DCS-200

User's Guide

BARCO

Visibly yours

DCS-200 • User's Guide

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Operators Safety Summary

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.

Equipment Marking and Safety Terms

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.

AVERTISSEMENT!

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.

VORSICHT

Ein Ausrufungszeichen innerhalb eines gleichwinkeligen Dreiecks dient dazu, den Benutzer auf wichtige Bedienungs-und Wartungsanweisungen in der Dem Great beiliegenden Literatur aufmerksam zu machen.

Change History

The table below lists the changes to the DCS-200 User's Guide.

Table 0-1. Change History

Rev	Date	ECP #	Description	Approved By
00	May 30, 2008	558656	DCS-200 User's Guide	R. Pellicano

Table of Contents

Table of Contents

1. Introduction

In This Chapter

This chapter is designed to introduce you to the DCS-200 User's Guide. Areas to be covered are:

- **Chapter Structure**
- **How to Use This Guide**
- **Conventions**
- **About the DCS-200**
- **Connectivity Diagram**
- **Application Questions**

Chapter Structure

The following chapters provide instructions for all aspects of DCS-200 operations:

- Chapter 1, "**Introduction**" provides a system overview, a list of features, and a system connectivity diagram.

- Chapter 2, "**Hardware Orientation**" on page 19 provides detailed diagrams of the system's front and rear panels.

- Chapter 3, "**Installation**" on page 27 provides comprehensive system installation instructions.

- Chapter 4, "**Operation**" on page 33 provides a menu tree, plus comprehensive system operating instructions.

- Chapter 5, "**GUI Operations**" on page 103 provides launch and operating instructions for the system's web-based GUI.

- Chapter 6, "**Upgrading Software**" on page 107 outlines procedures for upgrading system software components.

- Appendix A, "**Specifications**" on page 115 lists the DCS-200's specifications.

- Appendix B, "**Remote Control**" on page 127 provides information regarding remote control protocol.

- Appendix C, "**Contact Information**" on page 159 lists important Barco contact, RMA, warranty and technical support details.

How to Use This Guide

This section provides 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 **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 capital letters denote physical buttons or chassis connectors.

    ▲ Press **LOGO** to ...

- The term "**select**" is used as an abbreviation for "scroll to a selected menu line and press the **SEL** button."
- A sequence of menu steps is represented by the menu names, separated by arrows (**>**).

    ▲ **INPUT > Timing Adjust > H Position**

  ... indicates the following sequence:

    a. From the **Main Menu**, select **INPUT** to display the **Input Menu**.

    b. Scroll to the **Timing Adjust** line and press **SEL** to display the **Timing Adjust Menu**.

    c. Scroll to the **H Position** line and press **SEL** to adjust the image's horizontal position.

About the DCS-200

The following topics are discussed in this section:

- **Overview**
- **Features**
- **A Word About HDCP**

Overview

DCS-200 is a high-quality dual-channel presentation switcher designed to provide true seamless switching between various input sources. The DCS-200 offers all the features of the DCS-100, and adds a scaled Preview mode that supports sizing and adjusting input layers before taking them to Program. High-quality image scaling is maintained throughout.

DCS-200 offers straightforward and simple operating modes, and is ideal for use in live events, company boardrooms, hotel ballrooms, houses of worship, and in education and training facilities. As the ideal "simple" presentation switcher to learn and operate, DCS-200 provides a full screen output only, with no PIP capability.

DCS-200 accepts analog, DVI, and HD-SDI input sources and converts them to a wide variety of output formats. Output video is provided on analog and DVI connectors simultaneously. DCS-200 also allows you to capture and store up to three images to be used as full-screen logs during the presentation. Any DVI source can be used as a luminance key, providing an easy way for users to create titles and lower-third graphics.

Please note:

- To ensure trouble-free orientation, installation and operation of your DCS-200, please follow all procedures in the following chapters:

    ~ Chapter 2, "**Hardware Orientation**" on page 19.

    ~ Chapter 3, "**Installation**" on page 27.

    ~ Chapter 4, "**Operation**" on page 33.

- Should you have any questions regarding the installation or operation of the DCS-200 system, please consult with the factory. Refer to Appendix C, "**Contact Information**" on page 159 for contact details.

Features

The major features of the DCS-200 system are:

- The system supports input and output resolutions up to UXGA, including all HD resolutions up to 1080p, eliminating the need to create custom output formats. NTSC and PAL are supported as inputs only.

Note	Outputs cannot be interlaced.

- The DCS-200 supports DVI, analog computer and video formats on the DVI-I inputs.

    ~ HDCP protocol is supported, and the DCS-200 is considered an HDCP repeater in this configuration. Incoming encrypted data is encrypted

> going out, and all analog outputs, plus the freeze and LOGO store functions are disabled when the DCS-200 processes HDCP content. Refer to the "**A Word About HDCP**" section on page 17 for more details.

> ~ 1080i RGB input is supported on the DVI digital input.

- A **Preview** mode lets you view and adjust layers before moving them to Program.

- The DCS-200 stores and recalls up to three full-screen logos.

- The system provides true seamless switching between all inputs, including one of the three stored full-screen logos.

- An **Auto Take** feature (in the **User Preference Menu**) supports transitioning from one input source to another without pressing **TAKE**.

- The following scaling and de-interlacing features are provided:

    - ~ 10-bit scaling

    - ~ 10-bit 4:2:2 de-interlacer with diagonal filter

    - ~ 165MHz maximum pixel rate

    - ~ Low video delay: Interlaced sources, 3 fields (max)

- The DCS-200 provides the ability to luminance key unscaled DVI sources. Please note:

    - ~ Keys are set up from the **Key Menu**. The front panel **KEY** button is used to enable or disable the key transition.

    - ~ Key transitions are performed at the same rate as the full screen source transitions.

    - ~ If the key source resolution is greater than the output resolution, the DCS-200 only displays an area equal to the output resolution. This area is selectable using the menu.

    - ~ If the key source resolution is less than the output resolution, the key is centered on screen, and can be moved within the screen boundaries.

- The DCS-200 provides the ability to "auto acquire" input sources. The system monitors inputs at all times, and if a timing change occurs, the system automatically reacquires and displays the source — once the timing has been measured.

- The DCS-200 offers simple and intuitive menus:

    - ~ Presentations can be switched without accessing any setup menus.

    - ~ Two front-panel lockout modes enable you to lock out menu access, either completely or partially.

- The DCS-200 provides an integrated test pattern generator.

- The DCS-200 offers an HD/SD SDI input as standard.

- A built-in web-based GUI enables you to perform all setup and transition functions, just like the front panel.

- The **File Association** feature provides the ability to save and recall up to 64 input configuration files, and associate each of them with one or more inputs.

A Word About HDCP

HDCP stands for **High-Bandwidth Digital Content Protection**, an industry-wide copy protection scheme that is used to prevent the potential interception of digital data between the source (e.g., a Blu-Ray player) and the target display (e.g., an HDCP compliant display or monitor). The HDCP format was designed by Intel®, 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.

In applications in which a DCS-200 is used, when an HDCP compliant device is connected to the DCS-200, 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 shown. Non-HDCP equipment such as PCs will work with any DVI compliant display, but HDCP compliant equipment only shows "protected" content on HDCP compliant displays.

Please note the following important points:

- When an HDCP compliant device is connected to the DCS-200 and that specific input is selected, the **Status Menu** indicates if HDCP is enabled.

- If the "session" determines that the target display device is non-HDCP compliant (e.g., if the user is attempting to make an illegal copy on an external recorder), an error message appears on the DCS-200's **Status Menu**, indicating that video cannot be shown.

- HDCP compliant repeaters cannot be connected to the output of the DCS-200, as the DCS-200 *must* be the last device in the HDCP "chain" — prior to the HDCP compliant display. If an HDCP repeater is connected, the message "**HDCP Violation**" appears on the **Status Menu**. In Chapter 4, refer to the "**Status Menu**" section on page 44 for additional details.

Connectivity Diagram

The figure below illustrates a basic DCS-200 system.

Inputs 1 - 6 (Analog)

Inputs 7 - 8 (DVI)

Input 9 (HD/SD SDI)
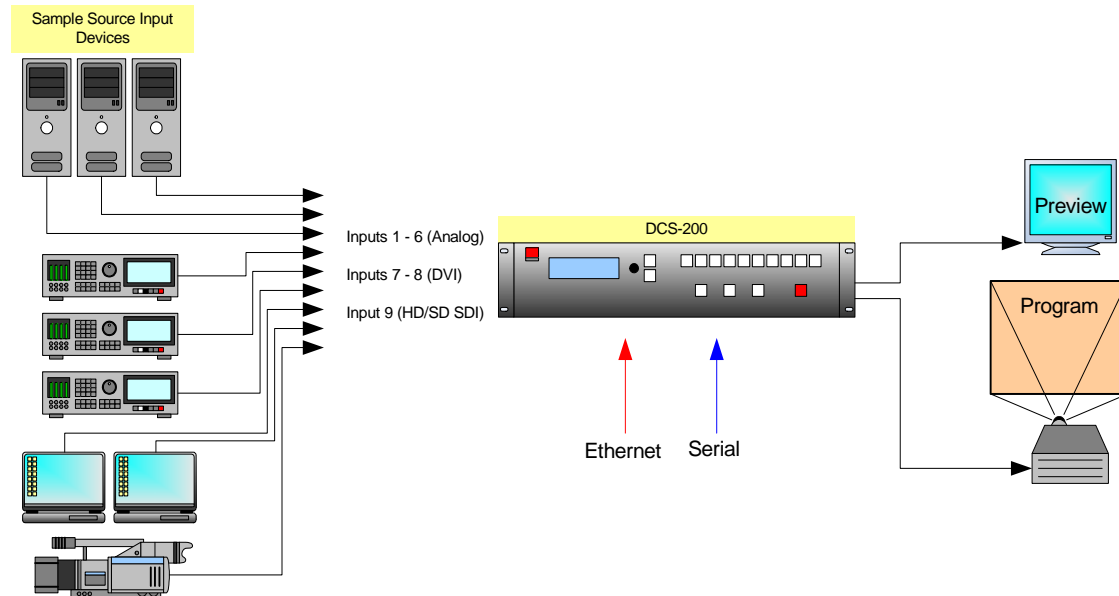
Figure 1-1. Block diagram, DCS-200 system

In the diagram:

- Up to nine sources can be connected to the DCS-200:
    - ~ 6 x analog inputs (on HD-15 connectors), for a variety of YUV and RGBHV sources, including CVBS and Y/C.
    - ~ 2 x DVI inputs, for computer sources. These two DVI connectors also support analog RGB inputs, and these inputs are universal, and accept all types of sources — just like the six HD-15 connectors. (To connect analog sources, use a customer-supplied **DVI to HD-15** adapter.)
    - ~ 1 x SD-SDI or HD-SDI input.
- The DCS-200 connects to a Preview monitor via analog or DVI.
- The DCS-200 connects to a projector (or other target device) via analog or DVI.

In Chapter 2, refer to the "**Inputs Section**" heading on page 22 for details on all inputs.

Application Questions

At Barco, we take pride in offering unique solutions to demanding technical problems. If you have application questions, require further information or would like to discuss your application requirements in more detail, please call (866) 469-8036. Our Customer Support Engineers will be happy to supply you with the support you need. Refer to Appendix C, "**Contact Information**" on page 159 for details.

2. Hardware Orientation

In This Chapter

This chapter provides detailed diagrams of the DCS-200's front and rear panels, along with comprehensive explanations of each.

