial Digital Interface) — A digital representation of a video signal that is distributed via a single coaxial cable.
- **View** — The portion of the video image that appears within the Area of Interest. A view is created using pan and/or zoom settings, and can be saved in non-volatile memory.
- **Y/C** — A video signal in which color and brightness information is transmitted separately (luminance Y, chrominance C).

ImagePRO-II Overview

The following topics are discussed in this section:

ImagePRO-II Universal Video Processor

The ImagePRO-II™ is a high-performance all-in-one video scaler, scan converter, switcher and transcoder. The ImagePRO-II converts a wide range of user-selectable video input signals — including RGB, HDTV, DisplayPort, HDMI™, component, S-video, composite (NTSC, PAL) and HD/SDI — into an impressive array of output signal formats, to meet the requirements of virtually any application. Using the ImagePRO-II, you can scale video sources while maintaining a high quality image. The ImagePRO-II supports resolutions up to WQXGA (2560x1600) @ 60 Hz.

The ImagePRO-II supports **DisplayPort** and **HDMI** signal formats, while still supporting DVI, SDI, and analog signals. The ImagePRO-II also supports **High-Bandwidth Digital Content Protection** (HDCP) on its DVI, HDMI, and DisplayPort connectors.

With a user-installable mezzanine, the ImagePRO-II provides dual-channel capability as well as support for both single- and dual-stream stereoscopic 3D (S3D) formats,

In dual-channel mode, input is split into two channels, Channels A and B, each with its own output format. Output connectors can be grouped into one of two channels in order to manage the two different output formats that are running simultaneously. For more information about mapping and using channels, refer to "**Operating the ImagePRO-II in Dual-Channel Mode**" on page 106,

While in 3D system mode, outputs can be set up as either single-stream or dual-stream. For more information about 3D system mode, refer to "**Operating the ImagePRO-II in 3D Mode**" on page 114.

With the addition of a user-installable audio mezzanine, the ImagePRO-II can process embedded or external audio signals. For more information, refer to the section titled "**Working with Audio**" on page 120.

You can operate the ImagePRO-II using convenient front-panel controls to activate inputs, navigate through the menu system, quickly access key menus, freeze the video, and transition to a logo or internal black. A front-panel USB port is provided for downloading and restoring logo images and system configurations.

Using the **ImagePRO-II Web Interface**, you also can remotely control all ImagePRO-II features from a computer, tablet, smartphone, or other web-enabled mobile device. With the Web Interface's easy-to-use pages, menus and graphics, you can, for example, upgrade system firmware, run test patterns, and control inputs and outputs. For more information about the Web Interface, refer to Chapter 5, **Web Remote Control Operations**, on page 129.

You can also operate the ImagePRO-II remotely using the **Barco Encore™ Controller** (release 2.32 or higher), or the **ScreenPRO-II™ Controller**.

ImagePRO-II Features

The ImagePRO-II provides the following features:

- System capabilities:
  - ~ High-resolution Athena scaler
  - ~ Transitions through black or a logo
  - ~ 1 RU chassis
  - ~ SD, HD, and 3Gbit SDI I/O
  - ~ Dual-link DVI/HDCP I/O
  - ~ HDMI/HDCP I/O
  - ~ DisplayPort/HDCP I/O
  - ~ Loop-through on DVI, HD-15, and SDI inputs
  - ~ External Genlock input with loop-through
  - ~ Ethernet control
  - ~ A convenient USB port on the front panel for firmware upgrades, backup and restore of configurations, and logo import/export
  - ~ Programmable input and output **Extended Display Identification Data** (EDID)
  - ~ Remote control via a Web Interface or the **Barco Encore** (release 2.32 or higher) or **ScreenPRO-II Controllers**
  - ~ Front panel lockout for remote control applications
- Superior video processing:
  - ~ Supports input and output resolutions up to WQXGA (2560x1600) @60 Hz
  - ~ Frame rate up to 120Hz for 1080p
  - ~ 12-bit processing
  - ~ 1:1 pixel sampling for analog inputs
  - ~ Motion adaptive de-interlacing
- A new **LED Setup Menu** that streamlines positioning and scaling an image for LED wall applications
- Support for stereoscopic 3D imaging
- Dual-channel capability
- Support for embedded or external audio
- 64 independent input configuration memory presets
- Input video detection and auto-acquisition
- Input signal presence indicated on input source selection button
- Dimmable front-panel display
- Pan, Zoom, and Freeze effects
- Logo image capture and recall
- Low video delay
- Color, monochrome, and invert video effects

- Horizontal/vertical image flip capability

Control Overview

There are three ways to control the ImagePRO-II:

- The front panel provides access to all ImagePRO-II operations. A dimmable screen displays ImagePRO-II menus and queries. Menu buttons provide quick access to the Setup, Test Pattern, Audio, and Pan/Zoom menus. The **ADJUST** knob scrolls through menus and menu options. Input buttons activate rear-panel input connectors, and effects buttons freeze an image or transition to a logo or internal black. Refer to Chapter 4, **Menu Orientation**, on page 23 for information about front-panel operations.
- The **ImagePRO-II Web Interface** is well suited to remote control, supporting intuitive point-and-click operation of all front-panel features. Using the Web Interface, you can also download and restore configuration files and logos, and upgrade ImagePRO-II firmware. Refer to Chapter 5, **Web Remote Control Operations,** on page 129 for more information about the Web Interface.
- The ImagePRO-II also can be remotely controlled using the **Barco Encore** (release 2.32 or higher) or **ScreenPRO-II Controller**. For more information, refer to the **Encore Presentation System User's Guide** or the **ScreenPRO-II Controller User's Guide**.

All of these options include easy-to-use menus and controls.

Analog Format Connection Table

The HD-15 analog and DVI-I inputs, and the HD-15 output, enable you to work with a variety of video formats — including VGA, composite video, S-video and YUV component video.

- For RGB with H and V sync, use the HD-15 connector directly.
- Using a customer supplied HD-15 to 5 x BNC breakout cable, several input combinations are possible. Cells with check marks denote the connections required for the indicated format.

Table 1-1. Analog Input Combinations using Breakout Cable

Breakout Cable Wire Color		Composite Video	S-Video (Y/C)	YUV (YP_bP_r)	RGB Sync on Green	RGB Comp Sync	RGB Separate H V
R				✓ (P_r)	✓	✓	✓
G		✓	✓ (Lum)	✓ (Lum)	✓	✓	✓
B			✓ (Chroma)	✓ (P_b)	✓	✓	✓
H Sync						✓	✓
V Sync							✓

2. Hardware Orientation

In This Chapter

This chapter provides detailed information about the ImagePRO-II's hardware. The following topics are discussed:

ImagePRO-II Front Panel

The figure below illustrates the ImagePRO-II front panel.

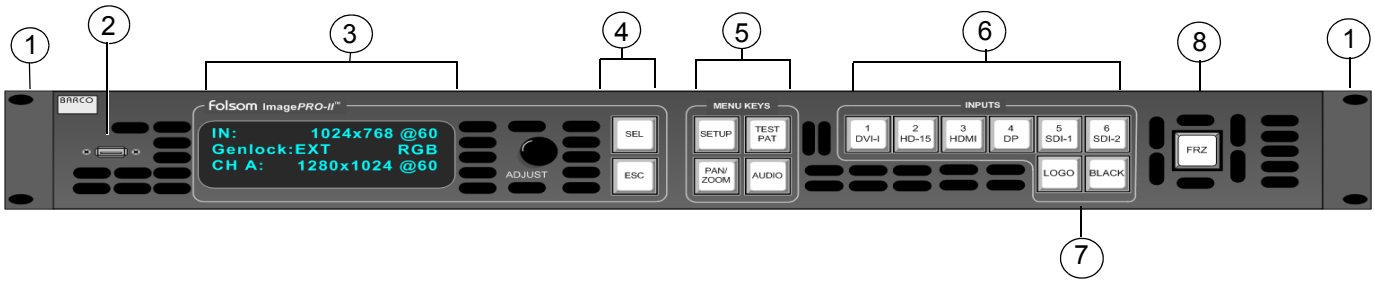


Figure 2-1. ImagePRO-II Front Panel

1)	Chassis Handles	4)	Menu Navigation Section	7)	LOGO and BLACK Buttons
2	USB Port	5)	Menu Access Buttons	8)	FRZ Button
3)	Display Section	6)	Input Buttons		

Following are descriptions of each front panel control feature:

1) Chassis Handles

Two **Chassis Handles** are provided for ease of installation and transportation.

2) USB Port

The USB port is provided to support uploading and downloading system configurations and logos, and upgrading ImagePRO-II firmware.

3) Display Section

The **Display Section** consists of a four-line display screen. Refer to **The Display Section** on page 9 for complete details.

4) Menu Navigation Section

The **Menu Navigation Section** includes the **ADJUST** knob, and two navigation buttons: **SEL** and **ESC**. Refer to **The Menu Navigation Section** on page 9 for more information.

5) Menu Access Buttons

The **Menu Access Buttons** provide quick access to specific locations in the menu system. Refer to **Menu Access Buttons** on page 10 for complete details.

6) Input Buttons

The five numbered **Input Buttons** correspond to the five rear-panel input connectors. Refer to **Input Buttons** on page 11 for information about the inputs.

7) LOGO and BLACK Buttons

The **LOGO** button enables you to capture a stored still image, and transition to and from the logo. Refer to the **The LOGO Button** section on page 11 for more information.

The **BLACK** button transitions the display image to and from black. Refer to **The BLACK Button** on page 11 for details.

8) FRZ Button

FRZ (FREEZE) enables you to freeze a displayed image. Refer to **The FRZ Button** on page 11 for more information.

The Display Section

The **Display Section** consists of a 4-line x 24-character screen that shows all ImagePRO-II menus, sub-menus, and messages. The display is dimmable.

At system startup, or when no menu buttons are selected, the screen displays the **Status Menu**. The following illustration shows a sample **Status Menu** for the standard ImagePRO-II. For information about the contents of this menu, refer to the section titled "**About the Status Menu**" on page 32 of Chapter 4.

Figure 2-2. Status Menu (sample)

The Menu Navigation Section

The **Menu Navigation Section** includes three controls that aid in menu navigation:

- Turn the **ADJUST** knob to scroll through the menu items on the screen.
  - ~ Turn the knob counter-clockwise to scroll down.
  - ~ Turn the knob clockwise to scroll up.

  A navigation cursor (**>**) to the left of a menu item indicates the position of the scroll bar, as shown in the following illustration.

Figure 2-3. Navigation Cursor in the Transition Menu

- Press the **SEL** button to:
  - ~ Enter the **Setup Menu** tree from the **Status Menu**
  - ~ Select the menu item indicated by the navigation cursor
  - ~ Change or accept a parameter
  - ~ Answer **Yes** to menu queries

- 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.

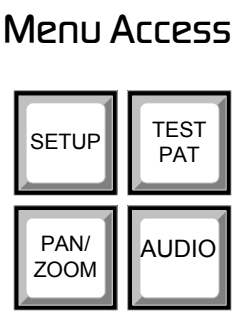


Figure 2-4. Menu Access Buttons

The **Menu Access Buttons** provide entry to specific locations in the menu system:

- The **SETUP** button accesses the **Setup Menu**, the ImagePRO-II's top-level menu. For information about **Setup Menu** options, refer to "**About the Setup Menu**" in Chapter 4 on page 34.
- Press **TEST PAT** to access the **Test Pattern Menu**, which sets up a test pattern on the selected output. For details about setting up a test pattern, refer to "**Working with Test Patterns**" in Chapter 4 on page 23.
- Press **PAN/ZOOM** to access the **ZOOM/PAN Menu**, from which you can set and save zoom and pan settings for an input channel. The **ZOOM/PAN Menu** provides the option to save settings in pixels or as a percentage of the original image. The default setting is **100% zoom**, **0% pan**. For more information about zooming and panning, refer to **Creating a View** in Chapter 4 on page 78.
- Press **AUDIO** to access the **Audio Menu,** from which you can work with embedded and external audio. For more information, refer to the section titled "**Working with Audio**" on page 120 of Chapter 4.

Input Buttons

Input buttons 1 through 5 correspond to the five standard input connectors on the rear panel. These buttons select the source signal that you want to display.

Figure 2-5. ImagePRO-II Input Buttons

The sixth button is reserved for use with the optional 3D/Dual Channel mezzanine.

- Press **Input Button 1** to select the source on the **DVI** (digital or universal analog) connector.

Note	A customer-supplied **DVI to HD-15 adapter** is required to connect analog video to the DVI connector.

- Press **Input Button 2** to select the source on the **HD-15** (universal analog) connector.
- Press **Input Button 3** to select the source on the **HDMI** connector.
- Press **Input Button 4** to select the source on the **DisplayPort** connector.
- Press **Input Button 5** to select the source on the **SDI-1** connector.
- Press **Input Button 6** to select the source on the **SDI-2** connector, when the 3D/Dual Channel mezzanine is installed.

For details about supported resolutions and HDCP compatibility for each input, refer to the "**Input Video Connectors**" section on page 13 of this chapter, or to the "**Input Specifications**" section of Appendix A, on page 161.

The LOGO Button

The **LOGO** button beneath the input buttons can serve as an additional image source. Using **LOGO**, you can capture, import, and store a still output frame in non-volatile memory, then transition to and from that still frame. For more information about using **LOGO**, refer to the" **Using a Logo or Internal Black**" section of Chapter 4 on page 96. For more information about transitioning, refer to the "**Setting Transitions**" section on page 83.

The BLACK Button

The **BLACK** button transitions the display to and from black. For more information about BLACK, refer to the "**Displaying Internal Black**" section of Chapter 4 on page 100.

The FRZ Button

Pressing the **FRZ** button temporarily freezes the displayed video. If **FRZ** is lit, the following actions turn it off:

- Pressing **FRZ** again
- Pressing the input button for the displayed image

When you freeze an image, the **PAN/ZOOM** button is not operational, and the **Input Setup** and **Views** menus are not accessible.

Using Front Panel Buttons

Pressing a front panel button once causes that button to light up. If the button is associated with a menu system, the display shows the top-level menu for that button. For example, pressing **SEL** at the **Status Menu** displays the **Setup Menu**. If the button performs a function, that function begins. For example, pressing **ESC** exits a menu or cancels an operation immediately.

There are three button states:

- **Lit** – Button is selected.
- **Dim** – Source or logo is present but not active.
- **Not lit** – Button is not selected.

ImagePRO-II Rear Panel

The following figure illustrates the ImagePRO-II rear panel.

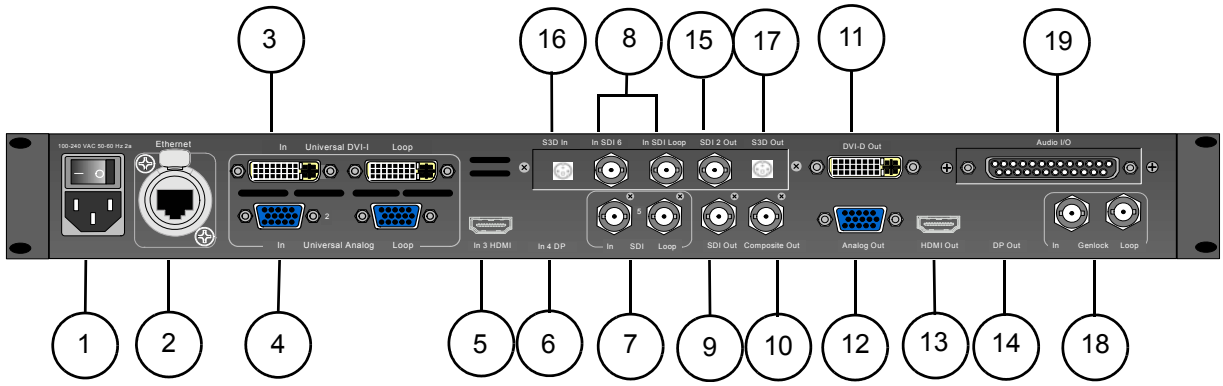


Figure 2-6. ImagePRO-II Rear Panel

1)	**AC Connector**	10)	**Composite Video Output**
2)	**Ethernet Port**	11)	**DVI-D Output**
3)	**Input 1 — DVI-I Input with Loop-through**	12)	**Universal Analog Output**
4)	**Input 2 — Analog Input with Loop-through**	13)	**HDMI Output**
5)	**Input 3 — HDMI Input**	14)	**DisplayPort Output**
6)	**Input 4 — DisplayPort Input**	15)	**SDI-2 Output**
7)	**Input 5 — SDI-1 Input with Loop-through**	16)	**3D Sync In**
8)	**Input 6 — SDI-2 Input with Loop-through**	17)	**3D Sync Out**
9)	**SDI-1 Output**	18)	**Genlock Input BNC with passive Loop-through**
		19)	**Audio Mezzanine**

Following are descriptions of each rear panel connector:

1) **AC Connector**

   One **AC Connector** with a power switch is provided to connect the ImagePRO-II to your facility's AC power source through the supplied power cord. The integral switch turns the unit on and off.

   100-240 VAC, 47-63 Hz

2) **Ethernet Port**

   One RJ-45 connector is provided for **10/100BaseT Ethernet** communications with the ImagePRO-II. The port is used for running the Web Interface, for diagnostics, and for connection to an external device such as the **Encore** or **ScreenPRO-II Controller**.

   The Ethernet connector is compatible with:

   ~ Standard RJ-45 Ethernet cables

   ~ Neutrik EtherCon® series cables

   For pinout details, refer to the "**Standard Connector Pinouts**" section in Appendix A, on page 169.

Input Video Connectors

On the system's rear panel, each of the input connectors maps to a corresponding input button on the front panel. For additional information about any connector, including pinouts and a list of supported formats, refer to Appendix A, **Specifications**, on page 161.

3) **Input 1** — DVI-I Input with Loop-through
4) **Input 2** — Analog Input with Loop-through
5) **Input 3** — HDMI Input
6) **Input 4** — DisplayPort Input
7) **Input 5** — SDI-1 Input with Loop-through
8) **Input 6** — SDI-2 Input with Loop-through

Output Video Connectors

The user sets the output format. Output connectors are active only if they support the selected format. If a connector cannot support the selected format, that connector is deactivated. Therefore, all connectors may not be active at the same time.

The default output format is 1024x768 @ 59.94. You can select other formats for an output, or define custom formats. Outputs revert to the last **saved** state on power-up.

Output colorspace is adjustable for the HD-15, DVI, HDMI, and DisplayPort connectors.

For additional information about any connector, including pinouts and a list of supported formats for each connector, refer to Appendix A, **Specifications**, on page 161.

9) **SDI-1 Output**
10) **Composite Video Output**
11) **DVI-D Output**
12) **Universal Analog Output**
13) **HDMI Output**

14) **DisplayPort Output**

15) **SDI-2 Output**

S3D Sync Connectors

Conforming to the VESA 3D specification, these miniDIN 3-pin connectors are used to indicate which eye corresponds to the current frame of single-stream 100/120 Hz video. The output is always active when the output S3D format is Sequential and the input must be connected whenever an S3D Sequential source is being processed through DVI or HDMI. These connectors are on the 3D/Dual Channel mezzanine.

16) **3D Sync In**

17) **3D Sync Out**

Genlock Input Connector

18) **Genlock Input BNC with passive Loop-through**

    The Genlock input supports NTSC and PAL Blackburst, as well as HD tri-level sync signals, per SMPTE 274M and SMPTE 296M. The passive loop-through can be used to pass the Genlock signal to another device downstream of the ImagePRO-II and will continue to function when the ImagePRO-II is turned off. When the ImagePRO-II is genlocked and the lock source is lost for some reason, the output of the unit will automatically switch to “free-run” state without any discernible “glitching” on the output display device.

Audio Mezzanine

19) A user-installable option that supports the use of both embedded and external audio.

3D/Dual Channel Mezzanine

A user-installable option that supports processing stereoscopic 3D images and supports the ImagePRO-II’s dual-channel capability. This mezzanine includes the S3D sync connectors, SDI Input 6 with loop-through, and a second SDI output.

3. Hardware Installation

In This Chapter

This chapter provides comprehensive installation instructions for the ImagePRO-II system's hardware. The following topics are discussed:

Safety Precautions

For all ImagePRO-II installation procedures, please observe the following important safety and handling rules to avoid damage to yourself and the equipment:

- To protect users from electric shock, ensure that the chassis connects to earth via the ground wire provided in the AC power cord.
- The AC socket outlet should be installed near the equipment and be easily accessible.

Unpacking and Inspection

Before opening the ImagePRO-II shipping box, inspect it for damage. If you find any damage, notify the shipping carrier immediately for all claims adjustments. As you open the box, compare its contents against the packing slip. If you find any shortages, contact your sales representative.

The ImagePRO-II shipping box contains the ImagePRO-II unit, a power cord, and a CD. Once you have removed all the components from their packaging and checked that all the components are present, visually inspect the unit to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.

Site Preparation

The environment in which you install your ImagePRO-II should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

Rack-Mount Installation

The ImagePRO-II chassis is designed to be rack mounted and is supplied with front rack-mount hardware.

Note

The ImagePRO-II chassis can also be used in a “tabletop” configuration, without rack mounting.

When rack mounting the ImagePRO-II chassis, remember the following important points:

- Maximum ambient operating temperature for the unit is 40 degrees C.
- 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.

- Rack mount each ImagePRO-II chassis from the front rack ears using four rack screws (not supplied). Rack threads may be metric or otherwise — depending upon the rack type.
- Install the *lower* of the two mounting holes first.

Cable and Adapter Information

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

Table 3-1. ImagePRO-II System Cables

Cable	Description	Note
Remote Connections		
RJ-45 Ethernet Cable	For use with optional Encore or ScreenPRO-II Controller or ImagePRO-II Web Interface	Customer Supplied
Power Connections		
AC Power Cord	AC Power, 7 foot, 10A	1 Cord Supplied

Power Cord and Line Voltage Selection

The ImagePRO-II is rated to operate with the following specifications:

Input Power: 100-240 VAC, 50-60 Hz

Power Consumption: 100 Watts maximum

The ImagePRO-II 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 the ImagePRO-II is used in the 230-volt mode, 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.

Avertissement La choix de la ligne de voltage se réalise automatiquement par le ImagePRO-II Transformateur Graphique. On n'a pas besoin du controller usager pour la choix de la ligne de voltage.

Warnung Das ImagePRO-II gerät mu beim Anschlu an 240V ~ mit einer vom VDE auf 250V/ 10A geprüften Netzleitung mit einem Schukostecker ausgestattet sein.

Installation

With five input sources and six output connectors, there are many possible ways to configure an ImagePRO-II installation. The following figure illustrates one possible installation for the ImagePRO-II.

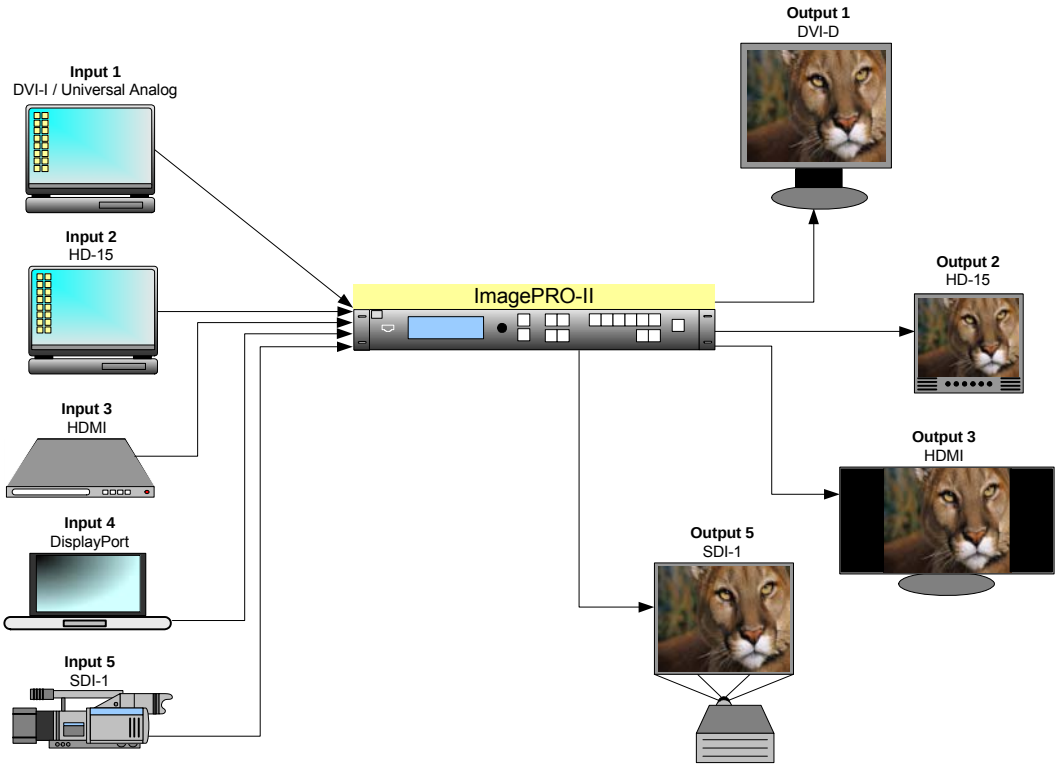


Figure 3-1. Diagram of an ImagePRO-II Installation

In this installation:

- Each front-panel input button maps to the corresponding input connector on the rear panel. The ImagePRO-II's input connectors support a range of signal types and standards, including analog and digital NTSC, PAL, and SMPTE, as well as HDMI, DVI, and DisplayPort. Input resolutions up to WQXGA (2560x1600) are supported. For more information about each input, refer to **Input Video Connectors** in Chapter 2, on page 13.
- You can connect a variety of digital and analog devices to the ImagePRO-II's input connectors, including video cameras, PCs and laptops, notebooks or tablets, Blu-ray players, and DVD players.
- Six rear-panel output connectors display video in resolutions up to WQXGA (2560x1600) at frame rates up to 120 Hz for 1080p formats. For more information about each output, refer to **Output Video Connectors** in Chapter 2, on page 13.
- Output display types include HD and standard definition monitors and screens (both analog and digital), plasma displays, and digital projectors.
- The ImagePRO-II processes only one input source at a time. If you connect multiple output display devices, only one source image is output.
- You can further refine the placement of the image on the output displays using an Area of Interest, as described in **Setting the Area of Interest** on page 56 in

Chapter 4, or by using zoom and pan settings, as described in **Creating a View** on page 78 in Chapter 4.

Installation Requirements

To set up the ImagePRO-II, you will need the following equipment:

Table 3-2. Equipment List, Basic ImagePRO-II System

Qty.	Item	Note
1	ImagePRO-II unit	
1	Display device	Customer supplied
1	Ethernet Switch	Customer supplied (Optional: for web interface, Encore Controller, or ScreenPRO-II Controller)
1	Ethernet cable	Customer supplied
1	Video cable	Customer supplied (Optional, for Genlock and Genlock Loop)
TBD	Dedicated sources	Analog and/or digital video as required (customer supplied)

When connecting to an ImagePRO-II, use high-quality shielded cables.

If you intend to operate the ImagePRO-II remotely using the Web Interface, you can do so over a wireless network. For this option, you will need a wireless router and access to a wireless network, along with a device such as a smartphone, computer or laptop, notebook or tablet.

Installing the ImagePRO-II

- Use the following procedure to install the ImagePRO-II:

1. Follow the unpacking procedures as listed in the **Unpacking and Inspection** section on page 16.
2. As required, refer to the **Physical and Electrical Specifications** section on page 168 in Appendix A for electrical and mechanical details.
3. As required, refer to the **ImagePRO-II Rear Panel** section on page 12 in Chapter 2 for the locations of all connectors.
4. If you are rack mounting the ImagePRO-II chassis, follow the rack mount procedures as outlined in the **Rack-Mount Installation** section on page 16.
5. **Ethernet Connections**
   a. Connect an Ethernet cable to a Switch.
   b. Ensure that the Switch is connected to a data port.
   c. Connect the Ethernet Switch to the ImagePRO-II's Ethernet port.

Note

As an alternate method, you can use a direct Ethernet connection or a wireless connection between the ImagePRO-II and a web-enabled device.

6. **Source Connections**

d. Connect the video source(s) to the analog or digital input connectors as required.

7. Output Connections

e. To connect the ImagePRO-II to a digital projector or other digital display, connect one of the following output connectors to the appropriate input of the display device:

- DVI-D
- HDMI
- DisplayPort
- SDI-1

f. To connect the ImagePRO-II to an analog display, connect the ImagePRO-II's analog output to the analog input of the display device.

8. Genlock Connections

g. If you will be using synchronous video camera sources in your production, use a BNC cable to connect a PAL or NTSC black burst or an HD tri-level sync signal to the **Genlock In** connector.

h. If you are looping reference video to another unit in your system, connect a BNC cable from the **Genlock Loop** connector to the next device's **Genlock In** connector.

i. If this ImagePRO-II unit is the last device in a reference video chain, terminate the **Genlock Loop** with a 75Ω termination.

9. Power Connection — Connect an AC power cord to the **AC Power Connector** on the rear of the ImagePRO-II chassis, and then to AC outlets. Connect AC power cords (or AC adapters) to all peripheral equipment, such as Ethernet switches and monitors. Please note:

~ Connect each unit only to a properly rated supply circuit.

~ Reliable grounding (earthing) of rack-mounted equipment should be maintained.

10. Power On — Turn on power to all units.

11. Web Interface Connection

To configure your system for control from the ImagePRO-II's Web Interface, refer to Chapter 5, **Web Remote Control Operations**, on page 129. Following are prerequisites for remote web operations:

j. Ensure that your computer uses one of the following operating systems:

- Windows® XP, Windows Vista™, or Windows 7
- Mac OS® X
- Red Hat® Linux®

k. Ensure that you have an **HTML5-compatible web browser** installed, such as Google Chrome, Apple Safari® or another browser based on the WebKit engine. Or download **Google Chrome Frame** to work with Internet Explorer.

l. Turn on the ImagePRO-II's **DHCP** setting:

- On the **Setup Menu**, select **System** > **Ethernet**.
- Select **DHCP** and turn it **On**.

m. Verify the IP address of the ImagePRO-II. (Refer to Chapter 4, the section titled **Setting Ethernet Options** on page 91.)

n. Connect the ImagePRO-II's Ethernet port to the external device. The devices you can use to control the ImagePRO-II remotely include:

- Smartphone (iPhone®, Android™, etc.)
- PC, notebook, laptop, or tablet with a compatible OS and browser

There may be additional steps needed, such as turning on the DHCP feature or setting a static IP address. For more information, contact your network administrator or refer to Chapter 5.

12. Encore or ScreenPRO-II Controller Connection

For information about connecting the ImagePRO-II to the Encore (release 2.32 or higher) or ScreenPRO-II Controller, refer to the **Encore Presentation System User's Guide** or the **ScreenPRO-II Controller User's Guide**.

4. Menu Orientation

In This Chapter

This chapter describes all ImagePRO-II 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.

The following topics are included in this chapter:

Power-Up Initialization

Connect power to the ImagePRO-II, then locate the power switch on the rear panel and turn power **On**. While the system is initializing, the front-panel buttons light up one at a time, and the following messages are displayed.

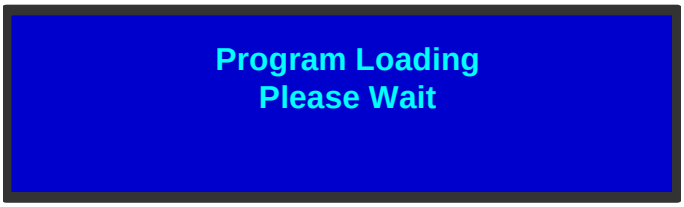


Figure 4-1. System Initialization Message 1

Figure 4-2. System Initialization Message 2

The version number in the preceding menu shows the software version that is installed. This version number changes as you install software upgrades.

When you initialize an ImagePRO-II that has a stored logo, a message like the one in the following illustration appears during initialization.

Figure 4-3. Logo Initialization Message

For information about logos, refer to **Using a Logo or Internal Black** on page 96.

After system initialization is complete, the **Status Menu** appears.

Quick Setup and Operation

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.

1. **Connect power** — Ensure that power is properly connected to the ImagePRO-II. (Chapter 3, **Installation**, page 19.)
2. **Connect inputs** — Connect all input sources to the ImagePRO-II. (Chapter 3, **Installation**, page 19.)
3. **Connect outputs** — Connect the output(s) on the ImagePRO-II to your projector(s) or other target devices. (Chapter 3, **Installation**, page 19.)
4. **Turn on power** — Turn on power to the ImagePRO-II, your projector(s), and to all peripheral equipment. (This chapter, **Power-Up Initialization**, page 24.)
5. **Factory reset** — If you are using the ImagePRO-II for the first time, or if you are using an ImagePRO-II that has just returned from another event, perform a full factory reset to restore default system configurations. (This chapter, **Restoring Factory Default Settings**, page 103.)
6. **Read the output format** — If the primary output is connected to an HDMI, DVI-D, HD-15 or DisplayPort connector, obtain the output's preferred resolution and frame rate. This is the format the ImagePRO-II uses. (This chapter, **Using Output Auto Config**, page 54.)
7. **Adjust output format** — If the primary output is connected to the composite video connector or one the SDI connector, you can adjust the output format manually if necessary. (This chapter, **Setting the Output Format**, page 54.)
8. **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. (This chapter, **Working with Test Patterns**, page 70.)
9. **Save output configuration** — After completing output adjustments, save the output configuration. (This chapter, **Saving an Output Configuration**, page 69.)
10. **Position the image** — From a single convenient menu, you can quickly place the image where you want it on the output display device, then scale it up or down, and apply masks if necessary. Then you can save your changes and press an input button to begin your presentation. (This chapter, **Setting up an LED Wall**, page 101.)

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 11 through 13.

11. **Set and adjust inputs** — As required, select an input and adjust color balance, timings, and any other settings necessary. (This chapter, **Configuring Inputs**, page 35.)
12. **Save input configuration** — After completing all adjustments for an input, save the input configuration. (This chapter, **Saving an Input Configuration**, page 48.)
13. **Repeat for each input** — Repeat the previous two steps for each input connected to the ImagePRO-II.
14. **Adjust system parameters** — As required, adjust system parameters such as ImagePRO-II display brightness and HDCP settings. (This chapter, **Using the System Menu**, page 84.)

15. **Save system configuration** — After completing all system adjustments, save the system configuration. (This chapter, **Saving System State**, page 96.)
16. **Ready to roll** — With all output, input and system configurations saved, press the desired input button.

Note

For advanced system operations, specific system adjustments and operating descriptions on every feature, please start with the **Quick Function Reference** section on page 31, and select the function that you wish to perform.

ImagePRO-II Menu Tree

The diagram on the following page illustrates the entire ImagePRO-II menu tree. Please use this diagram for reference as you learn how to operate the system.

Note

In this diagram, menu items labeled “3D,” “Dual2K,” “Channel,” or “Ch” are available only when the optional dual-channel/S3D mezzanine is installed.

The **Audio Menu** is available only when the optional Audio mezzanine is installed.

For information about these options, contact your Barco sales representative or refer to Appendix D “**Contact Information** on page 213.

4. Menu Orientation

ImagePRO-II Menu Tree

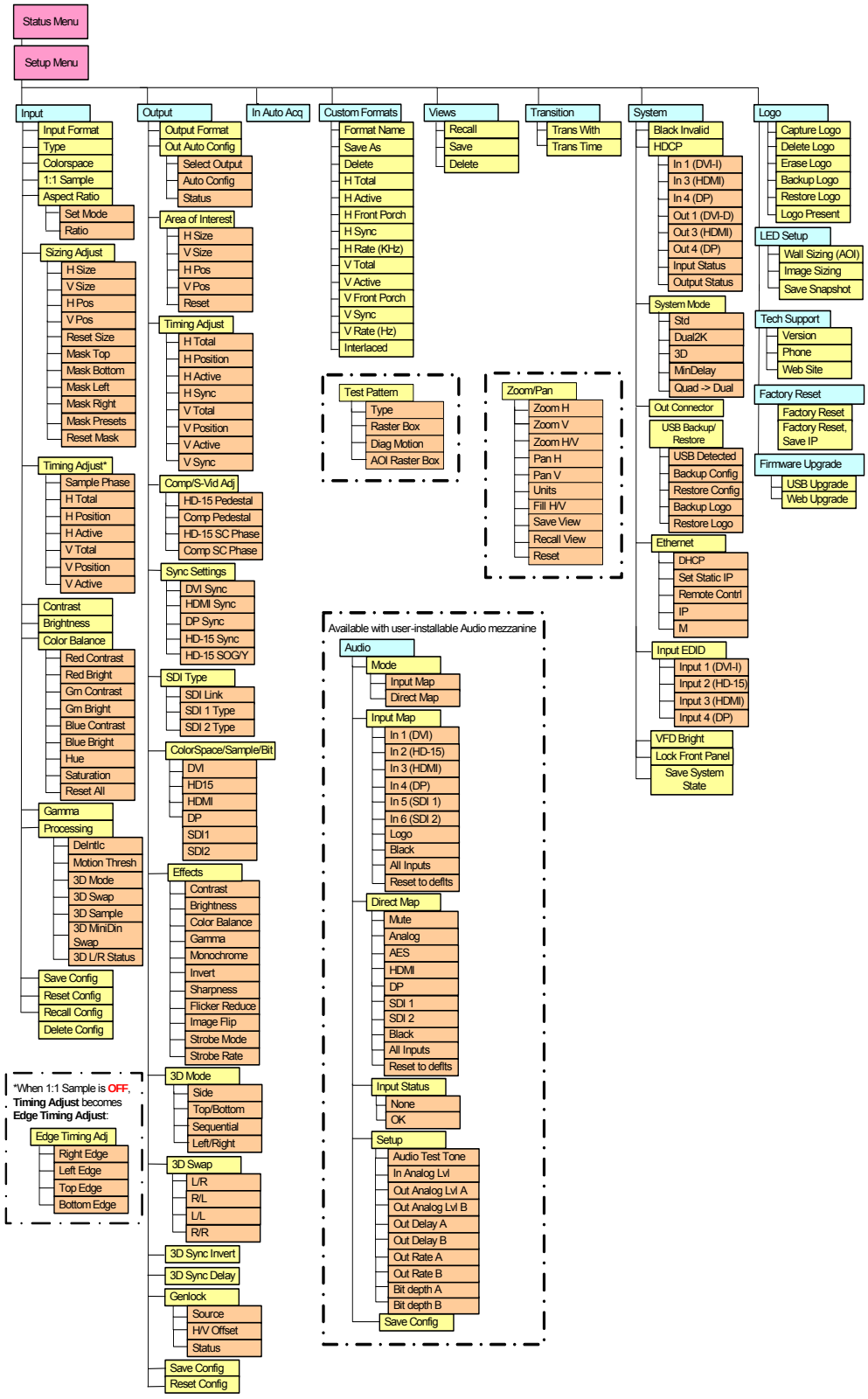


Figure 4-4. ImagePRO-II Menu Tree

Using the Menu System

This section describes the conventions for using the ImagePRO-II's menu system. For reference, the following illustration shows the **Setup Menu**.

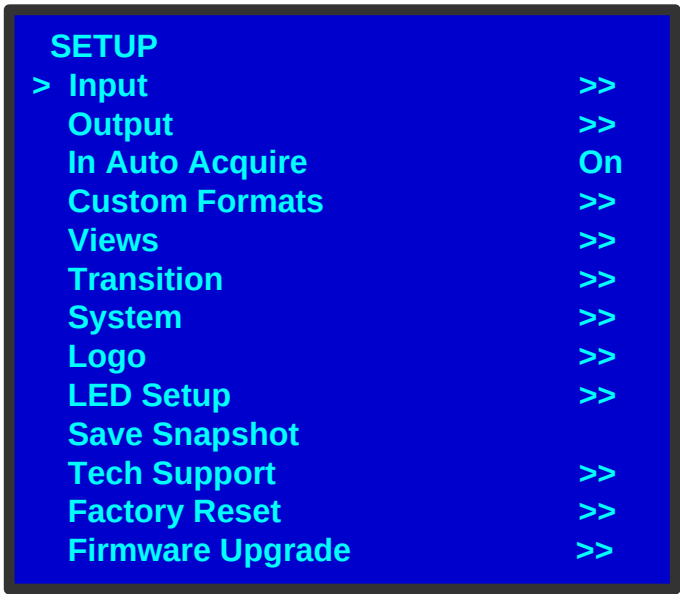


Figure 4-5. Setup Menu

Note

The ImagePRO-II's display screen is four lines high. Throughout this chapter, entire menus are shown for ease of reference, unless otherwise noted.

Please note the following important menu rules and conventions:

- The top line names the current menu, in upper-case letters.
- Subsequent lines typically display two fields:
  - ~ For a **function**, the left-hand field names the function. The right-hand field shows the function's current parameter (or value). In the preceding illustration, **In Auto Acquire** is a function and **On** is its current value.
  - ~ For a **submenu**, the left-hand field names the submenu that you can access. The right-hand field displays a double arrow (**>>**), indicating that a submenu is available.