The following topics are discussed:

- **DCS-200 Front Panel**
- **DCS-200 Rear Panel**

DCS-200 Front Panel

The figure below illustrates the DCS-200 front panel:
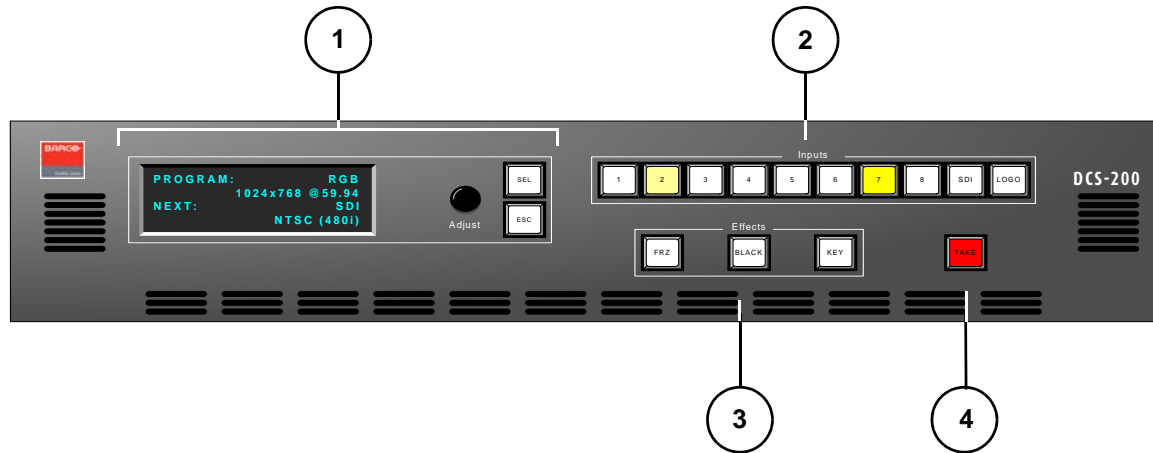
Figure 2-1. DCS-200 Front Panel

1)	**Display Section**	3)	**Effects Section**
2)	**Inputs Section**	4)	**Take Button**

Following are descriptions of each front panel section:

1) Display Section

The **Display Section** includes a four-line display, the **ADJUST** knob and two "menu navigation" buttons: **SEL** and **ESC**. Refer to the "**Display Section**" heading on page 21 for complete details.

2) Inputs Section

The **Inputs Section** includes ten "source" buttons that enable you to select inputs, key sources and a full screen **LOGO**. Refer to the "**Inputs Section**" heading on page 22 for complete details.

3) Effects Section

The **Effects Section** provides three buttons that enable you to select the type of effect that you want to perform next. Refer to the "**Effects Section**" heading on page 23 for complete details.

4) Take Button

The red **TAKE** button initiates a transition to the selected source. Refer to the "**Take**" section on page 24 for details.

Display Section

The figure below illustrates the **Display Section**:
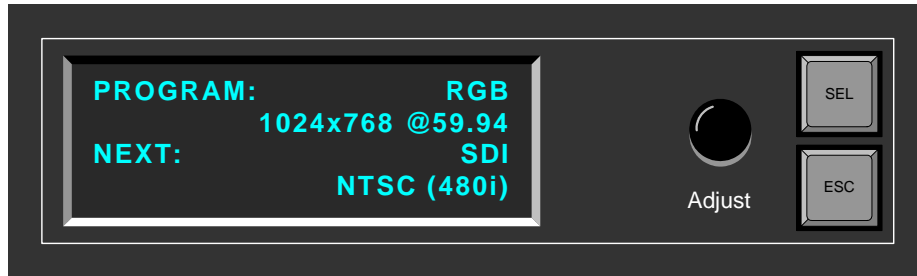
Figure 2-2.   Display Section with sample Status Menu

Descriptions of each button and control are provided below:

- The **Menu Display** is a 4-line x 20-character Vacuum Fluorescent Display (VFD) that shows all DCS-200 menus and sub-menus. Brightness is adjustable. The following illustration shows a typical DCS-200 menu.

Figure 2-3.   Sample Setup Menu Display

For all setup menus, please note:

- ~   The top line names the current menu, in all capital letters.

- ~   The navigation cursor (**>**) in the left-hand column indicates the current line on which action can be taken.

- ~   The double arrow (**>>**) indicates that a sub-menu is available.

Note	The **Status Menu** layout is different from the "setup" menu display. In Chapter 4, refer to the "**Status Menu**" section on page 44 for details.

In Chapter 4, refer to the "**Menu Tree**" section on page 38 for additional details on the system's menu tree.

- **ADJUST** — use the **Adjust Knob** to scroll through all system menus.

  - ~   Turn the knob counter-clockwise (**CCW**) to scroll down.

  - ~   Turn the knob clockwise (**CW**) to scroll up.

- **SEL** — press to enter the setup menu tree (from the **Status Menu)**, to enter a sub-menu, change a parameter, accept a parameter, or to answer "**Yes**" to certain menu queries.
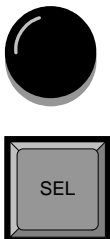
2. Hardware Orientation
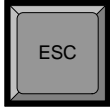
- **ESC** — press to exit a menu without making changes, cancel an operation, to answer "**No**" to certain menu queries, and to return to the top **Status Menu**. Each press takes you back up the menu tree by one level.

Inputs Section

The figure below illustrates the **Inputs Section**:
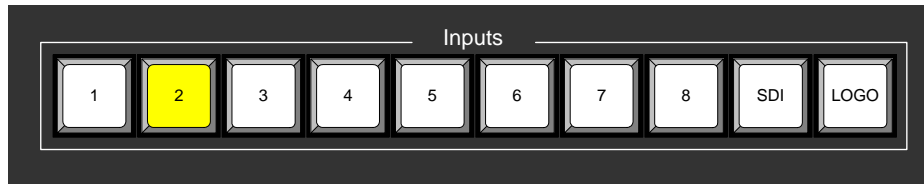
Figure 2-4. Inputs Section

The buttons in the **Inputs Section** enable you to select the source that you want to transition to Program. Each button corresponds to the similarly numbered input connector on the rear panel. You can also select the full screen LOGO as the transition source.

There are three button states:

- **Off** — the input is not selected for a transition.

- **Blinking** — the input is "pending" for the next transition.

    - ~ When a button is blinking **fast**, it is being acquired by the system.

    - ~ When a button is blinking **slow**, it is ready to be transitioned to Program.

Note	If an input button is blinking slow, and the **Status Menu** shows "**Invalid Signal**," the system has attempted to acquire the source, but has failed.

- **Lit Solid** — the input is on Program.

In Chapter 4, refer to the "**Flip-flop Mode**" section on page 85 for additional information about button behavior when **TAKE** is pressed.

Following are descriptions of each "input" button in the section:
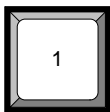
- Buttons **1** through **6** enable you to select physical inputs **1** through **6** (respectively) from the rear panel HD-15 connectors.

- Buttons **7** and **8** enable you to select physical inputs **7** and **8** (respectively) from the rear panel DVI-I connectors. Please note:

    - ~ If a DVI signal is present, the DVI (digital) source is used from the DVI-I connector's digital pins.

    - ~ If a DVI signal is not present, the selection defaults to the analog signals that are on the DVI-I connector's analog pins. Note that a customer-supplied **DVI to HD-15** adapter is required to connect to the analog pins.

SDI
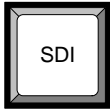
- The **SDI** button selects the SD-SDI or HD-SDI input source.
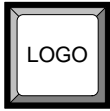
LOGO

- The **LOGO** button selects the stored "full screen" LOGO image for the next transition. If no image is stored, the transition will be to Black. Use the menu to select one of three stored LOGOs for use. In Chapter 4, refer to the "**Using the LOGO**" section on page 88 for details.

Note	If you press a button in the **Inputs Section**, it blinks to indicate "pending." If you *do not* want to pend a source (which may be desirable in some situations), press the blinking source button again. The button turns off, leaving only the source on Program lit solid.

Effects Section

The figure below illustrates the **Effects Section**:
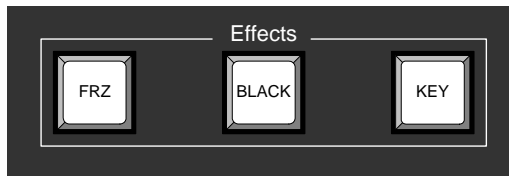
Figure 2-5. Effects Section

The buttons in the **Effects Section** enable you to freeze the selected source on Program, transition to black, and perform a key over the selected Program source.

Following are descriptions of each "effects" button:

FRZ

- The **FRZ** button instantly freezes and unfreezes the current Program source. When the source is frozen, the button is lit solid. In Chapter 4, refer to the "**Using Freeze**" section on page 92 for details.
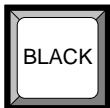
BLACK

- The **BLACK** button enables you to transition to or from black. The button performs one of two functions, depending on the way the button is defined in the **User Preferences Menu**.

    ~ If "**Black Auto Take**" is **Off**:
        - Press **BLACK** to pend a transition to or from black. The button blinks to indicate "pending."
        - Press **TAKE** to perform the transition to or from black.
            – If the transition is "**to**" black, the button lights solid when black is on Program.
            – If the transition is "**from**" black, the button turns off when the selected source is fully on Program.

2. Hardware Orientation

DCS-200 Front Panel

> ~ If "**Black Auto Take**" is **On**:
>> • Press **BLACK** to immediately transition to/from black.
>>> – If the transition is "**to**" black, the button blinks fast during the transition, then lights solid when black is on Program.
>>> – If the transition is "**from**" black, the button blinks fast during the transition, then turns off when the selected source is on Program.

Important	Regardless of the current **Black Auto Take** mode, if you select (or pend) **BLACK**, the system will not transition to the selected "next" source until black is fully on Program.

In Chapter 4, refer to the "**Using Black**" section on page 93 for details.

KEY

• The **KEY** button enables you to key an un-scaled DVI source (input 7 or 8) over the current Program source. The key's clip, gain, opacity, and the selected key source are adjusted using the menu. The button performs one of two functions, depending on the way the button is defined in the **User Preferences Menu**.

> ~ If "**Key Auto Take**" is **Off**:
>> • Press **KEY** to pend a "key up" or "key down" transition. The button blinks to indicate "pending."
>> • Press **TAKE** to perform the key transition at the current rate.
>>> – If the transition is a "**key up**," the button lights solid when the key is on.
>>> – If the transition is a "**key down**," the button automatically turns off when the key is off.

> ~ If "**Key Auto Take**" is **On**:
>> • Press **KEY** to immediately perform the "key up" or "key down" transition at the current rate.
>>> – If the transition is a "**key up**," the button blinks fast during transition, then lights solid when the key is on.
>>> – If the transition is a "**key down**," the button blinks fast during transition, then turns off when the key is off.

In Chapter 4, refer to the "**Using Keys**" section on page 95 for details.

Take

TAKE

Press **TAKE** to mix the pending (blinking) source to Program, at the current transition rate. Using the **Setup Menu**, you can adjust the transition time from 0 to 12 seconds. If the transition time is set to 0, the transition is a cut. Please note:

• Each time **TAKE** is pressed, the current source on Program and the pending source flip-flop. In Chapter 4, refer to the "**Flip-flop Mode**" section on page 85 for additional details.

• The **TAKE** button is also used to transition a "key" up or down, when the "**Key Auto Take**" function is **On** in the **User Preferences Menu**.

• The **TAKE** button is also used to transition to/from black, when the "**Black Auto Take**" function is **On** in the **User Preference Menu**.

In Chapter 4, refer to the "**User Preference**" section on page 70 for details on the **User Preference Menu**.

DCS-200 Rear Panel

The figure below illustrates the DCS-200 rear panel:
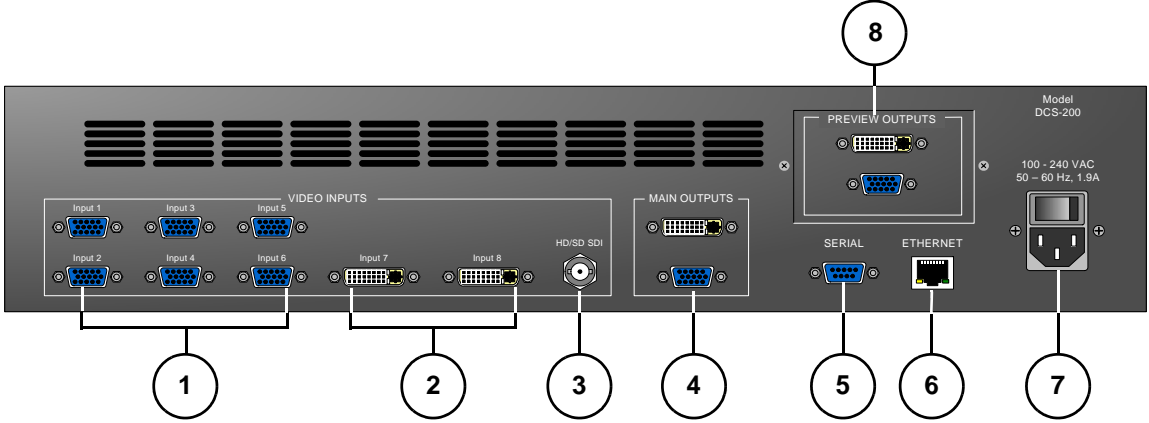
Figure 2-1. DCS-200 Rear Panel

1)	**Analog Inputs**	4)	**Main Outputs**	7)	**AC Power**
2)	**DVI and Analog Inputs**	5)	**Serial**	8)	**Preview Outputs**
3)	**HD/SD SDI Input**	6)	**Ethernet**		

Following are descriptions of each rear panel connector:

1) Analog Inputs

Six HD-15 connectors are provided for the system's **Analog** inputs. Please note:

~ Each input provides 10-bits/color sampling at a maximum 165 MHz.

~ Each input supports 1:1 sampling up to 1600x1200@60 Hz. Sources with native pixel rates greater than 165 MHz will be filtered and undersampled at 165 Mhz. These include:

- 1920x1080p@60 (173.0 MHz)
- 1920x1200@60 (193.25 MHz)
- 2048x1080p@60 (183.75 MHz)

~ Composite and S-Video formats are supported.

In Chapter 3, refer to the "**Format Connection Table**" section on page 32 for a table of analog inputs that you can connect using a customer-supplied breakout cable. In Appendix A, refer to the "**Analog 15-pin D Connector**" section on page 118 for pinouts.

2) DVI and Analog Inputs

Two DVI-I connectors are provided for both digital and analog inputs.

~ Using the connector's digital pins, an 8-bit digital input is supported.

~ Using the connector's analog pins, RGBHV, analog composite, S-Video, and YUV formats are supported. A customer-supplied breakout cable or **DVI to HD-15** adapter is required for these connections.

In Appendix A, refer to the "**DVI-I Connector**" section on page 119 for pinouts.

3) HD/SD SDI Input

One BNC connector is provided for the SD-SDI or HD-SDI input.

4) Main Outputs

Two connectors are provided for the DCS-200's main program outputs. Both outputs have the same resolution, and both can be used simultaneously.

~ One DVI-I connector is provided for the system's digital program output. There are no analog outputs on this connector. In Appendix A, refer to the "**DVI-I Connector**" section on page 119 for pinouts.

Note	The DVI-I connector allows you to use both **DVI-D** and **DVI-I** cables as required.

~ One HD-15 connector is provided for the system's analog output. In Appendix A, refer to the "**Analog 15-pin D Connector**" section on page 118 for pinouts

5) Serial

One DB-9 connector is provided for **Serial** communications with the DCS-200 system. The port is also used for diagnostics or command-line operations.

6) Ethernet

One RJ-45 connector is provided for 10/100BaseT **Ethernet** communications with the DCS-200 system. The port is used for running the built-in web-based GUI, for diagnostics, or for command-line operations via Telnet (using port 23).

▲ telnet 192.168.0.10 23

In Appendix A, refer to the "**Ethernet Connector**" section on page 120 for pinouts.

7) AC Power

One **AC Connector** is provided for connecting DCS-200 to AC. The integral switch turns the chassis on and off. In Appendix A, refer to the "**Physical and Electrical Specifications**" section on page 117 for power details.

8) Preview Outputs

Two outputs are provided for connecting to the Preview monitor: an HD-15 connector for analog monitors and a DVI connector for digital displays.

3. Installation

In This Chapter

This chapter provides detailed instructions for installing the DCS-200 hardware. The following topics are discussed:

- **Safety Precautions**
- **Unpacking and Inspection**
- **Site Preparation**
- **Cable and Adapter Information**
- **Rack-Mount Installation**
- **Power Installation**
- **Signal Installation**
- **Format Connection Table**

Safety Precautions

For all DCS-200 installation procedures, 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 power supplies for each unit connect 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

Inspect the shipping box 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 Barco sales representative.

Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect each 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 DCS-200 should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

Cable and Adapter Information

The table below provides information regarding supplied cables and adapters:

Table 3-1. DCS-200 Cables and Adapters

Cable / Adapter	Description	Quantity
AC Power Cord	7 foot, 10A (US Power Cord)	1
AC Power Cord	7 foot, 10A (European Power Cord)	1

Rack-Mount Installation

DCS-200 units are designed to be rack mounted and are supplied with front rack-mount hardware. Please note the following important points:

- When rack mounting the unit, remember that the maximum ambient operating temperature for the unit is 40 degrees C.

- Leave sufficient front and rear space to ensure that the airflow through the fan and vent holes is not restricted.

- When installing equipment into a rack, distribute the units evenly to prevent hazardous conditions that may be created by uneven weight distribution.

- Connect the unit only to a properly rated supply circuit.

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

- Rack mount the unit from the front rack ears using four rack screws (not supplied). Rack threads may be metric or otherwise — depending upon the rack type.

- Install the *lower* of the two mounting holes first.

Power Installation

■ Use the following steps to install power to the DCS-200:

1. Connect an AC power cord to the AC Power Connector on the rear of the DCS-200, and then to an AC outlet.

2. Connect AC Power cords (or AC adapters) to all peripheral equipment, such as video sources, VTRs and PCs. Please note:

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

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

3. Installation

Power Cord/Line Voltage Selection

DCS-200 is rated to operate with the following specifications:

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

- **Power Consumption**: 240 watts maximum

DCS-200 performs line voltage selection automatically, and no user controls are required. The AC power cords must be accessible so that they can be removed during field servicing.

Warning	When the DCS-200 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.

Figure 3-1. Tandem Prong-type Plug

Avertissement	La choix de la ligne de voltage se réalise automatiquement par le DCS-200 Transformateur Graphique. On n'a pas besoin du controller usager pour la choix de la ligne de voltage.

Warnung	Das DCS-200 gerät mu beim Anschlu an 240V ~ mit einer vom VDE auf 250V/10A geprüften Netzleitung mit einem Schukostecker ausgestattet sein.

Signal Installation

The figure below illustrates a sample DCS-200 system. Use this figure for reference during the signal installation process.
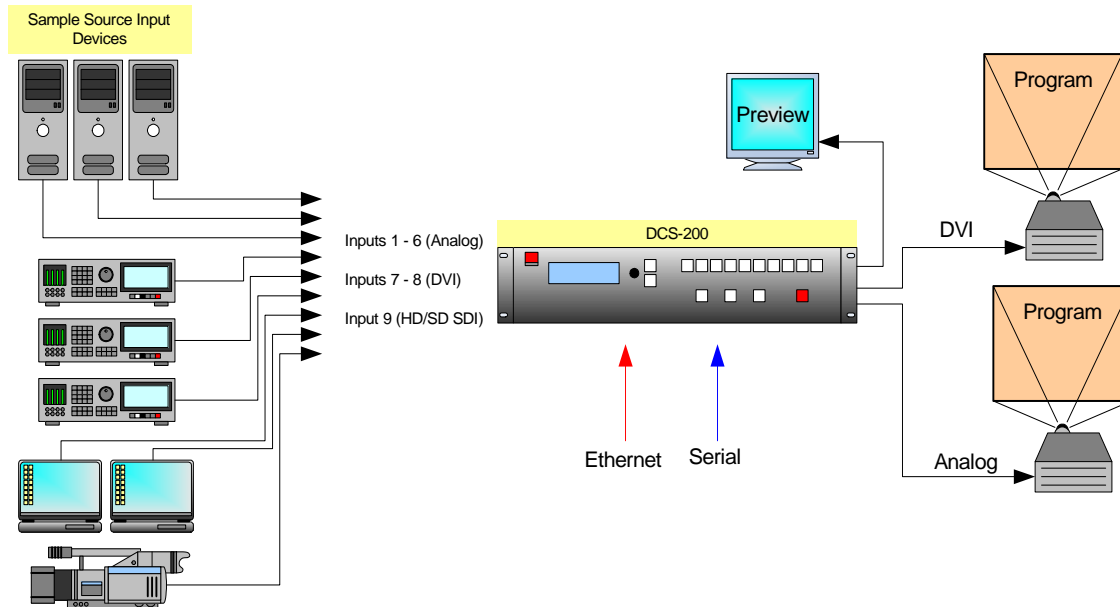
Figure 3-2. DCS-200 System Diagram (sample)

■ Use the following steps to install signals to/from the DCS-200:

1. **Input connections** — any combination of inputs can be connected.

   a. As required, connect analog RGBHV sources to **Inputs 1** through **6**. Refer to the "**Format Connection Table**" section on page 32 for a table of analog input combinations.

   b. As required, connect DVI sources to **Inputs 7** and **8** (using the connector's digital pins).

   c. As required, connect analog sources to **Inputs 7** and **8** (using the connector's analog pins). A customer-supplied breakout cable or **DVI to HD-15** adapter is required for this connection.

   d. As required, connect an HD-SDI or SD-SDI source to **Input 9**.

2. **Output connections** — up to three outputs can be connected:

   a. If you are connecting the DCS-200 to a digital projector (for example) or other target device, connect the **DVI Output** to the projector's DVI input.

   b. If you are connecting the DCS-200 to an analog projector (for example) or other target device, connect the **Analog (HD-15) Output** to the projector's analog input.

   c. If you are connecting the DCS-200 to a Preview monitor, connect the **Preview DVI** or **Analog (HD-15) Output** to the monitor.

3. **GUI connection** — to configure your system to run from the built-in web-based GUI, perform the following steps:

    a. Ensure that your PC (or laptop) uses Windows® 2000 or XP.

    b. Ensure that your PC (or laptop) has a web browser installed, such as Windows Internet Explorer® or Mozilla Firefox®.

    c. Ensure that your PC is using Java Version 6 or later.

    d. Connect the DCS-200's Ethernet port to a Switch.

    e. Connect the Switch to your PC (or laptop).

This completes the required "physical" connections. Refer to Chapter 5, "**GUI Operations**" on page 103 for installation and operating instructions.

4. **Communications connection** — two methods are available for remote control:

    a. Connect the DCS-200's **Ethernet** port to an Ethernet switch, and connect the switch to the other Ethernet devices in your local system. This enables you to communicate with the DCS-200 via Telnet. In Appendix B, refer to the "**Communicating with DCS-200**" section on page 127 for details.

    b. For a serial remote connection, connect the DCS-200's **Serial** port to the serial port of a laptop or a PC. In Appendix B, refer to the "**Communicating with DCS-200**" section on page 127 for details

This completes system signal installation. Please continue with system setup, menu orientation and operations, as outlined in Chapter 4, "**Operation**" on page 33.

Format Connection Table

Use the following table to connect various source formats to the DCS-200, using the analog HD-15 connectors (on **Inputs 1** through **6**). Please note:

- **RGB format** — typical devices: Computers
- **YUV or YP$_b$P$_r$ (Betacam) format** — typical devices: DVD player, Betacam deck

Using a customer supplied VGA to 5 x BNC breakout cable, multiple input combinations are possible. Cells with checks denote the connections required for the indicated format.

Table 3-2. Analog Input Combinations using Breakout Cable

Breakout Cable Wire Color		Composite Video	S-Video (Y/C)	YUV (YP$_b$P$_r$)	RGB Sync on Green	RGB Comp Sync	RGB Separate H V
R	🟥			✔ (P$_r$)	✔	✔	✔
G	🟩	✔	✔ (Lum)	✔ (Lum)	✔	✔	✔
B	🟦		✔ (Chrom)	✔ (P$_b$)	✔	✔	✔
H Sync						✔	✔
V Sync	⬛						✔

Please contact **Barco Technical Support** for information on obtaining breakout cables. In Appendix C, refer to the "**Contact Information**" section on page 160 for details.