    In the preceding illustration, **Input** and **Output** are two of the available submenus. To use a submenu, scroll to it and press **SEL**. Then scroll through the list that appears.
- The **navigation cursor** (**>**) in the left-hand column indicates the current line on which you can take action. This arrow moves as you rotate the **ADJUST** knob on the front panel. When you reach an editable field and press **SEL**, the navigation cursor changes to an **edit cursor** (#)

Making a Menu Selection

To select a menu item, use the **ADJUST** knob to scroll to the item, then press the **SEL** button on the front panel:

- To scroll through a menu:
  - ~ Turn the **ADJUST** knob counter-clockwise to scroll down.
  - ~ Turn the **ADJUST** knob clockwise to scroll up.
- To open a submenu, scroll to the submenu line and press **SEL**.

Note

Throughout this user's guide, the term "**select**" is used as an abbreviation for "scroll to a menu line and press **SEL**."

▲ **Example:** Select the **Input** menu to begin configuring inputs.

- To change a parameter, scroll to the desired line and press **SEL**. The navigation cursor changes to the edit cursor. Use the **ADJUST** knob to modify the value:
  - ~ Turn the **ADJUST** knob clockwise to increase a value.
  - ~ Turn the **ADJUST** knob counter-clockwise to decrease a value.

  Then press **SEL** to accept a parameter or value. The edit cursor changes back to the navigation cursor.

Note

You must press **SEL** to accept the value.

Exiting a Menu

- In the edit mode (i.e., the edit cursor is visible), press **ESC** to exit a menu without changing the original parameter.
- To navigate back up the menu structure, press **ESC** again. Each press takes you back up the menu tree by one level.

Answering a Menu Query

The **SEL** button is used to answer **Yes** to certain menu queries. The **ESC** button is used to answer **No** to menu queries. The following illustration shows an example of a menu query.

Figure 4-6. Save Input Configuration Query

Quick Function Reference

Use the following table to quickly access information by clicking the hyperlinks to section names or page numbers.

Table 4-1. ImagePRO-II Quick Function Reference Table

To Learn About	Refer to Section	Page
3D settings	Operating the ImagePRO-II in 3D Mode	page 114
Acquiring a signal	Acquiring an Input Signal	page 72
Adjusting aspect ratio	Setting the Aspect Ratio	page 38
Code upgrades	Appendix C	page 207
Custom input and output formats	Creating Custom Formats	page 73
Deinterlacing	Processing Input Signals	page 46
Detecting a logo	Detecting and Capturing a Logo Using the Logo Menu	page 97
DHCP server queries	Setting Ethernet Options	page 91
Dual-channel mode	Operating the ImagePRO-II in Dual-Channel Mode	page 106
EDID settings	Using Output Auto Config	page 54
Erasing a logo	Erasing a Logo	page 100
Flash drive usage	Using a USB Device	page 88
Front panel lock	Locking the Front Panel	page 95
Gamma settings	Adjusting Gamma	page 46
Genlock	About Genlock Settings	page 68
HDCP settings	Setting HDCP Capability	page 86
ImagePRO-II IP address	Setting Ethernet Options	page 91
Input brightness	Setting Input Contrast and Brightness	page 45
Input color balance	Setting Input Color Balance	page 45
Input contrast	Setting Input Contrast and Brightness	page 45
Input formats	Setting the Input Format	page 36
Input timing	Adjusting Timing Parameters	page 60
Logos	Using a Logo or Internal Black	page 96
Masks	Masking an Image	page 41
Output active area	Setting the Area of Interest	page 56
Output brightness	Setting Output Effects	page 64
Output configurations	Saving an Output Configuration	page 69
Output contrast	Setting Output Effects	page 64
Output formats	Setting the Output Format	page 54
Pan and Zoom Settings	Creating and Saving Views	page 78
Preset masks	Using Mask Presets	page 42
Quick Image Positioning	Setting up an LED Wall	page 101
Raster boxes	Working with Test Patterns	page 70
Restoring factory defaults	Restoring Factory Default Settings	page 103
Sizing an image	Sizing an Image	page 38
Sync settings	Setting Output Sync	page 61
Test patterns	Working with Test Patterns	page 70
Transition timing	Setting Transitions	page 83
Views	Creating and Saving Views	page 78

About the Status Menu

The **Status Menu** is the ImagePRO-II's top-level menu, which appears by default at system startup. This menu provides input, Genlock, and output information. The following figure illustrates a sample **Status Menu** if you use the standard ImagePRO-II.

Figure 4-7. Status Menu (sample)

When you install the 3D/Dual Channel option and set the System Mode to Dual2K, the Status Menu displays default information for two output channels, as shown in the following illustration. For details about dual-channel mode, refer to **Operating the ImagePRO-II in Dual-Channel Mode** on page 106 of this chapter.

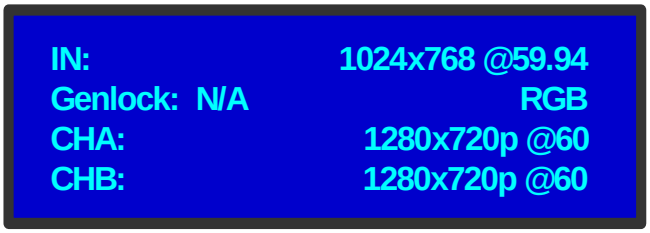


Figure 4-8. Status Menu -- Optional Dual Channel System Mode (sample)

The following illustration shows the **Status Menu** when you install the 3D/Dual Channel option and set the **System Mode** to **3D**. For details about 3D mode, refer to **Operating the ImagePRO-II in 3D Mode** on page 114 of this chapter.

Figure 4-9. Status Menu — Optional 3D System Mode (sample)

Although the specific information displayed in this menu varies according to the input selected, the **Status Menu** always provides the following details:

- The first line shows the format of the active input in the form Hact x Vact @ vr Hz

  ▲ **Example:** 1280x1024p @ 59.94 Hz

  If you use a custom configuration for the input, the first line shows the name of your configuration. If the selected input does not detect a valid input signal, the first line displays **Invalid Signal**.

- The second line indicates:
  - ~ The Genlock status for the output channel. The options are:
    - **EXT** Lock to external source
    - **N#** Lock to input number...
    - **N/A** Freerun (default)
  - ~ The type of input signal being processed. Options are **CVBS, YC, SDI, RGB, YPbPr, DVI-I, HDMI** and **DP**.
  - ~ If the system is set to 3D mode, this line also displays information about the 3D packing mode:
    - **Side:** Side-by-Side
    - **T/B:** Top/Bottom
    - **SEQ:** Sequential
    - **L/R:** Left/Right
- The third line provides the output format for the first available output channel. For the standard ImagePRO-II, there is one available channel, Channel A. With the 3D/Dual Channel mezzanine installed and the system set to **Dual2K** mode, a fourth line is added, displaying information for the second channel.

  ▲ **Example:** CHA: 1920x1080p @ 60

  ▲ **Example:** CHA: 920x1080i @60
  CHB: 1280X720p @60
- In addition, when you install the 3D/Dual Channel option and set the system mode to **3D**, the fourth line displays the 3D packing format, as shown in Figure 4-9 on page 32.

About the Setup Menu

The **Setup Menu**, shown in the following illustration, is the menu from which you access all operational menus. To display the **Setup Menu**, press the **SETUP** button on the front panel.

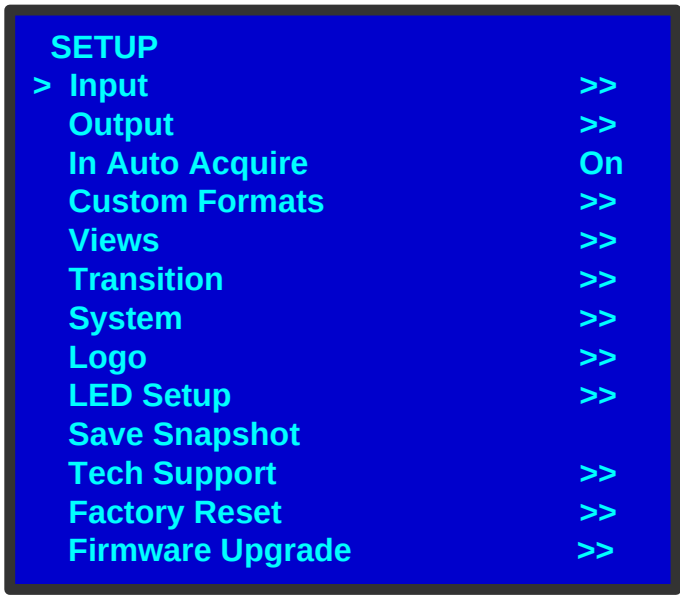


Figure 4-1. Setup Menu

From the **Setup Menu**, you can control most of the ImagePRO-II's features. You can also display Technical Support contact information, restore factory default settings, and check for available firmware updates. The following sections describe each **Setup Menu** option in detail, except for the Code Upgrade feature. For details about that option, refer to Appendix C, **Upgrading Firmware**, on page 207.

Configuring Inputs
Configuring Outputs
Working with Test Patterns
Acquiring an Input Signal
Creating Custom Formats
Creating and Saving Views
About Transition Effects
Using the System Menu
Using a Logo or Internal Black
Setting up an LED Wall
Using the Tech Support Menu
Restoring Factory Default Settings

Configuring Inputs

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

This section provides detailed information about setting up and using inputs. To quickly position and size video on an LED wall or monitor, refer to **Setting up an LED Wall** on page 101 of this chapter.

Input Menu Tree

The following figure illustrates the **Input Menu** tree.

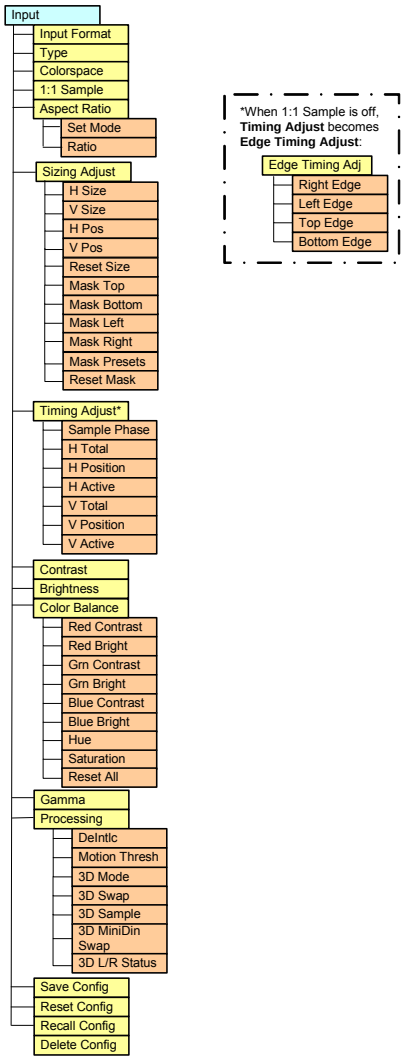


Figure 4-2. Input Menu Tree

Input Menu Functions and Submenus

The following **Input Menu** functions and submenus are covered in this section:

Setting the Input Format

The input video **Format** is indicated in the status display and in the **Input Menu**, in the form HactxVact @ vr Hz:

- **Example:** 1024x768 @ 75 Hz

When **In Auto Acquire** is **On**, the input video format is detected in the following search order: last used configuration, any saved configurations, custom library formats, standard library formats, or a “best guess” based on the closest video format in the library.

If the video format is a best guess, it is displayed within asterisks:

- **Example:** *1024x768 @ 60.11*

If the video format is recalled from a saved input configuration, the format appears with a “c” at the far right:

- **Example:** 1024x768 @ 59.94 c

If the video format is frame packed, the format appears with the letters “FP” at the end:

- **Example**: 1920x1080p @23.98FP

When **In Auto Acquire** is **Off**, the ImagePRO-II attempts to lock to the signal you select. If the format you select does not match the input signal, the display remains black and the status display indicates **Invalid Signal**.

For more information about **In Auto Acquire**, refer to the **Acquiring an Input Signal** section on page 72.

Selecting the Input Type

Input **Type** defines the type of input connected to the ImagePRO-II, such as RGB, DVI-I, or HDMI.

First, select an input. Then, from the **Input Menu**, scroll to **Type** and select a value. Available choices depend on the input you select:

- For **Input 1 (DVI-I)**, the options are RGB, YP_bP_r, YC, CVBS, DVI-I.
- For **Input 2 (HD-15)**, the options are RGB, YP_bP_r, YC, CVBS.
- For **Input 3 (HDMI)**, the option is HDMI.
- For **Input 4 (DisplayPort)**, the option is DP.
- For **Input 5 (SDI-1)** and **Input 6 (SDI-2)**, the option is SDI.

As you change the input **Type**, the default **Colorspace** setting changes, too. For example, if you select YP_bP_r or YC, the Colorspace changes to SMPTE. If you select RGB, the Colorspace changes to RGB. For details about these options, refer to **Selecting the Colorspace** on this page.

When you auto-acquire a signal, type selections are limited depending on the input selected. For example, if **Input 3** is connected to an HDMI source, HDMI is the only option for that input and cannot be changed.

When you are not auto-acquiring a signal, you can choose a type for the selected input. If you choose a type that is not applicable to the input, the **Status Menu** displays the **Invalid Signal** message. For information about auto acquisition, refer to **Acquiring an Input Signal** on page 72.

Selecting the Colorspace

The **Colorspace** defines the Composite Video Standard for an input. The options available depend on the selected input and the input **Type**, as shown in the following table.

Table 4-2. Input Colorspace Chart

Input	Input Type	Colorspace Options
1 (DVI-I — Digital)	DVI	RGB
1 (DVI-I — Analog)	CVBS	SMPTE
	RGB	RGB
	Y/C	SMPTE
	YP_bP_r	SMPTE
2 (HD-15)	CVBS	SMPTE
	RGB	RGB or SMPTE
	Y/C	SMPTE
	YP_bP_r	SMPTE or RGB
3 (HDMI)	HDMI	RGB or YCbCr
4 (DisplayPort)	DP	RGB or YCbCr
5 (SDI-1)	SDI	SMPTE
6 (SDI-2)*	SDI	SMPTE

* Available with the 3D/Dual Channel option

Using 1:1 Sample

1:1 Sample sets the sampling mode for the selected input. This option is either **On** or **Off**.

You can turn this option **Off** only for RGB and YP_bP_r **analog** inputs. For all other input types, the sampling clock is inherently 1:1.

Image *sampling* occurs when an analog image is digitized, changing the analog signals (Red, Green, and Blue, for example) into pixels stored in the ImagePRO-II's image memory. Using 1:1 sampling**,** the ImagePRO-II samples the analog video at exactly the same rate as that of the original signal.

Setting the Aspect Ratio

The **Input Aspect Ratio Submenu**, shown in the following illustration, provides one way to affect aspect ratio. The ImagePRO-II selects and displays the input video aspect ratio according to the selected input format.

Figure 4-3. The Input Aspect Ratio Submenu

With the 3D/Dual Channel mezzanine installed and the system set to dual-channel mode, I**nput Aspect Ratio** provides an additional option to set the aspect ratio for each channel.

Figure 4-4. The Input Aspect Ratio Submenu in Dual-Channel Mode

The settings on this menu can be overridden by the input horizontal and vertical **Zoom** settings. If you override the settings, this menu may not display the input's actual aspect ratio.

To select the **Input Aspect Ratio Submenu** from the **Input Menu**, scroll to **Aspect Ratio** and press **SEL**. Then scroll to one of the following options:

- **Set Mode** — The **Set Mode** value is one of the following: **1:1**, **3:2**, **5:4**, **16:9**, or **Custom**. The ImagePRO-II detects the input format, and displays the appropriate aspect ratio.
  - **Example:** Computer video at 1280x1024 @ 60 Hz defaults to **5:4**.
  - **Example:** NTSC video defaults to **4:3**.
  - **Example:** HDTV1080i video defaults to **16:9**.
- **Ratio** — This option is available only when **Set Mode** is set to **Custom**. It is a decimal number ranging from **0.750** to **3.000**.

Sizing an Image

The **Sizing Adjust Submenu** lets you:

- Scale the selected input video up (or down) within the current active area.
- Mask (crop) an image, either one edge at a time, or by using preset masks of all four edges to achieve a specific aspect ratio.

As you adjust sizing, the top and bottom portions of an image may fall outside of the raster, for example, when a 4:3 image is scaled up to 16:9.

Figure 4-5. Sizing Adjust Submenu (sample)

With the 3D/Dual Channel mezzanine installed and the system mode set to **Dual2K**, you can adjust sizing on each channel.

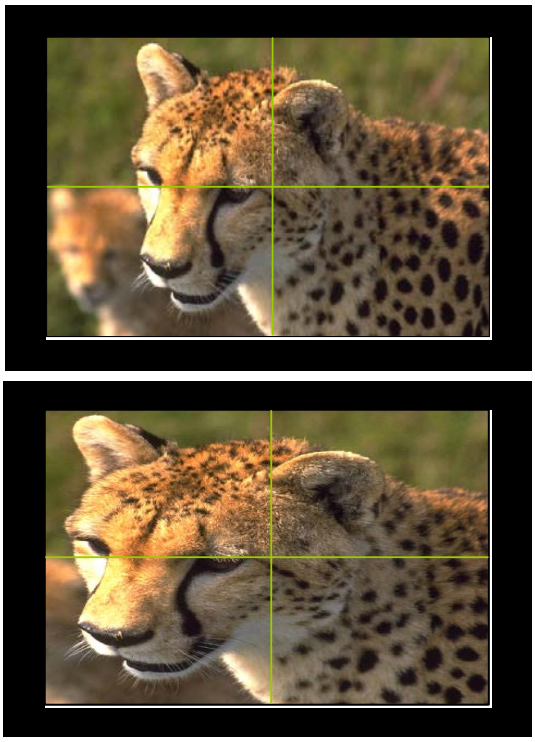
Figure 4-6. Sizing Adjust Submenu in Dual-Channel Mode

In dual-channel mode, the first line indicates the channel to which the settings apply. The default setting for this line is ALL. You can change this setting by scrolling to **Channel** and selecting either **A** or **B**.

With either option, the **Size** and **Pos** functions allow you to size the image, and then position it within the selected aspect ratio.

- Select **H Size** to “stretch” the image across the active area on the horizontal plane. **H Size** is center-based. It adjusts both the left and right edges simultaneously, while the center point of the image remains stable. Values are in pixels. The default value is the input horizontal active pixels. When you resize horizontally, the output “window” is maintained in both size and aspect ratio.

  The following images show a result of horizontal sizing only. In these images, the intersection of the green lines represents the center of the active area. As the image “stretches” horizontally, the center remains exactly the same.



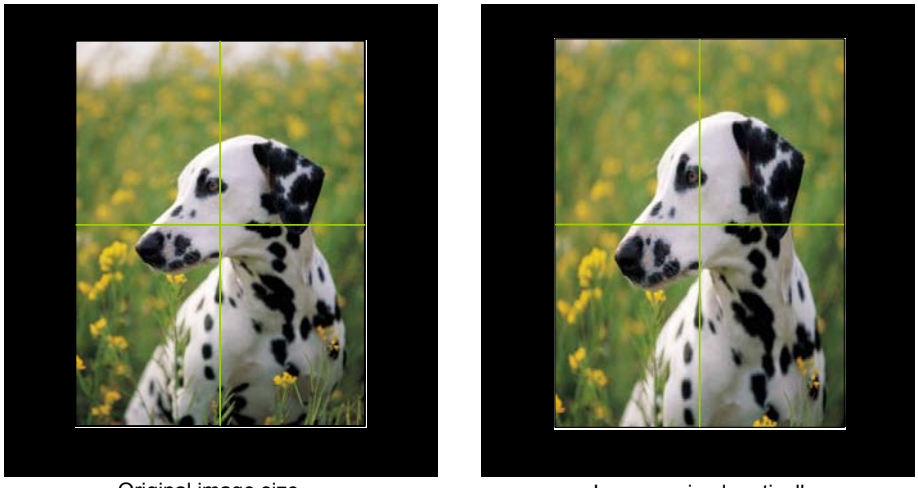
Original image size

Image resized horizontally

Figure 4-7. Horizontal Resizing

- **V Size** is also center-based. Decreasing **V Size** “stretches” the image across the active area, along the vertical plane. This setting adjusts both the top and bottom edges simultaneously, while the center point of the image remains stable. Values are in lines. The default value is the number of the input’s vertical active lines.

  The following images show a result of vertical sizing only. The intersection of the green lines represents the center of the image, which remains stable as the image “stretches” vertically. The output “window” is maintained in both size and aspect ratio.



Original image size

Image resized vertically

Figure 4-8. Vertical Resizing

- Select **H Pos** to pan left or right across the image, to the portion you want to display. Values are in pixels. The **H Pos** value of **0** represents the horizontal center of the active area.
- Select **V Pos** to pan up or down across the image, to the portion you want to display. Values are in lines. The **V Pos** value of **0** represents the vertical center of the active area.
- Select **Reset Size** to undo your changes and restore the image to its previous size.

Masking an Image

Masking an image is cropping a portion of it, typically to remove noise at one or more edges. When a mask is applied on a selected edge, black is displayed in place of the video that is masked. The following illustrations show an image before and after masking the top and bottom edges.

Figure 4-9. Image Before and After Masking

You can mask any of the input's edges individually, or you can use mask presets. The mask presets crop the image to a specific aspect ratio, such as 16:9, 5:4, and so on. To use presets, refer to **Using Mask Presets** on page 42.

If you have the 3D/Dual Channel mezzanine installed and the system mode set to **Dual2K**, you can set masks for each channel separately.

To mask an edge of an image, use the following procedure:

1. Select the input that displays the image you want to adjust.
2. From the **Input Menu**, select **Sizing Adjust**.
3. If you are using the dual-channel option, select the channel to which the adjustments apply.
4. Scroll down to the edge you want to adjust: **Top**, **Bottom**, **Left**, or **Right**. Press **SEL**.
5. Mask values are given in percentages. Scroll through the values to choose the percent you want to mask from the edge. As you scroll, the output display previews the masking effect.

6. Press **SEL** to confirm your choice.

Note

To restore the original unmasked image, refer to **Resetting Masking Effects** on page 43.

Using Mask Presets

The **Mask Presets** feature on the input **Sizing Adjust Submenu** provides a convenient way to mask all the edges of an image at once, to a preset aspect ratio. The following figure shows the available aspect ratios.

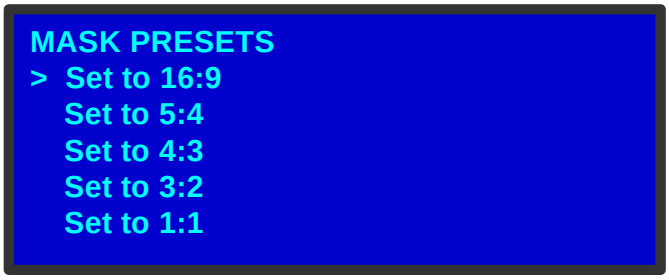


Figure 4-10. Mask Presets Submenu

- Select **Set to 16:9** to mask the image to a 16:9 aspect ratio.
- Select **Set to 5:4** to mask the image to a 5:4 aspect ratio.
- Select **Set to 4:3** to mask the image to a 4:3 aspect ratio.
- Select **Set to 3:2** to mask the image to a 3:2 aspect ratio.
- Select **Set to 1:1** to mask the image to a 1:1 (square) aspect ratio.

As with any mask, presets are additive and are applied to the edges of the image. If you mask a 16:9 image to a 5:4 aspect ratio, the result looks like the lower image in the following illustration.

Figure 4-11. 16:9 Image (top) with 5:4 Masking Preset (bottom)

The image on display is the base image to which the mask is applied. If an image has already been masked to a 5:4 aspect ratio, and you mask it again using the 1:1 preset, the system creates the 1:1 mask using the previous 5:4 image as a base. The result looks like the one in the following illustration.

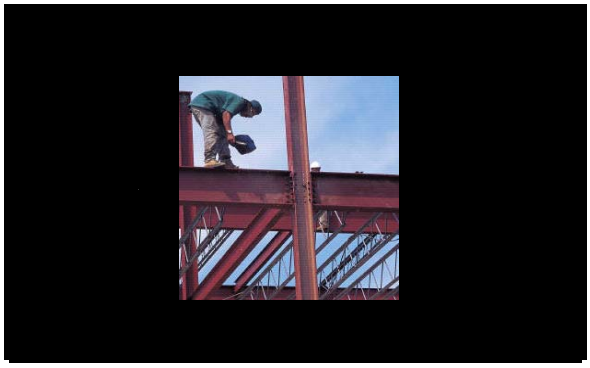


Figure 4-12. Result of Applying a 1:1 Mask to a 5:4 Masked Image

Resetting Masking Effects

- To restore the original image after masking it, use the following procedure:

  1. Select the input that displays the masked image, if it is not already displayed.
  2. On the **Input Menu**, select **Sizing Adjust**.
  3. Scroll to **Reset Mask** and press **SEL**.

     All masks are removed, including mask presets.

Adjusting Timing Parameters

The ImagePRO-II supports adjusting the positioning of the input signal's active area. There are two timing adjustment menus: **1:1 Timing Adjust** and **Edge Timing Adjust**.

The **1:1 Timing Adjust Submenu** displays the timing information of the input signal, shown in the following illustration. Timing parameters are adjustable only when:

- **1:1 Sample** is **On** *and*
- The input signal is **analog YP_bP_r** or **analog RGB**

Figure 4-13. 1:1 Timing Adjust Submenu (sample)

The options are:

- **Sample Phase** — Initially, the value is set to the default value of **0**. The range is **-16** to **+15**.

  If the **Sample Phase** is **n/a**, then either **1:1 Sample** is **Off**, or the input is not analog YP_bP_r or RGB.
- **H Total** — This value is the total pixel count per line. This value cannot be adjusted on the DVI-I or SDI connectors (Inputs **1** and **5**).
- **H Position** — Sets the offset of the start of the active area from H Sync.
- **H Active** — Sets the size of the active area.
- **V Total** — Displays the total line count per frame. This value cannot be changed for any input.
- **V Position** — Sets the offset of the start of the active area from V Sync.
- **V Active** — Sets the size of the active area.

When **1:1 Sample** is **Off**, the **Timing Adjust Submenu** changes to the **Edge Timing Adjust Submenu**. For more information, refer to the **Adjusting Edge Timings** section on this page.

Adjusting Edge Timings

When the **1:1 Sample** option is **Off**, the **Edge Timing Adjust Submenu** is available in place of the **Timing Adjust Submenu**.

Figure 4-14. Edge Timing Adjust Submenu (sample)

Using this menu, you can set the exact locations of the active video edges, when **1:1 Sample** is **Off**. For the right and left edges, the values are in pixels, and the position is relative to the start of H Sync. For the top and bottom edges, the values are in numbers of lines, relative to the start of V Sync.

Because **1:1 Sample** is off, the image is oversampled, and the image quality may be lower than when **1:1 Sample** is turned on.

Note

When making active area adjustments, turn on the **Output Raster Box**, and align the input image with all four edges of the box. To turn on the raster box, refer to the **Working with Test Patterns** section on page 70.

Setting Input Contrast and Brightness

From the **Input Menu**, select **Contrast** to change the contrast of the selected input. Select **Brightness** to change the brightness.

For both **Contrast** and **Brightness**, the adjustment range is in percentages, from **25%** to **150%**. The default setting for both parameters is **100%**. Use the **ADJUST** knob to scroll through the range, and press **SEL** to select a value.

Setting Input Color Balance

From the **Input Menu**, select **Color Balance** to change contrast, brightness, hue, and saturation values for the selected input. The **Input Color Balance Submenu** appears. The values for contrast, brightness, and saturation are in percentages. The values for hue are in degrees.

Figure 4-15. Input Color Balance Submenu

- As with the global **Contrast** and **Brightness** menus, you can adjust both contrast and brightness within a range of **25%** to **150%**. The default setting for both contrast and brightness is **100%**.
- **Hue** is measured in degrees. The range is **-90** to **+90** degrees. The default setting is **0**.
- **Saturation** is a percentage, ranging from **0%** to **150%**. The default setting is **100%**.
- **Reset All** restores all settings to their default values.

Adjusting Gamma

From the **Input Menu**, select **Gamma** to set the input gamma to match the gamma of the source. The adjustment range is from **1.0** to **3.0**, in 0.1 increments. The default value is **1.0**.

Processing Input Signals

From the **Input Menu**, select **Processing** to work with input signals in the following ways:

- *Deinterlace* a non-progressive signal for use on fixed-resolution displays.
  - ~ In **interlaced video**, even lines in a frame are scanned during one field and odd lines are scanned during the next field. This scanning method was used in analog television. *Deinterlacing* is the process of converting the two interlaced fields in a frame to one progressive frame.
  - ~ In **progressive video**, lines in the frame are scanned sequentially. This is the scanning method used for modern digital displays.
-
- Adjust 3D settings for inputs, in both single- and dual-stream formats.

The **Processing Submenu** is shown in the following illustration.

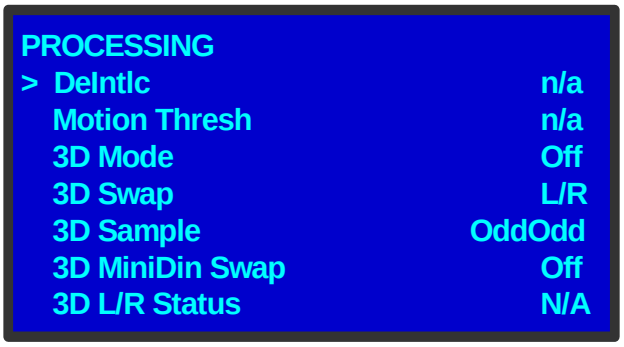


Figure 4-16. The Processing Submenu

The options on this submenu are:

- **DeIntlc** — Converts interlaced video to progressive format for processing.

  The ImagePRO-II utilizes an advanced **Motion Adaptive De-interlacing** (MAD) mode to deinterlace most video sources up to HDTV (1920 x 1080i) rates.

  An alternate mode, **Field to Frame** (Fld->Frm), avoids motion artifacts by converting individual input fields to progressive output frames. While vertical

resolution is reduced in this mode, video processing delay is also significantly reduced.

The following table shows the maximum delay for each mode, for both interlaced and progressive video.

Table 4-3. Maximum Video Processing Delay

	DeInterlace Mode	Video Processing Delay (Maximum)	
Synchronous Input/Output		**Interlaced**	**Progressive**
	Motion Adaptive	2 fields	1 field
	Field-to-Frame	1 field	1 field
Asynchronous Input/Output	Motion Adaptive	3 fields	2 fields
	Field-to-Frame	2 fields	2 fields

- **Motion Thresh** — If **DeIntlc** is selected, **Motion Thresh** adjusts the threshold of the motion adaptive de-interlacer. Because adjustment is rarely required, it is recommended that you leave the function at its default setting.
-

The last five options on this menu are available only when you have the 3D/Dual Channel mezzanine installed, and the system mode is set to **3D**. For information about these options, refer to “**Operating the ImagePRO-II in 3D Mode**” on page 114.

About Input Configurations

The ImagePRO-II supports saving up to 64 input configuration files in non-volatile memory, each of which is available to the five six physical inputs. Input configuration files contain settings that can govern everything from pixel resolution to aspect ratio and color balance — any setting you can view or change using the **Input Menu**.

By default, an input's configuration file number is the same as the number of the input — **Input 1** is assigned to configuration file number 1, and so on. You can set, delete, recall or save the configuration file for an input. You can associate any number of saved files to any number of inputs.

When you change the configuration file for an input, the timing in the new configuration file must match the input's timing. For example, if the input uses NTSC (720 x 480) timing, that input cannot use a configuration file with a WXGA (1280 X 768) resolution.

When you delete user-defined configuration files, those files are no longer available for use by any input.

For more information about using input configuration files, refer to the following sections:

- **Saving an Input Configuration**
- **Resetting an Input Configuration**
- **Recalling an Input Configuration**
- **Deleting an Input Configuration**

Saving an Input Configuration

After you use the **Input Menu** to change one or more input settings, you can save the changes by selecting **Save Config**. **Save Config** saves up to 64 input configurations in non-volatile memory. You can save the changes to the current configuration file for the selected input, or to a different file.

To save configuration settings, use the following procedure:

1. Select the input you wish to configure, and make adjustments.
2. From the **Input Menu**, select **Save Config**. The **Save Config As Submenu** appears. The cursor is at the **File1** field.

Figure 4-17. Save Config As Submenu

3. Press **SEL**. The navigation cursor changes to the edit cursor. A blank field for the first character becomes available and this field is marked by an underscore.

4. Use the **ADJUST** knob to scroll to the first character you want to use for the format name.

Note

Turning the **ADJUST** knob clockwise once moves to the next letter of the alphabet. If you start with an upper-case letter, as shown in the preceding illustration, then the next letter is also a capital letter. If you start with a lower-case letter, the next letter is a lower-case letter:

- F --> G
- f --> g

If you start with a number, the next character is a number.

Continuing to turn the **ADJUST** knob clockwise at the end of the upper-case alphabet displays a series of punctuation marks you can use in the format name.

Continuing to turn the knob clockwise at the end of the punctuation marks displays the lower-case alphabet in order.

When you reach the end of the lower-case alphabet, turn the **ADJUST** knob counter-clockwise to scroll back through the options in order.

5. Press **SEL**. The cursor moves to the next character field, which is now blank with an underscore.
6. Repeat the previous steps as many times as needed, pressing **SEL** for each character selection.

   A file name can consist of up to 19 alpha-numeric characters.
7. When you have selected all the characters, press **SEL** again to save the name. If you have never used this file name before, the **Config Saved** message appears on the menu, as shown in the following illustration.

Figure 4-18. Config Saved Message

If you have used this file name before, the ImagePRO-II displays the following prompt.

Figure 4-19. Overwrite File Message

If you have used all 64 input configurations, the following message appears.

Figure 4-20. Library Full Message

When you see this message, press **ESC** and go to the **Delete Config Submenu** to delete a different configuration file. Then save the new configuration.

Resetting an Input Configuration

From the **Input Menu**, select **Reset Config** to remove all user-defined configuration settings for the selected input, and restore the input's parameters from the system's internal library values.

When you select **Reset Config**, you are prompted to reset (**SEL**) or continue without resetting (**ESC**).

If the current input format was derived as a "best guess," those best-guess values are restored when you press **SEL**.

Note

Resetting configuration parameters does not change which configuration file is associated with the input — it simply assigns the reset parameters to the existing configuration file.

Recalling an Input Configuration

The **Recall Config Submenu** lets you assign a user-defined configuration to a selected input. The new configuration must match the current input's format and type.

Figure 4-21. Recall Config Submenu

- To recall a configuration for an input, use the following procedure:
  1. Select the input to which you want to assign a configuration.
  2. On the **Input Menu**, select **Recall Config**.
  3. With the navigation cursor pointing to the input file name, press **SEL**. The navigation cursor changes to the edit cursor and a list of files appears.

4. Use the **ADJUST** knob to scroll through the list to the file you wish to recall.

Note	The **Recall Config Submenu** displays only configurations that match the current input format and type.

5. Press **SEL** to select the file.
6. Scroll down to **Recall Config** and press **SEL** again.

Deleting an Input Configuration

From the **Input Menu**, select **Delete Config** to delete a configuration file that you previously saved.

Note	This function deletes a user-defined configuration file from the system. After you delete a configuration file, any inputs using that configuration are restored to their default formats.

The following illustration shows the **Delete Config Submenu**.

Figure 4-22. Delete Config Submenu

- To delete a user-defined input configuration, use the following procedure:
  1. From the **Input Menu**, select **Delete Config**.
  2. With the navigation cursor pointing to the input file name, press **SEL**. The navigation cursor changes to the edit cursor and a list of files appears.
  3. Scroll through the list to the file you wish to delete.
  4. Press **SEL** to select the file.
  5. Scroll down to **Delete Config** and press **SEL** again. A message appears, asking you to confirm the deletion.
  6. Press **SEL** to delete the configuration, or **ESC** to return to the **Delete Config Submenu**.

Configuring Outputs

The **Output Menu** enables you to configure the ImagePRO-II's outputs and save your settings if you wish. This section provides detailed information about setting up and using outputs. To quickly position and size video on an LED wall or monitor, refer to **Setting up an LED Wall** on page 101 of this chapter.

Output Menu Tree

The following figure illustrates the **Output Menu** tree.

Note

The **Area of Interest, Timing Adjust**, **Effects**, **Genlock**, **Save Config**, and **Reset Config** submenus include references to channels when the **3D/Dual Channel** mezzanine is installed and the system mode is set to **Dual2K**. For the sake of brevity, these references are not shown here.

Similarly, when the mezzanine is installed and the system mode is set to **3D**, the 3D output options shown on the following menu tree are available.

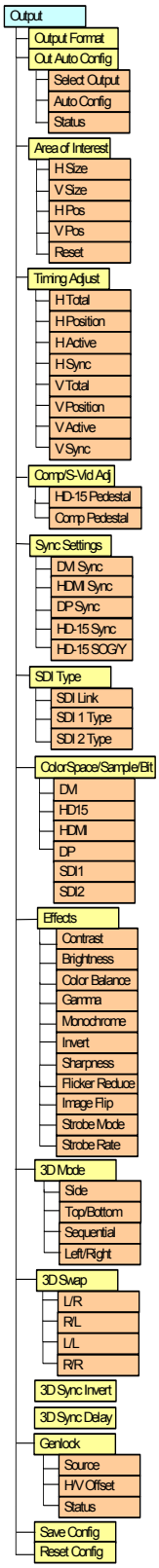


Figure 4-23. Output Menu Tree

Output Menu Functions and Submenus

All **Output Menu** functions and submenus are discussed in the following sections:

Setting the Output Format

The **Output Format** is the first setting on the **Output Menu.** This option sets the resolution and frame rate at which you drive your projector or display. With the 3D/Dual Channel mezzanine installed and **System Mode** set to **Dual2K**, the **Output Menu** includes this information for both channels, as shown in the following illustration.

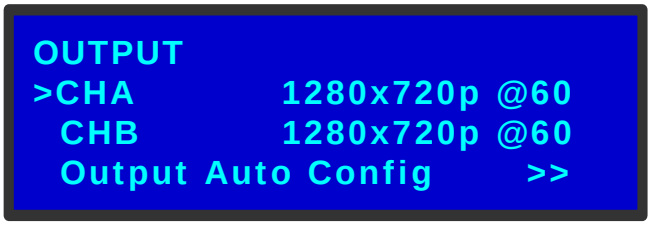


Figure 4-24. Output Menu in Dual-Channel Mode

When you change the output format, you also change the following settings:

- Output colorspace, based on the format you select
- Sync settings, based on the format you select
- Genlock and H/V offsets, which reset to **0**
- The default **Area of Interest**, which resets to match the output's active area. For more information, refer to the section Setting the Area of Interest on page 56.

■ To change the output format, use the following procedure:

1. On the **Output Menu**, scroll to the format field and press **SEL**.
2. Scroll to the format you want using the **ADJUST** knob, then press **SEL** again. The output is not updated until you press **SEL**.

   To minimize synchronization problems, select a frame rate that is consistent with your input sources.

   ▲ **Example**: If you are using 59.94 NTSC video inputs, running the output at the same rate reduces frame-rate conversion artifacts.

Using Output Auto Config

Extended Display Identification Data (**EDID**) is a data structure that an output display uses to describe itself to a video source. The EDID can include information such as the manufacturer's name, a serial number, product type, timings supported by the display, display size, and other data.

For devices connected to the ImagePRO-II, you can read the name of the digital display and the preferred video format that the display uses.

The **Output Auto Config Submenu** supports letting the output device on the DVI-D, HD-15, HDMI, or DisplayPort connector change the output format and the audio sample rate of the ImagePRO-II. As the format changes, the colorspace, sample rate and bit depth may also change. For details, refer to **Setting ColorSpace, Sample Rate, and Bit Depth** on page 63.

The following figure illustrates the **Output EDID Auto Config Submenu**.

Figure 4-25. Output EDID Auto Config Menu

On this menu:

- The **Select Output** line shows the connector from which to read EDID information. The default value is **DVI**.

Note	Only the **DVI-D**, **HD-15**, **HDMI**, and **DisplayPort** output connectors can read EDID information.

- **Auto Config** is a command to read the EDID information of the output device, determine the preferred resolution, and set the output format to that resolution. Selecting **Auto Config** changes the output format of the ImagePRO-II to the output device's preferred resolution.
- **Status** displays a submenu that tells whether the EDID information has been read. If it has been read, the submenu also displays the name, status, and preferred resolution of the display device.

Viewing Output EDID Information

- To view the EDID information of an output display, follow these steps:

1. On the **Output EDID Auto Config Menu**, select **Status**.

   The **Output EDID Status Menu** appears, as shown in the following illustration. On this menu, you can read the EDID information for an output you select.