4. Operation

In This Chapter

This chapter provides comprehensive menu descriptions and detailed operating instructions for the DCS-200. The following topics are discussed:

- **Control Overview**
- **Power-Up Initialization**
- **Button States**
- **Quick Setup and Operations**
- **Menu Tree**
- **Using the Menu System**
- **Quick Function Reference**
- **Status Menu**
- **Using the Setup Menu**
- **Using Inputs**
- **Using the LOGO**
- **Using Freeze**
- **Using Black**
- **Using Keys**
- **Understanding Front-Panel Lockout**

Control Overview

There are several ways to control the DCS-200:

- The front panel is ideal for all basic operations. Available controls include the **Display Section** and the buttons in the **Inputs Section** and the **Effects Section**.

- The built-in web-based GUI is ideal for intuitive point-and-click operations. Refer to Chapter 5, "**GUI Operations**" on page 103 for additional details.

- The DCS-200 can also be controlled remotely via **Ethernet** or **Serial** communications. See Appendix B "**Remote Control**" on page 127 for additional details.

Power-Up Initialization

After connecting power to the DCS-200, locate the power switch on the back of the chassis, and turn power **ON**. While the system is initializing, the following messages are displayed:
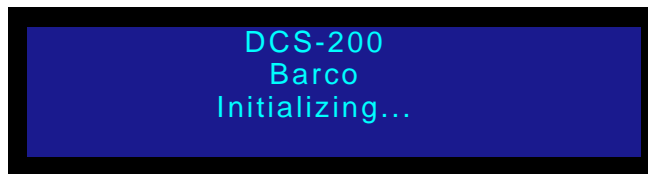
Figure 4-1. System Initialization Message 1 (sample)
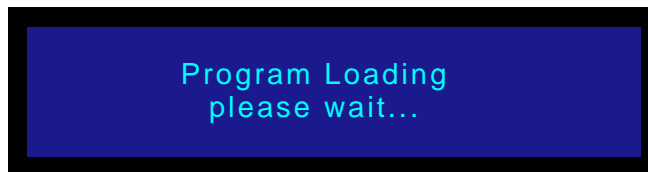
Figure 4-2. System Initialization Message 2 (sample)
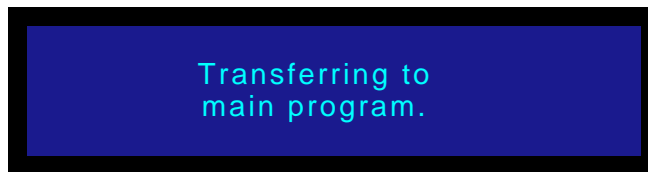
Figure 4-3. System Initialization Message 3 (sample)
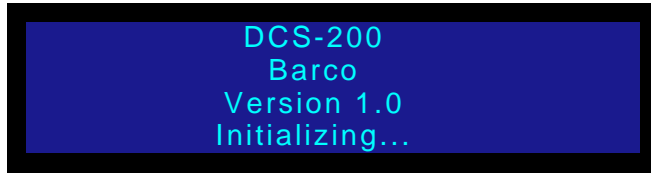
Figure 4-4. System Initialization Message 4 (sample)

The "version" line in the above menu shows the software version that is currently installed. This version number changes as software upgrades are released.

When you first start up a DCS-200 that has stored logos, a message like the one in the following illustration appears during initialization:
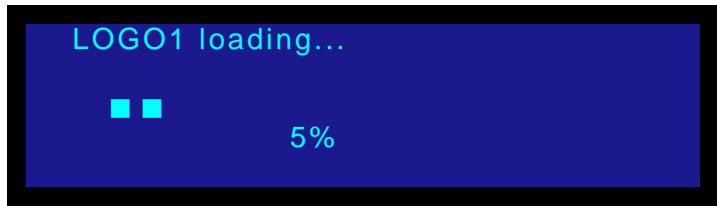
Figure 4-5. LOGO Initialization Message (sample)

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

Button States

Remember that there are three states for the buttons in the **Inputs Section**:

- **Off** — the input is not selected for a transition.
- **Blinking** — the blinking status depends on the type of button:
  ~ For an **input** button:
    - When blinking **fast**, the input is being acquired by the system.
    - When blinking **slow**, the input is ready to be transitioned to Program.
  ~ For an **effect** button (**BLACK**, **KEY**):
    - When blinking **fast**, the button's "auto take" mode is **ON**, and the effect is currently transitioning on or off.
    - When blinking **slow**, the button's "auto take" mode is **OFF**, and the effect is pending for the next transition.
- **Lit Solid** — the input or the effect is on Program.

Remember also that when you press **TAKE**, the DCS-200 automatically flip-flops the current source on Program with the "pending" source. Refer to the "**Flip-flop Mode**" section on page 85 for additional information.

Quick Setup and Operations

For the optimum speed in setting up and operating your system, use the following steps. For reference, links are provided to the appropriate sections in this guide.

1. **Connect power** — Ensure that power is properly connected to the DCS-200. (Chapter 3, "**Power Installation**," page 29.)

2. **Connect inputs** — Connect all input sources to the DCS-200. (Chapter 3, "**Signal Installation**," page 31.

3. **Connect outputs** — Connect the output(s) of the DCS-200 to your projector(s) or other target devices. (Chapter 3, "**Signal Installation**," page 31.

4. **Turn on power** — Turn on power to the DCS-200, your projector(s), and to all peripheral equipment. (This chapter, "**Power-Up Initialization**," page 34.)

5. **Factory reset** — If you are using the DCS-200 for the first time, or if you are using a DCS-200 that has just returned from another event, perform a full factory reset to restore system configurations. (This chapter, "**Factory Reset**," page 82.)

6. **Launch GUI** — (**Optional**) If you want to run the system from the web-based GUI, ensure that Ethernet is connected between your PC and the DCS-200, then launch the GUI. (Chapter 5, "**GUI Operations**," page 103.)

7. **Set output format** — Set the desired output resolution and frame rate. (This chapter, "**Output Format**," page 48.)

8. **Enable test pattern** — Turn on the desired test pattern, verify that you have an image, and make the necessary adjustments. When complete, turn off the test pattern. (This chapter, "**Test Pattern**," page 48.)

9. **Save output configuration** — After completing all output adjustments, save the output configuration. (This chapter, "**Save Output Config**," page 49.)

10. **Select and adjust inputs** — As required, select an input, and perform the necessary adjustments. (This chapter, "**Input Menu**," page 53.)

11. **Save input configuration** — After completing all adjustments for an input, save the input configuration. (This chapter, "**Save Config**," page 64.)

12. **Repeat for each input** — repeat steps 9 and 10 for each input that you have connected to the DCS-200.

13. **Adjust key source** — As required, select the desired key source, and adjust its clip, gain and opacity. (This chapter, "**Using Keys**," page 95.)

14. **Adjust system parameters** — As required, adjust all desired system parameters such as transition time, display brightness, and all user preferences. (This chapter, "**Trans Time**," page 47 and "**System Menu**," page 73.)

15. **Save system configuration** — After completing all system adjustments, save the system configuration. (This chapter, "**Save System State**," page 81.)

16. (**Optional**) **Remote Control** — To control the DCS-200 remotely, ensure that Ethernet or Serial communications are connected, then establish communications and issue commands. (Appendix B, "**Remote Control**," page 127.)

17. **Ready to roll** — With all output, input and system configurations saved, press the desired input button, and press **TAKE**.

Note	For advanced system operations, specific system "tweaks" and operating descriptions on every feature, please start with the "**Quick Function Reference**" section on page 41, and select the function that you wish to perform.

Menu Tree

The figure below illustrates the entire DCS-200 menu tree. Please use this diagram for reference as you learn how to operate the system.
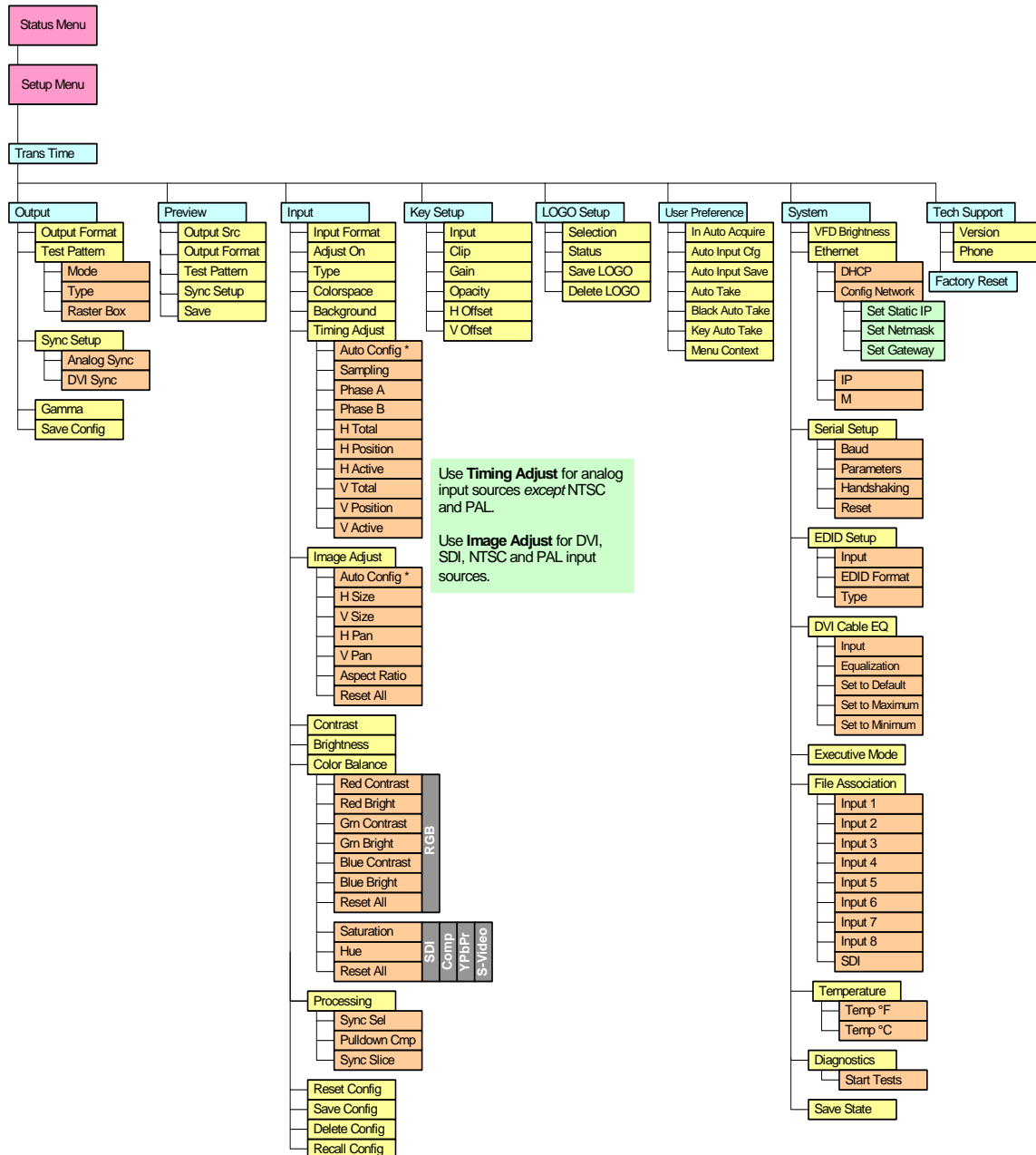
Figure 4-6. DCS-200 Menu Tree

* The "**Auto Config**" selection is only available when an analog input is chosen.

Using the Menu System

This section lists the rules and conventions for using DCS-200's menu system. For reference, the figure below illustrates the **Setup Menu**:

```
SETUP MENU
>  Trans Time              1.0
   Output                   >>
   Preview                  >>
```

Figure 4-7. Setup Menu (sample)

For all setup menus, please note the following important menu rules and conventions:

- The top line names the current menu, in all capital letters.

- Subsequent lines typically display two fields:

  - ~ For a listed **function**, the left-hand field names the function, and the right-hand field is the function's current parameter or value.

  - ~ For a listed **sub-menu**, the left-hand field names the sub-menu that you can access, and the right-hand field displays the double arrow (**>>**), indicating that a sub-menu is available.

- The "navigation" **cursor** (**>**) in the left-hand column indicates the current line on which action can be taken. This arrow "scrolls" as you rotate the knob.

- Scrolling:

  - ~ Turn the **ADJUST** knob counter-clockwise (**CCW**) to scroll down.

  - ~ Turn the **ADJUST** knob clockwise (**CW**) to scroll up.

- To enter a sub-menu, scroll to the desired line and press **SEL**.

Note	Throughout this chapter, the term "**select**" is used as an abbreviation for "scroll to a menu line and press **SEL**."
	▲ Select the **Input** field to...

- To change a parameter, scroll to the desired line and press **SEL**. The cursor changes to the "edit" cursor (**#**). Use the **ADJUST** knob to modify the value:

  - ~ Turn the **ADJUST** knob **CW** to increase a value.

  - ~ Turn the **ADJUST** knob **CCW** to decrease a value.

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

Note	You must press **SEL** to activate a DCS-200 function.

- In the "edit" mode, to exit (or cancel) without changing the original parameter, press **ESC**.

- To navigate back up the menu structure, press **ESC**. Each press takes you back up the menu tree by one level.

4. Operation

Using the Menu System

- The **SEL** button is also used to answer "**Yes**" to certain menu queries. The **ESC** button is also used to answer "**No**" to certain menu queries.

Note	The display itself is four lines high, and the **ADJUST** knob is used to scroll through the various lines. Throughout this chapter, *entire* menus will be shown for clarity — rather than a series of four-line sections.

- If a value is displayed between brackets, (e.g., **[SMPTE]**) this indicates that the value can not be changed.

Quick Function Reference

Use the following table to quickly access the proper section for a specific function. Both hyperlinks and page numbers are provided.

Table 4-1. DCS-200 Quick Function Reference Table

How to:	Use the Following Section:	Page
Adjust background color	**Background**	57
Adjust gamma	**Gamma**	49
Adjust image brightness	**Brightness**	61
Adjust image color balance	**Color Balance**	62
Adjust image contrast	**Contrast**	61
Adjust input processing	**Processing**	63
Adjust input timing	**Timing Adjust**	57
Adjust the image	**Image Adjust**	60
Adjust transition time	**Trans Time**	47
Associate configuration files to inputs	**File Association Menu**	79
Check software version	**Tech Support**	82
Contact Tech Support	**Tech Support**	82
Delete input configuration	**Delete Config**	65
Display a test pattern	**Test Pattern**	48
Display the raster box	**Test Pattern**	48
Identify button states	**Button States**	35
Learn the menu tree	**Menu Tree**	38
Lock out the front panel completely	**Full Lockout Mode**	101
Lock out the front panel, except inputs	**Executive Lockout Mode**	101
Perform a key	**Performing a Key**	96
Perform factory reset	**Factory Reset**	82
Perform key combinations	**Key Transition Combinations**	97
Perform quick setup and operations	**Quick Setup and Operations**	36
Perform system diagnostics	**Diagnostics**	81
Power up the system	**Power-Up Initialization**	34
Reset input configuration	**Reset Config**	64
Reset system	**Factory Reset**	82
Save input configuration	**Save Config**	64

4. Operation

Quick Function Reference

Table 4-1. DCS-200 Quick Function Reference Table   (Continued)

How to:	Use the Following Section:	Page
Save output configuration	**Save Output Config**	49
Save system state	**Save System State**	81
Select inputs	**Input Selection Rules**	84
Set Auto Input Config mode	**Auto Input Config**	71
Set Auto Input Save mode	**Auto Input Save**	72
Set Auto Take mode	**Auto Take**	72
Set Black Auto Take mode	**Black Auto Take**	72
Set color input space	**Colorspace**	56
Set DVI cable equalization	**DVI Cable Equalization**	79
Set Ethernet parameters	**Ethernet**	74
Set In Auto Acquire mode	**In Auto Acquire**	70
Set input format	**Input Format**	55
Set input type	**Type**	56
Set Key Auto Take mode	**Key Auto Take**	72
Set Menu Context mode	**Menu Context**	73
Set or change multiple input configurations	**File Association Menu**	79
Set or change a single input configuration	**Recall Config**	66
Set output format	**Output Format**	48
Set Preview or Program mode	**Adjust On**	55
Set Serial port parameters	**Serial Setup**	76
Set up EDID	**EDID Setup**	77
Set up Key	**Key Setup Menu**	67
Set up LOGO	**LOGO Setup Menu**	69
Set up sync	**Sync Setup**	49
Set user preferences	**User Preference**	70
Set VFD brightness	**VFD Brightness**	73
Understand auto acquire	**Understanding Auto Acquire**	86
Use Black	**Using Black**	93
Use Freeze	**Using Freeze**	92
Use HDCP	**Using HDCP**	86
Use inputs	**Using Inputs**	84
Use Keys	**Using Keys**	95
Use the Input Menu	**Input Menu**	53

Table 4-1. DCS-200 Quick Function Reference Table   (Continued)

How to:	Use the Following Section:	Page
Use the Key Setup Menu	**Key Setup Menu**	67
Use the LOGO	**Using the LOGO**	88
Use the LOGO Setup Menu	**LOGO Setup Menu**	69
Use the menu system	**Using the Menu System**	39
Use the Output Menu	**Output Menu**	47
Use the Preview Menu	**Preview Menu**	50
Use the Setup Menu	**Using the Setup Menu**	46
Use the Status Menu	**Status Menu**	44
Use the System Menu	**System Menu**	73
Use the User Preference Menu	**User Preference**	70
View chassis temperature	**Temperature**	80
View LOGO status	**LOGO Setup Menu**	69
View software version	**Tech Support**	82
View Tech Support number	**Tech Support**	82

Status Menu

The **Status Menu** is the system's top level display, which appears by default after the DCS-200 boots up.

- To return to the **Status Menu** from any point within the **Setup Menu**, press **ESC** repeatedly.

- To display the **Setup Menu** from the **Status Menu**, press **SEL**.

The figure below illustrates a sample **Status Menu**:

PROGRAM:	RGB	— Program Input Type
	1024x768@59.94	— Program Input Format
NEXT:	SDI	— Next Input Type
	NTSC (480i)	— Next Input Format

Figure 4-8. Status Menu (sample)

The **Status Menu** provides information about the current input on Program (the button that is lit solid), and the input that is *next* to be transitioned to Program (the button that is blinking). The **Status Menu** always updates as "current" and "next" sources change.

Please note:

- If **Menu Context** is **ON** (in the **User Preference Menu**), selecting a different input for the "next" transition automatically displays the **Input Menu**. This menu always reflects the source currently on Program. To return to the **Status Menu**, press **ESC** repeatedly.

- If **Menu Context** is **OFF**, the **Status Menu** remains on display when you select a different input.

In the **Status Menu**, the variable fields are as follows:

- **Program Input Type** — Specifies the type of input signal currently on Program.

- **Program Input Format** — Indicates the current input video format, in the form:

    Hact x Vact @ Vr Hz

  ▲ 1280x1024@60 Hz

  If the currently selected input does not have a valid input signal, the **Input Format** field displays **Invalid Signal**.

  Please note the following conventions for displaying resolutions:

Table 4-2. Status Menu Conventions

Convention	Description
Hact x Vact @ Vr	**No symbols**. The current format is an exact match from the table. The format has not been "best guessed" or saved.
Hact x Vact @ Vr	**Asterisks**. The format has been "best guessed."
[Hact x Vact @ Vr]	**Brackets**. The exact table match has been saved.
[*Hact x Vact @ Vr*]	**Brackets** plus **Asterisks**. The best guessed format has been saved.

- **Next Input Type** — indicates the next input type on Program, and (if applicable), the system's HDCP status. The following labels can appear, depending on the output and HDCP implementation:

    ~   HDCP

    ~   HDCP Violation

Important	If the label "**HDCP Violation**" appears, an HDCP source is selected, but a non-HDCP compliant device (e.g., an HDCP repeater) has been detected. Video output is disabled.

- **Next Input Format** — Indicates the input formats on Program, in the form:

    `Hact x Vact @ Vr Hz`

▲ 1400x1050@59.94 Hz

Using the Setup Menu

After DCS-200 initialization is complete, the **Status Menu** appears. This is the system's top-level menu. Refer to the "**Status Menu**" section on page 44 for details.

To display the **Setup Menu** from the **Status Menu**, press **SEL**.

Note	When you make changes to input, output and system parameters, your "configuration" information can be stored in non-volatile memory — provided that you perform a "**Save Config**" operation. In this way, your settings will be recalled automatically each time the unit is turned on. Note that if the "**Auto Input Save**" function is enabled in the **User Preferences Menu**, the system automatically saves inputs.

The figure below illustrates the **Setup Menu**:

```
SETUP MENU
> Trans Time          1.0
  Output              >>
  Preview             >>
  Input               >>
  Key Setup           >>
  Logo Setup          >>
  User Preference     >>
  System              >>
  Tech Support        >>
  Factory Reset
```
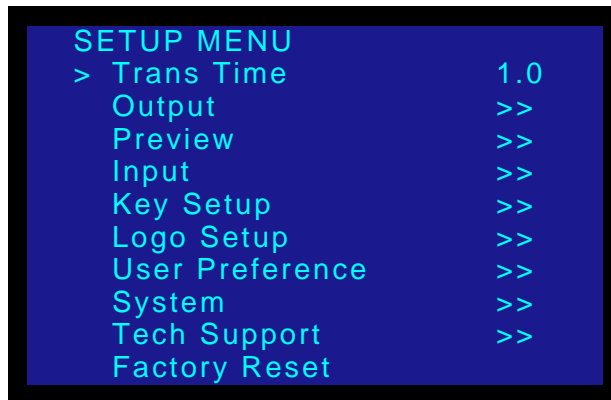
Figure 4-9. Setup Menu (sample)

Following are descriptions of each **Setup Menu** function:

- **Trans Time**
- **Output Menu**
- **Preview Menu**
- **Input Menu**
- **Key Setup Menu**
- **LOGO Setup Menu**
- **User Preference**
- **System Menu**
- **Tech Support**
- **Factory Reset**

Trans Time

From the **Setup Menu**, select **Trans Time** to change the current transition rate that is used when you mix between inputs, when you transition to/from keys, and when you transition to/from black.

Following are two illustrations of the transition interval:

- **Standard Mix** — When transitioning between inputs and the LOGO, or transitioning to/from black, the DCS-200 functions as a seamless switcher. The transition interval is defined as the total time required to mix to the new source, or fade to/from black.
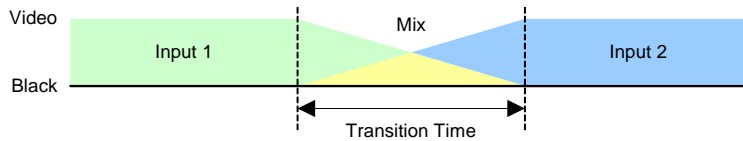
Figure 4-10. Transition interval diagram — mix between sources

- **Mix plus Digital Key** — When transitioning to/from a digital key source, the definition is the same as a standard mix — the total time required to fade to the new source, plus or minus a key.
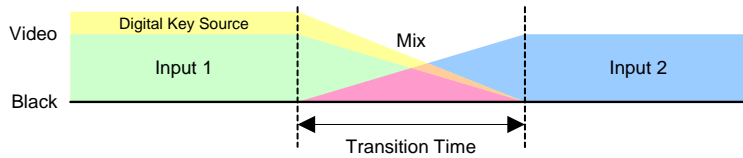
Figure 4-11. Transition interval diagram — mix between sources and a digital key

Note that transition times are specified for switching applications with **Auto Acquire** turned **OFF**. When **Auto Acquire** is **ON**, the transition time is greater, due to the additional time required to analyze the input video timing.

Transition values are listed below:

- **Adjustment range**: 0.0 - 12.0 seconds (0.0 is a cut)
- **Default**: 1.0 seconds

Output Menu

From the **Setup Menu**, select **Output** to display the **Output Menu**.

```
OUTPUT
>                    1024x768 @59.94
   Test Pattern              >>
   Sync Setup                >>
   Gamma                     1.3
   Save Config
```

Figure 4-12. Output Menu (sample)

Following are descriptions of each **Output Menu** function:

- **Output Format**
- **Test Pattern**
- **Sync Setup**
- **Gamma**
- **Save Output Config**

Output Format

From the **Output Menu**, select the top **Output Format** line to view or change the current output format. This line indicates the format in the following form:

```
Hact x Vact @ Vr Hz
```

The output format for the DCS-200 can be set to any of the progressive outputs in the format table. In Appendix A, refer to the "**Format Table**" section on page 122 for details.