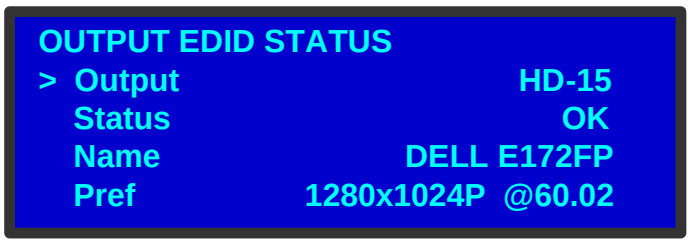


Figure 4-26. Output EDID Status Menu (sample)

2. Use **Output** to select an output to read (**DVI**, **HD-15**, **HDMI**, **DP**).

3. For the output connector you selected, the **Status** field indicates whether the connector has read the EDID information correctly. Possible status information includes:
   - ~ **n/a** — The EDID information is not available, possibly because no output device is connected.
   - ~ **Checksum Error** — The EDID information is corrupt.
   - ~ **OK** — The EDID information is valid.
4. If the ImagePRO-II reads the EDID information without error, the **Name** field displays the name by which this output is identified.

- The **Pref** field displays the preferred output format of the device on the connector. This is the format the ImagePRO-II uses for this device.

Setting the Area of Interest

The **Area of Interest** (AOI) is the portion of the output display that your video occupies. The ImagePRO-II's AOI feature lets you adjust the image to a particular portion of the display, while preserving the video timing and the image quality.

Note

If you use multiple output display devices, the Area of Interest you set applies to all of them.

In dual-channel mode, you can set a different Area of Interest for each channel. Any output mapped to the channel uses the selected Area of Interest.

The Area of Interest is a rectangle relative to the output timing. The default AOI exactly overlaps the output active area. For example:

If the output format is:

1920x1080i @ 60 Hz

the default AOI is **1920 pixels x 1080 lines**.

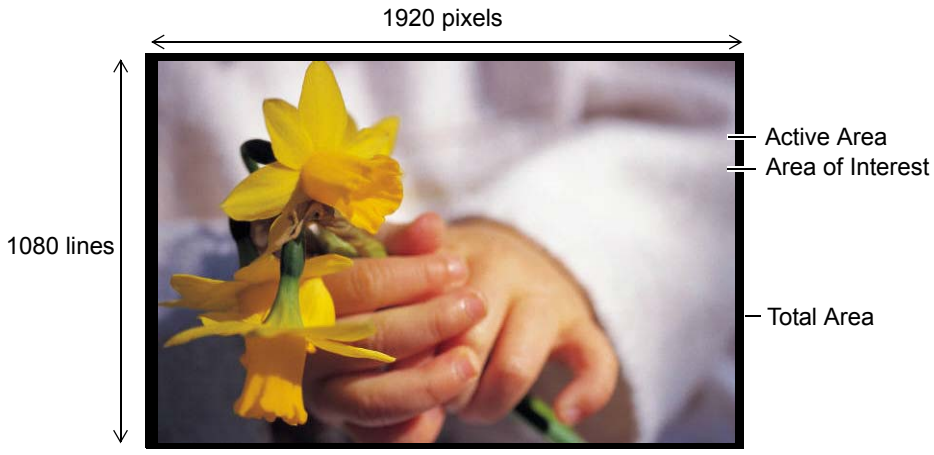


Figure 4-27. Default Area of Interest

The Area of Interest settings adjust the position of the image on your display device without affecting the output timing. In the following illustration, the active area has been adjusted from 1920x1080 to 850x1080.

Figure 4-28. Adjusted Area of Interest

To adjust the Area of Interest, you use four settings on the **Area of Interest Submenu**, shown in the following illustration. You can also restore the default AOI.

Figure 4-29. Area of Interest Submenu (sample)

In this menu, the following settings are available:

- **H Size** — Determines the width (in pixels) of the Area of Interest. This setting must be equal to or less than the **H Active** setting of the output timing. The following illustration shows an image after adjusting only the **H Size**.

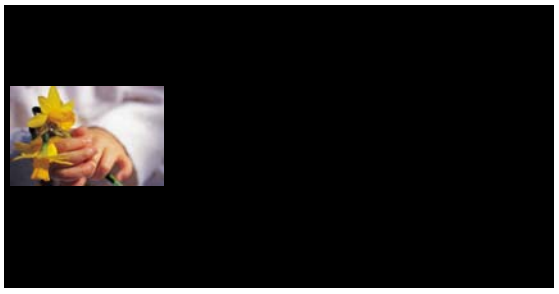


Figure 4-30. H Size Adjustment

- **V Size** — Determines the height (in lines) of the Area of Interest. This setting must be equal to or less than the **V Active** setting of the output timing. The following illustration shows an image after adjusting only the **V Size**.

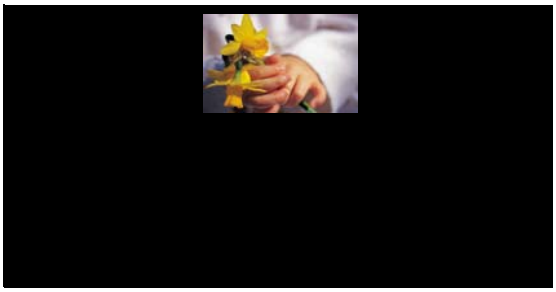


Figure 4-31. V Size Adjustment

- **H Pos** — Using **H Pos**, you can move the image horizontally. The default value is **0**, representing the left edge of the active area. Increasing the **H Pos** value moves the image to the right. Decreasing the **H Pos** value moves the image to the left. You can adjust **H Pos** only after adjusting **H Size**.

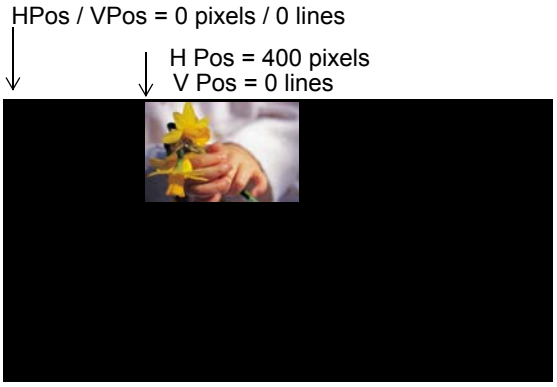


Figure 4-32. H Pos Adjustment from 0 to 400 pixels

- **V Pos** — After adjusting the **V Size**, you can move the image vertically within the output's active vertical limits.The default value is **0**, representing the upper edge of the active area. Increasing the **V Pos** value moves the image down. Decreasing the **V Pos** value moves the image up.

Figure 4-33. V Pos Adjustment from 0 to 200 lines

- To set or revert the output Area of Interest, use the following procedure:

1. From the **Output Menu**, select **Area of Interest**. The **Area of Interest Submenu** appears, showing default settings equal to the H and V actives of the output timing.

2. If you have the 3D/Dual Channel mezzanine installed, and the System Mode is set to Dual2K, select a channel to work with, or accept the default setting of **All**.
3. To change the horizontal size of the AOI, select **H Size** and turn the **ADJUST** knob counter-clockwise. Press **SEL** when the image is placed correctly.
4. To change the vertical size of the AOI, select **V Size** and turn the **ADJUST** knob counter-clockwise. Press **SEL** when the image is placed correctly.
5. To change the horizontal position of the AOI, select **H Pos** and turn the turn the **ADJUST** knob counter-clockwise. Press **SEL** when the image is placed correctly.
6. To change the vertical position of the AOI, select **V Pos** and turn the **ADJUST** knob counter-clockwise. Press **SEL** when the image is placed correctly.
7. If required, repeat steps 2 through 6 for the second channel.
8. To revert *all* your changes to their default settings, select **Reset**.

For information about setting an Area of Interest on a per-channel basis, refer to "**Setting the Area of Interest in Dual-Channel Mode**" on page 110.

Adjusting Output Timing

From the **Output Menu**, select **Timing Adjust** to display the **Output Timing Adjust Submenu**. On this submenu, shown in the following illustration, you can change the selected output's total, active and sync settings, and reposition video on the output.

Note	All but the most advanced users are advised to avoid changing the output timing values.

Figure 4-34. Output Timing Adjust Submenu (sample)

In dual-channel mode, the **Out Timing Adjust Submenu** includes a field for selecting the channel to work with.

In either mode, your settings:

- Do not result in cropping the image
- Do not change the image aspect ratio
- Must be within the range of timings supported by the output display, to avoid loss of signal
- Update the output Area of Interest

On this menu:

- **H Total** — Adjusts (in pixels) the total pixel count per line for the selected output.
- **H Position** — Adjusts (in pixels) the offset of the start of the output active area from H sync.
- **H Active** — Adjusts (in pixels) the horizontal size of the output active area.
- **H Sync** — Adjusts (in pixels) the H sync width.
- **V Total** — Adjusts (in lines) the total line count per frame.

- **V Position** — Adjusts (in lines) the offset of the start of the output active area from V sync.
- **V Active** — Adjusts (in lines) the vertical size of the output active area.
- **V Sync** — Adjusts (in lines) the V sync width.

Using Comp/S-Video Adjust

By selecting **Comp/S-Vid Adjust** from the **Output Menu,** you can adjust the output encoder, which produces composite and S-Video outputs. The following illustration shows the **Comp/S-Vid Adjust Submenu**.

Figure 4-35. The Comp/S-Video Adjust Submenu

On this menu, there are two options, **HD-15 Pedestal** and **Comp Pedestal**.These options enable or disable the 7.5 IRE pedestal on NTSC composite output. These options are not available for PAL video.

The Pedestal settings are either **On** or **Off**. The default setting is **On** for NTSC video.

Note	These options apply only to outputs that support composite and S-Video formats.

Setting Output Sync

The **Output Sync Settings Submenu** lets you specify the sync types for selected outputs. Access this menu by selecting **Sync Settings** from the **Output Menu**.

Figure 4-36. Output Sync Settings Submenu

- For **DVI Sync**, **HDMI Sync**, and **DP Sync,** the available options are:
  - ~ +H+V
  - ~ +H-V
  - ~ -H+V
  - ~ -H-V

  The default setting for **DVI Sync**, **HDMI Sync**, and **DP Sync** is **+H+V**.

- For **HD-15 Sync**, the available options are:
  - ~ CVBS / YC / SOG/Y / CSync
  - ~ +H+V
  - ~ +H-V
  - ~ -H+V
  - ~ -H-V

  The default setting for **HD-15 Sync** is **SOG/Y** for most formats. For NTSC and PAL, the default setting is **CSync** with equalizations on.
- For the **HD-15 SOG/Y** option, the options are:
  - ~ Standard
  - ~ Tri-level
  - ~ Not available (n/a), if HD-15 Sync is anything other than SOG/Y

Setting the SDI Type

The ImagePRO-II supports single-link SDI video, and can support dual-link SDI with the 3D/Dual Channel mezzanine installed. The system supports SD, HD, and 3G SDI (Levels A and B).

To view or change SDI settings, select **Output > SDI Type.** The **SDI Type Submenu**, shown in the following figure, appears.

Figure 4-37. SDI Type Submenu

On this menu:

- **SDI Link** displays the type of SDI link, either **Single** or **Dual**. **Dual** is only available as an option if the 3D/Dual Channel mezzanine is installed and the system mode is set to **Dual2K**.
- **SDI Type** settings include **SD**, **HD**, **3G Level A** or **3G Level B**. This field provides only those options that are compatible with the output format for the connector. For example, if the output format is 1080p@24, **SD** is not an available option. Similarly, the **3G Level A** and **3G Level B** options are only available if the output format supports updating from one level to another; otherwise, the available level is displayed.

  The **SDI 2 Type** line is only available as an option with the 3D/Dual Channel mezzanine installed.

Setting ColorSpace, Sample Rate, and Bit Depth

The ImagePRO-II supports setting the output colorspace, sample rate and bit depth. Within limits, you can modify these settings for some outputs.

From the **Output Menu**, select the **ColorSpace/Bit Depth** option. The following menu appears, showing valid options for each output type.

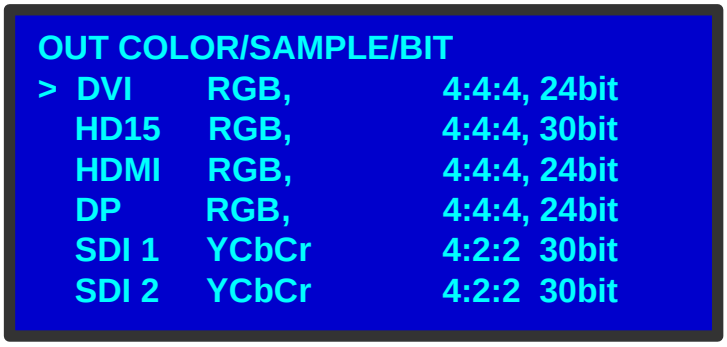


Figure 4-38. Output Color/Sample/Bit Menu

The options vary according to the output type:

- **DVI** — The option is:
  - ~ RGB, 4:4:4, 24 bit

  The preceding setting is also the default setting upon format change, or when the EDID information is invalid or not present.
- **HD-15** — The options are:
  - ~ RGB, 4:4:4, 30 bit
  - ~ YCbCr, 4:4:4, 30 bit

  The default settings upon format change or when EDID information is invalid or not present are:
  - ~ **Sync on G/Y:** YCbCr, 4:4:4, 30 bit
  - ~ **HV Sync** or **CSync:** RGB, 4:4:4, 30 bit
- **HDMI** — The available options are based on the output EDID information, and can include:
  - ~ RGB, 4:4:4, 24 bit
  - ~ RGB, 4:4:4, 30 bit
  - ~ RGB, 4:4:4, 36 bit
  - ~ YCbCr, 4:4:4, 24 bit
  - ~ YCbCr, 4:4:4, 30 bit
  - ~ YCbCr, 4:4:4, 36 bit

  The default setting upon format change is:
  - ~ RGB, 4:4:4, at a bit depth equal to the maximum supported, as given in the EDID information.

  The default setting when the EDID information is invalid or not present is:
  - ~ RGB, 4:4:4, 24 bits
- **DisplayPort** — The options are:

- ~ RGB, 4:4:4, 24 bit
- ~ RGB, 4:4:4, 30 bit
- ~ RGB, 4:4:4, 36 bit
- ~ YCbCr, 4:4:4, 24 bit
- ~ YCbCr, 4:4:4, 30 bit
- ~ YCbCr, 4:4:4, 36 bit

The default setting upon format change is:

- ~ RGB, 4:4:4, to the maximum bit depth supported, as given in the EDID information

The default setting if EDID information is invalid or not present is:

- ~ RGB, 4:4:4, 24 bit

The 36-bit rates may not be available if output timings are not compatible.

- **SDI 1** and **SDI 2** — **SDI 2** is only available when the dual-channel mezzanine is installed. The options are:
  - ~ YCbCr, 4:2:2, 30 bit
  - ~ RGB, 4:4:4, 30 bit
  - ~ YCbCr, 4:4:4, 30 bit
  - ~ RGB, 4:4:4, 36 bit
  - ~ YCbCr, 4:4:4, 36 bit

Setting Output Effects

The **Output Effects Submenu** sets properties of the output image, such as contrast and brightness, color balance, and sharpness. From the **Output Menu**, select **Effects** to access this menu.

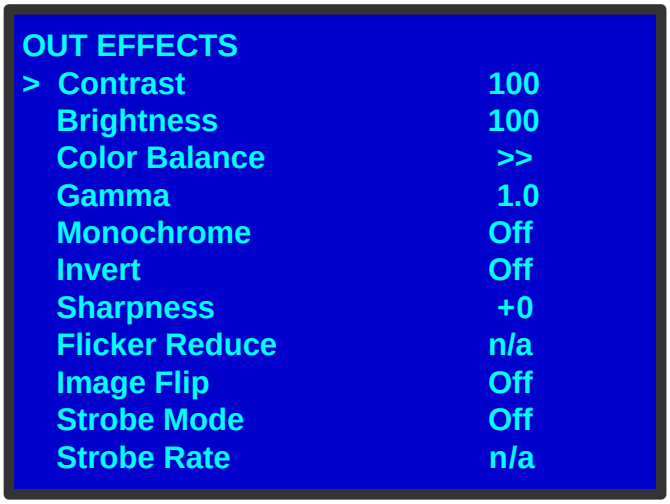


Figure 4-39. Output Effects Submenu

If the 3D/Dual Channel mezzanine is installed and the system mode is set to **Dual2K**, this menu includes the option to change these settings for each channel.

Figure 4-40. Output Effects Submenu in Dual-Channel Mode

In either mode, the options on this menu are:

- **Contrast** — For outputs, the **Contrast** adjustment range is **0%** to **200%**. The default setting is **100%**.
- **Brightness** — The **Brightness** adjustment range is **0%** to **200%**. The default setting is **100%**.
- **Color Balance** — The **Out Color Balance Submenu**, shown in the following illustration, lets you refine **RGB** values, plus the **Hue** and **Saturation** levels. You can also restore color balance default settings.

Figure 4-41. Output Color Balance Menu

  - ~ The RGB **Contrast** and **Brightness** settings are adjustable within a range of **0%** to **200%**. The default setting for all of these properties is **100%**.
  - ~ **Hue** is adjustable within a range of **-180** to **+180** degrees. The default setting is **0** degrees.
  - ~ **Saturation** is adjustable within a range of **0%** to **200%**. The default setting is **0%**.
  - ~ **Reset All** resets all custom values to their default settings.
- **Gamma** — This option is adjustable within a range of **0.3** to **3.0**. The default setting is **1.0**.
- **Monochrome** — This option sets the color values of the output display to shades of a single color, typically grayscale. Monochrome is either **On** or **Off**. The default setting is **Off**.

Figure 4-42. Full-Color Image and Monochrome Effect

- **Invert** — This option inverts the output image's color hues by 180 degrees. For example, on the color wheel, red and cyan hues are 180 degrees apart.

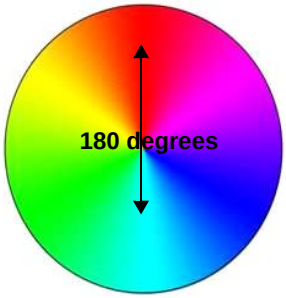


Figure 4-43. Red and Cyan Relationship on the Color Wheel

When you select **Invert**, the red and cyan hues are reversed, as shown in the following illustration.

Figure 4-44. Full-Color Image and Inverted Effect

If you invert a monochrome image, white becomes black, black becomes white, dark gray becomes light gray, and light gray becomes dark gray.

Figure 4-45. Monochrome Image and Inverted Effect

- **Sharpness** — This option sets the sharpness or softness of the output image. The range is from **-10** (softest) to **+10** (sharpest). The default value is **0**.
- **Flicker Reduce** — Flicker reduction is only available for interlaced video. This option can range from **+1** (minimum flicker reduction) to **+20** (maximum flicker reduction, or **Off** (no flicker reduction). The default setting is **12**.
- **Image Flip** — This option changes the position of the content within the active area. You can flip the image horizontally, vertically, or both. The following illustration shows an example of an image within an Area of Interest, flipped vertically.

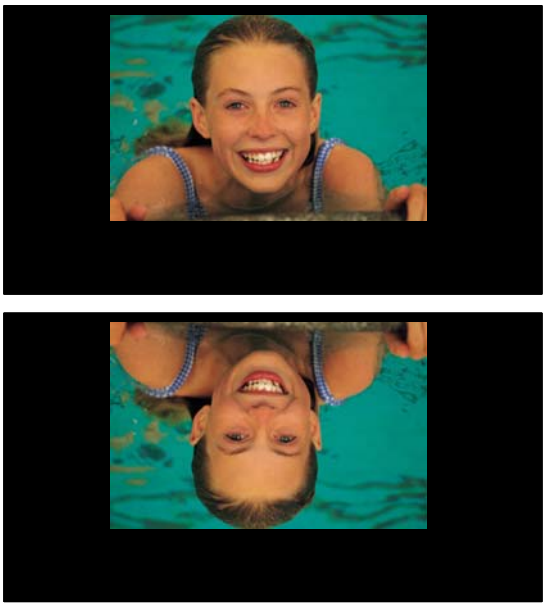


Figure 4-46. Image Flip — Vertical

The options are **H**, **V**, **H+V**, and **Off**. The default setting is **Off**.

- **Strobe Mode** — This option turns the strobe effect **On** or **Off**. The default setting is **Off**. If **Strobe Mode** is on, the timing of the strobe's flash effect is determined by the **Strobe Rate** setting.
- **Strobe Rate** — This option sets the timing of the strobe's flash, when **Strobe Mode** is on. The range of this rate is adjustable from **2** to **100** frames. The default setting is **2** frames.

About Genlock Settings

The **Genlock Submenu** tells the ImagePRO-II which signal to lock on, when you want to synchronize to a source signal. The following illustration shows the options on the **Genlock Submenu**.

Figure 4-47. Genlock Submenu

The **Genlock Submenu** options are:

- **Source** — This option selects the Genlock source from the following values: **Freerun**, **External**, or an **Input** button. External sync supports both NTSC/PAL blackburst and HD tri-level syncs.
- **H/V Offset** — This option sets the Horizontal and Vertical offsets separately. When you select this option, the **Genlock Offset Submenu** appears, and provides the following options:

- ~ **Channel** — If you have the 3D/Dual Channel option installed, you can select the channel to which these offsets will apply. If you are using the standard ImagePRO-II, this option is not available.
- ~ **H Offset** — Sets the horizontal offsets, in increments of +/- one-half ***line***, in pixels. The range depends on the output format.
- ~ **V Offset** — Sets the vertical offsets, in increments of +/- one-half ***frame***. The range depends on the output format.

- **Status** — The current status.

With the 3D/Dual Channel mezzanine installed and the system mode set to **Dual2K**, the **Genlock Submenu** also includes two lines for setting the Channel A and B source.

Figure 4-48. Genlock Submenu in Dual-Channel Mode

In this mode:

- **CHA Source** defaults to the selected input. It can also be set to **Freerun**, **Ext**(ernal), or any of the other inputs.
- **CHB Source** defaults to **Lock to A**. It can also be set to **Freerun**.

Saving an Output Configuration

To save the custom output configuration of the selected output, select **Save Config** from the **Output Menu**. The settings are saved in non-volatile memory, and the save persists across power cycles.

Note

Output settings revert to the last **saved** state when you power up the ImagePRO-II. If you do not save your settings, they are not restored.

With the 3D/Dual Channel mezzanine installed and the system mode set to **Dual2K**, the **Out Save Config Submenu** appears when you select **Save Config** from the **Output Menu**. **Out Save Config** supports saving your configuration files on a per-channel basis. The configuration is saved on every output mapped to the selected channel.

Figure 4-49. Out Save Config Submenu (sample)

Restoring Output Configuration Default Values

To remove user-defined configuration settings and restore the default values for the current output, select **Reset Config** from the **Output Menu**. If you select this command, custom configurations are not restored the next time you power up the ImagePRO-II.

With the 3D/Dual Channel mezzanine installed and the system mode set to **Dual2K**, the **Out Reset Config Submenu** appears. This submenu lets you restore the output configurations on a per-channel basis. Every output mapped to the selected channel is restored to its default settings.

Working with Test Patterns

As you configure outputs, you can set up test patterns. You can send one test pattern to all outputs simultaneously in Standard system mode.

Test patterns appear within the output's Area of Interest (AOI). If the output image uses the default AOI, the test pattern is displayed in the default active area. If you set up a custom AOI for the output, the test pattern appears within that AOI. For more information, refer to the **Setting the Area of Interest** on page 56.

You can also set up raster boxes for both the AOI and the output active area. The following illustration shows the **Test Pattern Menu** in the standard ImagePRO-II. Access this menu by pressing the front-panel **TEST PAT** button.

Figure 4-50. Test Pattern Menu

If you have the 3D/Dual Channel option installed, you can assign a test pattern to one or both channels; the test pattern appears on any output mapped to the channel. The following illustration shows the **Test Pattern Menu** in dual-channel mode.

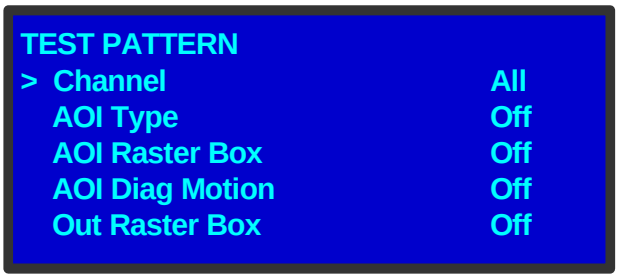


Figure 4-51. Test Pattern Menu in Dual-Channel Mode

Setting Up a Test Pattern in Standard System Mode

- To set up a test pattern on an output in Standard system mode, use the following procedure:

1. Press the **TEST PAT** button. The**Test Pattern Menu** appears, as shown in Figure 4-50 on page 70.

   In standard system mode, the first three options on this menu support setting up the test pattern in the default active area and creating an optional raster box around it. The fourth choice, **AOI Raster Box**, lets you display a raster around the Area of Interest, when that area differs from the default active area.

2. To turn on a test pattern, select **Type**. The choices for this option are:

~ Off (default)	Burst
~ H Ramp	50% Gray
~ V Ramp	Gray Steps 1
~ 100% Color Bars	Gray Steps 2
~ 75% Color Bars	White
~ 16x16 Grid	Black
~ 32x32 Grid	SMPTE Bars

3. Scroll through the list to find the pattern you want, then press **SEL**.
4. **Raster Box** turns on a raster around the default active area. This raster box is a white, single-pixel-wide broken line. **Raster Box** is either **On** or **Off**.
5. Turn **Diag Motion** on or off to create motion for select patterns.
   - ~ The motion is a **bottom-right to top-left diagonal** for 16x16 Grid, 32x32 Grid, Burst, 75% Color Bars, and Gray Steps 1.
   - ~ The motion is **right to left** for 100% Color Bars.
   - ~ The motion is **bottom to top** for Gray Steps 2.
   - ~ There is **no motion** in H Ramp, V Ramp, or Black patterns.
   - ~ The motion is a **strobing effect** for White and 50% Gray.
6. If your Area of Interest is smaller than the output active area, you can select **AOI Raster Box** to create a raster around the AOI. This raster is a green, 1-pixel-wide broken line that helps you to position the AOI within the output's active area. **Out Raster Box** is either **On** or **Off**.

Setting Up Test Patterns in Dual-Channel Mode

- To set up a test pattern in dual-channel mode, use the following procedure:

1. Press the **TEST PAT** button. The **Test Pattern Menu** appears, as shown in Figure 4-51 on page 70. In dual-channel mode, this menu includes a field for selecting the channel you want to work with.
2. Select the channel to which you want to output the test pattern. The options are **A**, **B**, and **All**.

   If you select **All**, all your settings apply to both channels.
3. Select the type of test pattern to display in the output AOI.
4. Change any of the other settings as described in **Setting Up a Test Pattern in Standard System Mode** on page 71 of this chapter.

5. If you selected **A** or **B**, and you want to set up a test pattern on the second channel, scroll back up to **Channel** and select the channel.
6. Change any of the settings you wish to change.
7. Press **ESC** to return to the **Status Menu**.

If you select **All** in the **Channel** field, some fields in the **Test Pattern Menu** may be preceded by an asterisk. The asterisks indicate that there are different settings on each channel. Adjust any asterisked settings so that all of the settings apply to both channels.

To keep separate settings for each channel, select each channel in turn and set up individual test patterns, raster boxes and diagonal motion settings.

Acquiring an Input Signal

The ImagePRO-II uses the **In Auto Acquire** function on the **Setup Menu** to acquire the input signal automatically. **In Auto Acquire** can be either **On** or **Off**. The default setting is **On**.

When **In Auto Acquire** is **On**, the system performs a full sync acquisition on the input signal whenever:

- You select an input
- The input type changes
- The sync rate of the input signal changes

During acquisition, the system detects and acquires the input type and resolution. Menu selections are limited to those applicable to the detected type.

When **In Auto Acquire** is off, the system uses the last known configuration for each input, when possible. If the input signal is incompatible with the saved configuration, a good input lock may not be possible. In this case, the format name field in the **Status Menu** displays the **Invalid Signal** message.

Note

Most users can leave **In Auto Acquire** on. Advanced users who know the input video timing parameters may choose to turn **In Auto Acquire** off and select the parameters manually.

Please note the following important points regarding **In Auto Acquire**:

- It is recommended that you turn **Off** **In Auto Acquire** in applications where you have already configured and saved the system's input setup.
- If **In Auto Acquire** is **On** and a valid input is selected that does *not* have a saved input configuration file associated with it, the system attempts to detect and acquire the source. This process *may* take a few moments.
- If **In Auto Acquire** is **Off** the system uses the last-known configuration for each input, to the extent possible, comparing the input's timing to the configurations in the system's library. These configurations can be custom files or system default configurations.
  - ~ If the input timing matches a configuration file, either the timing or the configuration file name appears in the **Status Menu**, and the system displays the image.
  - ~ If the timings do not match, the **Invalid Signal** message appears in the **Status Menu**.

Creating Custom Formats

To access the **Custom Formats Menu**, select **Custom Formats** from the **Setup Menu**. Using the **Custom Formats Menu**, you can create custom video formats from existing formats. When you save a custom or edited format, the ImagePRO-II stores it in a library. During auto-acquisition (i.e., when **In Auto Acquire** is **On**), the system searches this library before it searches the standard system library.

All saved formats are available for any input, and are also available as output formats. To use a saved format, the format must be consistent with the input or output connection you select. You can save up to 32 custom formats.

This section covers the following topics:

Custom Formats Menu Tree

The following figure shows the **Custom Formats Menu** options.

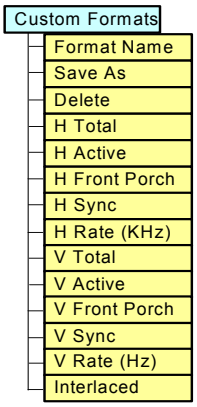


Figure 4-52. Custom Formats Menu Tree

Custom Formats Menu Functions and Submenus

This section covers the following **Custom Formats Menu** topics:

Selecting a Custom Format

The second line of the **Custom Formats Menu** allows you to select a format for editing. When you select this line, you can scroll to any user-defined format or any standard system format, excluding TV standard formats.

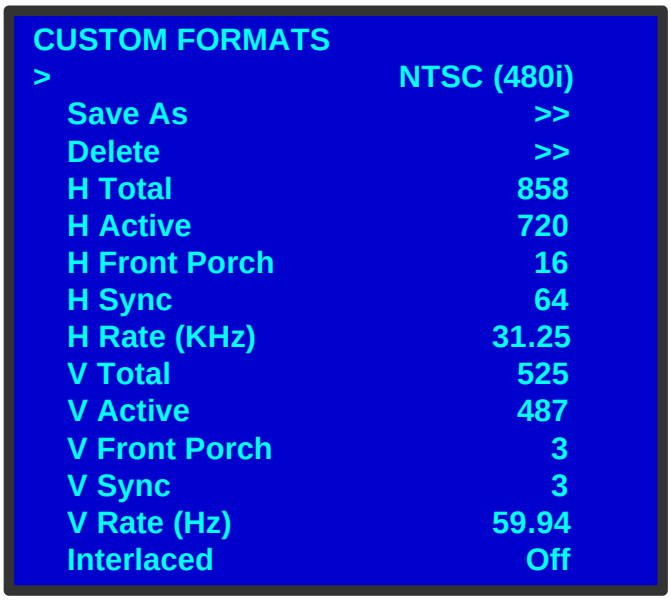


Figure 4-53. Custom Formats Menu

To select a format, use the **ADJUST** knob to scroll through the list. Then press **SEL**.

Creating or Editing a Format

- To create or edit an input or output format, use the following procedure:

1. With the navigation cursor on the second line of the **Custom Formats Menu**, press **SEL**. The navigation cursor changes to an edit cursor.
2. Scroll through the list to the format you want to edit. Press **SEL** again. The format is displayed on the screen and the navigation cursor reappears at the left.
3. Scroll to the first value you want to set. The options are:

H Total	V Active
H Active	V Front Porch
H Front Porch	V Sync
H Sync	V Rate (Hz)
V Total	Interlaced

Note

H Rate (KHz) is displayed for informational purposes. It is not adjustable.

Horizontal values are measured in pixels. **Vertical** values are measured in lines.

The range for any single Horizontal or Vertical value is determined in part by the values of the other parameters. Changing one value does not change the other values, but it limits the available range for other values.

For both Horizontal and Vertical values:

Total = Front Porch + **Sync Width** + **Back Porch** + **Active**

The **Interlaced** option is either **On** or **Off**. When **Interlaced** is **On**, the **V Total** value is forced to an odd number.

When you press **SEL** to select an option in this list, the navigation cursor changes to an edit cursor.

4. Turn the **ADJUST** knob clockwise to increase the value for your option, or counter-clockwise to decrease the value. When you see the value you want, press **SEL**.
5. Repeat the previous two steps for the next value you want to change.

Note

You must save the format in order to ensure that it is available to the system. If you change format values but fail to save the changes, your custom or edited format will not be stored. Refer to the **Saving a Custom Format** section on this page for more information.

Saving a Custom Format

- To save a custom format, use the following procedure:

1. After you have created a custom format, scroll to **Save As** and press **SEL**. The **Save Format As Submenu** appears.

Figure 4-54. Save Format As Submenu

2. With the navigation cursor at the format name field, press **SEL**.

   The navigation cursor changes to the edit cursor, and the first character field is blank with an underscore.
3. Use the **ADJUST** knob to scroll to the first character you want to use for the format name, and press **SEL**. The cursor moves to the next character field, which is now blank with an underscore.
4. Continue until you have selected all the characters. Your format name can have up to 19 characters. Press **SEL** after making your final selection.
5. Press **SEL** again to exit the edit mode. The navigation cursor returns and your format name appears in the display screen.
6. Scroll to **Save** and press **SEL**.

   If your format name has never been used before, the **Format Saved** message appears.

Figure 4-55. Format Saved Message

If the format library is full, the following message appears. Press **ESC**, then decide if you want to delete one of the existing formats to make room in the library.

Figure 4-56. Library Full Message

If you save a new format with a name reserved for a system format, the following message is displayed:

Figure 4-57. Reserved Name Message

In this case, re-edit the format name and save it again.

If you save a format name that is already in your custom library, the following prompt appears:

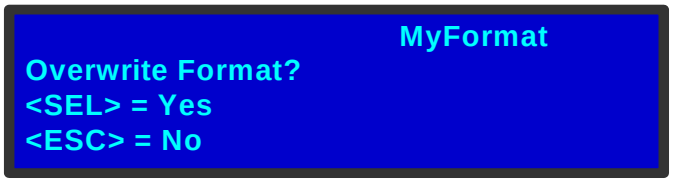


Figure 4-58. Overwrite Format Message

Press **SEL** to save your custom format with the same name. This action overwrites any settings in the original format. Press **ESC** to cancel the save operation.

Deleting a Custom Format

You can delete any custom format from your format library. You cannot delete a system format.

Note

Be sure the format is not in use before you attempt to delete it. You cannot delete a format if it is:

- The current output format, or the output format saved in the current output configuration
- The format used by any of the current inputs, or the input format saved in any input configuration

- To delete a custom format, use the following procedure:

1. On the **Formats Submenu**, scroll to **Delete** and press **SEL**. The **Delete Format Submenu** appears:

Figure 4-59. Delete Format Submenu

2. At the format name line, press **SEL**, and scroll to the file name you want to delete. Press **SEL** again.
3. Scroll down to **Delete** and press **SEL**. A prompt appears, asking you to confirm the deletion.

Figure 4-60. Delete Format Query

4. Press **SEL** to continue with the deletion. Press **ESC** to cancel the deletion.

   If you attempt to delete a format that is in use, the following message appears.

Figure 4-61. 'Delete Format Fail' Message

   If you see this message, and you still want to delete the format, assign a different format to any inputs or outputs using this format, then try again.

Creating and Saving Views

A *view* is a combination of the pan and zoom settings on an input. The **Views Menu** lets you name and store up to 16 custom views, along with the **Default** view. The **Default** view displays the image at **100%** zoom and **0%** pan, filling the screen.

The **Views Menu** works in conjunction with the **PAN/ZOOM** function. To begin creating a view, you first use the **PAN/ZOOM** button to create the settings for the view. For example, you can define a view that maps the entire input image to the center of the output display, or a view that fills the screen with an enlargement of one portion of the image. If you save the view to the current input, the save persists across power cycles for this input only.

You can then switch to the **Views Menu** to save the view in non-volatile memory for use by other inputs. You can later recall any saved view and assign it to any input. And you can delete any user-defined view.

Both the **PAN/ZOOM** button and the **Views Menu** provide the ability to save and recall a view. However, only the **Views Menu** enables you to assign a system name to a view as you save it, to delete a view, and to make the view available to multiple inputs. The sections that follow discuss both menus.

When you have the 3D/Dual Channel option installed, you can make a view available to the inputs on one or both channels. This view can later be recalled and saved to any input on the designated channel or channels. For more information, refer to **Creating a View in Dual-Channel Mode** on page 111.

Creating a View

To create a view, use the **PAN/ZOOM** button on the ImagePRO-II's front panel. Press this button to display the **Zoom/Pan Submenu**, shown in the following figure.

Figure 4-62. The **Zoom/Pan Submenu** (sample)

On this menu, you can set pan and zoom values in either pixels or percentages. The menu options are:

- **Zoom H** and **Zoom V** define horizontal or vertical zoom settings individually.
- **Zoom H/V** adjusts both horizontal and vertical zoom settings at the same time. Both settings change in increments of 0.1.
- **Pan H** and **Pan V** adjust horizontal and vertical pan settings individually. You can adjust **Pan** settings only after adjusting **Zoom** settings.

- **Units** defines the units you are using. The options are **Pixel** and **Percent**.
- **Fill H/V** adjusts the image to fill the display both horizontally and vertically.
- **Save View** saves the current input's view settings. For more information, refer to **Saving a View to an Input** on page 79.
- **Recall View** recalls a saved view to the current input. For details, refer to **Recalling an Input's Saved View** on page 79.
- **Reset** sets all view settings for the current input to their default values. If you have saved a view for this input, that view remains in memory after you reset, and can be recalled again later.

For information about using this feature when you have the 3D/Dual Channel option installed, refer to **Creating a View in Dual-Channel Mode** on page 111 of this chapter.

Saving a View to an Input

On the **Zoom/Pan Submenu**, the **Save View** option saves your view to the current input only. You can save one view for an input. The save persists across power cycles for this input.

If you save the view using this menu, you will not be able to recall it later for use on other inputs. Nor does this option permit naming the view.

To save a view to the selected input, use the following procedure:

1. Create the view settings as described in **Creating a View** on page 78. Press **SEL** after each setting you adjust.
2. When you finish adjusting settings, press **SEL**.
3. Scroll to **Save View**, and press **SEL** again.

   A confirmation message appears, and your view is applied to the selected input.

When you have adjusted the pan and zoom settings for the current input, you have the option of saving this view to the system. To name and save a view for future recall, refer to **Saving a View to the System** on page 80.

Recalling an Input's Saved View

To recall a view you saved to a specific input, use the following procedure:

1. Select the input and press **PAN/ZOOM**.
2. On the **Zoom/Pan Submenu**, select **Recall View**.

   The image adjusts to the saved view settings.

Note

Using **Recall View** on the **Zoom/Pan Submenu**, you can only recall the single view you saved to the input. If you wish to apply a view that you saved to the system, refer to **Recalling a System View** on page 81.

Resetting an Input's Default View

To restore the default view on an input, select **Reset** on the **Zoom/Pan Submenu**.

Saving a View to the System

If you want to save a view you created and make it available to other inputs, you can save it to the system, using the **View Menu**.

- After you create pan and zoom settings for a view, use the following procedure to name the view and save it. For information about pan and zoom settings, refer to Creating a View on page 78.

Note

This procedure saves the view settings, under the name you select. **It does not assign this view to an input.** To assign a system view to an input, refer to the section Recalling a System View on page 81.

1. After creating your view with the **PAN/ZOOM** button, return to the **Setup Menu** and select **Views**. You do not need to save the view in the **Zoom/Pan Submenu** first.

   The **View Submenu** appears, as shown in the following illustration.

Figure 4-63. View Submenu

2. Select **Save**. The **Save View Submenu** appears.

Figure 4-64. Save View Submenu (sample)

3. Select **View** to choose a name for your view. You can choose from a list of 16 preset names by turning the **ADJUST** knob. Then press **SEL**.
4. Scroll to **Save** and press **SEL** again. Your view settings are saved, and a confirmation message appears.

Figure 4-65. View Saved Message

Recalling a System View

The **Recall View Submenu** lets you apply a saved system view to the selected input. You can recall any previously saved system view.

Note

Recalling *applies* the selected view to the input, but does not *save* the view to the input. To save the view across power cycles, refer to **Saving a View to an Input** on page 79.

- Use the following procedure to apply a view to the current input:

1. Select the input to which you want to assign a view.
2. On the **Views Menu**, select **Recall**. The **Recall View Submenu** appears.

Figure 4-66. Recall View Submenu (sample)

3. At the **View** field, press **SEL**. Scroll to the name of the view that you want to apply to the selected input. Press **SEL** again.
4. Scroll to **Recall** and press **SEL**. The view is assigned to the selected input. This view will be used for this input until you change it or power down the system. When you power down the system, the input's settings return to their previous values.