Note	The output format is not updated until **SEL** is pressed.

Test Pattern

From the **Output Menu**, select **Test Pattern** to display the **Test Patterns Menu**:

```
TEST PATTERNS
> Mode              ON
  Type              Burst
  Raster Box        OFF
```

Figure 4-13. Test Patterns Menu (sample)

The following functions are available on the menu:

- **Mode** — This function enables or disables the test pattern generator.
- **Type** — This function enables you to select a test pattern. Available choices are:

~	H Ramp	~	Gray Steps 1
~	V Ramp	~	Gray Steps 2
~	100% Col Bars	~	Red
~	75% Col bars	~	Green
~	16 x 16 Grid	~	Blue
~	32 x 32 Grid	~	White
~	Burst	~	Black
~	50% Gray		

- **Raster Box** — This function enables or disables the raster box on the output.

    - ~ When turned **ON**, the system displays a one-pixel border around the active output area. Note that the raster box includes gaps that enable you to precisely align the input video to fill the output raster.

    - ~ When turned **OFF**, the output is clean, without the border.

Sync Setup

From the **Output Menu**, select **Sync Setup** to display the **Output Sync Select Menu**:

```
OUTPUT SYNC SELECT
> Analog Sync          -H-V
  DVI Sync             +H+V
```
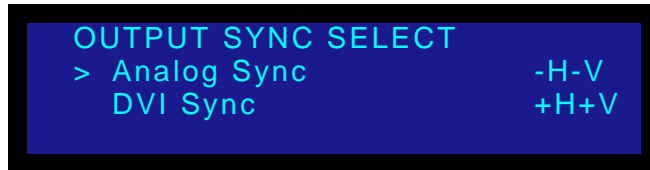
Figure 4-14.   Output Sync Select Menu (sample)

The **Output Sync Select Menu** enables you to independently adjust the output sync polarity of the Analog and DVI outputs. The following functions are available:

- **Analog Sync** — This field sets the analog output sync polarity.

    - ~ **Values**: CSync, -H-V, -H+V, +H-V, +H+V

    - ~ **Default**: -H-V

- **DVI Sync** — This field sets the DVI output sync polarity.

    - ~ **Values**: -H-V, -H+V, +H-V, +H+V

    - ~ **Default**: +H+V

Gamma

From the **Output Menu**, select **Gamma** to specify the output Gamma.

- **Adjustment range**: 1.0 to 3.0, in steps of 0.1
- **Default**: 1.0

Save Output Config

From the **Output Menu**, select **Save Config** to save the current output configuration. A message is briefly shown, after which the system returns to the **Output Menu**.

```
Saving Output Config
```

Figure 4-15. Saving Output Configuration Message

Please note the following important points regarding the output configuration file:

- When you perform the **Save Config** function, all configuration parameters from the **Output Menu** are saved in non-volatile memory. If you *do not* perform the function, output data will not be restored upon the next system power up.

- If you make a change in the **Output Menu**, and attempt to exit the menu (by pressing **ESC**) *without* saving changes, the system displays the following prompt:
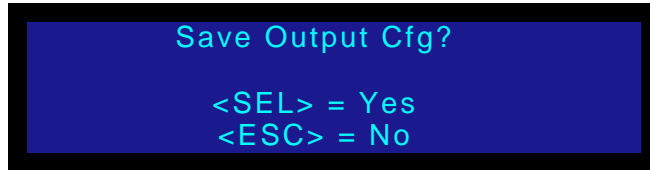
```
           Save Output Cfg?

              <SEL> = Yes
              <ESC> = No
```

Figure 4-16. Save Output Configuration Prompt

- ~ Select **Yes** (**SEL**) to save changes.
- ~ Select **No** (**ESC**) to continue operation without saving the changes.

Preview Menu

From the **Setup Menu**, select **Preview** to configure the DCS-200's Preview output. The Preview output allows you to view, resize, and otherwise adjust the input source before taking it to Program. You can preview each of the input sources (**1** through **8**, **SDI** and **LOGO**). The input source is scaled to the selectable progressive resolution and output on the DVI Digital and HD-15 analog VGA connectors.

The following illustration shows the **Preview Menu**:

```
  PREVIEW
    Output Src              Program
                       1024x768@59.94

    Test Patterns             >>
    Sync Setup                >>
    Save
```
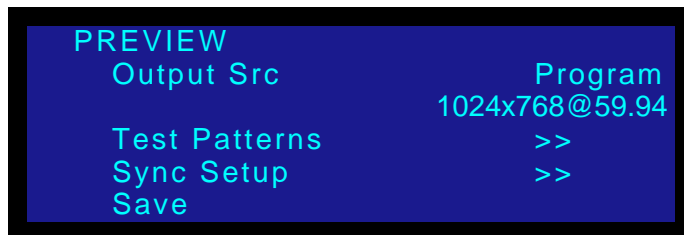
Figure 4-17. Preview Menu (sample)

Note	After you view and adjust a source on the preview monitor, and press **TAKE** to bring it to Program, the preview and Program images exchange positions, or "flip-flop," as described in the "**Flip-flop Mode**" section on page 85. There is a slight delay in the image exchange between the preview output and the Program output. The preview image appears slightly after the Program image.

The following sections provide detailed information about **Preview Menu** functions:

- **Output Src**
- **Output Format (Preview)**
- **Test Patterns (Preview)**
- **Preview Sync**
- **Save (Preview)**

Output Src

In the **Preview Menu**, choose **Output Src** to select the source to be displayed on the preview monitor. The source can be either **Preview** or **Program**.

- Choose **Preview** to display on the preview monitor the "pending" source.

- Choose **Program** to display on the preview monitor the same source that is on Program.

Important	In Preview mode, when you press **KEY** to "pend" the key transition, you will not see the key overlay on the preview monitor. If you then press **TAKE**, the input and key appear on Program.
	To see the key on the preview monitor, you can route the source from Program to preview using the **Output Src** selection of the **Preview Menu**. This selection places a copy of the Program image on the preview monitor, including the key. For more information about keys, see the "**Using Keys**" section on page 95.

Output Format (Preview)

In the **Preview Menu**, the **[output_format]** field displays the format of the output, in the following form:

Hact x Vact @ Vr Hz

▲ 1024x768@59.94

The output format for the DCS-200 can be set to any of the progressive outputs in the format table. In Appendix A, refer to the "**Format Table**" section on page 122 for details.

Note	The output format is not updated until you press **SEL**.

To make pixel-for-pixel adjustments, set the Preview and Program resolutions to be the same, as shown in the following illustration:
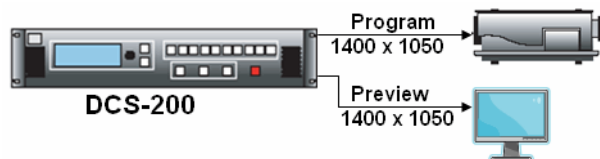

Figure 4-18. Matching Preview and Program Resolutions

 If you do not need to make pixel-perfect adjustments to the Preview image, the resolutions of the Preview and Program outputs do not need to be the same, as shown in the following
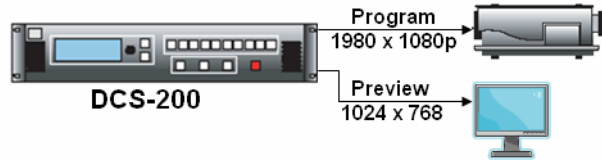
illustration:

Figure 4-19. Different Preview and Program Resolutions

Test Patterns (Preview)

In the **Preview Menu**, the **Test Patterns** submenu provides the following options:

- **Mode** enables or disables the test pattern generator. The values are **ON** and **OFF**.

- **Type** provides a list of the available test patterns. The choices are:

~ H Ramp	~ Gray Steps 1
~ V Ramp	~ Gray Steps 2
~ 100% Col Bars	~ Red
~ 75% Col bars	~ Green
~ 16 x 16 Grid	~ Blue
~ 32 x 32 Grid	~ White
~ Burst	~ Black
~ 50% Gray	

- **Raster Box** — This function enables or disables the raster box on the Preview output.

    - ~ When turned **ON**, the system displays a one-pixel border around the active output area. Note that the raster box includes gaps that enable you to precisely align the input video to fill the output raster.

    - ~ When turned **OFF**, the output is clean, without the border.

Preview Sync

From the **Preview Menu**, select **Sync Setup** to independently adjust the output sync polarity of the analog and DVI outputs of the Preview. The **Preview Sync Menu** looks like the one in the following illustration.
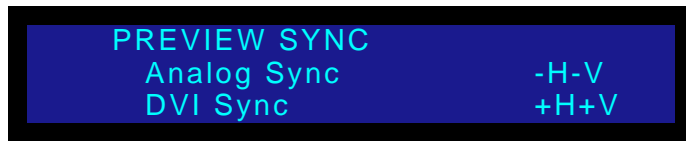


```
PREVIEW SYNC
   Analog Sync            -H-V
   DVI Sync               +H+V
```

Figure 4-20. Preview Sync Setup Menu (sample)

The selectable values are:

- **Analog Sync** — This field sets the analog output sync polarity.

    ~ **Values**: -H-V, -H+V, +H-V, +H+V

    ~ **Default**: -H-V

- **DVI Sync** — This field sets the DVI output sync polarity.

    ~ **Values**: -H-V, -H+V, +H-V, +H+V

    ~ **Default**: +H+V

Save (Preview)

After you make changes using the **Preview Menu**, use the **Save** function to store them in non-volatile memory. Your configuration parameters will then persist across power cycles.

If you do not choose **Save** after making changes, you are prompted to do so with a message like the one shown in the following illustration.

```
Save Preview Config?
   <SEL> = Yes
   <ESC> = No
```
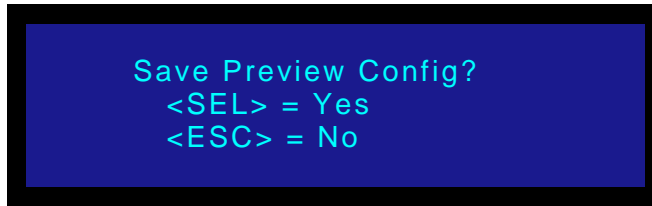
Figure 4-21. Save Preview Configuration Prompt (sample)

- Press **SEL** to save your changes.
- Press **ESC** to continue without saving your changes.

If you do not save your changes, your settings will not be restored the next time the system is powered up or the input is selected.

Input Menu

From the **Setup Menu**, select **Input** to display the **Input Menu**. The **Input Menu** enables you to set parameters for the selected input on Program.

Important	The **Input Menu** does not appear in the menu tree when the **LOGO** is on Program.

The format of the selected input on Program is shown on the second line.

```
INPUT
                    1024x768 @59.94
  > Adjust On       Preview
    Type            RGB/HD-YUV
    Colorspace      RGB
    Background       Black
    Timing Adjust    >>
    Image Adjust     >>
    Contrast        100.0%
    Brightness      100.0%
    Color Balance    >>
    Processing       >>
    Reset Config
    Save Config      >>
    Delete Config    >>
    Recall Config    >>
```

Figure 4-22.   Input Menu (sample)

The **Input Menu** can be used in two ways:

- Press an input button *first*, **TAKE** the input to Program, then use the menu to set input parameters.

- While you are already in the **Input Menu**, press a *different* input button and **TAKE** it to Program. The fields update to reflect the values for the new input.

Note	Changing the parameters for one input does not affect the input configuration of the other inputs.

The following sections provide detailed information about **Input Menu** functions:

- **Input Format**
- **Adjust On**
- **Type**
- **Colorspace**
- **Background**
- **Timing Adjust**
- **Image Adjust**
- **Contrast**

- **Brightness**
- **Color Balance**
- **Processing**
- **About Input Configuration Files**
- **Reset Config**
- **Save Config**
- **Delete Config**
- **Recall Config**

Input Format

From the **Input Menu**, select the top **Input Format** line to view the "auto-acquired" format for the selected input, or to change the format. The format is shown in the following form:

Hact x Vact @ Vr Hz

▲ 1024x768@59.94

Please note the following important points:

- If you select an input and it does not have a valid signal, "**Invalid Signal**" appears.

- If an input was previously valid and its signal is lost, the "**Invalid Signal**" message appears.

- When **In Auto Acquire** is **ON** (in the **User Preferences Menu**), the input video format for **non-digital sources** will be detected in the following search order:

    - ~ The saved file as defined in the **File Association Menu**

    - ~ The library of saved configurations for the selected input

    - ~ Standard library formats as defined in Appendix A, in the "**Format Table**" section on page 122

    - ~ A best guess (to the closest video format in the library)

    For **digital sources**, when **In Auto Acquire** is **ON**, the search order is:

    - ~ The saved configuration file as defined in the **File Association Menu**

    - ~ Your library of saved files

    - ~ A direct measurement of the signal

- If the video format is a "best guess" as determined by the "auto acquire" mode, it is displayed (only in the **Status Menu**) within asterisks.

    ▲ *1024x768@60.11*

- If you select an input that has been saved (using the **Save Config** function), the video format is displayed (only in the **Status Menu**) within brackets.

    ▲ [1024x768@59.94] This example is a saved "exact match" from the format table (or library).

    ▲ [*1024x768@59.90*] This example is a saved "best guess."

- When **In Auto Acquire** is **OFF**, the system attempts to lock to the signal using the configuration defined in the **File Association Menu** for each input channel. If the input signal is too different from the saved configuration to be usable, the display indicates "**Invalid Signal**."

Adjust On

In the **Input Menu**, the **Adjust On** field indicates whether any changes you make using the **Input Menu** will be applied to the Preview or Program source.

For example, if you select Preview, as shown in the illustration below, and change the Background, Color Balance, or other parameters using the **Input Menu**, you can view

those changes on the Preview source — while the Program source remains unchanged.

```
INPUT
                    1024x768 @59.94
> Adjust On         Preview
```
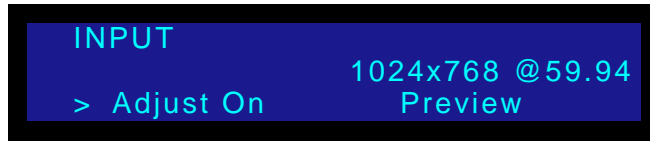
Figure 4-23. Adjust On Field

If both paths are using the same input source, only the selected path is modified.

When **LOGO** is the input for the **Adjust On** selection, all the **Input Menu** values *except* **Adjust On** are bracketed.

Type

In the **Input Menu**, the **Type** field shows the currently selected input type, and enables you to change the type if required. The available types depend on the selected input:

- For inputs 1 - 6: **CVBS**, **Y/C**, **YPBPR**, **RGB/HD-YUV**

- For inputs 7 - 8 (when Digital): **DVI**

- For inputs 7 - 8 (when Analog): **CVBS**, **Y/C**, **YPBPR**, **RGB/HD-YUV**

- For the **SDI** input: **[SDI]**

Note	The SDI input always shows its type in brackets (e.g., [SDI]), given that this input type cannot be changed.

Colorspace

From the **Input Menu**, select **Colorspace** to change the color space for the selected input on Program. Values depend on the selected input.   Please note:

- The default selection for YP_bP_r or **YUV** is **SMPTE**.   In Appendix A, refer to the "**Format Table**" on page 122 for information on the formats that are RGB, SMPTE or both. When both formats are listed, the first item in the list is the default.

- The **Colorspace Menu** allows selection between these two values when the input is analog (excluding CVBS, Y/C) or DVI.

- When either the CVBS or Y/C input is selected, only **[SMPTE]** is shown.

- When the following formats are detected as either SD-SDI or HD-SDI, only **[SMPTE]** is shown.

~ NTSC (480i)	~ 1920x1080p @29.97
~ PAL (576i)	~ 1920x1080p @30
~ 1280x720p @50	~ 1920x1080sF @23.98
~ 1280x720p @59.94	~ 1920x1080sF @24
~ 1280x720p @60	~ 1920x1080i @50
~ 1920x1080p @23.98	~ 1920x1080i @59.94
~ 1920x1080p @24	~ 1920x1080i @60
~ 1920x1080p @25	

Background

From the **Input Menu**, select **Background** to change the system's background color between "**Black**" and "**Gray**." This is a global setting.

When set to **Gray**, you can clearly see the edges of an input, particularly when the input's aspect ratio does not match the output's aspect ratio. Note that the background selection persists between source changes.

Timing Adjust

From the **Input Menu**, select **Timing Adjust** to display the **Timing Adjust Menu**, which allows for exact positioning of the input's active area.
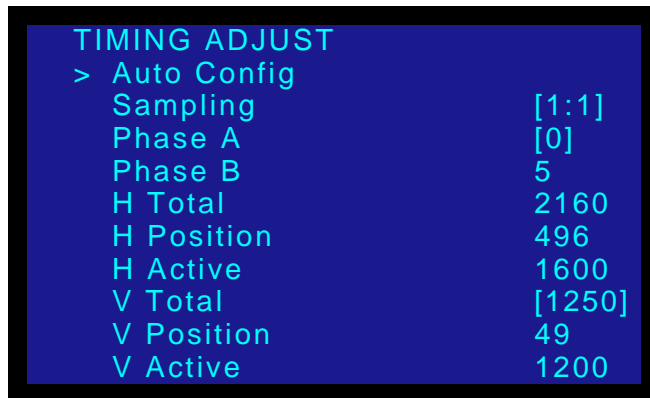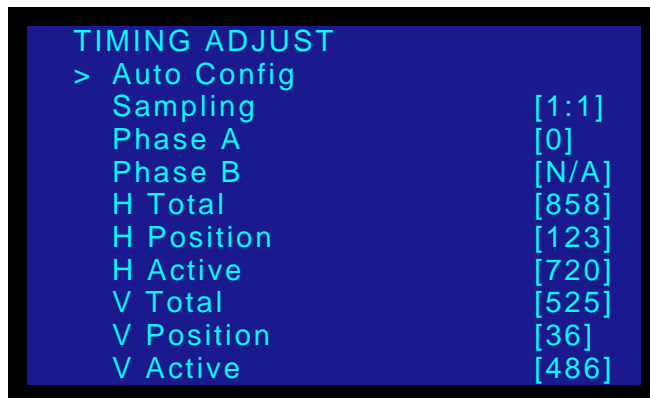
```
TIMING ADJUST
>  Auto Config
   Sampling              [1:1]
   Phase A               [0]
   Phase B               5
   H Total               2160
   H Position            496
   H Active              1600
   V Total               [1250]
   V Position            49
   V Active              1200
```

Figure 4-24. Timing Adjust Menu (sample)

Note	**Timing Adjust Menu** settings apply to *analog input sources* only, *except* for NTSC and PAL sources. For digital, NTSC and PAL sources, refer to the "**Image Adjust**" section on page 60.

For DVI digital, NTSC and PAL videos the **Timing Adjust Menu** is informational only. Because the individual parameters cannot be adjusted, they are bracketed, as shown in the following illustration.

```
TIMING ADJUST
>  Auto Config
   Sampling              [1:1]
   Phase A               [0]
   Phase B               [N/A]
   H Total               [858]
   H Position            [123]
   H Active              [720]
   V Total               [525]
   V Position            [36]
   V Active              [486]
```

Timing Adjust Menu — DVI Digital, NTSC, PAL (sample

For information about adjusting these inputs, refer to the "**Image Adjust**" section on page 60.)

Important	The **Timing Adjust Menu** does not appear in the menu tree if the analog input is being undersampled for the following resolutions:
	• 1920x1080p@60 (173.0 MHz)
	• 1920x1200p@60 (193.25 MHz)
	• 2048x1080p@60 (183.75 MHz)

The following functions are available:

- **Auto Config** — This function performs an automatic input configuration on the analog source on Program. When **Auto Config** is selected, the DCS-200 finds the first and last pixel on each edge of the selected input, and ensures (to the best possible extent) that the entire image is visible. In addition, the system automatically phases the input to determine the correct sampling phase.

Tip	Ensure that there are non-black pixels around the extreme edges of your active video, in order for the image to be properly sized by the **Auto Config** function. For example, if you use a Windows desktop with a high luminance background, the **Auto Config** function will be accurate. If, on the other hand, you use a desktop image with a black border, the image will not be properly sized.

Note	**Auto Config** applies to analog input sources only. This function is identical to the **Auto Config** function in the **Image Adjust Menu**.

- **Sampling** — select this function to change the sampling for the selected input. Available values are: **Oversample** and **1:1** (default). Please note:
    - ~ When **1:1 Sampling** is selected, the system provides pixel-for-pixel sampling, and generally better image quality.
    - ~ When **Oversample** is selected, the system performs multiple samples for every pixel, with a resulting "softer" image.
    - ~ **Oversample** is only available for RGB and YP_bP_r analog inputs.
    - ~ All other input types have defined sample clocks that are inherently **1:1**. If the input is set to one of the other types, the value is **[1:1]**.
- **Phase A**, **Phase B** — These two selections are advanced features which enable you to adjust the sample phase of the system's two scalers. Typically, they do not need to be adjusted. Refer to the "**Adjusting Sample Phase**" section on page 59 for instructions.

The six "**Active Area**" values are initially filled in by the **Auto Config** command, or set to their default values. You can adjust values for Analog RGB or YP_bP_r sources only. Digital and decoded sources show values in brackets.

Please note:

- When sampling is set to **1:1**, values are the true timing measurements for the analog RGB or YP_bP_r inputs.

- When sampling is set to **OverSample**, values represent the oversampling factor being used.

For all **Horizontal** "active area" fields, all units are measured in pixels:

- **H Total** — adjusts the total pixel count per line. This value cannot be adjusted if the input type is **DVI** / **SDI**.
- **H Position** — adjusts the offset of start of active area from H sync.
- **H Active** — sets the size of the active area.

For all **Vertical** "active area" fields, all unit are measured in lines.

- **V Total** — indicates the total line count per frame. This value is measured, and can never be adjusted. Its value will always be shown in brackets.
- **V Position** — sets the offset of start of active area from V sync.
- **V Active** — sets the size of the active area.

Adjusting Sample Phase

The DCS-200 has two A-to-D converters, which are referred to as **A** and **B** in the **Timing Adjust Menu**. The sample phase value of each scaler is initially filled in by the **Auto Config** command, or set to the default value of **0** (zero). If required, advanced users can fine-tune the image by adjusting the sample clock phase of each scaler directly — *but only for inputs whose "type" is analog*.

- **Adjustment range**: -16 to 15
- **Default**: 0

■ Use the following steps to adjust sample clock phase of each scaler, for inputs whose "type" is analog.

1. From the **Input Menu**, navigate to the **Timing Adjust Menu**, and scroll to the **Phase A** or **Phase B** line.

2. In the **Inputs Section**, select an input whose "type" is analog.

3. **TAKE** the input to Program. The button lights solid.

4. Pend the *same input* for the next transition. In this mode, only one button will now be lit solid, and no buttons will be blinking.

5. On the **Timing Adjust Menu**, note that one of the two **Phase** lines will be bracketed, and the other will be unbracketed. When you press **TAKE**, the brackets will switch positions. The un-bracketed line is the active scaler.

```
 TIMING ADJUST
   Sampling                1:1
 > Phase A                 0
   Phase B                 [0]
```

Figure 4-25. Timing Adjust Menu, phase indication of active scaler

6. On the selected input, put up a **Burst** pattern. For example, if the source is a computer, use a program such as **DisplayMate**® to generate the pattern.

7. Scroll to the unbracketed **Phase** line, and press **SEL**.

8. Use the **Adjust** knob to tweak the burst pattern for the maximum visual clarity and a minimum amount of visual noise, then press **SEL** to accept the new value.