Deleting a View from the System

You can delete any custom views from the system. When you delete a view, you return the system default settings to the named view. You cannot delete the system name for a view. You cannot delete the default view for an input.

- Use the following procedure to delete a view from the system:

1. Select **Views** from the **Setup Menu**.
2. On the **Views Menu**, select **Delete**. The **Delete View Submenu** appears.

Figure 4-67. Delete View Submenu (sample)

3. Select **View**.
4. Select the name of the view that you want to delete.
5. Scroll to **Delete** and press **SEL**.

A confirmation message appears. The custom settings assigned to the view are deleted, and the view is restored to its default values. The preset name of the view remains in the system.

About Transition Effects

The ImagePRO-II supports three transition effects that occur when you switch between inputs:

- **Black Fade** — The selected input's video fades to black, then the video transitions to a new input, in a pre-selected timeframe.
- **Image Cut** — The selected input's video freezes, then the new input's video is acquired and cuts to the output display.
- **Logo** — This option is only available when the ImagePRO-II has a stored logo image. The selected input's video dissolves to the logo image, then the new input's video dissolves in from the logo, in a pre-selected timeframe.

  For information about capturing a logo, refer to **Using a Logo or Internal Black** on page 96.

For the **Black Fade** and **Logo** modes, you can set the transition time within a range of **1.0** to **5.0** seconds.

These timings apply only when **In Auto Acquire** is turned **Off**. With **In Auto Acquire** turned **On**, the transition time is slightly greater because of the time required to analyze the input video timing.

The following figure shows the transition from a video to a logo still frame.

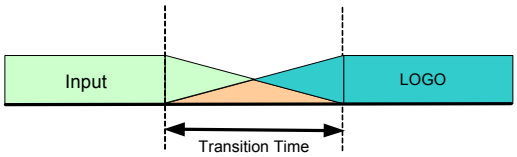


Figure 4-68. Transitioning to a Logo

The following figure shows the transition from one video through a logo to a second video.

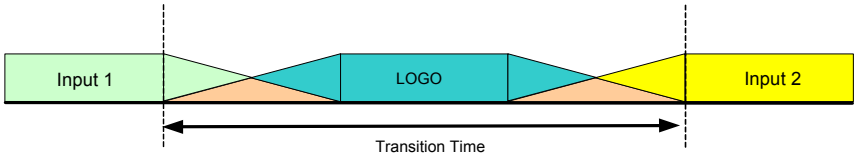


Figure 4-69. Transitioning through a Logo to a Second Input

There are two options on the **Transition Menu**, as shown in the following figure. The first sets the transition *type*, and the second sets the *timing* of the transition for **Black Fade** and **Logo** transitions.

Figure 4-70. Transition Menu

Setting Transitions

- To set the transition type and timing, use the following procedure:

  1. Select the input you want to transition *from*.
  2. From the **Setup Menu**, select **Transition**. The **Transition Menu** appears.
  3. Set the transition mode by selecting **Trans With,** and scrolling to the type you want. Press **SEL**.

     If you selected **Black Fade** or **Logo**, you can now set the transition time. If you selected **Image Cut**, you are finished.
  4. For the **Black Fade** and **Logo** modes, scroll to **Trans Time** and press **SEL**.
  5. Select a new transition time and press **SEL** again.

     Your settings are saved for this input.

Using the System Menu

The **System Menu** enables you to configure certain system-wide settings for the ImagePRO-II. To access the menu, select **System** from the **Setup Menu**.

The following topics are discussed in this section:

The System Menu Tree

The following figure illustrates the **System Menu** tree.

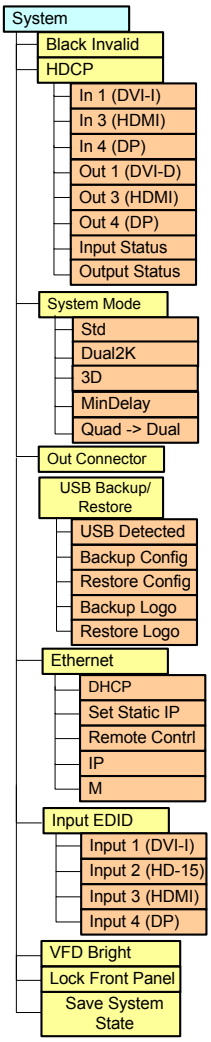


Figure 4-71. System Menu Tree

System Menu Functions and Submenus

System Menu functions allow you to view and change settings such as HDCP status, input EDID information, and Ethernet options, and save your changes. You can also save configurations and formats to a flash drive, and restore them from the drive later.

This section includes the following topics:

Setting Black Invalid

The **Black Invalid** system setting determines whether the output is black when connected to a signal it cannot process. **Black Invalid** is either **On** or **Off**. The default setting is **On**. This is a global setting, applicable to all outputs.

A Word About HDCP

The ImagePRO-II supports **High-Bandwidth Digital Content Protection** (HDCP), an industry-wide content protection system designed to prevent illegal copying of digital audio and video content across interfaces such as DisplayPort (DP), High-Definition Multimedia Interface (HDMI), and Digital Visual Interface (DVI). HDCP prevents the display of encrypted content on devices that do not support content protection.

The HDCP format was designed by Intel® Corporation, and it uses an “authentication and key exchange” procedure to accomplish the required protection. For proper implementation, products that are compatible with the HDCP format require a secure connection to a compliant display, such as a projector or monitor.

When an HDCP-compliant display is connected to the ImagePRO-II, an HDCP “session” is created. In this session (which is transparent to the user), “keys” are exchanged between the source device (e.g., a Blu-Ray player) and the HDCP-compliant display. The source device queries the display to ensure that the equipment is HDCP compliant before video is displayed. Non-HDCP equipment such as a PC will work with any DVI-compliant display, but HDCP-compliant equipment shows protected content only on HDCP-compliant displays.

With the HDCP option enabled, the ImagePRO-II accepts encrypted content from an external source, decrypts the signal for internal processing such as scaling or color balance, then re-encrypts the output video for display. During this process, all ImagePRO-II output connectors that are not HDCP-compliant are turned off.

This feature is available on the ImagePRO-II’s **DVI**, **HDMI**, and **DP** input and output connections.

Please note the following important points:

- You can turn the HDCP option on or off. If the option is turned off and the signal is encrypted, the ImagePRO-II does not send the signal to the output device.
- When an HDCP-compliant device is connected to the ImagePRO-II and the input for that device is selected, the **Status Menu** indicates whether HDCP is enabled.

Setting HDCP Capability

The **HDCP Submenu**, shown in the following illustration, lets you set HDCP capability for inputs, or read the HDCP status of selected inputs and outputs.

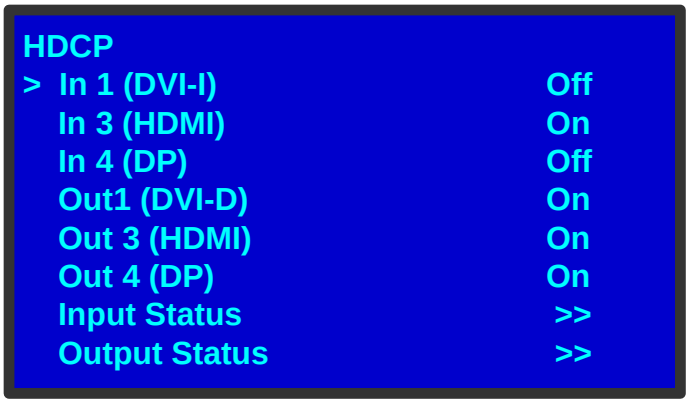


Figure 4-72. HDCP Submenu

The HDCP setting is either **On** or **Off**. You can set this capability for the following inputs and outputs:

- **Input 1** (DVI-I) — The default setting is **Off**.
- **Input 3** (HDMI) — The default setting is **On**.
- **Input 4** (DisplayPort) — The default setting is **Off**.
- **Output 1** (DVI-D) — The default setting is **On**.
- **Output 3** (HDMI) — The default setting is **On**.
- **Output 4** (DisplayPort) — The default setting is **On**.

To turn HDCP capability on or off, use the following procedure:

1. On the **Setup Menu**, select **System**.
2. On the **System Menu**, select **HDCP**. The **HDCP Submenu** appears.
3. Select an input or output and turn the **ADJUST** knob once. Then press **SEL**.

Viewing Input HDCP Status

The **Input Status** option in the **HDCP Submenu** indicates whether protected content is being read in by each of the three HDCP-capable inputs.

Figure 4-73. Input HDCP Status Menu

When you first power up the ImagePRO-II, this menu displays the default values for each of the three inputs, as shown in the preceding illustration.

You cannot change the HDCP status of an input using this menu. To change the status, return to the **HDCP Submenu** and select the input.

Viewing Output HDCP Status

The **Out HDCP Status Submenu**, shown in the following illustration, lists the status for each of the three HDCP-capable outputs.

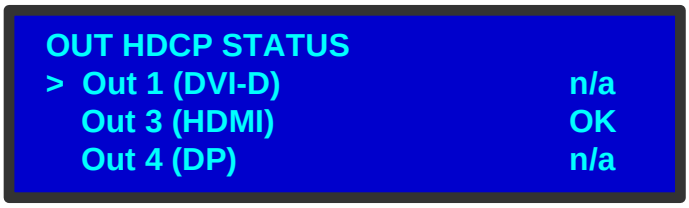


Figure 4-74. Output HDCP Status Menu

The status indicates whether the output connector successfully authenticated the signal:

- **OK** means that a signal has been detected and HDCP authentication was successful.
- **n/a** means that either there is no device connected, or HDCP authentication has failed.

If authentication fails, an error message appears in the status display.

You cannot change the HDCP status of an output using this menu. To change the status, return to the **HDCP Submenu** and select the output.

About System Modes

System Mode can be set to one of the following options:

- **Std** (Standard) is the default setting. In this mode, video from one input source is output to one or more displays in a single output format.
- **Dual 2K.** In this mode, the input signal is split into two channels. Each channel can have its own output format. Every connector mapped to a channel receives the video for that channel. For more information, refer to “**Operating the ImagePRO-II in Dual-Channel Mode”** on page 106.
- **3D**. In this mode, the output is an S3D-compatible format, whether the input is standard 2D or 3D video. When in 3D mode, any input can process 3D video, except the analog input. For more information about 3D mode, refer to “**Operating the ImagePRO-II in 3D Mode**” on page 114.

- **MinDelay**. In this mode, the output format is automatically mapped to the input format and locked for minimal delay. This mode is useful when you want to convert a 3G Level B input to a 3G Level A output or vice versa.
- **Quad to Dual.** This mode combines the input from two ImagePRO-II units to drive a 4K projector. For more information about the Quad to Dual mode, refer to **Operating the ImagePRO-II in Quad to Dual Mode** on page 119.

Using a USB Device

The front panel of the ImagePRO-II contains a USB port that you can use to connect a flash drive to the ImagePRO-II.

Note	The flash drive must be formatted to use the FAT32 file system. For formatting instructions, refer to **Formatting the Flash Drive** on page 208 of Appendix C.

The following illustration shows the **USB Backup/Restore Submenu**, which you access from the **System Menu**.

Figure 4-75. USB Submenu

Using this menu, you can:

- Detect the presence of a USB device.
- Back up and restore ImagePRO-II configuration files. When you connect a flash drive to the ImagePRO-II, the ImagePRO-II creates a directory titled **ImagePRO2Backup** on the drive. All logo images and configuration files are saved to this directory.
- Back up and restore a logo image. With the 3D/Dual Channel mezzanine installed and the system mode set to Dual2K, you can back up and restore the logo assigned to either channel.

Backing Up Configuration Files

- To back up a configuration file to a flash drive, use the following procedure:

1. Insert a formatted flash drive in the ImagePRO-II's front-panel USB port.
2. From the **System Menu**, scroll to the **USB Backup/Restore Submenu**. Select **Backup Config**.

   The **USB Backup Config Submenu** appears, as shown in the following illustration. The navigation cursor appears at the default name for the first backup file.

Figure 4-76. USB Backup Config Submenu

3. If you wish to change the default name of the backup configuration, press **SEL**. Use the **ADJUST** knob to change the name, as described in **Saving an Input Configuration** on page 48. Press **SEL** again when you complete the name change.
4. Scroll to **Backup Config** and press **SEL**.

   A confirmation message appears when the backup is complete.

   If the backup operation fails, the message shown in the following illustration appears. Check that the flash drive is properly formatted and installed, and try again.

Figure 4-77. Backup Failed Message

Restoring Configuration Files

- To restore a system configuration file that is stored on a flash drive, use the following procedure.

1. Insert the flash drive in the ImagePRO-II's front-panel USB port.
2. From the **System Menu**, select the **USB Backup/Restore Submenu**.
3. Select **Restore Config**. The **USB Restore Config Submenu** appears, as shown in the following illustration.

Figure 4-78. USB Restore Config Submenu

4. Press **SEL** and scroll through the list of configuration files. When you locate the file you want, press **SEL** again.
5. Scroll to **Restore Config** and press **SEL**.

A message confirms the restore operation and instructs you to reboot the ImagePRO-II.

Note	You must reboot the ImagePRO-II to use the restored configuration file.

Backing Up Logo Files

After you capture and save a logo image, you can back it up to a flash drive. With the 3D/Dual Channel mezzanine installed and the system mode set to **Dual2K**, you can back up the image on either channel.

- To back up a logo to a flash drive in standard system mode, use the following procedure:

1. On the **System Menu**, select **USB**. The **USB Backup/Restore Submenu** appears.
2. Select **Backup Logo**. The **USB Backup Logo Submenu** appears, as shown in the following illustration. The navigation cursor is at the default logo filename.

Figure 4-79. USB Backup Logo Submenu

3. If you wish to change the name of the backup logo, press **SEL**. Use the **ADJUST** knob to change the name, as described in **Saving a Custom Format** on page 75. Press **SEL** again when you complete the name change.
4. Scroll to **Backup Logo** and press **SEL**.

   A message confirms the success of the backup operation.

   For information about backing up a logo in dual-channel mode, refer to “**Backing Up a Logo in Dual-Channel Mode**” on page 111.

Restoring Logo Files

- To restore a logo file that is stored on a flash drive, use the following procedurein standard system mode:

1. Insert the flash drive in the ImagePRO-II’s front-panel USB port.
2. From the **System Menu**, select the **USB Backup/Restore Submenu**.
3. Select **Restore Logo**. The **USB Restore Logo Submenu** appears, as shown in the following illustration.

Figure 4-80. USB Restore Logo Submenu

4. Press **SEL** and scroll through the list of logos. When you locate the file you want, press **SEL** again.
5. Scroll to **Restore Logo** and press **SEL**.

   A message confirms the success of the restore operation, and instructs you to reboot the ImagePRO-II.

Note	You must reboot the ImagePRO-II to use the restored logo.

For information about restoring a logo in dual-channel mode, refer to Restoring a Saved Logo in Dual-Channel Mode on page 112.

Setting Ethernet Options

Using the **Ethernet Submenu**, shown in the following illustration, you can view and change certain Ethernet settings.

Figure 4-81. Ethernet Submenu (sample)

For example, you can:

- Query the DHCP server for a valid IP address, or turn off this feature.
- Set a static IP address for the ImagePRO-II, along with a subnet mask and gateway. This feature is available only if **DHCP** is turned **Off**.
- Set up the ImagePRO-II connection to a Barco Encore or ScreenPRO-II Controller.
- View the ImagePRO-II's IP address.

  If there is no internet connection, or if a DHCP server has not been found, the IP address is 000.000.000.000. In this case, the ImagePRO-II ignores the Ethernet port.
- View the Media Access Control (MAC) address of the ImagePRO-II's Ethernet port.

Querying the DHCP Server

In the **Ethernet Submenu**, the default setting for **DHCP** is **On**. When **DHCP** is turned on, the ImagePRO-II automatically queries the DHCP server for a valid IP address. If the ImagePRO-II receives an IP address, that address is displayed in the **Ethernet Submenu**.

Note	It can take several seconds to obtain an address from the server. During this time, the **SEL** button remains lit.

When **DHCP** is off, you can manually enter a static IP address, along with a subnet mask and gateway, in the **Set Static IP Submenu**. Consult your network administrator for a valid IP address, subnet mask and gateway.

Setting a Static IP Address

When a DHCP server is not available, you can set the ImagePRO-II's IP address, using the **Set IP Submenu** shown in the following illustration.

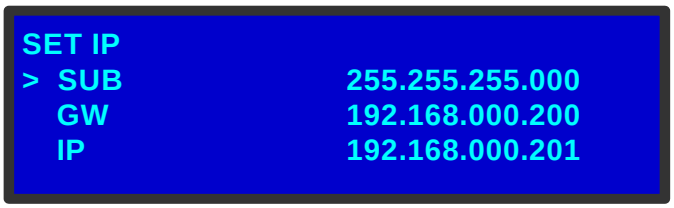


Figure 4-82. Set IP Submenu (sample)

- To set a static IP address for the ImagePRO-II, use the following procedure:

  1. Ensure that the **DHCP** setting is **Off**.
  2. From your network administrator, obtain a valid IP address, including subnet and gateway.
  3. On the **Ethernet Submenu**, select **Set Static IP**.
  4. On the **Set IP Submenu**, select **SUB**(net). The last character in the first field becomes available, as indicated by the empty field and an underscore.

     You must change the **SUB** parameter before editing either of the other parameters.
  5. Turn the **ADJUST** knob to change the first value. As you continue turning the knob, you can change all three values in this field. Values range from **000** to **255** in all four fields.
  6. Press **SEL** to accept your change in the first field. The last character in the next field becomes available.
  7. Continue until you have created the subnet value you want. Press **SEL**.
  8. Make similar changes in the **GW** and **IP** fields.
  9. Press **SEL** to accept your final change.

Note

If you press **ESC** at any time before accepting your final change, all your edits will be removed, and the original values restored.

Accessing the ImagePRO-II Remotely

- After you have set up the Ethernet options as described in **Querying the DHCP Server** and **Setting a Static IP Address** on page 91, use the following procedure to set up the ImagePRO-II:

  1. On a PC, laptop, or mobile device with the Microsoft Windows OS, open a command prompt window.
  2. Type the IP address and port on the prompt, using the following format:

     > telnet xxx.xxx.xxx.xxx 10001

where the x's represent the ImagePRO-II IP address, and 10001 is the port.

After Ethernet communication is established, the telnet window functions in the same fashion as a serial COM port communication.

3. Verify with the network administrator that the ImagePRO-II can communicate with the computer.

Setting Up for the Encore or ScreenPRO-II Controller

The **Barco Remote Control Submenu** sets up the ImagePRO-II for remote control through a Barco Encore or ScreenPRO-II Controller.

Figure 4-83. Barco Remote Control Submenu (sample)

- To connect an ImagePRO-II to an Encore or ScreenPRO-II Controller, use the following procedure:

1. On the **Ethernet Submenu**, enable DHCP mode and obtain an IP address for the Encore Controller.
2. On the **Ethernet Submenu**, select **Remote Control**. The **Barco Remote Control Submenu** appears, as shown in the preceding illustration.
3. The **Unit ID** defaults to **18**. To change this setting, select **Unit ID** and scroll to another number. Select an ID that is not being used by other devices.
4. In the **IP** field, scroll through the four fields to enter the IP address of the appropriate controller. When you select IP, the last character in the first field becomes available. Turn the **ADJUST** knob to change the value.

   As you continue turning the knob, you can change all three values in this field. Values range from **000** to **255** in all four fields.

Note

The default IP address of the **Encore Controller** is **192.168.0.1**.

The default IP address of the **ScreenPRO-II Controller** is **192.168.0.2**.

5. Press **SEL** to accept your change in the first field. The last character in the next field becomes available.
6. Continue until you have entered the IP address you want. Press **SEL** again.
7. In the **Connect** field, select **On**. The following message appears:

Figure 4-84. Remote Connection Message

8. When the connection is established, a confirmation message appears.

Changing Input EDID

The ImagePRO-II's EDID information is stored in non-volatile memory. This file contains the preferred and allowed resolutions for each EDID-capable input in the ImagePRO-II. An external device's graphics card reads this file when the device is connected to an ImagePRO-II input. The ImagePRO-II does not have to be powered up while the file is being read.

You can change the **preferred** resolutions for the DVI-I, HD-15, HDMI, and DisplayPort input connectors. You cannot change the **allowed** resolutions for these inputs.

- To change the EDID preferred resolution for an input, use the following procedure:

1. On the **System Menu**, select **Input EDID**. The **Input EDID Submenu** appears.

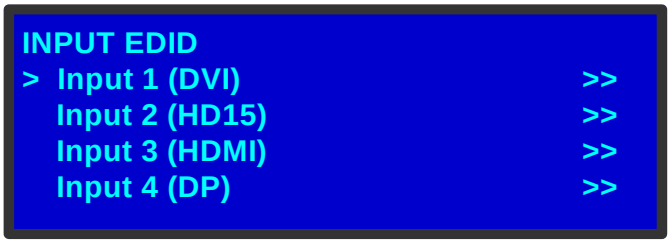


Figure 4-85. Input EDID Submenu

2. Select an input option. The following menu appears:

Figure 4-86. EDID Input Format Submenu

On this submenu, the input you selected is shown in the upper right corner. On the next line is the current format for this input. On the third line, you can select and change this format.

3. The third line defaults to the current format. Press **SEL** and use the **ADJUST** knob to scroll through a list of available input formats, and press **SEL** again.
4. **Audio Chnl Max** is diplayed on the fourth line, if you select **Input 3 (HDMI)** or **Input 4 (DP)** from the **Input EDID Submenu**. This line displays the maximum number of audio channels the ImagePRO-II supports. The HDMI or DisplayPort

source device reads this information. The selections are **2** and **8**. The default setting is **8**.

This feature is useful when the audio being played from the source is more than two channels, and you want to use the two analog audio outputs on the Audio mezzanine. When you set this value to 2, the player down-mixes the multiple channels of audio to just two channels.

5. Scroll to **Program EDID**. This option lets you set your new format as the preferred resolution for the current input.

Note	Unless you use **Program EDID**, the new resolution will not be stored as the preferred resolution.

6. Press **SEL**. The following message appears. Press **ESC** to continue.

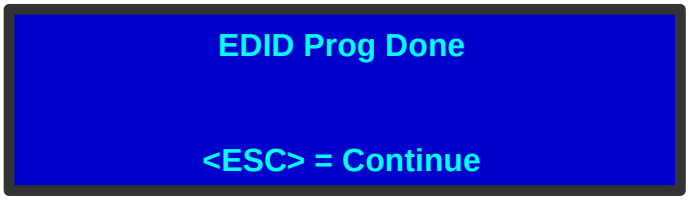


Figure 4-87. EDID Confirmation Message

Setting Display Brightness

The **VFD Brightness Submenu** adjust the intensity of the front panel vacuum fluorescent display (VFD) screen. The adjustment range is **+0** to **+6**, with **+6** being the brightest. The default setting is **+3**.

Note	Using a low intensity is advisable, to avoid “burn-in” of the display screen.

Locking the Front Panel

When the ImagePRO-II’s front panel is locked, button presses have no effect. In the locked mode:

- All button presses and all turns of the **ADJUST** knob are ignored.
- All Ethernet and serial communications commands function normally.
- All button lights continue to reflect the correct state of the inputs.

To enable and disable the front-panel lock, use the following procedure:

1. On the **System Menu**, scroll to **Lock Front Panel** and press **SEL**.

   The front panel is locked, and the following message appears.

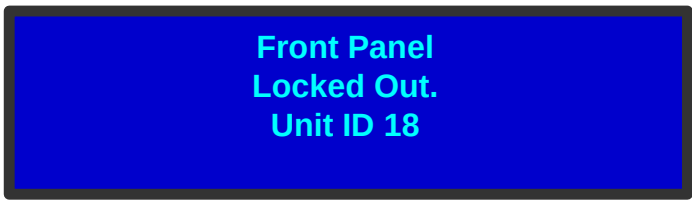


Figure 4-88. Front Panel Locked Message

2. To disable the front panel lock, press and hold the **SEL** and **ESC** buttons simultaneously for 3 seconds. When the panel is unlocked, the display screen displays the **Status Menu**.

Saving System State

Save System State on the **System Menu** saves your custom configuration parameters in non-volatile memory, including:

- The currently selected input channel

Note

To save the configurations of all inputs, refer to **Setting up an LED Wall** on page 101 of this chapter

- The output configuration
- System settings such as Black Invalid, HDCP settings, Input EDID information, and display brightness

If you save the system state, these parameters are restored the next time you power up the ImagePRO-II. If you *do not* use this function, your custom settings are not restored during the next system power up sequence.

Using a Logo or Internal Black

The ImagePRO-II supports capturing and storing one full-screen image called a *logo*, which can be displayed during transitions. Typically, the logo is a corporate logo, but it can be any still image captured from an ImagePRO-II, up to a maximum resolution of **2560x1600**. You can capture the logo from the active video input, or upload an image using the ImagePRO-II's USB port or the Web Interface. The logo appears on top of all other sources when you transition to it.

You cannot scale the logo. If the logo is of higher resolution than the current output format, the image appears cropped. If the logo is of lower resolution than the current output format, the entire logo appears in the center of the output display. For examples, refer to **Displaying a Logo** on page 98 of this chapter.

You can also set up an input to transition to internal black instead of a logo. For information about transitioning to and from a logo or black, refer to **Setting Transitions** on page 83 of this chapter.

The ImagePRO-II provides the following ways to work with logos and internal black:

- The **LOGO** and **BLACK** buttons on the front panel
- The **Logo Menu**

This section discusses both methods of capturing, deleting, and restoring a logo or internal black.

In addition to these methods, you can also downloading or restore a logo from a USB flash drive or from the ImagePRO-II Web Interface. For details, refer to **Using a USB Device** on page 88 of this chapter, or **Backing Up and Restoring Data with the Web Interface**, on page 132 of Chapter 5.

Please note the following important points regarding the logo:

- After you save a logo, the image remains in memory across power cycles.
- You can de-select the logo on display by pressing one of the input buttons or **BLACK**.
- When the **LOGO** or **BLACK** button is selected, the **PAN/ZOOM** button is not operational.
- When you power up an ImagePRO-II that has a stored logo, the **LOGO** button is dimmed.
- When the ImagePRO-II has no stored logo, the output displays black during transitions.
- You can overwrite a stored logo by capturing a new image.
- If you perform a factory reset, the logo is cleared from memory and cannot be retrieved.
- When an HDCP-capable source is selected (inputs **1, 3,** or **4**), you cannot save a logo image from that source.
- With the 3D/Dual Channel mezzanine installed and the system mode set to Dual2K, you can save and restore a logo to either channel. For more information, refer to "**Backing Up a Logo in Dual-Channel Mode**" and "**Restoring a Saved Logo in Dual-Channel Mode"** on page 111.

About the LOGO Button

The **LOGO** button states are:

- When selected, the **LOGO** button is **lit**.
- If the ImagePRO-II has a stored logo, the **LOGO** button is **backlit** when you power up the system.
- When there is no stored logo, the **LOGO** button is **not lit** when you power up.

Capturing a Logo Using the LOGO Button

- To capture a logo using the **LOGO** button, use the following procedure:

  1. Press and hold an input button.
  2. Press **LOGO**.

     The system captures the frame from the selected input, and stores the frame in non-volatile memory. While the capture is in progress:

     ~ A progress bar and related messages are shown on the display screen.

     ~ The input button is backlit, and the **LOGO** button is lit.

Detecting and Capturing a Logo Using the Logo Menu

The **Logo Menu**, shown in the following illustration, enables you to capture the source for

the **LOGO** button. You can also determine whether a logo is stored in the system, and delete or erase the logo, using this menu.

Figure 4-89. Logo Menu

To access the menu, select **Logo** from the **Setup Menu**. The following functions are provided:

- **Capture Logo** — Scroll to the **Capture Logo** function and press **SEL** to save the current active image as the logo.

  Note — When you select an HDCP-capable source (inputs **1, 3,** or **4**), you cannot save a logo image from that output.

- **Delete Logo** — Scroll to the **Delete Logo** function and press **SEL** to delete the current logo without removing it completely from memory. If you delete the logo, the **LOGO** button displays a black frame the next time you press it. To completely remove the logo from memory, use **Erase Logo** on this menu**.**
- **Erase Logo** — Completely removes the logo from memory. When security is an issue, use this option.

  Note — The **Capture Logo, Delete Logo,** and **Erase Logo** functions are not available (**n/a**) when the **LOGO** button is selected.

- **Backup Logo** — Takes you to the **USB Backup Logo Submenu** to back up the logo with a flash drive.
- **Restore Logo** — Takes you to the **USB Restore Logo Submenu** to restore a logo from a flash drive.

  For more information about backing up and restoring a logo, refer to **Using a USB Device** on page 88 of this chapter.
- **Logo Present** — Indicates whether a logo is stored in memory.

To capture a logo using the **Logo Menu**:

1. Select an input.
2. From the **Setup Menu**, select **Logo**.
3. On the **Logo Menu**, select **Capture**.

Displaying a Logo

After capturing a logo, you can display it by pressing **LOGO**. The logo transitions to the

output, using the timings you create in **Setting Transitions** on page 83.

When the logo is displayed:

- The **PAN/ZOOM** button and the **Input Menu** are not available.
- The **Status Menu** indicates **LOGO** as the input format and shows the resolution of the captured logo.

  If, after capturing a logo, you change the output format, and the logo format is higher resolution than the output format, the logo appears to be cropped.

Original logo format

Logo in lower resolution output

Figure 4-90. Logo Image in Two Different Output Formats

If the logo format is lower resolution than the new output format, the entire logo appears within the output active area and black bars are placed at the edges as necessary.

Figure 4-91. Logo Image at Lower Resolution than Output Format

To take a logo off display, but keep it in memory, select another input.

Deleting a Logo

Deleting a logo means making it unavailable for use, but not completely removing it from

system memory.

Note

When data security is an issue, it is advisable to erase the logo rather than delete it. For information, refer to **Erasing a Logo** on page 100.

- To make a logo unavailable for use, use the following procedure:
  1. Select **Logo** from the **Setup Menu**.
  2. On the **Logo Menu**, select **Delete Logo**.

Note

You can also delete a logo by overwriting it with another image, or by performing a **Factory Reset**.

Erasing a Logo

Erasing a logo means completely removing it from system memory.

Before returning an ImagePRO-II from an event, it is advisable to use this procedure when the security of your data is critical.

- To erase a logo, use the following procedure:
  1. Select **Logo** from the **Setup Menu**.
  2. On the **Logo Menu**, select **Erase Logo**.

Displaying Internal Black

The **BLACK** button on the front panel displays a black frame on the output device. The black frame transitions to the output, using the timings you created in **Setting Transitions** on page 83. If you did not create transition timings and effects, you can do so before you begin.

When the display transitions to black:

- The **BLACK** button is lit and the input button is backlit.
- The **Status Menu** indicates **Internal Black** as the input format.
- The **PAN/ZOOM** button and the **Input Menu** are not available.

To restore video to the display, press the input button again.

Setting up an LED Wall

The **LED Setup Submenu,** shown in the following illustration, provides a quick way to position the video image on an LED wall or another display device. Select **Setup** > **LED Setup** to view this menu.

Figure 4-92. LED Setup Menu

To set up the wall, you define the Area of Interest and size the image within that area. Then you can save your settings or restore the default values.

On this menu:

- **Wall Sizing** (**AOI)** displays the **Area of Interest Submenu** described in **Setting the Area of Interest** on page 56 of this chapter.
- **In standard system mode, Image Sizing** displays the following **Zoom/Pan Submenu**, which provides options in addition to those that appear when you press the **PAN/ZOOM** button.

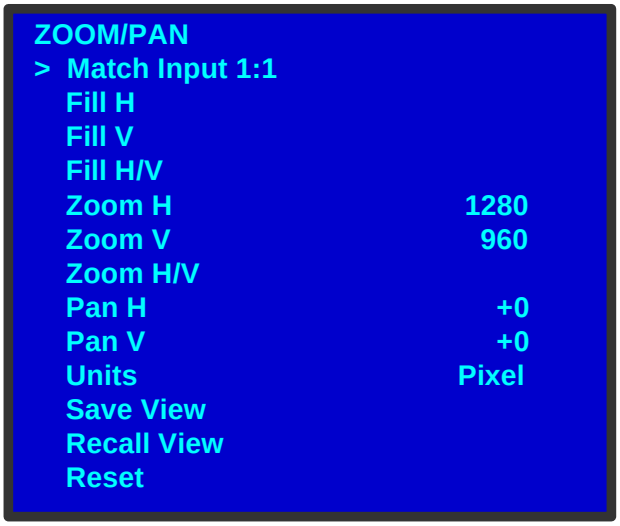


Figure 4-93. Zoom/Pan Menu (LED Setup Submenu)

With the 3D/Dual Channel mezzanine installed and the system mode set to Dual2K, this menu includes a line that supports selecting the channel and adjusting all outputs mapped to the selected channel.

Figure 4-94. Zoom/Pan Menu in Dual-Channel Mode

This **Zoom/Pan Menu** provides the following options:

- **Channel** (available In dual-channel mode only), supports selecting a channel on which to adjust the video.
- **Match Input 1:1** fills the Area of Interest 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 on the wall.
- **Fill H** fills the active area to the left and right edges.
- **Fill V** fills the active area to the top and bottom edges.
- **Fill H/V** fills the entire active area with the **scaled** image.
- **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** zooms in or out both horizontally and vertically.
- **Pan H** moves the image to the right or left on the wall.
- **Pan V** moves the image up or down on the wall.
- **Units** applies to the Pan and Zoom settings. The choices are **Pixel** and **Percent**. The default setting is **Pixel**.
- **Save View** provides the opportunity to save your settings. You can save one view for each input. When you select this option, a prompt appears. Press **SEL** to save the view or **ESC** to cancel.
- **Recall View** restores the last saved view.
- **Reset** restores the default settings.

For additional information about creating and saving views, refer to **Creating a View** on page 78 of this chapter.

- Selecting **Save Snapshot** saves the following settings:
  - All **System Menu** changes
  - All **Output Menu** changes
  - All **Input Menu** changes for all input channels

Using the Tech Support Menu

The **Tech Support Menu**, shown in the following illustration, provides quick access to Customer Support contact information, and also shows you the software version for your ImagePRO-II.

Figure 4-95. Tech Support Menu

This menu displays:

- The software version your ImagePRO-II uses. This number changes when you update system software. Refer to Appendix C, **Upgrading Firmware,** on page 207 for software upgrade instructions.
- The Customer Support telephone number. This number is accessible from 6 a.m. to 10 p.m. (PST), 7 days per week.
- The Customer Support web site address.

Restoring Factory Default Settings

Two options in the **Setup Menu** allow you to restore the ImagePRO-II to its factory default condition. The following attributes constitute a factory default condition:

- The **Status Menu** is shown in the display screen.
- **Input 1** is powered on.
- All other menu buttons and effects buttons are off.
- The Area of Interest is the default active area for each output.
- There is no logo stored in memory. If you saved a logo, the logo is deleted.
- All custom configurations, views, and formats are deleted.

The **Factory Reset Menu** provides two options for restoring factory default settings:

- **Factory Reset** — If you use this option, *all* of your custom input, output, and system configuration files are deleted. All custom views and formats are deleted. If you have a stored logo, it is deleted.
- **Factory Reset, Save IP** — This option performs a factory reset, but retains the IP address of the ImagePRO-II.

Note

It is advisable to clear all saved configurations when you use the ImagePRO-II for the first time, or when returning an ImagePRO-II from an event.

Restoring All Factory Settings

- To restore all default settings to the ImagePRO-II, use the following procedure:

  1. Select **Factory Reset** from the **Setup Menu**. The **Factory Reset Menu** appears.
  2. Select **Factory Reset**. A prompt appears, asking if you want to clear all configurations, formats, and views.
  3. Press **SEL**. The system turns off, then reboots.

     If you press **ESC** to cancel the operation instead, your custom settings remain in place and you are returned to the **Factory Reset Menu**.

Retaining the IP Address When Restoring Factory Settings

- To restore default settings to the ImagePRO-II but retain the unit's IP address, use the following procedure:

  1. Select **Factory Reset** from the **Setup Menu**. The **Factory Reset Menu** appears.
  2. Select **Factory Reset, Save IP**. A prompt appears, asking if you want to clear all configurations, formats, and views.
  3. Press **SEL** to reset the system but save the IP address. The system turns off, then reboots.

     If you press **ESC** to cancel the operation instead, your custom settings remain in place and you are returned to the **Factory Reset Menu**.

About the 3D/Dual Channel Option

The ImagePRO-II's 3D/Dual Channel option is a user-installable mezzanine that offers two distinct but related capabilities:

- **Dual-channel** capability, to display a single video source on separate output devices at different output resolutions
- **Stereoscopic 3D (S3D)** capability, to process single-stream or dual-stream 3D video

This option adds an HD-SDI input and output (**SDI-2**) on the rear panel, with loop-through on the input. These connectors can be used to support the ImagePRO-II's dual-channel and 3D capabilities, or as an additional video input and output in standard mode. With this option installed, the **Input 6** button on the front panel becomes operational and connects to the **SDI-2** input on the rear panel.

In addition, two **miniDIN** connectors (input and output) are provided for right eye/left eye encoding in 3D mode.

With the 3D/Dual Channel mezzanine installed, four operating modes become available when you select **System > System Mode**:

- **Standard mode** operates in the same single-scaler processing mode as the standard ImagePRO-II, supporting resolutions up to 2560x1600 @ 60 Hz. You can use this option to operate the ImagePRO-II as a single-channel processor, using the SDI-2 connectors as an additional input and output.
- **Dual-channel mode** supports processing a single video source through two scalers, to display the image at two different output resolutions. In dual-channel mode, the maximum resolution is 2048x1200 @ 60 Hz per channel, with a maximum input pixel clockclock rate of 165 MHz per channel.

  The maximum logo resolution in dual-channel mode is 2048x1200.

  For more information, refer to "**Operating the ImagePRO-II in Dual-Channel Mode**" on page 106.
- **3D mode** provides the option to:
  - ~ Process single- or dual-stream S3D video inputs and outputs
  - ~ Convert S3D sources to alternate S3D signal packing formats

  For more information, refer to "**Operating the ImagePRO-II in 3D Mode"** on page 114 of this chapter.
- **MinDelay** supports automatically mapping the output format to the input format and locking it for minimal delay.

Switching System Modes

You can switch from one system mode to another. However, some settings may be lost in the process. When you switch modes, a message similar to the one in the following illustration appears.

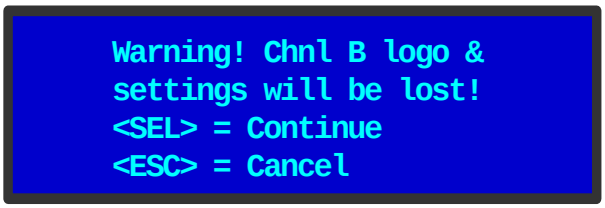


Figure 4-96. Warning Message for System Mode Switching

This message indicates that you are switching from dual-channel mode to standard mode. If you press **SEL**, the video on Channel A is retained as the standard-mode output. All output connectors are mapped to Channel A.

When you switch from standard mode to dual-channel mode:

- No input connected to the ImagePRO-II can exceed the maximum pixel clock rate of 165 MHz.
- Similarly, the resolution and frame rates programmed for all input EDIDs must not exceed the 165 MHz limit.
- The selected output resolution and frame rate cannot exceed 2048x1200@60.

Operating the ImagePRO-II in Dual-Channel Mode

Dual-channel mode extends the ImagePRO-II's standard mode to support two different output resolutions simultaneously for a single input or logo source.

For example, you can scale a 1280x1024 @ 60 Hz signal on the DVI input as both:

- 1280x720p @ 59.94 on the HD SDI output *and*
- 480i YP_bP_r on the HD-15 output

In dual-channel mode, the maximum resolution is 2048x1200 @ 60 Hz per channel.

	In dual-channel mode, the input and output formats are limited to a maximum pixel clock rate of 165 MHz per channel. If clock rates exceed this limit, the output displays the "Invalid Signal" message.

You can apply custom formats or pan/zoom settings to either channel. A custom format is available to any input or output assigned to the channel. Custom pan and zoom settings are available to any input assigned to the channel.

To enable dual-channel mode, install the 3D/Dual Channel mezzanine. Then select **System** > **System Mode** > **Dual2K**.

After you change this setting, the **Status Menu** displays the default output formats for two channels, as shown in the following illustration.

Figure 4-97. Status Menu in Dual-Channel Mode

Other menus — such as the **Output Timing Adjust**, **Area of Interest**, **Input Sizing Adjust**, and **Zoom/Pan** menus — now provide the ability to select a channel before adjusting parameters. You can create separate output settings on each channel for the following parameters and functions:

- Area of Interest
- Output timing adjustments
- Comp/S-video adjustments
- Output effects, including contrast, brightness, gamma and color balance
- Test patterns

You can also back up and restore logos on a per-channel basis.

Other settings, such as sync polarity settings and the colorspace/bit depth/sample rate, apply to specific connectors. They are not assigned on a per-channel basis.

About Input Settings in Dual-Channel Mode

You can create separate input settings on each channel for the following parameters and functions:

- Aspect ratio
- Masks
- Pan and zoom settings
- Input sizing adjustments

All other input settings — including input timing, sampling mode, colorspace, color adjustments, and deinterlace settings — apply to specific input connectors. They are not assigned on a per-channel basis.

Mapping an Output to a Channel

In dual-channel mode, you first map an output to one of the two channels, then adjust input and output settings on Channel **A**, Channel **B**, or both channels at the same time.

- To map an output to a channel, use the following procedure:

1. Select **System** > **System Mode** > **Dual2K**.
2. On the **System Menu**, select **Out Connector Map**. The **Out Connector Map Submenu** appears, as shown in the following illustration.

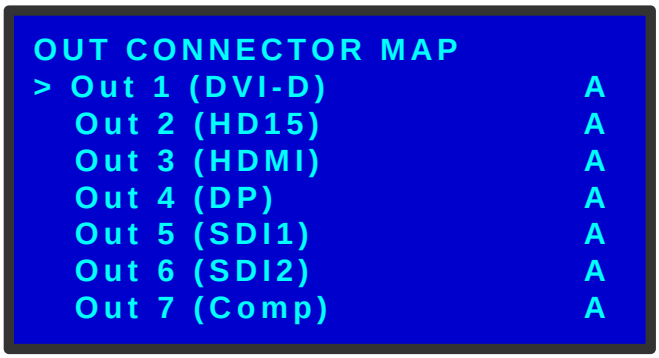


Figure 4-98. Output Connector Map — Dual-Channel Mode

This menu lists all seven output connectors. By default, each connector is assigned to Channel **A**. You can map any number of connectors to the same channel. Be aware, however, that each channel uses a single output resolution and frame rate, so the output displays must be compatible with the channel settings.

3. Scroll to the first output you wish to adjust, and select **B**.
4. Repeat step **3** until all outputs are assigned as you require.
5. Press **ESC** to return to the **System Menu**.

Setting Output Formats in Dual-Channel Mode

After you map output connectors, set the output format for each channel. You can create a separate output format for each channel, limited only by the output display's minimum and maximum resolutions and frame rates.

- To set output format(s) in dual-channel mode, use the following procedure:

1. Select **Output** from the **Setup Menu**.

   On the **Output Menu**, there are two format fields, as shown in the following illustration. The first line is the format for Channel **A**. The second line is the format for Channel **B**.

Figure 4-99. Output Menu in Dual-Channel Mode (sample)

2. Select the first format field you want to adjust, and adjust the output format. You can select any format compatible with your output display, including any custom format you create as described in Creating or Editing a Format on page 74.
3. Press **SEL**. The output field is not updated until you press **SEL**.
4. Adjust the second output format as required, then press **SEL** again.
5. Press **ESC**.

   The **Save Output Config** prompt appears, as shown in the following illustration.

Figure 4-100. Save Output Config Prompt

6. Press **SEL** at this prompt if you want to save the output format to non-volatile memory.

   The **Out Save Config** prompt appears, as shown in the following illustration.

Figure 4-101. Out Save Config Prompt

7. In the **Channel** field, select an option. The choices are **A**, **B**, and **All**.

   To save your configuration for use by the outputs on only one channel, select the channel.

   To save your configuration for use by the outputs on both channels, select **All**.

8. Scroll to **Save Config**, and press **SEL**. The “Config Saved” message appears at the bottom of the prompt.

Adjusting Output Timing in Dual-Channel Mode

In dual-channel mode, the **Output > Timing Adjust Submenu** includes a field labeled Channel, as shown in the following illustration.

Figure 4-102. Output Timing Adjust Submenu in Dual-Channel Mode

On this menu, you can adjust timings for a channel independently. All outputs mapped to a channel take that channel’s timings.

Adjusting Output Effects in Dual-Channel Mode

In dual-channel mode, you can set contrast, brightness, color balance and other effects on a per-channel basis. All outputs mapped to the channel take these settings. In this system mode, the **Output > Effects Submenu** looks like the one in the following illustration.

Figure 4-103. Output Effects Submenu in Dual-Channel Mode

Setting the Area of Interest in Dual-Channel Mode

With the 3D/Dual Channel mezzanine installed and the system mode set to **Dual2K**, the **Area of Interest Menu** includes a Channel field that lets you set the AOI separately for each channel. The AOI will apply to any output mapped to the selected channel.

Figure 4-104. Area of Interest Submenu in Dual-Channel Mode

- To set or revert the output Area of Interest in dual-channel mode, use the following procedure:

  1. From the **Output Menu**, select **Area of Interest**. The **Area of Interest Submenu** appears, showing default settings equal to the H and V actives of the output timing.
  2. Select a channel to work with, or accept the default setting of **All**.
  3. Adjust the AOI as described in "**Setting the Area of Interest**" on page 56.
  4. If required, repeat steps 2 and 3 for the second channel.

To revert *all* your changes for a channel to their default settings, select **Reset**.

Working with Pan and Zoom Settings in Dual-Channel Mode

If you have the 3D/Dual Channel mezzanine installed, and you set the system mode to **Dual2K**, the **Zoom/Pan Menu** provides the option to create a view that can be used on one or both channels. When you assign a view to a channel, you can recall and save that view to any input that uses the selected channel or channels.

In dual-channel mode, the first lines of the **Zoom/Pan Menu** look like those in the following illustration.

Figure 4-105. Zoom/Pan Menu — Dual-Channel Mode (sample)

Creating a View in Dual-Channel Mode

- To create a view for a channel in dual-channel mode, use the following procedure:

1. Press the **PAN/ZOOM** button.
2. On the **Zoom/Pan Menu,** select a channel. The options are **A**, **B**, and **All**.

   If you select **All**, the settings are available to the inputs on both channels.
3. Adjust the settings as described in **Creating a View** on page 78 of this chapter.
4. After making all changes, press **SEL**. The submenu shown in the following illustration appears.

Figure 4-106. Save View Submenu — Dual-Channel Mode

5. Press **SEL** to save the view. You are returned to the **Zoom/Pan Menu**. The view you created is available to the inputs on the selected channel or channels.

   This save persists across power cycles.

If, after creating a view for a channel, you wish to save the view to the system, you can do so using the procedure described in **Saving a View to the System** on page 80 of this chapter. You can then recall the view to any input on any channel, using the procedure described in **Recalling a System View** on page 81 of this chapter.

Backing Up a Logo in Dual-Channel Mode

- To back up a logo to a flash drive in dual-channel system mode, use the following procedure:

1. On the **System Menu**, select **USB**. The **USB Backup/Restore Submenu** appears.
2. Select **Backup Logo**. The **USB Backup Logo Submenu** appears, as shown in the following illustration. The navigation cursor is at the Channel field.

Figure 4-107. USB Backup Logo Submenu in Dual-Channel Mode

3. Either accept the default channel or change this selection and press **SEL**.
4. Scroll to the next line, which displays the default name for this logo. If you wish to change the name, press **SEL**. Use the **ADJUST** knob to change the name, as described in **Saving a Custom Format** on page 75. Press **SEL** again when you complete the name change.
5. Scroll to **Backup Logo** and press **SEL**.

   A message confirms the success of the backup operation.

Restoring a Saved Logo in Dual-Channel Mode

- To restore a logo stored on a flash drive and assign it to a specific channel, use the following procedure in dual-channel mode:

1. Insert the flash drive in the ImagePRO-II's front-panel USB port.
2. From the **System Menu**, select the **USB Backup/Restore Submenu**.
3. Select **Restore Logo**. The **USB Restore Logo Submenu** appears, as shown in the following illustration.

Figure 4-108. USB Restore Logo Submenu

4. Select the channel to which you wish to restore the logo. The logo will become available on that channel.
5. On the next line, scroll through the list of stored logos. When you locate the file you want, press **SEL** again.
6. Scroll to **Restore Logo** and press **SEL**.

   A message confirms the success of the restore operation, and instructs you to reboot the ImagePRO-II.

Note	You must reboot the ImagePRO-II to use the restored logo.

Genlock Settings in Dual-Channel Mode

Using the **Output > Genlock Submenu** in dual-channel mode, you can lock Channel B to Channel A, so that the sources remain in sync, or you can set Channel B to Freerun to remove this lock. In dual-channel mode, the **Genlock Submenu** looks like the one in the following illustration.

Figure 4-109. Genlock Submenu in Dual-Channel Mode

- To change Genlock settings in dual-channel mode:

  1) Select **Output > Genlock**.

  The **Genlock Submenu** appears. The first field shows the Channel A source for the selected input.

  2) If required, change the Channel A source. The options are:

  - ~ Another input
  - ~ Ext(ernal)
  - ~ Freerun

  3) **CHB Source** defaults to **Lock to A**. With this option, Channel B remains locked to Channel A at all times, regardless of the Genlock source selected for Channel A. If desired, this field can also be changed to Freerun in order to disable the locked association with Channel A.

  4) The **H/V Offset Submenu** enables the independent adjustment of H and V offset for each channel.

  5) You can view the current lock status for Channel A and B in the last two fields of the **Genlock Submenu**.

Operating the ImagePRO-II in 3D Mode

With the 3D/Dual Channel option installed, the ImagePRO-II can process both single-stream and dual-stream 3D video. Single-stream 3D is delivered on a single wire. Dual-stream video consists of two video signals, one containing the right-eye image and the other containing the left-eye image. In a multiple-display setup, the ImagePRO-II displays one 3D image on all displays, whether the video is dual-stream or single-stream.

In 3D mode, you can display both 2D and 3D video on any output that displays 3D images. A 2D source is processed as both the left eye and the right eye source. Single-stream 3D is processed on a single input connector and goes to any output connector with an output timing format that is valid for the signal.

3D video is processed independently of the video timing format. If the input timing is within the capabilities of the input connector, the signal is received and processed as S3D. If the output timing format is within the capabilities of the output connector, the S3D video is transmitted on that connector, regardless of the selected 3D packing type.

Setting 3D System Mode

To enable 3D processing, select **System** > **System Mode** > **3D**. The **Status Menu** changes to include 3D information, as shown in Figure 4-9 on page 32.

Processing Single-Stream 3D Video

The following input and output connectors support single-stream S3D video:

- **DisplayPort**
- **DVI** (single and dual link)
- **HDMI**
- **SDI** 1 and SDI 2

The HD-15 output also processes single-stream S3D.

Supported input and output resolutions are determined by the signal format, as shown in the following table.

Table 4-4. Supported Input/Output Resolutions — Single-Stream 3D Video

Signal Format	Resolutions
FramePack (HDMI only)	1920x1080p @23.98 Hz FP 1920x1080p @24 Hz FP 1280x720p @50 Hz FP 1280x720p @59.94 Hz FP 1280x720p @60 Hz FP
Side-by-Side	1920x1080i @50 Hz 1920x1080i @59.94 Hz 1920x1080i @60 Hz

Table 4-4. Supported Input/Output Resolutions — Single-Stream 3D Video

Signal Format	Resolutions
Top/Bottom	1920x1080p @23.98 Hz 1920x1080p @24 Hz 1280x720p @50 Hz 1280x720p @59.94 Hz 1280x720p @60 Hz
Sequential	Sequential progressive frames up to 2048x1200 @120 Hz (24 bits) on the DVI dual-link and DisplayPort connectors

Setting Up Inputs to Display Single-Stream 3D Video

- To set up the ImagePRO-II to display single-stream 3D video, use the following procedure:

1. Select **System** > **System Mode** > **3D**.
2. When prompted to save this configuration, press **SEL**.
3. Set up the inputs you want to use. On the **Input Menu**, select **Processing > 3D Mode**. This option sets the packing mode for 3D video, determining how the input signal is processed and sent to the output display. The available options are:
   - ~ **Off.** This is the default setting.
   - ~ **Side**. The left and right images are scaled and displayed side by side on a single connector.
   - ~ **Top/Bottom**. Left and right images are scaled and displayed on a single connector. The left image is on top by default and the right image is on the bottom by default.
   - ~ **Sequential**. The left and right images are processed in sequence at up to 120 Hz -- left then right then left, and so on -- displaying the full image on one connector.

     This option is available on the DVI, DisplayPort and HDMI connectors. DVI supports formats up to 330 MHz pixels (1920x1200p@120 MHz). DisplayPort supports formats up to 300 MHz pixels (1920x1080p@120). HDMI supports formats up to 165 MHz (1280x720p@120).
   - ~ **Left/Right.** The complete left and right images are displayed on different output connectors. You can use this option with the following pairs of connectors:
     - The **DVI and HDMI** connectors, with the DVI as the left image by default, and the HDMI as the right image by default.
     - The **SDI 1 and SDI 2** connectors, with SDI1 as the left image by default and SDI2 as the right image by default.
   - ~ **FramePack**. This option is a special video timing for HDMI video.

Note

The **3D Mode** for an output must match the **3D Mode** for the corresponding input.

4) If you want to swap the left and right connectors, scroll to **3D Swap**. This option lets you switch default settings, or display only the right image or only the left image as standard 2D video. The options are:
   - ~ **Off**. This is the default setting.

- **L/R**. Processes the video as if the left image is the right, and the right image is on the left.
- **R/L**. Processes the video as if the right image is on the left, and the left image is on the right.
- **L/L**. Displays the left-eye video as a standard 2D image.
- **R/R**. Displays the right-eye video as a standard 2D image.

5) To view or specify the sampling method, select **3D Sample** on the **Processing Submenu**. When **3D Mode** is set to **Side**, **3D Sample** specifies how the original left and right images are sampled to create the scaled side-by-side packed image. Each image, or "eye," is sampled using odd or even pixels. The left eye is specified first. The options are:
   - **OddOdd**. Both eyes are sampled using odd pixels.
   - **EvenEven**. Both eyes are sampled using even pixels.
   - **EvenOdd**. Even left-eye sampling, odd right-eye sampling.
   - **OddEven**. Odd left-eye sampling, even right-eye sampling.
6) If desired, select **3D MiniDin Swap**. This setting inverts the left and right sync signals. **3D MiniDin Swap** is either **On** or **Off**. The default setting is **Off**.

   To view the status of the input video, select **3D L/R Status**. The options are:
   - **Good**. The two signals are valid.
   - **TimingMismatch**. The two formats do not have the same timing
   - **InvalidVideo**. One of the inputs is not a valid video signal.
   - **NotLocked**. The inputs are not genlocked to each other.
7) When you finish setting up inputs, press **ESC** and save the input configuration.

Setting Up Outputs to Display Single-Stream 3D Video

1) Select **System** > **System Mode** > **3D**.
2) When prompted to save this configuration, press **SEL**.
3) Set the output 3D packing mode you want to use. On the **Output Menu**, select **3D Mode** and choose a 3D packing format. The options for single-stream 3D video are:
   - **Side**. The left and right images are scaled and displayed side by side on a single connector.
   - **Top/Bottom**. Left and right images are scaled and displayed on a single connector. The left image is on top by default and the right image is on the bottom by default.
   - **Sequential**. The left and right images are processed in sequence at up to 120 Hz -- left then right then left, and so on -- displaying the full image on one connector.

     This option is available on the DVI, DisplayPort and HDMI connectors. DVI supports formats up to 330 MHz pixels (1920x1200p@120 MHz). DisplayPort supports formats up to 300 MHz pixels (1920x1080p@120). HDMI supports formats up to 165 MHz (1280x720p@120).

~ **Left/Right.** The complete left and right images are displayed on different output connectors. You can use this option with the following pairs of connectors:

- The **DVI and HDMI** connectors, with the DVI as the left image by default, and the HDMI as the right image by default.
- The **SDI 1 and SDI 2** connectors, with SDI1 as the left image by default and SDI2 as the right image by default.

Note The output 3D Mode must match the input 3D Mode.

4) If desired, scroll to **3D Swap** to swap the left and right output video.

5) To invert the left and right sync signals, scroll to **3D Sync Invert** and select **On**.

6) **3D Sync Delay** allows you to adjust delay times for specific 3D glasses or systems. The options are 0 to 100, in video lines.

7) When prompted, save your output configurations.

Processing Dual-Stream 3D Video

The ImagePRO-II uses two sets of connectors to process dual-stream 3D video:

- **DVI and HDMI inputs and outputs**

  Inputs 1 and **3** (DVI-I and HDMI) work jointly to input separate left and right 3D signals as two single-link DVI signals, at up to 165 megapixels per second.

  By default, these signals are displayed with the left eye on the DVI-I output, and the right eye on the HDMI output.

- **SDI 1 and SDI 2 inputs and outputs**

  Inputs 5 and **6** (SDI 1 and SDI 2) work jointly to input separate left and right 3D signals.

  By default, these signals are displayed with the left eye on the SDI 1 output, and the right eye on the SDI 2 output.

For both sets of connectors, you can swap the left and right signals so that, for example, the right-eye video is displayed on the **SDI 1** output and the left-eye video is displayed on the **SDI 2** output.

In dual-stream mode, the inputs in a pair are locked and must be in the same format. You cannot adjust outputs separately.

Setting Up the ImagePRO-II to Display Dual-Stream 3D Video

■ To set up the ImagePRO-II to display dual-stream 3D video, use the following procedure:

1. Verify that the connector pairs you wish to use are connected — either the **DVI-I and HDMI** inputs and outputs, or the **SDI 1 and SDI 2** inputs and outputs.

2. On the **System Menu**, set **System Mode** to **3D**. Save this configuration.

3. On the **Output Menu**, select **3D Mode** and choose a 3D format. The options are:

Side	Top/Bottom
Sequential	Left/Right

Left/Right Image Swapping

The miniDIN-3 connectors on the ImagePRO-II rear panel determine which eye corresponds to the current frame of single-stream 3D video. By default, on both inputs and outputs:

- The DVI connector takes the left eye and HDMI takes the right eye.
- The SDI-1 connector takes the left eye and SDI-2 takes the right eye.

You can swap these defaults for both inputs and outputs.

- To swap the left and right **input** signals, select **Input > Processing > 3D Swap**. The options are:
  - **L/R**. Processes the video as if the left image is the right, and the right image is on the left.
  - **R/L**. Processes the video as if the right image is on the left, and the left image is on the right.
  - **L/L**. Displays the left-eye video as a standard 2D image.
  - **R/R**. Displays the right-eye video as a standard 2D image.
- To swap the left and right **output** signals, select **Output > 3D Swap**. The options are the same as those for input **3D Swap**.

Displaying a Logo or 2D Image in 3D Mode

In 3D mode, you can capture, store, and restore a still image for use as a 3D logo. In this scenario, two identical 2D images are paired (right and left eyes) to provide a 3D logo at a maximum 2048x1200 per channel.

Note	The ImagePRO-II does not support pairing two different images to be used as a 3D logo.

You work with logo images as described in “**Using a Logo or Internal Black**” on page 96. However, in the **Logo Menu,** two additional fields indicate the presence or absence of the logo on each channel.

Operating the ImagePRO-II in Quad to Dual Mode

Quad to Dual system mode supports driving a 4K projector. In Quad to Dual mode, two ImagePRO-II units accept single-link video signals from two pairs of input devices. The inputs can be paired on the SDI 1/SDI 2 connectors or the DVI/HDMI connectors.

The ImagePRO-II units process the single-link signals and output them as two dual-link signals, on the DVI and DisplayPort outputs. Each output signal provides the top and bottom quadrants of the image, and the projector combines the two sets of quadrants to display them side by side for the complete image.

The SDI 1 and DVI connectors take the top quadrants. The SDI 2 and HDMI connectors take the bottom quadrant. The SDI 1 and SDI 2 connectors can be paired when you install the 3D/Dual Channel mezzanine.

The following illustration shows the physical setup for this mode.

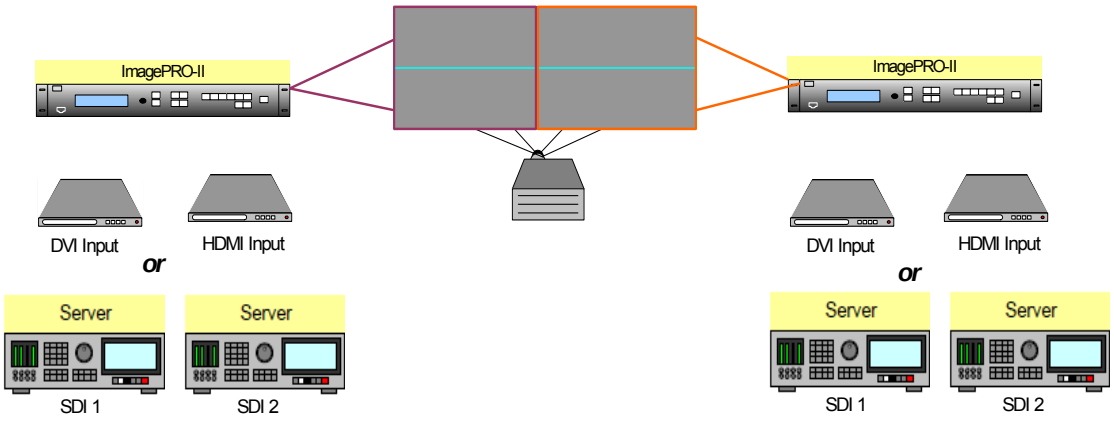


Figure 4-110. Quad to Dual System Mode -- Setup

To enter Quad to Dual mode, select **System** > **System Mode** > **Quad -> Dual.**

This mode uses only the following input formats:

- **1920x1080**. When the ImagePRO-II detects this format, the output format automatically changes to 1920x2160.
- **2048x1080**. When the ImagePRO-II detects this format, the output format automatically changes to 1920x2160.

In this mode:

- The HD-15 input and DisplayPort inputs are disabled.
- Only the DVI and DisplayPort dual-link outputs are available.
- Scaling (Pan/Zoom, Area of Interest, and source adjustments) is not allowed.
- You cannot adjust input or output color.
- You can adjust only the HTotal and VTotal output timing.
- No logo image is allowed.

Working with Audio

When you install the optional **Audio** mezzanine, the ImagePRO-II can process both digital and analog audio. With this option, you can:

- Process a video signal that contains embedded audio, on any output that supports audio
- Associate external audio with an input and play it on any output that supports audio
- Associate one audio source for all inputs, or associate separate audio sources for each input and play it on any output that supports audio
- Process audio on a per-channel basis
- Map audio to a logo or internal black
- Mute the audio

When the input video contains embedded audio, the ImagePRO-II disembeds the audio for processing. The audio can then be routed to any output that supports audio, including the 25-pin I/O connector on the optional rear-panel Audio mezzanine shown in the following illustration.

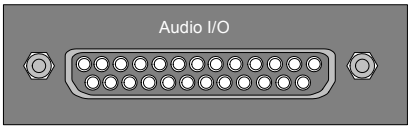


Figure 4-111. ImagePRO-II Audio Mezzanine

Using this mezzanine, you also can import external audio and use it on any output that supports audio. The Audio mezzanine provides eight channels of digital AES/EBU inputs (four pins of two channels per pin), two channels of analog input, eight channels of digital AES/EBU output (four pins of two channels per pin), and two channels of analog output.

Inputs and Outputs Supporting Audio

The following inputs and outputs support audio processing: HDMI, DisplayPort, SDI1, SDI2 (with the 3D/Dual Channel option installed), and the 25-pin I/O connector, which processes both analog and digital AES audio.

Analog and DVI video cannot contain embedded audio. However, you can associate these inputs with the external analog or digital audio inputs from the Audio mezzanine.

The Composite output cannot process an audio signal.

Audio Mapping

Table 4-5. Audio Channel Mapping

Audio Input	Audio Channel(s)	Audio Output	Audio Channel(s)
HDMI	1 - 8	HDMI	1 - 8
		DisplayPort	1 - 8
		SDI	1 - 8
HDMI	1 - 2	Digital Audio Output #1	1 - 2
	3 - 4	Digital Audio Output #2	1 - 2
	5 - 6	Digital Audio Output #3	1 - 2
	7 - 8	Digital Audio Output #4	1 - 2
HDMI	1	Analog Audio Output #1	1
	2	Analog Audio Output #2	2
DisplayPort	1 - 8	HDMI	1 - 8
		DisplayPort	1 - 8
		SDI	1 - 8
DisplayPort	1 - 2	Digital Audio Output #1	1 - 2
	3 - 4	Digital Audio Output #2	1 - 2
	5 - 6	Digital Audio Output #3	1 - 2
	7 - 8	Digital Audio Output #4	1 - 2
DisplayPort	1	Analog Audio Output #1	1
	2	Analog Audio Output #2	2
SDI	1 - 8	HDMI	1 - 8
		DisplayPort	1 - 8
		SDI	1 - 8
SDI	1 - 2	Digital Audio Output #1	1 - 2
	3 - 4	Digital Audio Output #2	1 - 2
	5 - 6	Digital Audio Output #3	1 - 2
	7 - 8	Digital Audio Output #4	1 - 2
SDI	1	Analog Audio Output #1	1

Table 4-5. Audio Channel Mapping

Audio Input	Audio Channel(s)	Audio Output	Audio Channel(s)
	2	Analog Audio Output #2	2
Digital Audio Input #1	1 - 2	HDMI	1 - 2
		DisplayPort	1 - 2
		SDI	1 - 2
		Digital Audio Output #1	1 - 2
		Digital Audio Output #2	N/A
		Digital Audio Output #3	N/A
		Digital Audio Output #4	N/A
Digital Audio Input #1	1	Analog Audio Output #1	1
	2	Analog Audio Output #2	2
Digital Audio Input #2	1 - 2	HDMI	3 - 4
		DisplayPort	3 - 4
		SDI	3 - 4
		Digital Audio Output #1	N/A
		Digital Audio Output #2	1 - 2
		Digital Audio Output #3	N/A
		Digital Audio Output #4	N/A
Digital Audio Input #2	1	Analog Audio Output #1	N/A
	2	Analog Audio Output #2	N/A
Digital Audio Input #3	1 - 2	HDMI	5 - 6
		DisplayPort	5 - 6
		SDI	5 - 6
	1 - 2	Digital Audio Output #1	N/A
		Digital Audio Output #2	N/A
		Digital Audio Output #3	1 - 2
		Digital Audio Output #4	N/A
Digital Audio Input #3	1	Analog Audio Output #1	N/A

Table 4-5. Audio Channel Mapping

Audio Input	Audio Channel(s)	Audio Output	Audio Channel(s)
	2	Anaog Audio Output #2	N/A
Digital Audio Input #4	1 - 2	HDMI	7 - 8
		DisplayPort	7 - 8
		SDI	7 - 8
		Digital Audio Output #1	N/A
		Digital Audio Output #2	N/A
		Digital Audio Output #3	N/A
		Digital Audio Output #4	1 - 2
Digital Audio Input #4	1	Analog Audio Output #1	N/A
	2	Analog Audio Output #2	N/A
Analog Audio Input #1	1	HDMI	1
		DisplayPort	1
		SDI	1
		Digital Audio Output #1	1
		Digital Audio Output #2	N/A
		Digital Audio Output #3	N/A
		Digital Audio Output #4	N/A
		Analog Audio Output #1	1
		Analog Audio Output #2	N/A
Analog Audio Input #2	1	HDMI	2
		DisplayPort	2
		SDI	2
		Digital Audio Output #1	2
		Digital Audio Output #2	N/A
		Digital Audio Output #3	N/A
		Digital Audio Output #4	N/A

Table 4-5. Audio Channel Mapping

Audio Input	Audio Channel(s)	Audio Output	Audio Channel(s)
		Analog Audio Output #1	N/A
		Analog Audio Output #2	1

About the Audio Menu

You access the ImagePRO-II's audio capabilities by pressing the **AUDIO** button on the front panel. The menu shown in the following illustration appears.

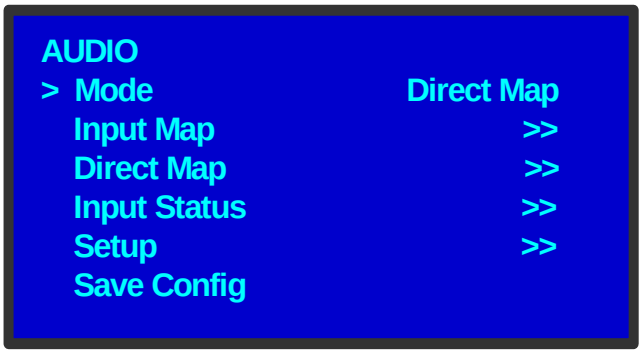


Figure 4-112. Audio Menu

The options on this menu are:

- **Mode**. This selection indicates whether you want to map individual inputs separately, or map all inputs to the same audio source. The options are:
  - ~ **Direct Map.** Enables mapping all inputs to the same audio source. After you select this option, scroll to **Direct Map** on the **Audio Menu** to map to the source.
  - ~ **Input Map.** Enables mapping each input separately. After you select this option, scroll to **Input Map** on the **Audio Menu** to map inputs.
- **Input Map**. This selection enables mapping inputs, logo or internal black to selected audio, using the submenu shown in the following illustration.

Figure 4-113. Input Audio Map Submenu

On this submenu,

- ~ The HDMI, DisplayPort, SDI 1 and SDI 2 inputs default to **Self**. The other options for these inputs are **Mute**, **Analog**, and **AES**.
  - **Self.** If the video on these inputs contains embedded audio, the embedded audio is output.
  - **Mute** prevents audio from playing on any output when this input is selected.
  - **Analog** maps the input to the analog input pair on the Audio mezzanine.
  - **AES** maps the input to the digital audio channels 1 through 8 on the Audio mezzanine.
- ~ The DVI and HD-15, the logo, and internal black all default to **Mute**. These inputs cannot contain embedded audio. The other options for these inputs are **Mute**, **Analog**, and **AES**. This options function as described for the HDMI, DP, SDI 1 and SDI 2 inputs.
- ~ **All Inputs** defaults to **Mute**. The other options for **All Inputs** are **Analog**, **AES**, and **Self**.

  If you select **All Inputs** on this submenu, the ImagePRO-II overrides any settings on individual inputs.
- ~ **Reset to defaults** sets all inputs to the default values shown in the previous illustration.

- **Direct Map**. This option maps to a single selected audio source, regardless of which input is selected, including the logo and internal black.

  The available options are: **Mute, Analog, AES, HDMI, DP, SDI 1** and **SDI 2.**
- **Input Status.** This selection opens a submenu that displays the status of any input that can process audio, as well as external digital input from the Audio mezzanine. The possible status settings are:
  - ~ **None.** Audio is not present.
  - ~ **OK.** Audio is present.
- **Setup**. This option opens the **Audio Setup Submenu** shown in the following illustration.

Figure 4-114. Audio Setup Submenu

On this submenu, you can set:

~ **Audio test tone.** This setting sends out a 1 KHz audio test tone on all channels that support audio, at a reference 0dB level. The test tone helps adust the levels in an audio mixer that is receiving audio from the ImagePRO-II.

~ **Analog input audio level.** The values are:

- **+4 dBu**. This is the default setting.
- **-10 dBV**

Note

+4 dBu is the recommended setting when working with professional audio equipment.
When working with consumer audio equipment, **10 dBu** is the recommended setting.

~ **Analog output audio levels** for Channel A and Channel B output (with the 3D/Dual Channel option installed). The options for each channel are:

- **+4 dBu**. This is the default setting.
- **-10 dBV**

~ **Output delay** for Channel A and Channel B (with the 3D/Dual Channel option installed). The options for each channel are:

- **Auto**. This is the default setting.
- **0** to **300 ms**

~ **Output audio sampling rates** for Channel A and Channel B (with the 3D/Dual Channel option installed). The options for each channel are:

- **48 KHz**. This is the default setting.
- **96 KHz**

~ **Bit depth** for Channel A and Channel B (with the3D/Dual Channel option installed). The options are:

- **16**. This is the default setting for Channel B.
- **20**
- **24**. This is the default setting for Channel A.

- **Save Config**. Saves your audio configuration settings.

5. Web Remote Control Operations

In This Chapter

This chapter includes information about backing up and restoring data using the **ImagePRO-II Web Interface**. It also includes instructions for operating the ImagePRO-II over a local area network (LAN) from a computer, tablet, or smartphone, using the **Web App Interface**. The following topics are included in this chapter:

Web Interface Overview

The **ImagePRO-II Web Interface** supports remote control of all ImagePRO-II features from a computer, tablet, smartphone, or other web-enabled mobile device. For example, you can download and restore logos and configuration files, upgrade system firmware, run test patterns, control input and output settings, and undo recent changes.

The interface consists of three sections:

- The **System Information** tab, which provides information about the ImagePRO-II firmware version and lets you see when a new version is available.
- The **Backup and Restore** tab, from which you can back up system configuration files and logos, and restore them later. For more information about these features, refer to **Backing Up and Restoring Data with the Web Interface**, on page 132 of this chapter.
- The **Web App Interface** tab, from which you can launch either the **Web App Interface**, which lets you remotely control most ImagePRO-II features, or the **Front Panel Emulator**, a Java applet with which you can control all front-panel functions.

Prerequisites to Using the Web Interface

To access the Web Interface, you must have:

- A PC, laptop, tablet, or mobile device with one of the following operating systems installed:
  - ~ Windows® XP, Windows® Vista™, or Windows® 7
  - ~ Mac OS® X
  - ~ Red Hat® Linux®
- One or more customer-supplied RJ-45 Ethernet cables
- A web browser

Note

To access the **Web Interface**, you can use most standard browsers. Using the **Web App Interface**, which operates the ImagePRO-II requires an HTML5-compatible browser. For more information, refer to **Accessing the Web App Interface** on page 135 of this chapter.

- An Ethernet Switch, if you do not connect directly to the unit
- The IP address of the ImagePRO-II

  The default IP address for the ImagePRO-II is **192.168.0.201**. If your unit is assigned a different IP address, use the front panel to locate it: Select **Ethernet** from the **System Menu**, and scroll to **IP**.

You can also access the ImagePRO-II over a wireless network. Refer to your network administrator for a network user ID and password.

Accessing the Web Interface

- To access the Web Interface, you can connect an ImagePRO-II directly to a computer or mobile device, using a wireless network or a cable, or use an optional Ethernet Switch as described in the following procedure.

1. On the ImagePRO-II's rear panel, ensure that the Ethernet port is connected to an Ethernet Switch, and the Switch is connected to a data port.
2. Connect the Switch to the computer or mobile device from which you want to run the ImagePRO-II.
3. Connect inputs and outputs to the ImagePRO-II. For details, refer to the **Installation** section of Chapter 3, **Hardware Installation**, on page 15.
4. Power up the ImagePRO-II.
5. Power up the input source and output display devices.
6. Turn on the ImagePRO-II's **DHCP** setting:
   - ~ On the **Setup Menu**, select **System** > **Ethernet**.
   - ~ Select **DHCP** and turn it **On**.
7. On the computer or mobile device, open a browser and type the ImagePRO-II's IP address in the following format:

   nnn.nnn.nnn.nnn

   The **Folsom ImagePRO-II** page appears on the display device(s), with the **System Information** tab available.

Obtaining System Information with the Web Interface

The **System Information** tab, shown in the following illustration, is the first page you see when you access the ImagePRO-II from the web.

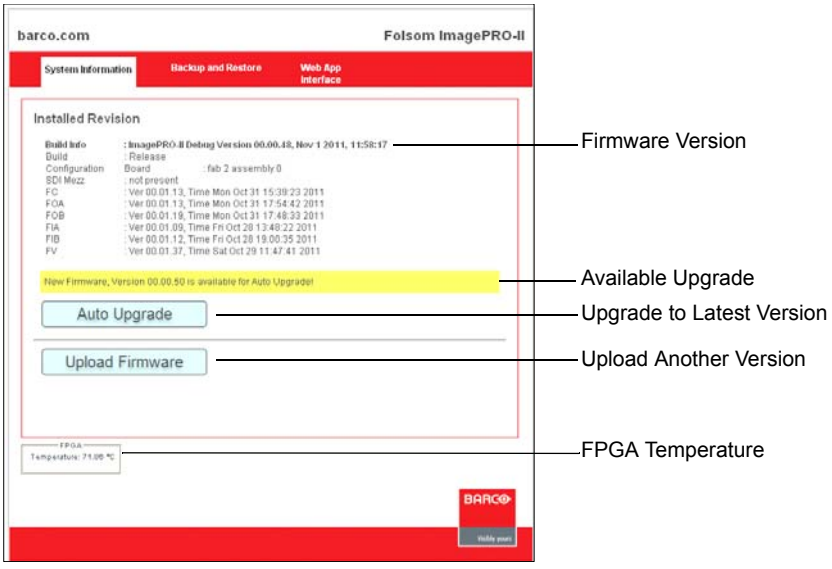


Figure 5-1. System Information Tab

On this page, you can:

- ~ View the ImagePRO-II's current firmware version, on the **Build Info** line.
- ~ View the firmware release number, on the **Build** line.
- ~ See at a glance when a new firmware version is available, and use the **Auto Upgrade** feature to install it.
- ~ Use the **Upload Firmware** feature to upload a different firmware version.

  For more information about the **Auto Upgrade** and **Upload Firmware** features, refer to the **Upgrading Firmware Using the Web Interface** section on page 210, in Appendix C.

On this and the other tabs, you also can monitor the Field Programmable Gate Array (FPGA) temperature.

Backing Up and Restoring Data with the Web Interface

You can back up two types of ImagePRO-II files using the Web Interface — system configurations and logos. The system configuration consists of any custom settings that you create for the ImagePRO-II. A logo is a stored image that you capture from the ImagePRO-II. You can download these files to a computer, then restore them for later reuse.

Note

Because smartphones and tablets limit the file types that you can upload, you cannot back up configuration files to these devices.

Backing Up Data with the Web Interface

- To save the current system configuration, use the following procedure:

  1. On the **Folsom ImagePRO-II** page, select the **Settings Backup and Restore** tab. The page that appears provides two sets of options, one for backing up and restoring the current system configuration, and one for managing logos.

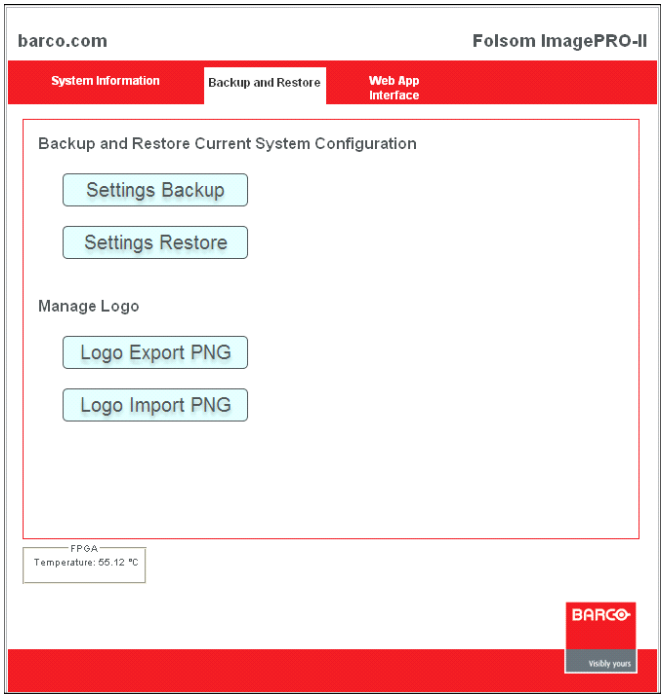


Figure 5-2. Backup and Restore Tab

2. Click either **Settings Backup** or **Logo Export PNG**.
3. In the **File Download** window that appears next, click **Save**.
4. In the **Save As** window, navigate to the directory where you want to store the file. Click **Save**.

Restoring Saved Data with the Web Interface

- To restore a saved system configuration, use the following procedure:

1. On the Web App Interface **Backup and Restore** tab, click **Settings Restore**. The window shown in the following illustration appears.

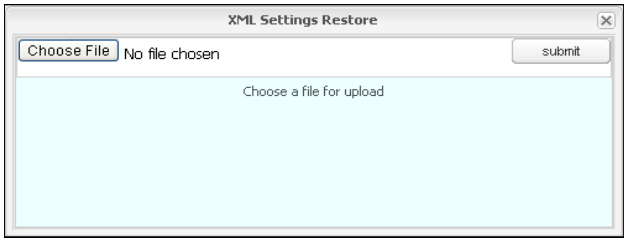


Figure 5-3. XML Settings Restore Window

2. Click **Choose File**.
3. In the window that appears, navigate to and select the file you want to restore.

   You are returned to the **XML Settings Restore** window, and the filename appears beneath the title bar.
4. Click **Submit**.

When the file is saved, you are prompted to restart the ImagePRO-II.

5. Click **Restart**. The system reboots using the restored configurations.

- To restore a saved logo, use the following procedure:

1. On the **Backup and Restore** tab, click **Logo Import PNG**.
2. On the window that appears, click **Choose File**.
3. Navigate to and select the logo that you want to restore.

Note	The logo file must be a .png file.

You are returned to the **Logo Import PNG** window, and the filename appears beneath the title bar.

4. Click **Submit**.

The logo file is uploaded to the ImagePRO-II. If the unit already has a stored logo, you are prompted to either overwrite the existing file or cancel the operation.

Web App Interface Introduction

The ImagePRO-II **Web App Interface** provides access to most of the same functions and parameters found on the front-panel buttons and menus. To use the interface, select the **Web App Interface** tab, shown in the following illustration.

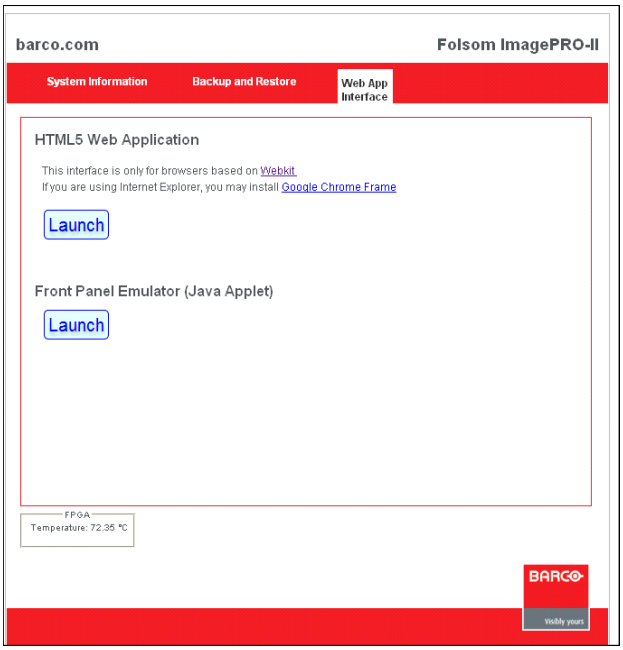


Figure 5-4. Web App Interface Tab

From this page, you can launch the interface, a series of web pages that provide access to key ImagePRO-II features. You also can launch the **Front Panel Emulator**, a Java applet that lets you remotely control these and all other front-panel functions. Because the

Emulator is Java-based, it is not available when using Apple devices.

Note

This chapter assumes the ImagePRO-II is in its factory default condition when you launch the Web App Interface. If you connect to an ImagePRO-II that has been adjusted from factory default condition, the settings you see on any web page may differ from those illustrated in this chapter.

Accessing the Web App Interface

To use the Web App Interface, open an **HTML5-compatible web browser**. The interface supports browsers powered by the cross-platform WebKit layout engine. For a list of supported browsers, click the Webkit link on the Web App Interface tab.

If you use Internet Explorer® versions 6, 7, 8, or 9, you can download **Google Chrome Frame**, a free plug-in, to access the Web App Interface.

The Web App Interface accesses an ImagePRO-II using the ImagePRO-II's IP address. The default IP address of the ImagePRO-II is **192.168.0.201**. If you work with multiple units, and each has a unique IP address, you can manage each ImagePRO-II by entering successive IP addresses in the web browser's address bar.

About the Web App Interface

The Web App Interface presents easy-to-read buttons, menus, and graphics to help you navigate and make selections in most ImagePRO-II menus.

Using the Web App Interface, you can:

- Adjust input format, color balance, and sizing
- Adjust output format, color effects, and color balance
- Mask an image
- Turn test patterns, raster boxes, and diagonal motion on or off
- Create an Area of Interest
- Set Pan and Zoom parameters
- Obtain EDID information from DVI-D, HD-15, and HDMI outputs
- Lock the front panel
- Freeze an image
- Transition to a stored logo or internal black

Note

This chapter assumes familiarity with ImagePRO-II features. If you need detailed descriptions of ImagePRO-II menus and functions, please refer to Chapter 4 **Menu Orientation**, on page 23.

About the Front Panel Emulator

The **Front Panel Emulator** is a graphical representation of the ImagePRO-II front panel, from which you can remotely control the unit.

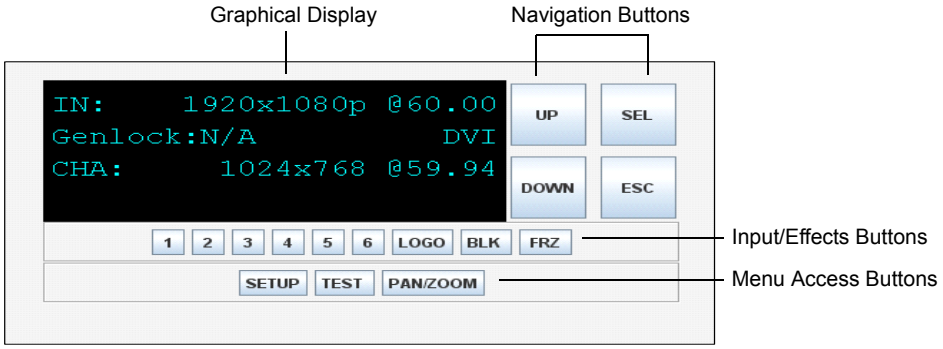


Figure 5-5. Front Panel Emulator (sample)

All front-panel functions, including those not available from the Web App Interface, are accessible from the **Front Panel Emulator**. For example, you can create custom formats and configuration files, define a view, use preset masks, restore factory default settings, and perform all other ImagePRO-II functions.

Note

Because the Front Panel Emulator is a Java applet, it is not available when using Apple devices.

For detailed information about using the Front Panel Emulator, refer to **Remotely**

Accessing Front-Panel Functions on page 158.

Web App Interface Features

The following illustration shows the features of a typical Web App Interface page.

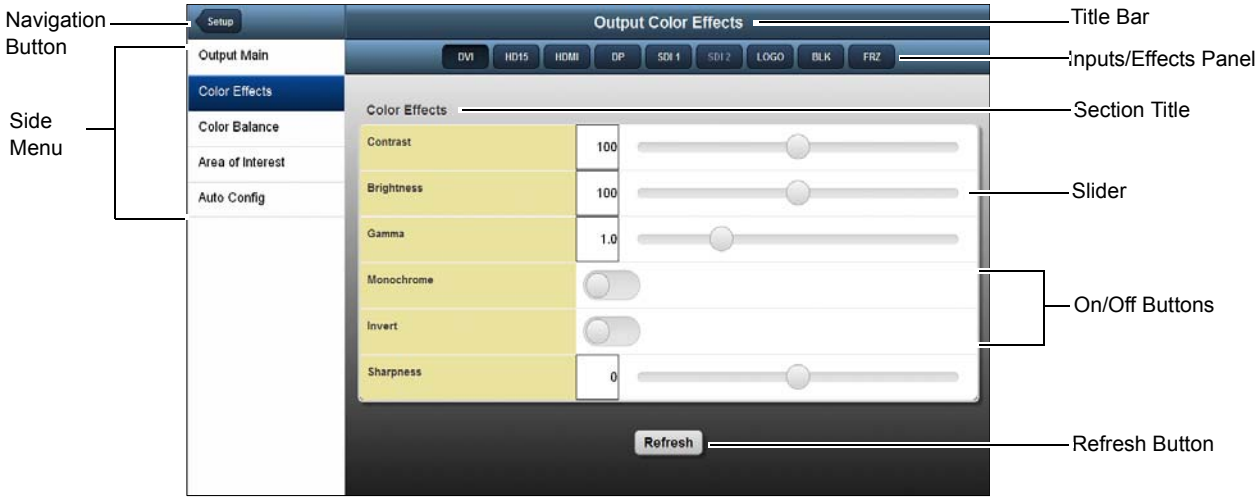


Figure 5-6. Output Color Effects Page

Web pages typically consist of the following elements:

- **Title Bar** — The title bar displays the ImagePRO-II name when you first access the Web App Interface. As you select options from the side menu, the title bar displays the name of the active menu.
- **Navigation Button** — To the right of the title bar is a button for navigating back one level in the interface. This button appears on every page except the **Home** page. For more information, refer to Navigation Button on page 138.
- **Side Menu** — At the left of each page, a side menu provides access to key menus and submenus. The selected menu is highlighted and its title appears in the title bar.
- **Input and Effects Panel** — The panel beneath the title bar displays selectable input and effects buttons. This panel appears at the top of every page. For details, refer to Input and Effects Panel on page 138.
- **Section Title** — The section title appears directly beneath the Input and Effects Panel. If a page consists of multiple sections, each section has a title.
- **Editable Text Fields** — Web App Interface pages use labeled text fields whose values can be selected, typed, or turned on and off. For details, refer to Sliders on page 139, On/Off Buttons on page 139, and Rotating Lists on page 140.
- **Refresh Button** — Each page in the interface contains a **Refresh** button that refreshes the Web App Interface with any new settings that have been changed from the front panel.

Using Web App Interface Buttons and Sliders

Web App Interface pages display graphic buttons and sliders that let you navigate through the site, access all inputs and effects, turn options on or off, or select values within a range. This section discusses each type of graphic.

Navigation Button

On every page except the **Home** page, a navigation button appears at the top left of the interface. This button lets you navigate back one level. The following illustration shows the two states of the navigation button.

Figure 5-7. Two States of the Navigation Button

- The **Back** button appears when you click **Setup** in the side menu. **Back** lets you navigate back one level.
- The **Setup** button appears when you enter the **Input Menu** or **Output Menu**. **Setup** lets you navigate back to the **Setup Menu**. The **Setup** button persists as you navigate down through the **Input** or **Output** menu options.

Use this navigation button — **not your browser's Back button or arrow** — to navigate back through the Web App Interface. If you use the browser's navigation tools, you risk losing your settings.

Input and Effects Panel

The panel at the top of the interface displays all the input buttons, plus the **LOGO**, **BLK** (Black)**,** and **FRZ** (Freeze) effects buttons. This panel remains on display as you navigate through the site.

Figure 5-8. Input and Effects Button Panel

The buttons on this panel work in exactly the same way as the buttons on the ImagePRO-II front panel. Click a button to switch inputs, freeze the image, or transition to a logo or internal black. As you click a button in this panel:

- The button is highlighted in this panel.
- The corresponding button on the front panel lights up.

Sliders

A slider lets you adjust values within a range. The available range and the units (i.e., pixels vs. percentages) are determined by the parameter you are adjusting.

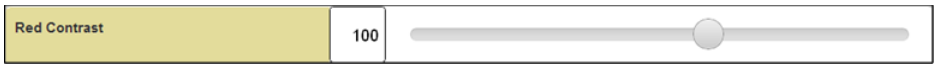


Figure 5-9. Web App Interface Slider

There are three ways to use the slider:

- Click the round button and hold it down as you drag it to the left or right.
- Click the editable text field to the left of the slider and type a new value. After you click outside the field, the slider moves to the left or right, and the display reflects the new setting.
- Click the editable text field and use the mouse wheel to scroll through the values.

On/Off Buttons

The buttons shown in the following illustration turn a feature on or off. When the background of an **On/Off** button is green, the feature is turned **On**. When the background of the button is gray, the feature is turned **Off**. In the following illustration from the **Test Patterns** page, **Raster Box** is turned on and **Diagonal Motion** is turned off.

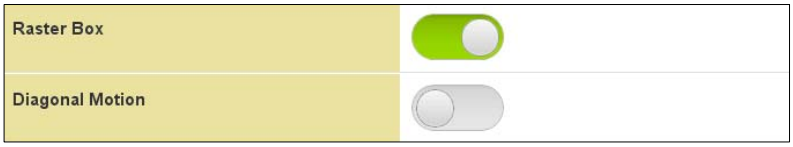


Figure 5-10. Two States of the On/Off Button

To turn a feature on or off, click the button and hold it down as you slide it to the left or right. Your selection takes effect immediately.

Using Web App Interface Menus

The Web App Interface displays two types of menus — the side menu that appears at the left side of each page, and rotating pop-up lists that can be displayed for select fields.

Using the Side Menu

The side menu is a dynamic list of submenu options, displayed on the left side of each page. To open a submenu, click one of the options.

The options that appear in the menu change as you navigate through the Web App Interface. On the **Home** page, the side menu presents the top-level menus shown in the following illustration.

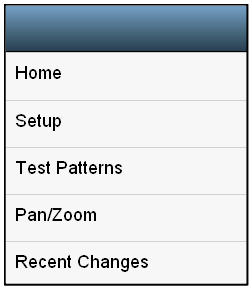


Figure 5-11. Home Page Side Menu

When you click **Setup**:

- The side menu changes to present the **Input** and **Output** submenus.
- The **Back** button appears at the upper left corner.
- The **Status** section to the right of the page does not change.

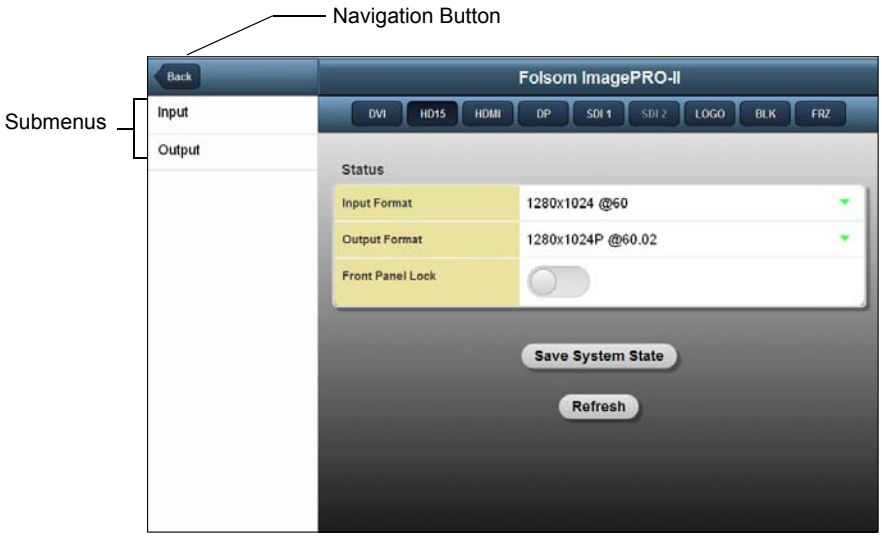


Figure 5-12. The Setup Page

As you drill down through submenus, the content of the right side of the page changes only when you come to a page that contains parameters you can adjust. For example, when you click **Test Patterns** on the **Home** page, the test pattern parameters are displayed on the right side of the screen. By contrast, if you click **Setup** on the **Home** page, the **Status** section remains in place until you drill down to the **Input Main** page.

For an overview of all the menus in the Web App Interface, refer to the **Web App Interface Menu Tree** section on page 143.

Rotating Lists

If a field displays a down arrow at the far right, you can click the arrow to display a pop-up rotating list, as shown in the following illustration. When the list appears, it displays a pointer to the field you selected, either at the top or the bottom of the menu box. In this illustration, the list for the **Unit** field is displayed.

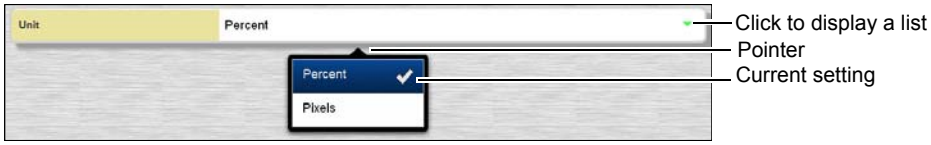


Figure 5-13. A Rotating List

The current setting is marked with a checkmark. To change this setting in a two-setting list such as the one illustrated, simply click the other option.

For longer lists, use the mouse wheel to scroll through the options, or use a “flick scrolling” technique. Click toward the bottom of the list, hold the mouse button down, and “flick” the list upward to see additional options. Or click toward the top of the list, hold the mouse button down, and “flick” the list downward.

As you scroll through a list, a vertical line, shown in the following illustration, appears at the right side of the menu as a guide.

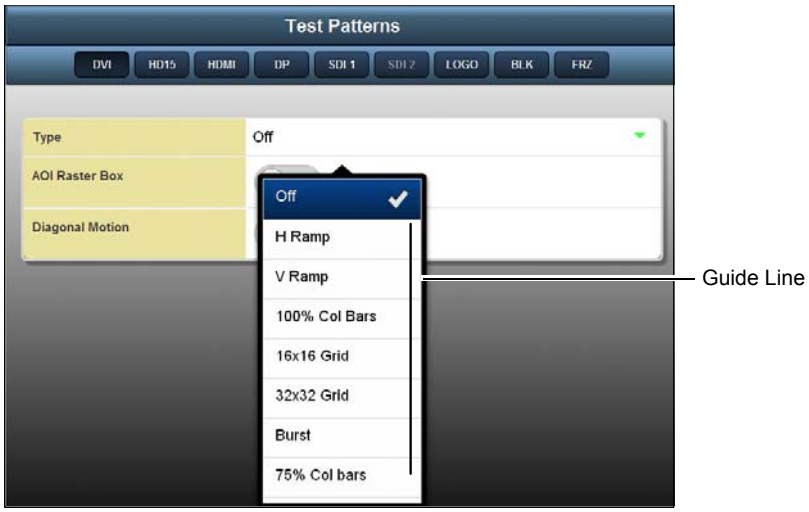


Figure 5-14. Guide Line in a Rotating List

When the top of this line is at the top of the menu box, you have reached the top of the menu.

- A gap between the top of this line and the top of the menu box indicates that there are additional choices **above** those that are displayed.
- A gap between the bottom of this line and the bottom of the menu box indicates that there are additional choices **below** those that are displayed, as shown in the illustration.

For very long lists, such as **Input Format** or **Output Format** lists, buttons appear at the top of the list to let you page up or down, as shown in the following illustration.

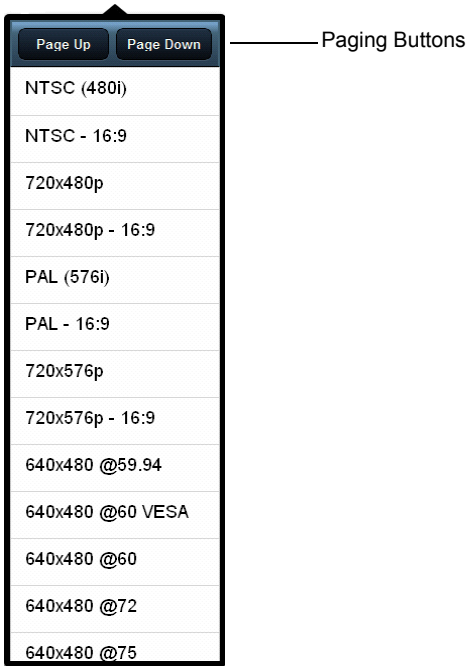


Figure 5-15. Page Up and Page Down Buttons

You can also use the mouse wheel to scroll through the list.

Web App Interface Menu Tree

The following illustration is a diagram of the menu tree of the Web App Interface. Refer to this diagram as you learn to navigate through the interface. In addition to the menus illustrated here, you can use the **Front Panel Emulator** to remotely change other front-panel settings. For more information, refer to **Remotely Accessing Front-Panel Functions** on page 158 of this chapter.

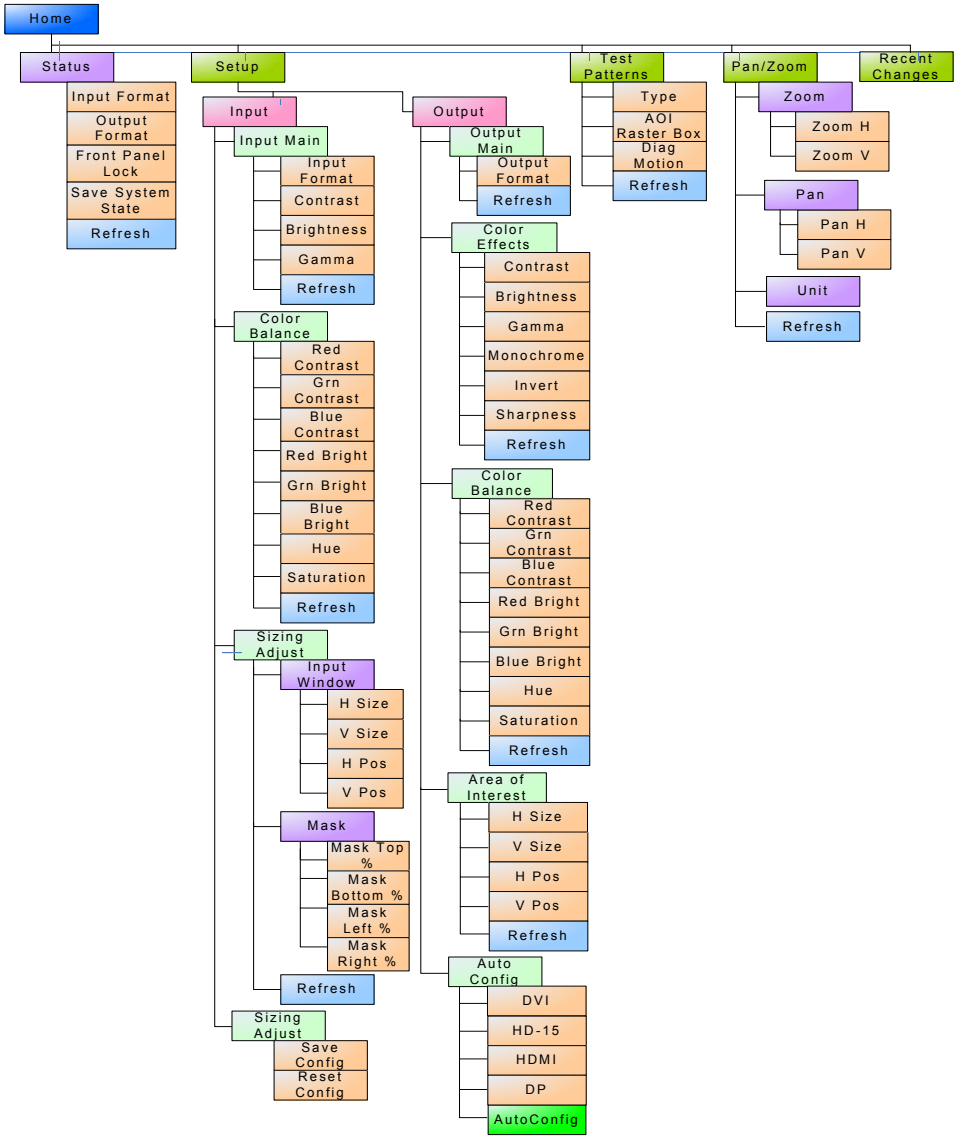


Figure 5-16. Web App Interface Menu Tree

Working with the Home Page

From the Web App Interface **Home** page, you can make quick adjustments to the input or output format, lock the front panel, save custom settings, refresh the page, or navigate anywhere in the interface.

Figure 5-17. Web App Interface Home Page

This section includes the following topics:

Changing Input and Output Formats with the Web App Interface

The Web App Interface provides three locations from which you can change both input and output formats:

- You can set *both* input and output formats on the **Home** page.
- You can set input formats on the **Input Main** page.
- You can set the output format on the **Output Main** page.

The procedure in all three locations is the same:

- To change the input format, use the following procedure:
  1. Select the input from the panel at the top of the page.
  2. Click the down arrow in the **Input Format** field.
  3. In the rotating list that appears, select the format you want. The format changes immediately for the selected input. For information about using lists, refer to **Rotating Lists** on page 140.
- To change the output format, use the following procedure:
  1. Click the down arrow in the **Output Format** field.
  2. In the rotating list that appears, select the format you want. The format changes immediately for the selected input or output.

Note The **Input Format** and **Output Format** lists do not include custom formats you may have previously saved to the ImagePRO-II. To apply a custom format, use the front panel **Input** and **Output** menus.

Locking the Front Panel with the Web App Interface

To lock the front panel from the **Home** page, click and hold down the **Front Panel Lock** button and slide it to the right. When you release the button, the background of the button turns green to indicate that the lock is active. When the front panel is locked, you can continue to use the Web App Interface to adjust settings on the ImagePRO-II.

The default setting for **Front Panel Lock** is **Off**.

Saving System State with the Web App Interface

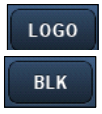
The **Save System State** button on the **Home** page saves all custom settings that you create, whether you change them from the Web App Interface or the front panel.

Refreshing the Web App Interface

The **Refresh** button appears on every page of the Web App Interface. This button refreshes the Web App Interface to update *all* settings you change using the front panel, even settings that do not apply to the page you are viewing.

Note Settings you change using the front panel are not applied to the Web App Interface until you click **Refresh**.

Transitioning to a Logo or Black with the Web App Interface

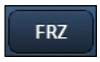


Select **LOGO** to transition to a stored logo. To transition back to the input video, click **LOGO** again.

Select **BLK** to transition to internal black. To transition back to the input video, click **BLK** again.

For information about setting up transition timings and effects, refer to **Using a Logo or Internal Black** in Chapter 4, on page 96.

Freezing an Image with the Web App Interface



To freeze the video image on display, click the **FRZ** button in the **Inputs and Effects** panel.

To unfreeze the image, click the appropriate input button to resume the video you froze, or click another input button to display a different image.

Configuring Inputs with the Web App Interface

The **Input Main** page lets you adjust the input format, contrast, brightness, and gamma settings. In addition, you can access the **Color Balance** and **Sizing Adjust** pages from the side menu on this page.

After configuring the input, you can save your settings for later use and recall them when necessary. For details about these operations, refer to **Backing Up and Restoring Data with the Web Interface**, on page 132 of this chapter.

To access **Input Main** from the **Home** page, choose **Setup** > **Input** > **Input Main**.

Figure 5-18. The Input Main Page

The following topics are included in this section:

- **Working with the Input Main Page**
- **Adjusting Input Color Balance with the Web App Interface**
- **Sizing, Positioning, and Masking an Image**

Working with the Input Main Page

Like the **Home** page, the **Input Main** page provides a field for changing the input format. In addition, you can set contrast, brightness, and gamma values for the current input. You can also access two submenus — **Color Balance** and **Sizing Adjust**.

- On the **Input Main** page:

  1. Select an input.
  2. To change the input format, click the down arrow in the **Input Format** field and choose one of the options.
  3. To change contrast, brightness or gamma, click the appropriate slider button and drag it to the left or right. Alternatively, you can click the number field to the left of the slider and type a different number. Your change takes effect immediately.
     - **Contrast** and **Brightness** values are in percentages, ranging from **25%** to **150%**. The default setting is **100%**.
     - **Gamma** values range from **0.3** to **3.0**, in 0.1 increments. The default value is **1.0**.

Adjusting Input Color Balance with the Web App Interface

On the **Input Main** page, select **Color Balance** in the side menu. The **Color Balance** page appears, as shown in the following illustration. The values for contrast, brightness, and saturation are in percentages. The values for hue are in degrees.

Figure 5-19. Input Color Balance Page

You can adjust both RGB contrast and RGB brightness within a range of **25%** to **150%**. The default setting for both contrast and brightness is **100%**.

Hue is measured in degrees. The range is **-90** to **+90** degrees. The default setting is **0**.

Saturation is a percentage, ranging from **0%** to **150%**. The default setting is **100%**.

Sizing, Positioning, and Masking an Image

The **Input Sizing Adjust** page, shown in the following illustration, is divided into two sections:

- **Input Window** — In this section, you can adjust the size and position of the image within the active area.
- **Mask** — In this section, you can create a mask for one or more edges of the image.

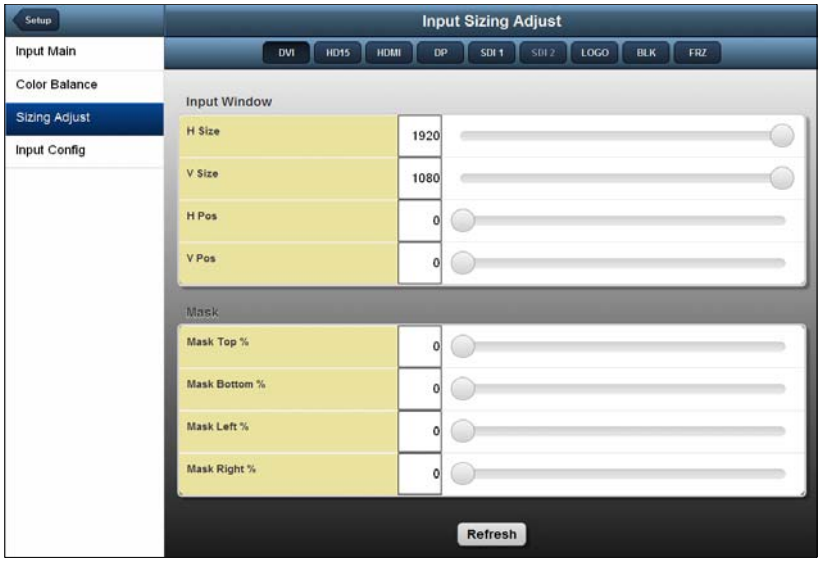


Figure 5-20. Input Szing Adjust Page

Sizing and Positioning an Image with the Web App Interface

To adjust the size or position of the video inside the active area, go to **Setup** > **Input** > **Input Main** > **Sizing Adjust**.

In the **Input Window** section of the **Input Sizing Adjust** page, the **Size** and **Pos** (Position) functions allow you to size the image, and then position the resized image within the active area.

To change input image size and positioning, use the following procedure:

1. Select **H Size** to size both the left and right edges **simultaneously**. Values are in pixels, ranging from **0** to the maximum number of horizontal pixels. The output "window" is maintained in both size and aspect ratio.

   The default setting for **H Size** is the current maximum active pixels. Moving the slider to the *left* zooms in on the image and expands the image along the horizontal plane. You can then use the **Pos** functions to move to the portion of the image you want to display.

2. Select **V Size** to size both the top and bottom edges simultaneously. Values are in lines, from **0** to the maximum number of vertical lines. The output "window" is maintained in both size and aspect ratio.

   The default setting for **V Size** is the current maximum active lines. Moving the slider to the *left* zooms in on the image and expands the image along the vertical. You can then use the **Pos** functions to move to the portion of the image you want to display.

3. Select **H Pos** to pan an image left or right, within the active area. Values are in pixels. The default value is **0**, representing the horizontal center of the active area. Decreasing the **H Pos** value moves the image to the right. Increasing the **H Pos** value moves the image to the left.
4. Select **V Pos** to pan an image up or down, within the active area. Values are in lines. The default value is **0**, representing the vertical center of the active area. Decreasing the **V Pos** value moves the image up. Increasing the **V Pos** value moves the image down.

Masking an Image with the Web App Interface

In the **Mask** section of the **Input Sizing Adjust** page, you can mask each edge separately. Masking an image means applying black bars to one or more edges, typically to remove noise. Mask values are given in percentages, and range from **0%** to **100%**. The default mask value is **0%**.

- To mask the image on display, change the values for one or more edges, either by moving the slider to the right from **0**, or by typing a percentage value in the field to the left of the slider.

If you wish to mask all the edges at once to achieve a particular aspect ratio, you can do so from the front panel. Refer to the **Using Mask Presets** section of Chapter 4, on page 42.

Saving and Resetting Input Configurations

After changing an input's settings, you can save those settings on the **Input Config** page. On this page, you can also restore the input's default configuration after making changes.

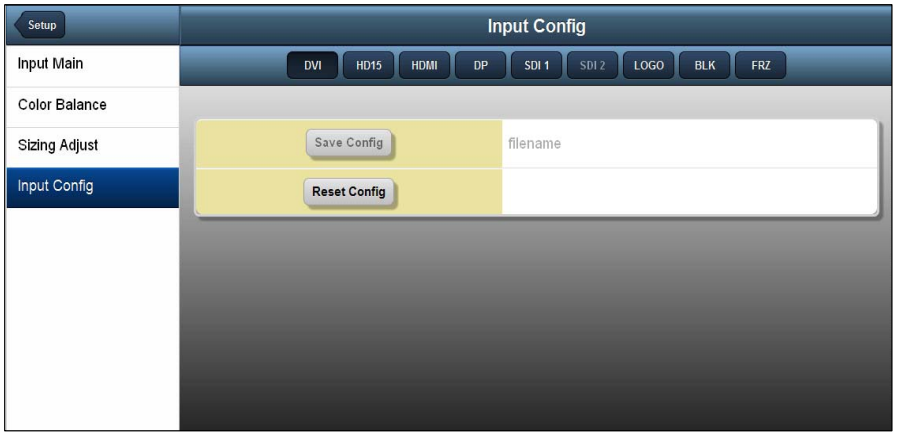


Figure 5-21. The Input Config Page

- To save an input's custom configuration settings, use the following procedure:
  1. With the input selected, navigate to **Input** > **Input Config**.
  2. Click the **filename** field beside the **Save Config** button. Type a filename.

     The filename can consist of up to 20 alphanumeric characters. If you include spaces or special characters — such as asterisks, percentage signs or ampersands — the field background turns red and you cannot save the name.
  3. Click **Save Config**. A confirmation message appears.
- To restore the input to its default configuration, select the input and click **Reset Config**.

- You can recall a saved configuration using the front panel, as described in Recalling an Input Configuration, on page 50 of Chapter 4.

Configuring Outputs with the Web App Interface

The **Output Main** page provides a field for changing the output format, and also displays menus for adjusting various color settings.

After configuring the output, you can save your settings for later use and recall them when necessary. For details about these operations, refer to Backing Up and Restoring Data with the Web Interface, on page 132 of this chapter.

To access **Output Main** from the **Home** page, choose **Setup** > **Output** > **Output Main**.

Figure 5-22. Output Main Page

The following topics are included in this section:

- Setting Output Format with the Web App Interface
- Adjusting Output Color Effects with the Web App Interface
- Adjusting Output Color Balance with the Web App Interface
- Setting an Area of Interest with the Web App Interface
- Obtaining Output EDID with the Web Interface

Setting Output Format with the Web App Interface

The only available field on the **Output Main** page is the **Format** field. This field displays a standard list of formats but does *not* include any custom formats you may have saved using the front-panel **Formats** menu. To apply custom formats, refer to the Creating Custom Formats section in Chapter 4 on page 73.

- To change the output format from the **Output Main** page, click the down arrow in the **Format** field and select a format. If you select a format that is incompatible with the output device, the output device does not display video. Otherwise, your change takes effect immediately.

Adjusting Output Color Effects with the Web App Interface

On the **Color Effects** page, you can change output color, brightness, gamma and sharpness. You can also invert the color palette of an image, or set a color image to monochrome.

To access **Color Effects** from the **Home** page, select **Setup** > **Output** > **Output Main** > **Color Effects**.

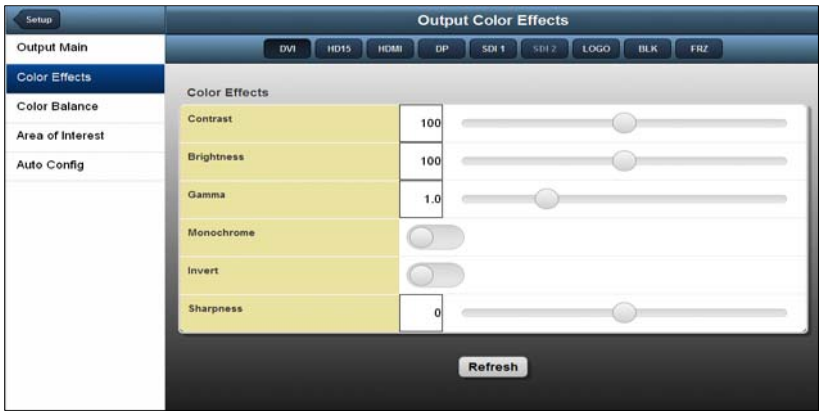


Figure 5-23. Output Color Effects Page

On this page:

- The **Contrast** and **Brightness** settings are adjustable within a range of **0%** to **200%**. The default setting for both of these properties is **100%**.
- **Gamma** is adjustable within a range of **0.3** to **3.0**. The default setting is **1.0**.
- The **Sharpness** option sets the sharpness or softness of the output image. The range is from **-10** (softest) to **+10** (sharpest). The default value is **0**.

For information about the **Monochrome** and **Invert** functions, refer to **Changing the Output Color Palette with the Web App Interface** on page 151.

Changing the Output Color Palette with the Web App Interface

On the **Color Effects** page, you can:

- Change a full-color image to a monochrome (grayscale) image. **Monochrome** is either **On** or **Off**. The default setting is **Off**.
- Invert the colors in the image's color palette by 180 degrees. The default setting for **Invert** is **Off**.

To see examples of these color effects, refer to **Setting Output Effects** on page 64 of Chapter 4.

Adjusting Output Color Balance with the Web App Interface

The **Color Balance** page lets you adjust RGB contrast and brightness values separately, and change hue and color saturation settings.

To access **Color Balance** from the **Home** page, select **Setup** > **Output** > **Output Main** > **Color Balance.**

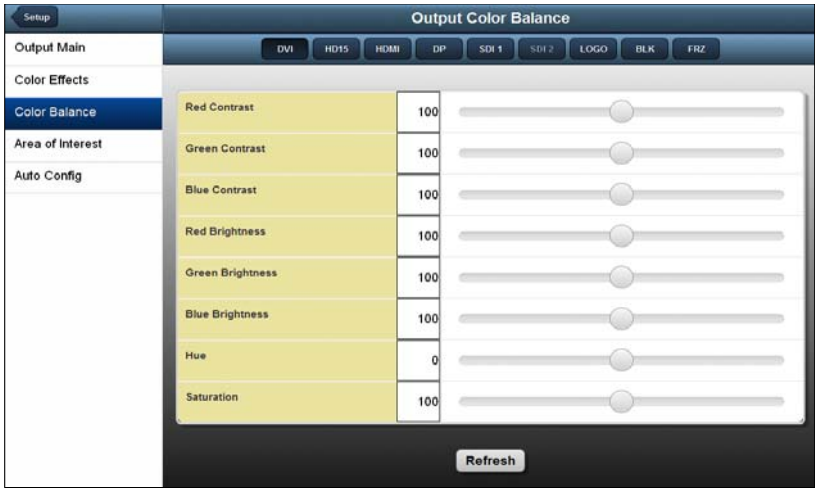


Figure 5-24. Output Color Balance Page

On this page:

- The RGB **Contrast** and **Brightness** settings are adjustable within a range of **0%** to **200%**. The default setting for all of these properties is **100%**.
- **Hue** is adjustable within a range of **-180** to **+180** degrees. The default setting is **0** degrees.
- **Saturation** is adjustable within a range of **0%** to **200%**. The default setting is **0%**.

Setting an Area of Interest with the Web App Interface

The output **Area of Interest** (AOI) is the portion of the display that your video occupies. The default AOI exactly overlaps the output active area, but you can position the video anywhere in that active area. As you do so, you change the size of the image without affecting aspect ratio.

For details about positioning the image in the Area of Interest, and to see examples, refer to **Setting the Area of Interest** in Chapter 4, on page 56.

From the **Home** page, click **Output** > **Area of Interest**. The **Area of Interest** page appears, as shown in the following illustration.

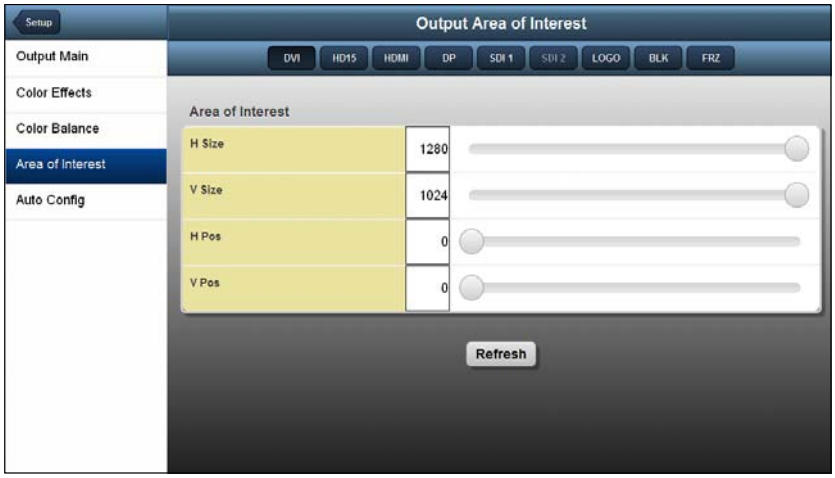


Figure 5-25. Area of Interest Page

- To change the Area of Interest, use any of the following settings:
  - **H Size** — Determines the width (in pixels) of the Area of Interest. This setting must be equal to or less than the **H Active** setting of the output timing.
  - **V Size** — Determines the height (in lines) of the Area of Interest. This setting must be equal to or less than the **V Active** setting of the output timing.
  - **H Pos** — If **H Size** is less than the **H Active** setting of the output timing, you can move the image horizontally. The default setting of **0** represents the *left* of the display, so increasing this value moves the Area of Interest to the *right*.
  - **V Pos** — After adjusting the **V Size**, you can move the image vertically within the output's active vertical limits. The default setting of **0** represents the *top* of the display, so increasing this value moves the Area of Interest *down*.

Obtaining Output EDID with the Web Interface

Extended Display Identification Data (**EDID**) is a data structure that an output display uses to describe itself to a video source. The EDID can include information such as the manufacturer's name, a serial number, product type, timings supported by the display, display size, and other data.

For output devices connected to the ImagePRO-II, you can read the name of the digital display and the preferred video format that the display uses.

The **EDID Config** page, shown in the following illustration, supports letting the output device on the **DVI-D**, **HD-15**, **HDMI**, or **DisplayPort** connector change the output format of the ImagePRO-II. As the format changes, the colorspace, sample rate and bit depth may also change.

Figure 5-26. Output Auto Config Page

- To let the output device change the output format of the ImagePRO-II, use the following procedure:

  1. On the **Output Auto Config** page, select the field for one of the outputs.
  2. Click **Auto Config**.

     If a change is required, the change takes effect immediately. If the change is not successful, an error message appears below the Auto Config button. In this case, check that the output display is connected and try again.

Setting Up Test Patterns with the Web App Interface

From the Web App Interface, you can set up test patterns on an output display, turn the Area of Interest raster box on or off, and set up diagonal motion for the pattern.

To access the **Test Patterns** page from the **Home** page, select **Test Patterns** from the side menu.

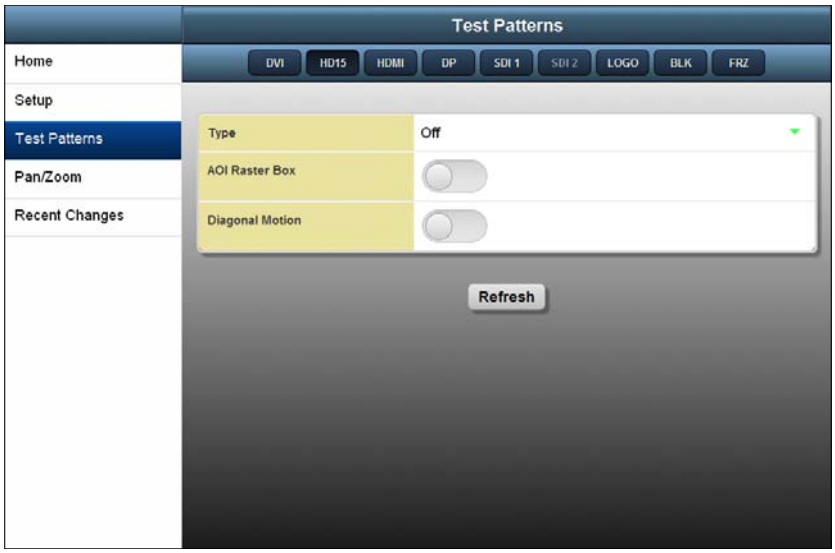


Figure 5-27. Test Patterns Page

- To display a test pattern or turn on the Area of Interest raster box, use the following procedure:

  1. From the **Type** menu on the **Test Patterns** page, select the type of test pattern to display. The options are:

Off	H Ramp	V Ramp
100% Color Bars	16x16 Grid	32x32 Grid
Burst	75% Color Bars	50% Gray
Gray Steps 1	Gray Steps 2	White
Black	SMPTE Bars	

  2. To turn on the Area of Interest raster box, move the **Raster Box** button to the right. This raster box is a broken one-pixel-wide green line, inside which you can position the display image.
  3. To set diagonal motion for the test pattern, move the **Diagonal Motion** button to the right.
     - ~ The motion is a bottom-right to top-left diagonal for 16x16 Grid, 32x32 Grid, Burst, 75% Color Bars, and Gray Steps 1.
     - ~ The motion is right to left for 100% Color Bars.
     - ~ The motion is bottom to top for Gray Steps 2.
     - ~ There is no motion in H Ramp, V Ramp, or Black patterns.
     - ~ For 50% Gray and White, the motion is a strobing effect.

Creating Pan and Zoom Settings with the Web App Interface

The **Pan/Zoom** page lets you zoom in or out on an image, and pan horizontally or vertically to the portion you wish to display. You can assign the pan and zoom settings to an input using this page.

Figure 5-28. Pan/Zoom Page

On this page, you can set pan and zoom values in pixels or percentages.

Note

If you wish to save your settings, you can do so from the front panel. For more information, refer to **Creating and Saving Views** in Chapter 4, on page 78.

On the **Pan/Zoom** page, the options are:

- **Zoom H** and **Zoom V** define horizontal or vertical zoom settings individually. The default setting is the maximum number of pixels (**Zoom H**) and lines (**Zoom V**). You can increase or decrease these values.
- **Pan H** and **Pan V** adjust horizontal and vertical pan settings individually.
- **Unit** defines the units you are working in — either pixels or percentages.

Viewing and Resetting Recent Changes

The Web App Interface **Recent Changes** page lets you revert most settings in the **Setup**, **Test Patterns**, and **Pan/Zoom** menus to their previous values after you have made changes.

The following settings ***cannot*** be reset to their default values on this page:

- Input Format
- Output Format
- Front Panel Lock
- Test Pattern Type

Note

Changes to the **Raster Box** and **Diagonal Motion** settings are displayed on the **Recent Changes** page and can revert to their previous settings.

- To revert one or more settings to their previous values, use the following procedure:

1. Select an input.
2. From the **Home** menu, select **Recent Changes**. The **Recent Changes** page appears, displaying changes made to the selected input's parameters.

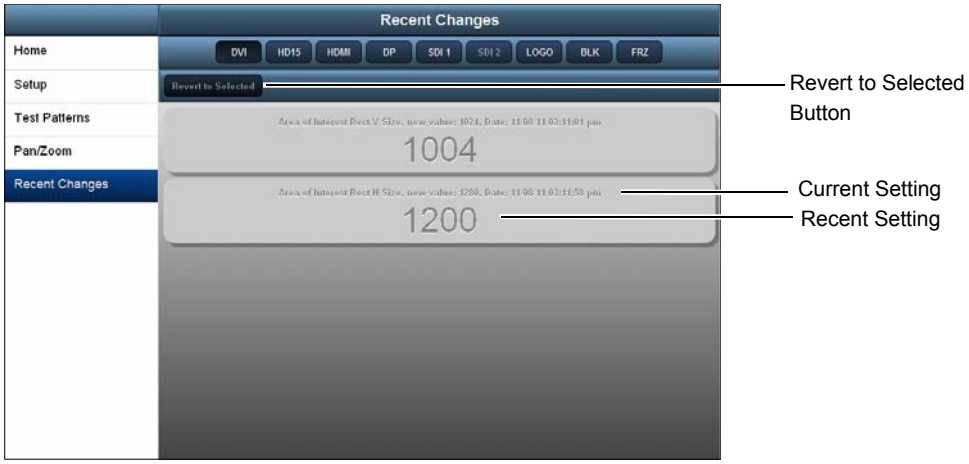


Figure 5-29. Recent Changes Page

~ The first line of each field displays the name of the page and the parameter that changed, along with the new value for that parameter.

~ The second line displays the value to which you can revert this setting.

~ The **Revert to Selected** button is not available until you select a value to revert.

If you made numerous changes to the same parameter, each change is displayed on this page, and you can select the value to which you want to revert the parameter.

If this list is long, you can scroll through it using the mouse wheel or the elevator bar at the right of the page.

3. To change a value, select one or more fields. The background color of the selected field(s) changes, as shown in the following illustration. The **Revert to Selected** button becomes available.

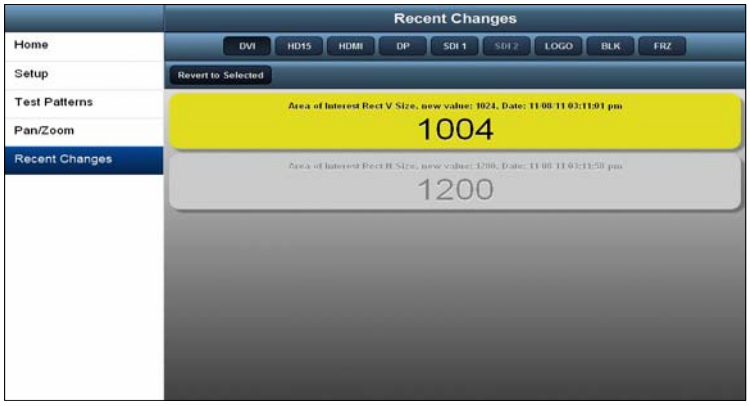


Figure 5-30. Selection on the Recent Changes Page

4. Click **Revert to Selected**.

   The selected settings revert immediately to their previous values, and they are removed from this page.

Remotely Accessing Front-Panel Functions

The **Front Panel Emulator** lets you access the ImagePRO-II front panel to augment Web App Interface functionality when you operate the unit remotely. All front-panel menus and buttons are available to you remotely through the Emulator.

Note

Because the Front Panel Emulator is a Java applet, it is not available when using Apple devices.

As the following illustration shows, the Front Panel Emulator presents a replica of the four-line display screen on the front panel. The content on the screen reflects the settings of the ImagePRO-II to which you are connected.

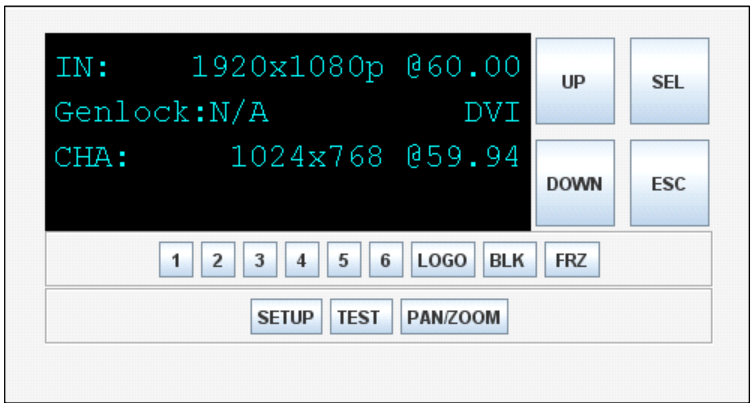


Figure 5-31. Front Panel Emulator

The Emulator also provides:

- **SEL** and **ESC** buttons for making selections or backing out of menus
- Two navigation buttons — **UP** and **DOWN** — to take the place of the **ADJUST** knob
- All the front-panel **Input** and **Effects** buttons
- Buttons to launch the **Setup**, **Test Patterns**, and **Pan/Zoom** menus

For information about using any of the front-panel menus or functions, refer to Chapter 4 **Menu Orientation**, on page 23.

Launching the Front Panel Emulator

To launch the **Front Panel Emulator**, use the following procedure:

1. On the **Web App Interface** tab, click the **Launch** button below **Front Panel Emulator** (Java Applet).

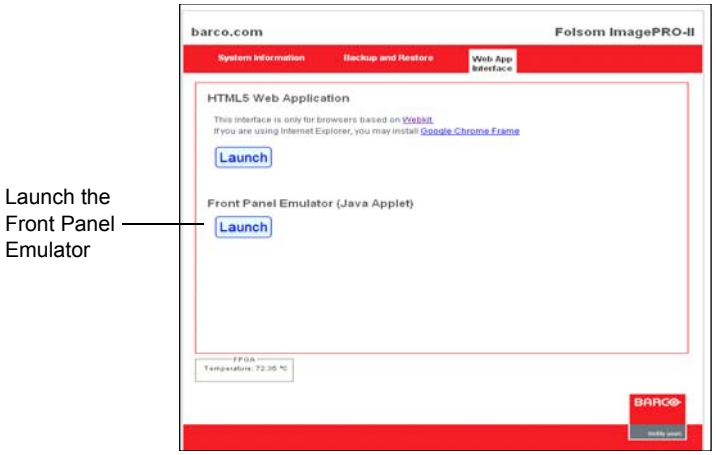


Figure 5-32. Front Panel Emulator Launch Button

2. The Front Panel Emulator is a Java applet that you must install the first time you use the Emulator. To install it, follow the on-screen instructions.

   If the Java applet is installed and you are prompted to run it, select either **Run this time** or **Always run on this site**.

   The **Front Panel Emulator** appears.

3. Click an **Input** button to select an input.
4. Click the **SETUP** button to access the **Setup Menu**. The menu appears in the graphical display screen.

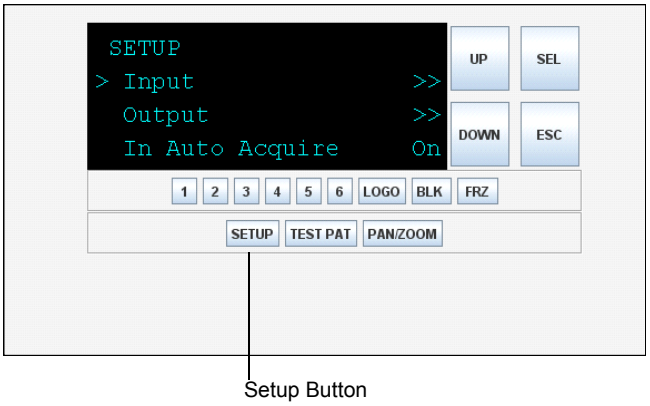


Figure 5-33. Setup Menu — Front Panel Emulator

5. Use the **DOWN** button to scroll down through this menu. Click **SEL** to select an item.

   Continue using the navigation buttons to scroll through menu options and make selections.

6. To exit the **Setup Menu** and return to the **Status Menu**, click **SETUP** again. Or click another button to work with a different input, a test pattern, or one of the effects.

Exiting the Front Panel Emulator

- To exit the Front Panel Emulator, click the **Back** button or arrow on your web browser. You return to the **System Information** tab of the interface.

A. Specifications

In This Appendix

This appendix provides detailed technical specifications for the ImagePRO-II. The following topics are provided:

Input Specifications

The following table lists ImagePRO-II input specifications.

Table A-1. ImagePRO-II Input Specifications

Input	Detail	Specification
Input 1	Connector	DVI-I
	Format (Digital)	All single-link DVI digital formats up to 165 MHz, per DVI 1.0 Specification
		All dual-link DVI formats up to 300 MHz
		Max H Active: 4096 Max V Active: 3072
	Format (Analog)	NTSC/PAL composite and Y/C video SD YPbPr with bi-level sync HD YPbPr with tri-level sync RGBHV/RGBS/RGsB computer video with bi-level sync
	Sampling	Analog sources with pixel rates up to 170 MHz are sampled 1:1. Analog sources with pixel rates above 170 MHz are filtered and sampled at 170 MHz, including but not limited to: • 1920x1080p • 1920x1200 p • 2048x1080p
	Loop-through	Active loop-through output of all input signals, including HDCP
	EDID	EDID version 1.3 compatible
	HDCP hardware support	HDCP version 1.4 compatible
Input 2	Connector	HD-15 VGA
	Format	NTSC/PAL composite and Y/C video SD YPbPr with bi-level sync HD YPbPr with tri-level sync per SMPTE 274 RGBHV/RGBS/RGsB computer video with bi-level sync
	Sampling	Analog sources with pixel rates up to 170 MHz are sampled 1:1. Analog sources with pixel rates above 170 MHz are filtered and sampled at 170 MHz, including but not limited to: • 1920x1200 p • 2048x1080p
	EDID	EDID version 1.3 compatible
	Loop-through	Active loop-through output of all input signals.

Table A-1. ImagePRO-II Input Specifications

Input	Detail	Specification
Input 3	Connector	HDMI (Type A)
	Formats	RGB and YCbCr at 4:4:4, YCbCr at 4:4:2, per HDMI 1.4 specification
		Deep color at 8/10/12 bits
		Resolutions up to 2048x1080p @ 60 Hz
	EDID support	EDID 1.3 compatible
	HDCP hardware support	HDCP 1.4 compatible
	Audio Processing	LPCM audio only
		Max channels supported: 8
		Bit depths supported: 16, 20 or 24
		Sample rate: 48 KHz
Input 4	Connector	DisplayPort
	Formats	Resolutions up to 2560x1600 @ 60 Hz (30 bits), per DisplayPort 1.1a Specification
	EDID and HDCP hardware support	EDID 1.3 compatible & HDCP 1.4 compatible
	Audio Processing	LPCM audio only
		Max channels supported: 8
		Bit depths supported: 16, 20 or 24
		Sample rate: 48 KHz
Inputs 5 and 6	Connector	SD/HD/3G SDI on BNC connector
	Formats	SD-SDI per SMPTE 259M-C (NTSC/PAL resolution)
		HD-SDI per SMPTE 292M, 296M
		3G-SDI per SMPTE 425
	Loop-through	Re-clocked loop-through output
	Audio Processing	LPCM audio only
		Max channels supported: 8
		Bit depths supported: 20 or 24
		Sample rate: 48 KHz

Genlock Specifications

The following table lists the Genlock input specifications.

Table A-2. Genlock Input Specification

Input	Detail	Specification
Genlock	Connector	BNC connector
	Formats	NTSC/PAL blackburst
		HD with tri-level sync
		SMPTE bi-level sync
	Loop-through	Passive loop-through

Output Specifications

The following table lists the ImagePRO-II output specifications.

Table A-3. ImagePRO-II Output Specifications

Output	Detail	Specification
DVI-D	Connector	DVI-D
	Formats	All single-link DVI digital formats up to 165 MHz, per DVI 1.0 Specification
		All dual-link DVI formats up to 300 MHz
	EDID support	EDID 1.3 compatible
	HDCP hardware support	HDCP 1.4 compatible
HD-15	Connector	HD-15 VGA
	Format	NTSC/PAL composite on green pin NTSC/PAL Y/C video with bi-level sync on Y only: • Y on Green pin • C on Red pin SD YPbPr with bi-level sync HD YPbPr with tri-level sync per SMPTE 274 RGBHV/RGBS/RGsB computer video with bi-level sync
	EDID support	EDID 1.3 compatible
HDMI	Connector	HDMI (Type A)
	Formats	RGB and YCbCr at 4:4:4, per HDMI 1.4 specification
		Resolutions up to 2048x1080p @ 60 Hz
	EDID support	EDID 1.3 compatible
	HDCP hardware support	HDCP 1.4 compatible
	Audio Processing	LPCM audio only
		Max channels supported: 8

Table A-3. ImagePRO-II Output Specifications

Output	Detail	Specification
		Bit depths supported: 16, 20 or 24
		Sample rate: 48 KHz
DisplayPort	Connector	DisplayPort
	Formats	Resolutions up to 2560x1600p @60 Hz
	EDID	EDID 1.3 compatible
	HDCP hardware support	HDCP 1.4 compatible
	Audio Processing	LPCM audio only
		Max channels supported: 8
		Bit depths supported: 16, 20 or 24
		Sample rate: 48 KHz
SDI-1 and 2	Connector	SD/HD/3G SDI on BNC connector
	Formats	SD-SDI per SMPTE 259M-C (NTSC/PAL resolution)
		HD-SDI per SMPTE 292M, 296M
		3G-SDI per SMPTE 425
	Audio Processing	LPCM audio only
		Max channels supported: 8
		Bit depths supported for HD or 3G formats: 20 or 24 Bit depth supported for SD formats: 20 (as per SMPTE 272M-2004 Level A)
		Sample rate: 48 KHz
Composite Video	Connector	NTSC/PAL composite video on BNC connector

Audio Mezzanine Specifications

The following table lists the ImagePRO-II Audio mezzanine specifications.

Table A-4. ImagePRO-II Audio Mezzanine Specifications

Connection	Detail	Specification
Analog Inputs	Channels	2 channels of balanced audio, each on 3 pins
	Sample Rate	48 KHz
	Frequency Response	+/- 0.5dB, 20Hz to 20 KHz
	Signal-to-Noise Ratio	90dB A-weighting
	Total Harmonic Distortion + Noise	-70dB @ -1dBFS
	Common Mode Rejection	75dB @ 60Hz
	Crosstalk	-90dB @ 1KHz
	Input Impedance	10K Ohms
	Input Level Control	+4dBu, -10dBV
	Recommended Connector	XLR
	Recommended Cable Type	110 Ohm Differential Twinax
Digital Inputs	Audio Processing	8 channels of AES/EBU inputs, 2 channels per pin
	Connection	75 ohms, unbalanced
	Audio Type	LPCM only
	Bit Depths supported	20 or 24
	Sample rates supported	48KHz or 96KHz
	Recommended Connector	BNC
	Recommended Cable Type	75 Ohm Coax
Analog Outputs	Channels	2 channels of Balanced audio, each on 3 pins
	Sample Rate	48 KHz
	Frequency Response	+/- 0.5dB, 20Hz to 20 KHz
	Signal-to-Noise Ratio	90dB A-weighting
	Total Harmonic Distortion + Noise	-70dB @ -1dBFS
	Crosstalk	-90dB @ 1KHz
	Output Impedance	50 Ohms

Table A-4. ImagePRO-II Audio Mezzanine Specifications

Connection	Detail	Specification
	Input Level Control	+4dBu, -10dBV
	Recommended Connector	XLR
	Recommended Cable Type	110 Ohm Differential Twinax
Digital Outputs	Audio Processing	8 channels of AES/EBU inputs, 2 channels per pin
	Connection	75 ohms, unbalanced
	Audio Type	LPCM only
	Bit Depths supported	20 or 24
	Sample rates supported	48KHz or 96KHz
	Recommended Connector	BNC
	Recommended Cable Type	75 Ohm Coax
	Max Cable Length	100m

User Control Specifications

The following table lists ImagePRO-II user control specifications.

Table A-5. ImagePRO-II User Control Specifications

Parameter	Specification
Control Modes	The unit may be controlled from a computer, tablet, smartphone, or external Encore or ScreenPRO-II Controller via Ethernet link.
	Control functions include: • Source input configuration • Output format selection • Test pattern selection • Transition effect selection and control
Front Panel Controls	Dimmable display screen Rotary encoder for easy menu navigation LED-lit buttons activate inputs, access key menus, manage transitions to a logo or internal black, and freeze the video.

Physical and Electrical Specifications

The following table lists ImagePRO-II physical and electrical specifications.

Table A-6. ImagePRO-II Physical and Electrical Specifications

Parameter	Specification
Power	100-240 VAC, 47-63 Hz, Auto-selecting 2.0A maximum
Mechanical	1 RU Rackmount Chassis
	H: 1.72 in (4.4 cm)
	W: 17 in (43.2 cm) without chassis handles, 19.06 in (48.4 cm) with chassis handles attached
	D: 17.09 in (43.4 cm) from front panel to rear panel, 18.51 in (47 cm) from front of Adjust knob to face of BNC connectors
Weight	15.75 lb (7.1 kg)
Temperature	0-104 degrees Fahrenheit (0-40 degrees Celsius)
Humidity	0-95% non-condensing

Communications Specifications

The following table lists ImagePRO-II communications specifications.

Table A-7. ImagePRO-II Communications Specifications

Parameter	Specification
USB	USB 1.1
Ethernet	RJ-45, 10/100 Mbps Autosense

Standard Connector Pinouts

The following topics are discussed in this section:

- **Analog 15-pin D Connector Pinouts**
- **DisplayPort Connector Pinouts**
- **DVI Connector Pinouts**
- **Ethernet Connector Pinouts**
- **HDMI Connector Pinouts**
- **Audio Mezzanine Pinouts**

Analog 15-pin D Connector Pinouts

The following figure illustrates the analog 15-pin D connector:

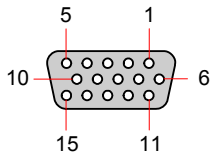


Figure A-1. Analog 15-pin D Connector

The following table lists Analog 15-pin D connector pinouts.

Table A-8. Analog 15-pin D Connector Pinouts

Pin	Signal	Pin	Signal
1	Red	9	
2	Green	10	GND
3	Blue	11	
4		12	
5		13	H Sync or C Sync
6	Red return	14	V Sync

Table A-8. Analog 15-pin D Connector Pinouts

Pin	Signal	Pin	Signal
7	Green return	15	
8	Blue return		

DisplayPort Connector Pinouts

The following figure illustrates the DisplayPort connector.

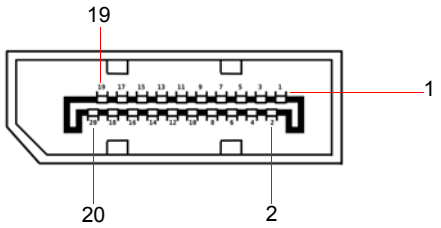


Figure A-2. DisplayPort Connector

The following table lists the DisplayPort connector pinouts.

Table A-9. DisplayPort Connector Pinouts

Pin	Signal	Pin	Signal
1	ML_Lane 0 (p)	11	GND
2	GND	12	ML-Lane 3 (n)
3	ML_Lane 0 (n)	13	CONFIG1 (connected to Ground)
4	ML-Lane 1 (p)	14	Config2 (connected to Ground)
5	GND	15	AUX CH (p)
6	ML_Lane 1 (n)	16	GND
7	ML-Lane 2 (p)	17	AUX CH (n)
8	GND	18	Hot Plug Detect
9	ML_Lane 2 (n)	19	Return (return for power)
10	ML_Lane 3 (p)	20	DP_PWR Power for connector (3.3 V, 500 mA)

DVI Connector Pinouts

The following figure illustrates the DVI connector.

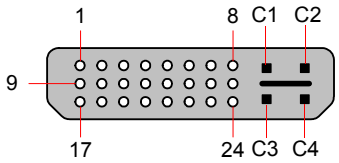


Figure A-1. DVI Connector

The following table lists DVI Connector pinouts. Please note:

- T.M.D.S = Transition Minimized Differential Signal
- DDC = Display Data Channel

Table A-10. DVI Connector Pinouts

Pin	Signal	Pin	Signal
1	T.M.D.S. Data 2-	15	ground (for +5V)
2	T.M.D.S. Data 2+	16	Hot Plug Detect
3	T.M.D.S. Data 2/4 Shield	17	T.M.D.S. Data 0-
4	T.M.D.S. Data 4-	18	T.M.D.S. Data 0+
5	T.M.D.S. Data 4+	19	T.M.D.S. Data 0/5 Shield
6	DDC Clock	20	T.M.D.S. Data 5-
7	DDC Data	21	T.M.D.S. Data 5+
8	Analog Vertical Sync	22	T.M.D.S. Clock Shield
9	T.M.D.S. Data 1-	23	T.M.D.S. Clock +
10	T.M.D.S. Data 1+	24	T.M.D.S. Clock -
11	T.M.D.S. Data 1/3 Shield	C1	Analog red
12	T.M.D.S. Data 3-	C2	Analog green
13	T.M.D.S. Data 3+	C3	Analog blue
14	+5V Power	C4	Analog H sync

Ethernet Connector Pinouts

The following figure illustrates the Ethernet connector.

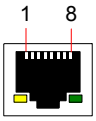


Figure A-2. Ethernet Connector

The following table lists Ethernet connector pinouts.

Table A-11. Ethernet Connector Pinouts

Pin	Signal	Wire Color
1	TX Data +	White / Orange
2	TX Data -	Orange
3	RX Data +	White / Green
4		Blue
5		White / Blue
6	RX Data -	Green
7		White / Brown
8		Brown

HDMI Connector Pinouts

The following figure illustrates the HDMI connector.

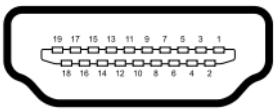


Figure A-3. HDMI Connector

The following table lists the HDMI connector pinouts.

Table A-12. HDMI Connector Pinouts

Pin	Signal	Pin	Signal
1	TMDS Data2+	11	TMDS Clock Shield
2	TMDS Data2 Shield	12	TMDS Clock-
3	TMDS Data2-	13	CEC
4	TMDS Data1+	14	
5	TMDS Data1 Shield	15	SCL
6	TMDS Data1-	16	SDA
7	TMDS Data0+	17	DDC/CEC/HEC Ground
8	TMDS Data0 Shield	18	+5 v Power (max 50 mA)
9	TMDS Data0-	19	Hot Plug Detect (All Versions) and HEC Data+
10	TMDS Clock+		

Audio Mezzanine Pinouts

The following figure illustrates the audio mezzanine DB-25 pinouts.

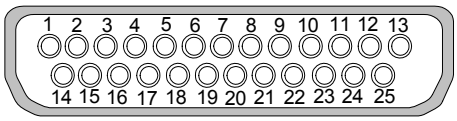


Figure A-4. Audio Mezzanine

The following tables list the audio mezzanine pinouts. Table A-12 lists the DB-25 connector pinouts.

Table A-13. DB-25 Connector Pinouts

DB-25 Pin	Name
1	**Analog Audio Output #2** Positive / Hot
2	**Analog Audio Output #2** Chassis Ground
3	**Analog Audio Output #1** Negative / Cold
4	**Analog Audio Input #2** Positive / Hot
5	**Analog Audio Input #2** Chassis Ground
6	**Analog Audio Input #1** Negative / Cold
7	**Digital Audio Output #4** Data
8	**Digital Audio Output #3 / #4** Chassis Ground
9	**Digital Audio Output #1** Data
10	**Digital Audio Input #4** Data
11	**Digital Audio Input #3 / #4** Chassis Ground
12	**Digital Audio Input #1** Data
13	Not used
14	**Analog Audio Output #2** Negative / Cold
15	**Analog Audio Output #1** Positive / Hot
16	**Analog Audio Output #1** Chassis Ground

Table A-13. DB-25 Connector Pinouts

DB-25 Pin	Name
17	**Analog Audio Input #2** Negative / Cold
18	**Analog Audio Input #1** Positive / Hot
19	**Analog Audio Input #1** Chassis Ground
20	**Digital Audio Output #3** Data
21	**Digital Audio Output #2** Data
22	**Digital Audio Output #1 / #2** Chassis Ground
23	**Digital Audio Input #3** Data
24	**Digital Audio Input #2** Data
25	**Digital Audio Input #1 / #2** Chassis Ground

The following table describes the pinouts for the XLR connectors.

Table A-14. XLR Pinouts

XLR Pin	Name
1	Chassis Ground
2	Positive / Hot
3	Negative / Cold

The following table lists connection recommendations for the XLR recepticles and plugs, and the BNC recepticles.

Table A-15. Connection Recommendations

Connection Type	Connector	Cable Type
Analog Input and Output	XLR Recepticle / Plug	110 Ohm Differential Twinax
Digital Input and Output	BNC Recepticle	75 Ohm Coax

Input and Output Resolutions

The table below lists available input and output formats supported on the DVI-I, DVI-D, HD-15, HDMI, DisplayPort, and SDI BNC connectors. An “x” in a cell indicates that the listed format can be processed by the connector.

For a list of the Colorspaces supported by each input connector, refer to **Selecting the Colorspace** on page 37 of Chapter 4.

Note

This table lists standard ImagePRO-II formats. The list may change with each release. Please review the list of resolutions available with each new version of the firmware.

Table A-16. ImagePRO-II Input and Output Formats

		Connectors				
Format	**Colorspace**	**DVI**	**HD-15**	**HDMI**	**DP**	**SDI BNC**
NTSC (480i)	SMPTE, RGB		x			x
NTSC — 16:9	SMPTE, RGB		x			x
720x480p	SMPTE, RGB	x	x	x	x	
720x480p — 16:9	SMPTE, RGB	x	x	x	x	
PAL (576i)	SMPTE, RGB		x			x
PAL — 16:9	SMPTE, RGB		x			x
720x576p	SMPTE, RGB	x	x	x	x	
720x576p — 16:9	RGB	x	x	x	x	
640x480 @59.94	SMPTE, RGB	x	x	x	x	
640x480 @60	SMPTE, RGB	x	x	x	x	
640x480 60 VESA	SMPTE, RGB	x	x	x	x	
640x480 @72	SMPTE, RGB	x	x	x	x	
640x480 @75	SMPTE, RGB	x	x	x	x	
640x480 @85	SMPTE, RGB	x	x	x	x	
800x600 @50	SMPTE, RGB	x	x	x	x	
800x600 @56	SMPTE, RGB	x	x	x	x	
800x600 @59.94	SMPTE, RGB	x	x	x	x	
800x600 @60	SMPTE, RGB	x	x	x	x	
800x600 @72	SMPTE, RGB	x	x	x	x	
800x600 @75	SMPTE, RGB	x	x	x	x	
800x600 @85	SMPTE, RGB	x	x	x	x	

Table A-16. ImagePRO-II Input and Output Formats (Continued)

		Connectors				
Format	**Colorspace**	**DVI**	**HD-15**	**HDMI**	**DP**	**SDI BNC**
1024x768 @47.95	SMPTE, RGB	x	x	x	x	
1024x768 @48	SMPTE, RGB	x	x	x	x	
1024x768 @50	SMPTE, RGB	x	x	x	x	
1024x768 @59.94	SMPTE, RGB	x	x	x	x	
1024x768 @60	SMPTE, RGB	x	x	x	x	
1024x768 @70	SMPTE, RGB	x	x	x	x	
1024x768 @71.93	SMPTE, RGB	x	x	x	x	
1024x768 @72	SMPTE, RGB	x	x	x	x	
1024x768 @75	SMPTE, RGB	x	x	x	x	
1024x768 @85	SMPTE, RGB	x	x	x	x	
1152x864 @75	SMPTE, RGB	x	x	x	x	
1280x768 @47.95	SMPTE, RGB	x	x	x	x	
1280x768 @48	SMPTE, RGB	x	x	x	x	
1280x768 @50	SMPTE, RGB	x	x	x	x	
1280x768 @59.94	SMPTE, RGB	x	x	x	x	
1280x768 @75	SMPTE, RGB	x	x	x	x	
1280x800 @50	SMPTE, RGB	x	x	x	x	
1280x800 @59.94	SMPTE, RGB	x	x	x	x	
1280x800 @60	SMPTE, RGB	x	x	x	x	
1280x960 @50	SMPTE, RGB	x	x	x	x	
1280x960 @59.94	SMPTE, RGB	x	x	x	x	
1280x960 @60	SMPTE, RGB	x	x	x	x	
1280x960 @85	SMPTE, RGB	x	x	x	x	
1280x1024 @47.95	SMPTE, RGB	x	x	x	x	
1280x1024 @48	SMPTE, RGB	x	x	x	x	
1280x1024 @50	SMPTE, RGB	x	x	x	x	
1280x1024 @59.94	SMPTE, RGB	x	x	x	x	
1280x1024 @60	SMPTE, RGB	x	x	x	x	
1280x1024 @71.93	SMPTE, RGB	x	x	x	x	
1280x1024 @72	SMPTE, RGB	x	x	x	x	
1280x1024 @75	SMPTE, RGB	x	x	x	x	

Table A-16. ImagePRO-II Input and Output Formats (Continued)

		Connectors				
Format	**Colorspace**	**DVI**	**HD-15**	**HDMI**	**DP**	**SDI BNC**
1280x1024 @85	SMPTE, RGB	x	x	x	x	
1360x768 @60	SMPTE, RGB	x	x	x	x	
1364x768 @47.95	SMPTE, RGB	x	x	x	x	
1364x768 @48	SMPTE, RGB	x	x	x	x	
1364x768 @50	SMPTE, RGB	x	x	x	x	
1364x768 @59.94	SMPTE, RGB	x	x	x	x	
1364x768 @75	SMPTE, RGB	x	x	x	x	
1364x1024 @47.95	SMPTE, RGB	x	x	x	x	
1364x1024 @48	SMPTE, RGB	x	x	x	x	
1364x1024 @50	SMPTE, RGB	x	x	x	x	
1364x1024 @59.94	SMPTE, RGB	x	x	x	x	
1364x1024 @75	SMPTE, RGB	x	x	x	x	
1366x768 @50	SMPTE, RGB	x	x	x	x	
1366x768 @59.94	SMPTE, RGB	x	x	x	x	
1366x800 @50	SMPTE, RGB	x	x	x	x	
1366x800 @59.94	SMPTE, RGB	x	x	x	x	
1366x800 @60	SMPTE, RGB	x	x	x	x	
1440x900 @60	SMPTE, RGB	x	x	x	x	
1440x900 @75	SMPTE, RGB	x	x	x	x	
1440x900 @85	SMPTE, RGB	x	x	x	x	
1400x1050 @48	SMPTE, RGB	x	x	x	x	
1400x1050 @50	SMPTE, RGB	x	x	x	x	
1400x1050 @59.94	SMPTE, RGB	x	x	x	x	
1400x1050 @60	SMPTE, RGB	x	x	x	x	
1400x1050 @75	SMPTE, RGB	x	x	x	x	
1536x768 @50	SMPTE, RGB	x	x	x	x	
1536x768 @59.94	SMPTE, RGB	x	x	x	x	
1600x1200 @47.95	SMPTE, RGB	x	x	x	x	
1600x1200 @48	SMPTE, RGB	x	x	x	x	
1600x1200 @50	SMPTE, RGB	x	x	x	x	
1600x1200 @59.94	SMPTE, RGB	x	x	x	x	

Table A-16. ImagePRO-II Input and Output Formats (Continued)

		Connectors				
Format	**Colorspace**	**DVI**	**HD-15**	**HDMI**	**DP**	**SDI BNC**
1600x1200 @60	SMPTE, RGB	x	x	x	x	
1600x1200 @75	SMPTE, RGB	x[2]	x[1]		x	
1680x1050 @60	SMPTE, RGB	x	x	x	x	
1280x720p @23.98	SMPTE, RGB	x	x	x		x
1280x720p @24	SMPTE, RGB	x	x	x		x
1280x720p @25	SMPTE, RGB	x	x	x		x
1280x720p @29.97	SMPTE, RGB	x	x	x		x
1280x720p @30	SMPTE, RGB	x	x	x		x
1280x720p @48	SMPTE, RGB	x	x	x	x	
1280x720p @50	SMPTE, RGB	x	x	x	x	x
1280x720p @59.94	SMPTE, RGB	x	x	x	x	x
1280x720p @60	SMPTE, RGB	x	x	x	x	x
1920x1080p @23.98	SMPTE, RGB	x	x	x	x	x
1920x1080p @24	SMPTE, RGB	x	x	x	x	x
1920x1080p @25	SMPTE, RGB	x	x	x	x	x
1920x1080p @29.97	SMPTE, RGB	x	x	x	x	x
1920x1080p @30	SMPTE, RGB	x	x	x	x	x
1920x1080p @48	SMPTE, RGB	x	x	x	x	
1920x1080p @50	SMPTE, RGB	x	x	x	x	x
1920x1080p II @50	SMPTE, RGB	x	x	x	x	
1920x1080p @59.94	SMPTE, RGB	x	x	x	x	x
1920x1080p @60	SMPTE, RGB	x	x	x	x	x
1920x1080sF@23.98	SMPTE, RGB	x	x	x	x	x
1920x1080sF@24	SMPTE, RGB	x	x	x	x	x
1920x1080sF@25	SMPTE, RGB	x	x	x	x	x
1920x1080sF@29.97	SMPTE, RGB	x	x	x	x	x
1920x1080sF@30	SMPTE, RGB	x	x	x	x	x
1920x1080i @50	SMPTE, RGB	x	x	x	x	x
1920x1080i @59.94	SMPTE, RGB	x	x	x	x	x

Table A-16. ImagePRO-II Input and Output Formats (Continued)

		Connectors				
Format	**Colorspace**	**DVI**	**HD-15**	**HDMI**	**DP**	**SDI BNC**
1920x1080i @60	SMPTE, RGB	x	x	x	x	x
1920x1200p @50	SMPTE, RGB	x	x	x	x	
1920x1200p @59.94	SMPTE, RGB	x	x	x	x	
1920x1200p @60	SMPTE, RGB	x	x	x	x	
1920x1200 II @60	SMPTE, RGB	x[2]	x[1]		x	
Apple 1200p @60	SMPTE, RGB	x	x	x	x	
1792x1344p @60	SMPTE, RGB	x[2]	x[1]		x	
1856x1392p @60	SMPTE, RGB	x[2]	x[1]		x	
1920x1440p @60	SMPTE, RGB	x[2]	x[1]		x	
2K analog @59.94	SMPTE, RGB	x[2]	x[1]		x	
2048x1080p @23.98	SMPTE, RGB	x	x	x	x	x
2048x1080p @24	SMPTE, RGB	x	x	x	x	x
2048x1080p @25	SMPTE, RGB	x	x	x	x	x
2048x1080p @29.97	SMPTE, RGB	x	x	x	x	x
2048x1080p @30	SMPTE, RGB	x	x	x	x	x
2048x1080p @48	SMPTE, RGB	x	x	x	x	
2048x1080p @50	SMPTE, RGB	x	x	x	x	x
2048x1080p II @50	SMPTE, RGB	x	x	x	x	
2048x1080p @59.94	SMPTE, RGB	x	x	x	x	x
2048x1080p @60	SMPTE, RGB	x	x	x	x	x
2048x1080p II @60	SMPTE, RGB	x[2]	x[1]		x	
2048x1080sF @23.98	SMPTE, RGB	x	x	x	x	x
2048x1080sF @24	SMPTE, RGB	x	x	x	x	x
2048x1080sF @25	SMPTE, RGB	x	x	x	x	x
2048x1080sF @24.97	SMPTE, RGB	x	x	x	x	x
2048x1536p @60	SMPTE, RGB	x[2]	x[1]		x	
2304x1440P @60	SMPTE, RGB	x[2]	x[1]		x	
2560x1440p @50	SMPTE, RGB	x[2]	x[1]		x	
2560x1440p @59.94	SMPTE, RGB	x[2]	x[1]		x	

Table A-16. ImagePRO-II Input and Output Formats (Continued)

		Connectors				
Format	**Colorspace**	**DVI**	**HD-15**	**HDMI**	**DP**	**SDI BNC**
2560x1440p @60	SMPTE, RGB	x[2]	x[1]		x	
2560x1600p @50	SMPTE, RGB	x[2]	x[1]		x	
2560x1600p @59.94	SMPTE, RGB	x[2]	x[1]		x	
2560x1600p @60	SMPTE, RGB	x[2]	x[1]		x	

[1] Input only

[2] Dual-link DVI

B. Remote Control Protocol

In This Appendix

This appendix provides information regarding the ImagePRO-II's remote control protocol. The following topics are discussed:

Introduction

This chapter lists and provides details for the ImagePRO-II remote control commands. You can view these commands online by accessing the ImagePRO-II via a telnet connection to the unit's IP address. The ImagePRO-II default IP address is **192.168.0.201**.

- To access the ImagePRO-II's remote commands, use the following procedure:

  1. In a command prompt window, type a telnet command in the following format:

     telnet nnn.nnn.nnn.nnn 10001

     where the n's represent the ImagePRO-II's IP address and 10001 is the port.

     Then press **Enter**.

  2. At the command prompt, type **help** and press **Enter**.

     Two lists of ImagePRO-II commands appear. The first list is the current ImagePRO-II command list. The second list contains legacy commands that have been carried over from the ImagePRO.

  3. To see the specifics of a particular command, type:

     <command name> --help

     - **Example**: enet --help

You can copy the command list and the details of any commands, then paste them into a text file for future reference.

ImagePRO-II Remote Commands

This section lists the ImagePRO-II remote commands, sorted by category. Click a hyperlink in the following list to access the commands for a specific category.

A second set of remote commands has been carried over from the ImagePRO. For details of these legacy commands, refer to **Legacy Remote Commands** on page 200.

Input Remote Commands

DVIIN

- **Description**: DVI Input Settings
- **Required parameters**:

  --itype (input type): Required for choosing digital or analog DVI settings.

  Note: Some of the following parameters are applicable only for digital and some only for analog settings.
- **Parameters**:

  --chgtype (change type command): 0 = digital, 1 = analog

  --itype (input type): 0 = digital, 1 = analog

  --sample (sample mode): 0 = OverSample, 1 = OneToOne (for analog input only)

  --phase (sample phase): [-16..15] (for analog input only)
- **Query Format** (for analog input only):

```
DVIIN --itype 1 --?
```

- **Query Response:** DVI settings in the following format:

```
DVIIN --sample (sample mode) --phase (sample phase)
```

HD15IN

- **Description**: HD-15 Input settings
- **Parameters**:

  --sample (sample mode cmd): 0 = OverSample, 1 = OneToOne

  --phase (sample phase): [-16..15]
- **Query Format** (for analog input only):

```
DVIIN --itype 1 --?
```

- **Query Response:** HD-15 settings in the following format:

```
HD15 --sample (sample mode) --phase (sample phase)
```

ICH

- **Description**: Input Channel settings
- **Required parameters**:

  --con (connector)

  --ch (channel)

  --itype (input type), only for commands to DVI connector

- **Parameters**:

  --con (connector): 0-5
  0 = DVI, 1 = HD15,
  2 = HDMI, 3 = DP, 4 = SDI1, 5 = SDI2 (available with the 3D/ Dual Channel option installed)

  --ch (channel): 0-1, input channel

  --itype (input type): 0 = digital, 1 = analog

  --iwin: option to set input window

  --hpos (Input Window H Position, pixels)

  --vpos (Input Window V Position, pixels)

  --hsize (Input Window H Size, pixels)

  --vsize (Input Window V Size, pixels)

  --mask: option to set the mask window

  --left (Mask Left in percentage)

  --right (Mask Right in percentage)

  --top (Mask Top in percentage)

  --bottom (Mask Bottom in percentage)

  --at (aspect ratio type): 0-6, see below for aspect ratio numbers

  --ar (custom aspect ratio) : 0.25 - 10.00, custom aspect ratio. Aspect Ratio type must be set to 6. Aspect Ratio types:
  0 = 1:1, 1 = 3:2, 2 = 4:3, 3 = 5:4, 4 = 16:10, 5 = 16:9, 6=Custom, use **--ar** to specify actual aspect ratio.

- **Examples**:

  ▲ ICH --con 3 --ch 0 --at 6 --ar 1.91

  (Update DP input, aspect ratio type to Custom, and custom aspect ratio to 1.91)

  ▲ ICH --con 0 --itype 0 --ch 0 --iwin --hpos 10

  (Update DVI (digital in) input, Input Window H Position to 10)

  ▲ ICH --con 1 --ch 0 --mask --left 45.10

  (Update HD-15 input, Mask Left by 45.10%)

- **Query Format 1** (Aspect ratio):

  `ICH --con (connector) --ch (channel) --?`

  Query Response 1: Input Channel Aspect Ratio Setting in the following format

  `ICH --at (AR type) --ar (Custom AR)`

- **Query Format 2** (Input window):

  `ICH --con (connector) --ch (channel) --iwin --?`

- **Query Response 2**: Input Channel Window Setting in the following format:

  ```
  ICH --hpos (H Position) --vpos (V Position)
  --hsize (H Size) --vsize (V Size)
  ```

- **Query Format 3** (Mask):

  ```
  ICH --con (connector) --ch (channel) --mask --?
  ```

- **Query Response 3**: Input Channel Mask Setting in the following format:

  ```
  ICH --left (Left) --right (Right) --top (Top)
  --bottom (Bottom)
  ```

IMGR

- **Description**: Input Manager Settings
- **Parameters**:

  --acq (acquire mode): 0 = Off, 1 = On

  --con (active connector): 0-7

  0 = DVI, 1 = HD15, 2 = HDMI, 3 = DP, 4 = SDI1, 5 = SDI2, 6 = Logo, 7 = Black

  --frz (freeze mode): 0 = Off, 1 = On

  --save (save input configuration)

  --recall (recall input configuration)

  --reset (reset input configuration)

- **Query Format**:

  ```
  IMGR --?
  ```

- **Query Response:** Input Manager settings in the following format:

  ```
  IMGR --acq (acquire mode) –con (active connector) --
  frz (freeze mode)
  ```

UINPUT

- **Description**: Universal Input Settings
- **Required parameters**:

  --con (connector)

  --itype (input type), for commands to DVI input settings

- **Parameters**:

  --con (connector): [0..4]

  0 = DVI, 1 = HD15, 2 = HDMI,
  3 = DP, 4 = SDI1, 5 = SDI2 (available when 3D/Dual2K option installed)

  --deint (deinterlacing type): 0 = MotionAdaptive, 1 = FieldToFrame

  --itype (input type): 0 = digital, 1 = analog

  --lrstatus: the status of the two connectors when in left/right 3D

  0 = Good, 1 = TimingMismatch, 2 = InvalidVideo,
  3 = NotLocked, 4 = NA

  --motion (motion threshold): [0..15]

--s3dModeCmd (s3dMode): [0..6]
0 = Off, 1 = SideBySide, 2 = TopBottom, 3 = Sequential, 4 = LeftRight, 5 = FramePacking

--sspack (sspack): [0..2]
0 = OddEven, 1 = EvenOdd, 2 = EvenEven, 3 = OddOdd

--s3dSyncInvert (0,1)

--s3dSwap (3d swap): [0..2]
0 = LeftRight, 1 = RightLeft, 2 = LeftLeft, 3 = RightRight

- **Examples**:

```
UINPUT --con 0 --itype 0 --deint 0
```

(Update DVI (digital in) input, deinterlacing type to Motion Adaptive

- **Query Format:**

```
UINPUT --con (connector) --?
```

- **Query Response:** Input Settings in the following format:

```
UINPUT --deint # --motion # --sync # --sspack # --
lrstatus # --s3Dmode # --s3dSyncInvert #
```

Output Remote Commands

OCH

- **Description**: Output Channel settings
- **Required parameter:** --**och** (output channel)
- **Parameters**:

--och (output channel): 0-1

--sharp (sharpness): -10..10

--flicker (flicker filter): 0..20

--strobemode (Strobe mode): 0 = OFF, 1 = ON

--strobeint (Strobe interval): 2..100

--flip (flip mode): 0 = None, 1 = HFlip, 2 = VFlip , 3 = HVFlip

- **Query Format**:

```
OCH --och (output channel) --?
```

- **Query Response:** Output Channel settings in the following format:

```
OCH --sharp (sharpness) --flicker (flicker)
--strobemode (Strobe mode) --strobeint
(Strobe interval) --flip (Flip mode)
```

OCON

- **Description**: Output Connector Settings
- **Required parameters**:

--ocon (output connector), for output connectors

- **Parameters**:

  --ocon (output connector): 0-6
  0 = DVI, 1 = HD15, 2 = HDMI, 3 = DP
  4 = SDI1, 5 = SDI2, 6 = BNC Composite

  --ch (channel select): 0-1

  --syncpol (sync polarity): 0=+H+V, 1=+H-V, 2=-H+V, 3=-H-V

  --bitdepth (color bit depth): 0-6bit, 1-8bit, 2-10bit, 3-12bit

  --csp (color space): 0-RGB, 1-SMPTE

- **Query Format:** OCON --ocon (connector) [--qall|--qsettings|--qstatus]
- **Query Response:** Output Connector Settings in XML format

OMGR

- **Description**: Output Manager settings
- **Parameters**:

  --applyedid (connector): 0-3
  0 = DVI, 1 = HD15, 2 = HDMI, 3 = DP

  --save (save output configuration)

  --recall (recall output configuration)

  --reset (reset output configuration)

  --s3dMode (3dMode)

  --s3dSwap

  --s3dSyncInvert (0,1)

  --s3dSyncDelay (0-2048)

- **Query Format:** `OMGR --?`
- **Query Response:**
  `OMGR --s3DMode # --s3dSwap # --s3dSyncInvert # --s3dSyncDelay #`
- **s3dMode:** This is the 3D mode of the input
  1=SideBySide,
  2=TopBottom,
  3=Sequential
  4=LeftRight,
  5=FramePacking
- **s3dSwap:**
  0=LeftRight,
  1=RightLeft,
  2=LeftLeft,
  3=RightRight

View Remote Commands

VIDREF

- **Description**: Video Sync Reference Settings
- **Command Format:**

```
VIDREF --hoffset1 (h offsetA) --voffset1 (v offsetA)
--hoffset2 (h offsetB) --voffset2 (v offsetB)
--src (source A) --srcb (source B)
```

- **Parameters**:

  --hoffset1 (Chan A h offset): (-HTotal/2)...(HTotal/2)

  --voffset1 (Chan A v offset): (-VTotal/2)...(VTotal/2)

  --hoffset2 (Chan B h offset): (-HTotal/2)...(HTotal/2)

  --voffset2 (Chan B v offset): (-VTotal/2)...(VTotal/2)

  --src (Chan A lock source): 0-freerun, 1-ext sync, 2-DVI, 3-HD15, 4-HDMI, 5-DP, 6-SDI1, 7-SDI2

  --srcb (Chan B lock source): 0-freerun, 1-Channel A

- **Query Format:** VIDREF [--qall|--qsettings|--qstatus]
- **Query Response:**Video Reference settings in XML format

VIEW

- **Description**: View Settings
- **Required parameters**:

  --con (connector)

  --ch (channel): Required for --percent or --pixel parameters. Not required for --units or --save or --recall or --reset

- **Parameters**:

  --con (connector): 0-4
  0 = DVI, 1 = HD15, 2 = HDMI, 3 = DP, 4 = SDI1, 5 = SDI2

  --ch (channel): 0-1

  --units (units): 0 = percent, 1 = pixel

  --percent (If values are given in percentages, refer to PANZOOM.help for parameter details.)

  --pixel (If values are given in pixels, refer to **RECT** for parameter details.)

  --save (save view settings)

  --recall (recall view settings)

  --reset (reset view settings)

- **Query Format 1 (Unit)**:

```
VIEW --con (connector) --ch (channel) --?
```

- **Query Response 1**: View Settings in the following format

```
VIEW --unit (units)
```

- **Query Format 2 (Percent)**:

  ```
  VIEW --con (connector) --ch (channel) --percent --?
  ```

- **Query Response 2**: View Settings in the following format:

  ```
  VIEW --hpos (h pos) --vpos (v pos) --hsize (h size)
  --vsize (v size)
  ```

- **Query Format 3 (Pixel):**

  ```
  VIEW --con (connector) --ch (channel) --pixel --?
  ```

- **Query Response 1:** View Settings in the following format:

  ```
  VIEW --hpos (h pos) --vpos (v pos) --hsize (h size) --
  vsize (v size)
  ```

System and Ethernet Remote Commands

EDIDIN

- **Description**: EDID Input settings
- **Required parameters**: --**con** (connector)
- **Parameters**:

  --con (connector): 0-3
  0 = DVI, 1= HD15, 2 = HDMI, 3 = DP

  --vfs: (Set/Query EDID video format. See **VFS** for parameter details.)

  --audch: 2, 8 (Set/Query EDID audio channel max. Available for HDMI and DP only.)

- **Audio Channel Max Options** (audch): 2, 8

▲ **Examples**:

```
EDIDIN --con 0 --vfs --con 0 --new "1920x1080i @60"
```

(Set DVI input EDID to "1920x1080i @60")

```
EDIDIN --con 0 --vfs --con 0 --new "1920x1080i @60"
```

(Setup DVI input EDID to "1920x1080i @60")

```
EDIDIN --con 2 --audch 2
```

(Setup HDMI input EDID to 2 audio channel max)

ENET

- **Description**: Ethernet Settings
- **Command Format**:

```
ENET -i (ip address) -n (mask) -g (gateway) -d (dhcp
mode) --reset (restart enet)
```

- **Parameters**:

  -i (staticip address): xx.xx.xx.xx

  -n (mask): xx.xx.xx.xx

  -g (gateway): xx.xx.xx.xx

  -d (dhcp mode): 0 = no, 1 = yes

  --reset (restart enet)

- **Query Format:**

```
ENET --?
```

- **Query Response:** Ethernet settings in the following format:

```
ENET current (ip address) -i (ip address) -n (mask)
-g (gateway) -d (dhcp mode)
```

HDCP

- **Description**: HDCP Settings
- **Required parameters**:

  --icon (input connector), for input connectors

  --ocon (output connector), for output connectors
- **Parameters**:

  --icon (input connector): 0, 2, 3

  0 = DVI, 2 = HDMI, 3 = DP

  --ocon (output connector): 0, 2, 3

  0 = DVI, 2 = HDMI, 3 = DP

  --enable (HDCP enable): 0 = disable, 1 = enable
- **Query Format**:

  `HDCP --icon (connector) --?`
- **Query Response:** HDCP settings in the following format:

  `HDCP --enable (HDCP enable) --auth (Authentication Status 0/1)`

STMGR

- **Description**: Logo Management Settings
- **Parameters**:

  --deleteall: Delete Logo

  --eraseall: Erase Logo (destructive)

  --**captureall**: Capture Logo

  --**infoall:** Logo H/V information
- **Query Format:** n/a

SYS

- **Description**: System Settings
- **Parameters**:

  -r (type): 0 = Soft, 1 = Factory, 2 = Factory and save IP
- **Query Format:** n/a

SYSMGR

- **Description:** System Manager Settings
- **Parameters**:

  --blkinv (BlackInvalid Mode): 0 = OFF, 1 = ON

  --vfd (VFD Brightness): 0..6

  --opmode (operation mode):

  0 = SingleChannel, 1 = DualChannel, 2 = 3DProcessing
  3 = MinDelay, 4 = Quad to Dual

  (Note: For the new operating take full effect, you must save settings and reboot the unit.)

--conmode (Encore Connect Mode): 0 = OFF, 1 = ON

--unitid (Encore Unit ID): 1..32

--encoreip (Encore IP address): xxx.xxx.xxx.xxx

--name: 10 character unit name (no spaces)

- **Query Format:**

  `SYSMGR --?`

- **Query Response:** System Manager Settings in the following format

  ```
  SYSMGR --blkinv (Black Invalid Mode) --vfd (VFD
  Brightness) --opmode (Operation Mode) --conmode
  (Encore Connect Mode) --unitid (Encore Unit ID) --
  encoreip (Encore IP Address)
  ```

VIDCOL

- **Description**: Video Color Settings for Input/Output
- **Required parameters**:

  --con (connector), for input video color

  --och (output channel), for output video color

  --itype (input type), for commands to DVI input settings

- **Parameters**:

  --con (connector): 0-4
  0 = DVI, 1 = HD15, 2 = HDMI, 3 = DP, 4 = SDI1

  --och (output channel): 0-1

  --itype (input type): 0 = digital, 1 = analog

  --brt (overall brightness): [50..150]

  --cbrt (individual brightness): [50..150]

  --cnt (overall contrast): [50..150]

  --ccnt (individual contrast): [50..150]

  --col (color) (must be supplied for --cbrt or --ccnt parameters):
  0 = all color, 1 = red, 2 = green, 3 = blue

  --sat (saturation): [0..125]

  --hue (hue): [-90..90]

  --cinv (color invert): 0 = Normal, 1 = Inverted Color

  --csp (colorspace): 0 = RGB, 1 = YUV

  --gamma (gamma): 0.3 - 3.0

  --mono (monochrome): 0 = Normal, 1 = Monochrome

- **Query Format 1 (Input):**

  `VIDCOL --con (connector) --?`

- **Query Response 1:** Video Color Settings in the following format:

  ```
  VIDCOL --brt (ovr bright) --cbrt (R bright) (G bright)
  (b bright) --cnt (ovr contr) --ccnt (R contr)
  (G contr) (B contr) --sat (saturation) --hue (hue)
  ```

```
--cinv (invert) --csp (colorspace) --gamma (gamma)
--mono (monochrome)
```

- **Query Format 2 (Output):**

```
VIDCOL --och (output channel) --?
```

- **Query Response 2:** Video Color Settings in the following format

```
VIDCOL --brt (ovr bright) --cbrt (R bright) (G bright)
(b bright) --cnt (ovr contr) --ccnt (R contr) (G
contr) (B contr) --sat (saturation) --hue (hue) --cinv
(invert) --csp (colorspace) --gamma (gamma) --mono
(monochrome)
```

TP

- **Definition**: Test Pattern (Output or AOI)
- **Required Parameters**:

  --och (output channel): 0,1

  --aoi (AOI test pattern)

- **Parameters**:

  --och: 0,1

  --aoi

  --type:

  Off = 0
  HGrayRamp = 1
  VGrayRamp = 2
  100PColorBars = 3
  16x16Grid = 4
  32x32Grid = 5
  Burst = 6
  75PColorBars = 7
  50PGray = 8
  HGraySteps = 9
  VGraySteps = 10
  White = 11
  Black = 12
  SMPTE Bars = 13

  --diag (diagonal motion): 0 = OFF, 1 = ON

- **Query Format (AOI Output):**

```
TP --och (output channel) --aoi --?
```

- **Query Response:** Test Pattern Settings in the following format:

```
TP --type (Pattern type) --diag (diagonal motion mode)
```

RASTER

- **Definition**: RasterBox
- **Parameters**:

  --och (output command): 0,1

--aoi (add this option to update AOI raster box — without this option, updating overall output raster box)

--m (mode): 0 = Off, 1 = On

▲ **Example**:

```
RASTER --och 0 --aoi --mode 1
```

(Enable raster box for Output AOI)

- **Query Format 1 (Overall Output):**

```
RASTER --och (output channel) --?
```

- **Query Response 1:** Raster Box Settings in the following format:

```
RASTER --mode (mode)
```

- **Query Format 2 (AOI Output):**

```
RASTER --och (output channel) --aoi --?
```

- **Query Response 2:** Raster Box Settings in the following format:

```
RASTER --mode (mode)
```

RECT

- **Description**: Rectangle Settings
- **Required parameters:**

  --num (index num), for VIEW --pixel commands

  --ch (channel), for VIEW --pixel commands

- **Parameters**:

  --num (index num): 0-21

  --ch (channel): 0-1

  --hpos: -32767 .. 32767

  --vpos: -32767 .. 32767

  --hsize: 0 .. 32767

  --vsize: 0 .. 32767

- **Query Format**:

```
RECT --num (index num) --ch (channel) --?
```

- **Query Response:** Rectangle settings in the following format:

```
RECT --hpos (H Position) --vpos (V Position)
--hsize (H Size) --vsize (V Size)
```

VER

- **Description:** Display software and hardware versions
- **Command Format:**

  VER

- **Query Format:** n/a

VFS

- **Description**: Video Format Settings

- **Required parameters**:

  --con (connector), for input video format

  --och (output channel), for output video format

  --itype (input type), for commands to DVI input settings

- **Parameters**:

  --con (connector): 0-4

  0 = DVI, 1 = HD15, 2 = HDMI, 3 = DP, 4 = SDI1, 5 = SDI2

  --och (output channel): 0-1, for output commands

  --itype (input type): 0 = digital, 1 = analog

  --new (new format name): Use " " around the format name. Use VFSTDLIST to get the standard format names. This command option changes the format to “new format name.”

  --enum (new format enum): Use VFSTDLIST to get the standard format names.

  --reset (reset default timing)

  --name (format name): This command option simply renames the current format.

  --hsync (horizontal sync)

  --hact (horizontal active)

  --hfp (horizontal front porch)

  --hpos (horizontal position)

  --htot (horizontal total)

  --vsync (vertical sync)

  --vact (vertical active)

  --vfp (vertical front porch)

  --vpos (vertical position)

  --vtot (vertical total)

- **Query Format:**

  ```
  VFS --?
  ```

- **Query Response:** Video Format settings in the following format:

  ```
  VFS --name "format name" --hsync (hsync) --hact (hact)
  --hfp (hfp) --htot (htot) --vsync (vsync)
  --vact (vact) --vfp (vfp) --vtot (vtot)
  ```

Audio Remote Commands

AUDIO

- **Description**: Audio Manger Settings. For parameter details, see below.
- **Parameters**:

  --mode (set audio mode)

  --imap (set audio input map)

--conn (optional to specify connector, defaults to active connector)

--dmap (set audio direct map)

--status (get status of audio in)

--aconn (audio in connector)

--imapreset (reset input maps to default values)

--inlevel (set analog input level)

--analogmap (set analog channel map)

--aesmap (set AES channel map)

--testtone (set test tone mode)

- **Query Format:**

  `AUDIO --? OR AUDIO?`

- **Query Response:**

  `AUDIO? --mode # --imap #  --dmap #`

- **Modes** (mode):

  0=Input Map,

  1=Direct Map

- **Input Maps** (imap):

  0=Mute

  1=Ext Analog

  2=Ext AES

  3=Self (Available for HDMI, DP, SDI1, SDI2 only)

- **Direct Maps** (dmap):

  0=Mute

  1=Ext Analog

  2=Ext AES

  3=HDMI

  4=DP

  5=SDI1

  6=SDI2

- **Connectors** (conn):

  0=DVI

  1=HD15

  2=HDMI

  3=DP

  4=SDI1

  5=SDI2

  6=LOGO

  7=BLACK

- **Audio Connectors** (aconn):

  0=HDMI

  1=DP

  2=SDI1

  3=SDI2

  4=Ext AES

- **Analog Input Level (inlevel):**

  0 = +4dBu (Professional)

  1 = -10dBV (Consumer)

- **Analog (analogmap) / AES (aesmap) Channel Map:**

  0 = Channel A

  1 = Channel B

- **Test Tone Mode (testtone):**

  0 = Off

  1 = On

▲ Example: To set mode to Input Map

```
AUDIO --mode 0
```

▲ Example: To set Input Map for HDMI to Mute

```
AUDIO --conn 2 --imap 0
```

▲ Example: To set Direct Map to Ext Analog

```
AUDIO --dmap 1
```

▲ Example: To get audio input status for HDMI

```
AUDIO --status --aconn 0
OK
```

▲ Example: To set Analog Audio Map to Channel B

```
AUDIO --analogmap 1
```

AUDIOOUT

- **Description**: Audio Manger Output Settings. For parameter details, see below.
- **Parameters**:

  --och (channel 0,1)

  --level (set analog output level: +4 dBu, -10dBV)

  --delay (set delay: -1 for auto, 0-300ms)

  --rate (set audio rate: 48kHz, 96kHz)

  --bitdepth (set bit depth: 16, 20, 24)

- **Query Format:**

```
AUDIOOUT? --och #
```

- **Query Response:**

```
AUDIOOUT? --och # --level # --delay #  --rate # -depth
#
```

- **Analog Output Level (level):**

  0=+4dBu

  1=-10dBV

- **Output Delay (delay):**

  -1=Auto

  0-300=0-300 milliseconds

- **Output Rate (rate):**

  0=48kHz

  1=96kHz

- **Bitdepth (bitdepth):**

  0=16 bit

  1=20 bit

  2=24 bit

  ▲ Examples: To set channel 0 audio output level to -10dBV

  ```
  AUDIOOUT --och 0 --level 1
  ```

Legacy Remote Commands

The following commands have been carried over from the original ImagePRO.

ACQ mode

- **Description**: Turns input Auto acquisition mode off/on.
- **Parameters**: **mode** [0 | 1]: Off | On
- **Query Format**:

  ACQ?

  Returns Auto acquisition mode in the format

  `= mode`

  ▲ ACQ 0 (Turns auto acquisition mode off)

  ▲ ACQ? (Queries for auto acquisition mode)

EFLIST

- **Description**: Lists the names of all saved custom formats.
- **Parameters**: None
- **Returns**: List the names of saved custom formats, one name per line.

  ▲ EFLIST (Lists all saved custom formats.)

FADE mode time

- **Description**: Fade input to black or out of black with the given transition time in seconds.
- **Parameters**: **mode** [0 | 1]: Fade to live | Fade to black

time = transition time in seconds

▲ FADE 1 1.5 (Fade to black with a transition time of 1.5 seconds)

FREEZ mode

- **Description**: Enables/disables output Freeze
- **Parameters**: **mode** [0 | 1]: Disable | Enable
- **Query Format**:

  FREEZ?

  Returns the Freeze mode in the format

  `= mode`

  ▲ FREEZ 1 (Freezes Image)

  ▲ FREEZ? (Queries Freeze mode)

ICDL

- **Description:** Input Configuration Download. Internal Use Only.

ICDEL filename

- **Description**: Delete saved Input configuration.
- **Parameters**: **filename**: The name of the configuration file to be deleted (not case sensitive).

  ▲ ICDEL file1 (Deletes Input configuration stored as FILE1.)

ICLIST

- **Description**: Lists the names of all saved input configurations.
- **Parameters**: None
- **Returns** a list of the names of saved Input configurations, one name per line.

  ▲ ICLIST (Lists all saved Input configurations.)

ICREC in filename

- **Description**: Recalls saved input configuration.
- **Parameters**:

  in: Input chnl [1-6]
  filename: The name of the configuration that is being recalled (not case sensitive).

  ▲ ICREC 3 file1 (Recalls Input configuration stored as file1 for input 3.)

ICRST in

- **Description**: Reset Input Configuration for the specified input channel.
- **Parameters**: **in**: Input chnl [1-6]

  ▲ ICRST 1 (Resets Input configuration for input 1)

ICSAV in filename

- **Description**: Saves Input configuration to non-volatile memory.

- **Parameters**:

  filename: The name you give to the configuration when you save it. If the same input configuration name exists, it will be overwritten.

  in: Input chnl (1-6)

  ▲ ICSAV 3 file1 (saves Input configuration as FILE1 for input channel 3.)

ICUSE in

- **Description**: Query the name of the Input configuration used for the specified channel.
- **Parameters**:

  in: Input chnl (1-6)
- **Returns**: Name of the Input configuration used (if any)

  ▲ ICUSE 1 (Lists names of saved input configurations used by channel 1.)

LOCKOUT

- **Description**: Locks and unlocks the front panel
- **Parameter**: **mode** [0 | 1] Off | On

  ▲ LOCKOUT 1 (Lock the ImagePRO-II front panel from user access.)

LOGOD

- **Description**: Delete Logo image from non-volatile memory. Selecting Black/ Logo will now display black.
- **Parameters**: None

  ▲ LOGOD (Delete saved Logo image.)

LOGOI

- **Description**: Query the stored Logo image resolution.
- **Parameters**: None

  ▲ LOGOI (Query Logo resolution.)

LOGOS

- **Description**: Save current output image in non-volatile memory as Logo image.
- **Parameters**: None
  - ▲ LOGOS (Save current output image as Logo image.)

OCRST

- **Description**: Reset Output Configuration.
- **Parameters**: None
  - ▲ OCRST (Reset Output Configuration)

OCSAV

- **Description**: Save Output Configuration to non-volatile memory.
- **Parameters**: None
  - ▲ OCSAV (Save Output Configuration)

OTPM type rast diag

- **Description**: Sets Internal Test pattern mode and raster box mode.
- **Parameters**:

  type: Test Pattern type: type[0..10]
  0=Off, 1=H Ramp, 2=V Ramp, 3=100% Col Bars,
  4=75% Col bars, 5=16x16 Grid, 6=32x32 Grid, 7=Burst,
  8=50% Gray, 9=Gray Steps 1, 10=Gray Steps 2
  rast: Raster Box: rast[0-1] On | Off
  diag: Diagonal Motion: rast[0-1] On | Off

- **Query Format**:

  OTPM?

  Returns the Test pattern mode and raster box mode in the format:

  `= type rast diag`

  - ▲ OTPM 9 0 (Selects Gray Steps 1 test pattern with raster off)
  - ▲ OTPM? (Query test pattern mode and with raster box mode)

PANH nnn.n

- **Description**: Set Output Horizontal Pan.
- **Parameters**: **nnn.n** - Horizontal Pan (-100.0% - +100.0%)
- **Query Format**:

  PANH?

  Returns the Output Horizontal Pan value in the format

  `= nnn.n`

  - ▲ PANH 50 (Set Output Horizontal Pan to 50%)
  - ▲ PANH? (Queries Output Horizontal Pan)

PANHV hhh.h vvv.v

- **Description**: Set Output Diagonal Pan.
- **Parameters**:

  hhh.h: Horizontal Pan (-100.0% - +100.0%)

  vvv.v: Vertical Pan (-100.0% - +100.0%)
- **Query Format:**

  PANHV?
- **Query Response:** Output Diagonal Pan value in the following format:

  `= hhh.hvvv.v`
  - PANHV 50 50 (Set Output Horizontal Pan to 50%, and Vertical Pan to 50%)
  - PANHV? (Query Output Horizontal Pan)

PANV nnn.n

- **Description**: Set Output Vertical Pan
- **Parameters**: **nnn.n**: Vertical Pan (-100.0% - +100.0%)
- **Query Format**:

  PANV?

  Returns the Output Vertical Pan value in the format

  `= nnn.n`
  - PANV 50 (Set Output Vertical Pan to 50%)
  - PANV? (Queries Output Vertical Pan)

RESH

- **Description**: Query the available resolution list for the ImagePRO-II.
- **Parameters**: None
- Returns all available resolutions in the format:

  `n : HxV @F (example: 20 : 1024x768 @59.94)`
  - RESH (Query all available resolutions)

RESI nn

- **Description**: Set the current channel's Input Resolution. If **In Auto Acquire** is on, setting input resolution with this command may be overridden.
- **Parameters**: **nn**: Input Resolution (use RESH command for resolution list)
- **Query Format**:

  `RESI? in`

  Returns the Input Resolution for the specified channel in the format

  `= nn`
  - RESI 1 (Set Input Resolution of currently selected input channel to resolution index 1 (NTSC(480i))
  - RESI? 1 (Queries input Resolution for Channel A)

RESO out nn

- **Description**: Set Output Resolution.
- **Parameters**: **out** - Output chnl[0-1]

  nn: Output Resolution (Use RESH command for resolution list)
- **Query Format**:

  `RESO? out`

  Returns the Output Resolution in the format:

  `= nn`

  ▲ RESO 0 1 (Set Output Resolution of output 0 to resolution index 1 (NTSC(480i))

  ▲ RESO? (Queries Output Resolution)

RESET

- **Description**: Resets the system and sets all settings to factory defaults.
- **Parameters**: None

  ▲ RESET (Factory reset the ImagePRO-II)

RTE in

- **Description**: Selects and routes input to be processed.
- **Parameters**:

  in: Input [1-7]

  1 = DVI, 2 = HD15, 3 = HDMI, 4 = DisplayPort, 5 = SDI, 6 = Black, 7 = Logo
- **Query Format**:

  RTE?

  Returns the input channel that is routed in the format

  `= in`

  ▲ RTE 2 (Selects input 2 for processing.)

  ▲ RTE? (Queries the input channel that is routed.)

SYSAV

- **Description**: Saves the System State to non-volatile memory
- **Parameters**: None

  ▲ SYSAV (Saves System State.)

TRN type in

- **Description**: Selects transition type when switching between inputs. Transition delay is only applicable if the transition type selected is **Fade to Black** or **Fade to Logo**. **Fade to Logo** transition type is only available if a Logo has been stored in non-volatile memory.
- **Parameters**:

  type: Transition type [0-2]

  0 = Fade to black, 1 = Freeze image and Cut, 2 = Fade to logo

  in: Transition delay (in seconds) [1.0s - 5.0s]
- **Query Format**:

  TRN?

  Returns the current transition type and transition delay in the format

  = type in

  ▲ TRN 1 2.0 (Selects fade to black transition in 2 seconds.)

  ▲ TRN? (Queries transition type and transition delay.)

UNITID

- **Description:** Identifies the **ImagePRO-II** unit ID number and type

WHOAREYOU

- **Description**: Returns product name: "ImagePRO-II"
- **Parameters:** None

ZOOM nnn.n

- **Description**: Selects zoom scale factor (applied both horizontally and vertically)
- **Parameters**: **nnn.n**: Zoom value [min-max] depends on scale factor
- **Query Format**:

  ZOOM?

  Returns the current zoom scale factor in the format

  = nnn.n

  ▲ ZOOM 200.0 (Zoom into the image using a 200.0% scale factor)

  ▲ ZOOM? (Queries current zoom scale factor.)

C. Upgrading Firmware

In This Appendix

The following topics are discussed in this Appendix:

Firmware Upgrade Overview

The ImagePRO-II provides two options for upgrading firmware:

- Using the USB port on the front panel. For instructions, refer to **Upgrading Firmware Using the USB Port** on this page.

  To use this option, your flash drive must be properly formatted. For instructions, refer to **Formatting the Flash Drive** on this page.

- Using the Web Interface. For instructions, refer to **Upgrading Firmware Using the Web Interface** on page 210 of this chapter.

Upgrading Firmware Using the USB Port

First, ensure that your flash drive is formatted to use the FAT32 file system. If necessary, reformat the drive as described in the following section. When the drive is properly formatted, refer to **Performing the Firmware Upgrade Using the USB Port** on page 209 for the upgrade procedure.

Formatting the Flash Drive

Ensure that the drive contains no data.

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.

- Then use the following procedure to format the flash drive:

  1. Insert the flash drive into a Windows PC or laptop's USB port.
  2. Select **Start** > **My Computer**.
  3. On the **My Computer** screen, right-click the drive that represents the flash drive.
  4. Select **Format** from the menu that appears. The **Format Removable Disk** screen appears.
  5. Select **FAT32** as the file system, and **Quick Format** under **Format Options**, as shown in the following illustration.

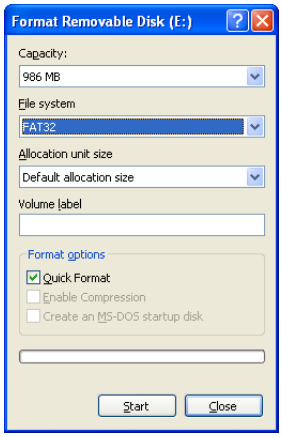


Figure C-1. Format Removable Disk Window

6. Then click **Start**. A message appears, warning that data will be erased during the formatting process.
   - ~ Click **OK** to continue.
   - ~ Click **Cancel** to halt the process.
7. If you click **OK**, a confirmation message appears after a few seconds. The flash drive is now ready to use.

   If you click **Cancel**, you can delete data or download it to the computer, then retry the formatting operation.

Performing the Firmware Upgrade Using the USB Port

Note

Upgrading software with the USB port requires the "ImagePRO2_xx_xx.tar.gz" file to be within a directory named **ImagePRO2**.

If the software upgrade downloaded from the Barco website was unzipped directly to the USB drive, this directory will have been created for you.

- To upgrade the ImagePRO-II firmware via the USB port, use the following procedure:

1. Insert the flash drive into the ImagePRO-II's USB port.
2. Select **Firmware Upgrade** from the **Setup Menu**. The **Firmware Upgrade Submenu** appears.

Figure C-2. Code Upgrade Submenu

3. Select **USB Code Upgrade**. The menu shown in the following illustration appears.

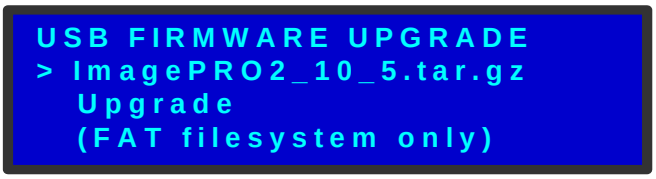


Figure C-3. USB Code Upgrade Menu

4. Scroll to the file you want to use, and press **SEL**.
5. Scroll to **Upgrade** and press **SEL** again.

   A progress message appears.

Note	Do not remove the flash drive or power down the ImagePRO-II until the firmware file is uploaded.

When the file is loaded, the ImagePRO-II powers down and reboots.

Upgrading Firmware Using the Web Interface

Before you begin the firmware upgrade, ensure that your PC, laptop, or mobile device uses one of the following operating systems:

- Windows® XP, Windows® Vista™, or Windows® 7
- Mac OS® X
- Red Hat® Linux®

You must also know the IP address of your ImagePRO-II unit, which you can find by selecting **Setup** > **System** > **Ethernet**.

Checking for Available Firmware Upgrades

- To determine whether a new version of the ImagePRO-II firmware is available, use the following procedure:

1. Verify that the ImagePRO-II has internet access. Contact your system administrator if necessary.
2. Select **Setup** > **Firmware Upgrade** > **Web Upgrade**. The submenu shown in the following illustration appears.

Figure C-4. Web Firmware Upgrade Submenu

3. Select **Check**.

A message informs you if a new firmware version is available. To install the latest version over the internet, refer to the following section, **Automatically Upgrading Firmware Using the Web Interface**.

If you wish to install a different version, refer to the section of this chapter titled **Selecting a Firmware File to Upload with the Web Interface** on page 211.

If you are not connected to the internet, a message prompts you to check the connection.

Automatically Upgrading Firmware Using the Web Interface

- Use the following procedure to automatically upgrade ImagePRO-II software with the Web Interface:

1. Open a compatible web browser, and enter the ImagePRO-II's IP address in the address bar. The web page shown in the following illustration appears.

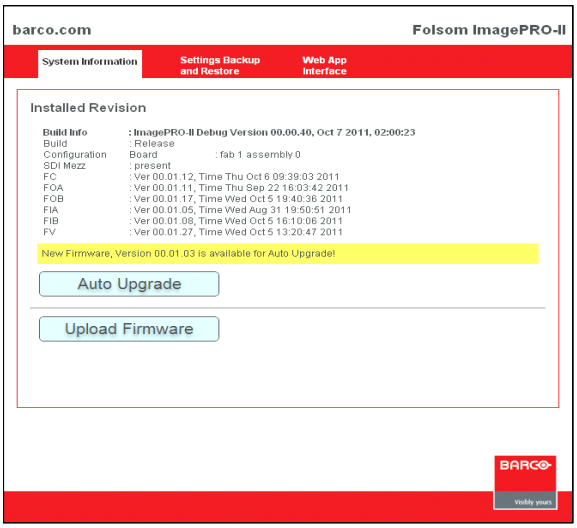


Figure C-5. System Information Tab

This page provides information about the current firmware version. In addition, there are two options:

- ~ **Auto Upgrade**
- ~ **Upload Firmware**

2. To detect and upload new firmware automatically, click **Auto Upgrade**.

   If a new firmware version is available, it loads and a confirmation message appears. This process may take several seconds.

Selecting a Firmware File to Upload with the Web Interface

- Use the following procedure to select a firmware version to install using the Web Interface:

1. On the **System Information** tab, click **Upload Firmware**.

   The **System Firmware Upgrade** window appears.

2. Click **Choose File**.
3. On the window that appears, navigate to and select the firmware file you want to upload.
4. On the **System Firmware Upgrade** window, click **Submit**.

D. Contact Information

In This Appendix

The following topics are discussed in this Appendix:

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)

In the unlikely event that a product is required to return for repair, please call the **Technical Support / Customer Service** direct line, and ask to receive a Return Merchandise Authorization number (RMA).

- (866) 374-7878

RMA Conditions are listed below:

a. Prior to returning any item, you must receive a **Return Merchandise Authorization** (RMA) number.

b. All RMA numbers must appear on their return-shipping label.

c. RMA numbers are valid for ten (10) days from issue date.

d. All shipping and insurance charges on all RMAs must be prepaid by the customer

Contact Information

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- Online: **www.barco.com/esupport**

Technical Support (Europe, Middle East, Asia)

- Telephone: 0800900410
- Online: **www.barco.com/support/eSupport.aspx**

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