9. Press **TAKE** to activate the other scaler.

10. Repeat steps **7** and **8** for the other scaler.

11. Press **ESC** to return to the **Input Menu**.

12. Scroll to the **Save Config** line, and press **SEL** to save the configuration for the selected input.

13. Repeat the entire adjustment procedure from step **1**, for all remaining inputs whose "type" is analog — and be sure to save the input configuration each time you complete an adjustment for a selected input.

Image Adjust

From the **Input Menu**, select **Image Adjust** to display the **Image Adjust Menu**. This menu, shown in the following illustration, enables you to adjust input parameters such as horizontal and vertical image size, pan and aspect ratio:

```
  IMAGE ADJUST
> Auto Config
  H Size                0
  V Size                0
  H Pan                [0]
  V Pan                [0]
  Aspect Ratio         4:3
  Reset All
```

Figure 4-26. Image Adjust Menu (sample)

Note	It is recommended that you use the **Image Adjust Menu** only when you are using DVI, SDI, NTSC or PAL input sources. For analog input sources (except NTSC and PAL), refer to the "**Timing Adjust**" section on page 57.

Select **Auto Config** to perform an automatic input configuration on an NTSC or PAL source on Program. The system finds the first and last pixel on each edge, and ensures (to the best possible extent) that the entire image is visible. In addition, the system automatically phases the input to determine the correct sampling phase.

Note	The **Auto Config** selection is only available for analog inputs (NTSC or PAL). This function is identical to the **Auto Config** function in the **Timing Adjust Menu**.

The **Size** and **Pan** functions allow you to size the image, and then position it within the selected aspect ratio. The full-screen nature of the final output will be maintained.

- Select **H Size** to size both the left and right edges simultaneously. Values are in pixels. The output "window" is maintained in both size and aspect ratio.

- Select **V Size** to size both the top and bottom edges simultaneously. Values are in lines. The output "window" is maintained in both size and aspect ratio.

Note	For both **H Size** and **V Size**, the function always cuts *into* the visible image, equally on both sides, and never exposes video outside the source's active area. As you size, the DCS-200 scales the input up to fit the selected aspect ratio.

Note	The maximum allowable H/V size is up to 33% of the input's corresponding active area. For example, for a 1280x1024 input, the maximum **H Size** is 422 and the maximum **V Size** is 336.

- Select **H Pan** to pan a "sized" image left and right — within the selected aspect ratio. Values are in pixels. The value reads **[0]** if the image has not been sized horizontally.

- Select **V Pan** to pan a "sized" image up and down — within the selected aspect ratio. Values are in lines. The value reads **[0]** if the image has not been sized vertically.

Note	If both **H Size** and **H Pan** are greater than **0**, and **H Size** is adjusted so that it approaches **0**, at a calculated limit, **H Pan** automatically adjusts itself to approach **0**. This same rule holds true for **V Size** and **V Pan**.

The **Aspect Ratio** function allows you to set a pre-defined or custom ratio for the input.

- Select **Aspect Ratio** to adjust the image to one of the following values: **1:1**, **3:2**, **4:3**, **5:4**, **16:9**, **Custom**.

- If **Custom** is selected, the **Ratio** line appears:
    - ~ **Adjustment range**: 0.750 to 3.000. The default value depends on the last **Aspect Ratio** selected before **Custom** was chosen.
    - ~ Note that the DCS-200 displays the input video aspect ratio according to the input format detected. For example:
        - ▲ Computer video at 1280x1024@60Hz defaults to 5:4 aspect ratio
        - ▲ NTSC video defaults to 4:3, HDTV 1080i video defaults to 16:9

Contrast

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

- **Adjustment range**: 75.0% to 125.0%
- **Default**: 100%

Brightness

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

- **Adjustment range**: 75.0% to 125.0%
- **Default**: 100%

Color Balance

From the **Input Menu**, select **Color Balance** to display one of two available **Color Balance Menus**. The menu that appears depends on the current input's "type." Each menu allows you to adjust the input's color balance parameters.

- **RGB Color Balance Menu**
- **Color Balance Menu**

RGB Color Balance Menu

If the current input's type is set to **RGB**, the **RGB Color Balance Menu** appears:

```
COLOR BALANCE
> Red Contrast          0.0%
  Red Bright            0.0%
  Grn Contrast          0.0%
  Grn Bright            0.0%
  Blu Contrast          0.0%
  Blu Bright            0.0%
  Reset All
```

Figure 4-27. RGB Color Balance Menu (sample)

Each of the individual contrast and brightness settings operates in conjunction with the "global" contrast and brightness settings in the **Input Menu**.

- **Adjustment range** (all values): -25.0% to +25.0%
- **Default** (all values): 0.0%
- Select **Reset All** to set all values back to their default settings.

Color Balance Menu

If the current input's type is set to **Composite**, **S-video**, **YP$_b$P$_r$**, or **SDI**, the **Color Balance Menu** appears:

```
COLOR BALANCE
> Saturation            100
  Hue                   0
  Reset All
```

Figure 4-28. Color Balance Menu (sample)

Please note:

- **Saturation** is measured in percentage.
  - ~ **Adjustment range** (Composite, S-Video): 0% to 150% (100% nominal)
  - ~ **Adjustment range** (SDI, YP$_b$P$_r$): 75.0% to 125.0%
- **Hue** is measured in degrees, and is [N/A] for YP$_b$P$_r$ inputs.
  - ~ **Adjustment range**: -90 to +90
- Select **Reset All** to set all values back to their default settings.

Processing

From the **Input Menu**, select **Processing** to display the **Processing Menu**:

```
PROCESSING
>  Sync Sel              Auto
   Pulldown Comp         OFF
   Sync Slice (mV)       128
```

Figure 4-29. Processing Menu (sample)

The following functions are available:

- **Sync Selection** — This function applies only to **Analog RGB** inputs. The DCS-200 automatically selects the syncs for digital sources, composite, S-video, and YP_bP_r inputs. For these inputs, the value field indicates **[N/A]**.

  The sync choices are **Auto**, **H/V** (horizontal/vertical sync), **CSync** (composite sync) and **SOG** (sync on green).

  - ~ In **Auto** mode, the system finds sync in any of the three possible sources.
    - If one of the sources is chosen, the system uses only that input as a sync source.
    - If the system does not find sync at that source, it acts as if it is in **Auto** mode.

  - ~ The default selection for Analog RGB inputs is **Auto**.

- **Pulldown Compensation** — This function only applies to standard video (component, s-video, composite and SD/HD SDI) inputs. The mode, which detects the 3:2 film pulldown sequence, should be turned **ON** to properly process video derived from film source material.

  - ~ **Adjustment range**: OFF, ON

  - ~ **Default**: OFF

- **Sync Slice** — This function selects the sync comparator threshold for RGsB (RGB with Sync on Green) or YP_bP_r analog component video sources. When DCS-200 detects Macrovision copy protection on the incoming YP_bP_r NTSC/PAL video, the **Sync Slice** value is automatically repositioned to 60mV to account for the reduced amplitude sync pulse.

  - ~ **Adjustment range**: 20mV to 280mV, adjustable in steps of 10mV

  - ~ **Default**: 160mV

About Input Configuration Files

The DCS-200 supports saving up to 64 input configuration files in non-volatile memory, each of which is available to the nine physical inputs (**1** through **8** and **SDI**).

Input configuration files contain settings that 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, save, or recall 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 that uses WXGA (1280 X 768).

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:

- **Reset Config**
- **Save Config**
- **Delete Config**
- **Recall Config**
- **File Association Menu**

Reset Config

From the **Input Menu**, select **Reset Config** to remove all user-entered configuration settings from the current input on Program, and restore the input's parameters from the system's internal library values. When you select Reset Config, you will be prompted to reset (**SEL**) or continue without resetting (**ESC**).

Note that if the current format was derived as a best guess, those "guess" values are restored when you press **SEL**.

Note	Resetting configuration parameters does not change the configuration file associated with the input — it simply assigns the restored parameters to the existing configuration file. The file number shown in the **File Association Menu** does not change.

Save Config

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

■ To save changes to an input's configuration, use the following procedure:

1. Select **Save Config** from the **Input Menu**. The menu shown in the following illustration appears:

Figure 4-30. Save Config Menu (sample)

2. Select a value for **File Number**, or keep the default file number.

If you save to another configuration file, the **File Association Menu** is updated to associate the new file to the current input. For more information about the **File Association Menu**, refer to the "**File Association Menu**" section on page 79.

Important	You can assign a configuration file to more than one input. If you do so, you must exercise caution when deleting the file, because it will be deleted for all inputs.

3.   Scroll down to **Save File** and press **SEL**.

A confirmation message is briefly displayed, after which the system returns to the **Input Menu**.
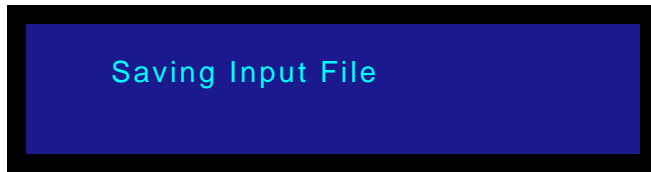
Saving Input File

Figure 4-31.   Saving Input File message (sample)

If you change a setting in the **Input Menu** and press **ESC** *without* saving changes, your change will not be restored the next time you select the input or power up the system. The system displays the following prompt:

Save Input Cfg?

<SEL> = Yes
<ESC> = No
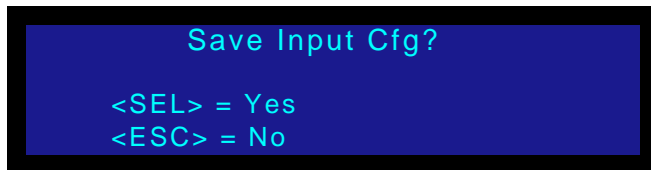
Figure 4-32.   Save Input Configuration Prompt (sample)

- Press SEL to save changes.
- Press ESC to exit without saving.

Delete Config

From the **Input Menu**, select **Delete Config** to delete any *saved* configuration file. A deleted configuration file cannot be recalled by any input.

After you delete a configuration file, what happens the next time you select an input that uses the file depends on whether **In Auto Acquire** is **ON** (in the **User Preference Menu**). When **In Auto Acquire** is **ON** and an input does *not* have a saved configuration file, the DCS-200 does a full sync (timing) acquisition on the selected input signal.

When **In Auto Acquire** is **OFF**, the system will use the configuration file defined in the **File Association Menu**, to the greatest extent possible. If the input does not have a saved configuration file, the DCS-200 displays the "**Invalid Signal**" message and the video output is black.

For more information about **In Auto Acquire**, refer to the "**Understanding Auto Acquire**" section on page 86 and the "**In Auto Acquire**" section on page 70.

■ Use the following procedure to delete a configuration file:

1. From the **Input Menu**, select **Delete Config.** The menu shown in the following illustration is displayed:

```
DELETE CONFIG
> File Number                    1
  Delete File
```

Figure 4-33. Delete Config Menu (sample)

The value of **File Number** is set to the current configuration file for the input. You can either delete this file, select another saved configuration file and delete it, or press **ESC** to continue without deleting.

2. Select a file to delete. Then, scroll down to **Delete File** and press **SEL**.

A confirmation message is briefly displayed, after which the system returns to the **Input Menu**:

```
Deleting Input File
```

Figure 4-34. Deleting Input Configuration Message (sample)

Important	You can assign a configuration file to more than one input. If you do so, you must exercise caution when deleting the file, because it will be deleted for all inputs.

Recall Config

From the **Input Menu**, select **Recall Config** to restore a configuration file that was previously associated with the current input. Using the **Recall Config Menu** shown in the following illustration, you can change from the current configuration file for the input to any saved configuration file:

```
RECALL CONFIG
> File Number                   41
  Recall File
```

Figure 4-35. Recall Config Menu (sample)

A number in brackets indicates the only file that is available for recall. If no files are available, a message will be displayed to indicate that there are no saved files.

After you select a file number and choose **Recall File**, press **SEL** to initiate the recall or **ESC** to continue using the current configuration.

When you press **SEL**, if the input timing matches the timing in the recalled input configuration file, the input uses the recalled configuration file immediately. The **File Association Menu** is also updated to reflect your change.

If the input and configuration file timings do not match and **In Auto Acquire** is **ON**, an "auto acquire" will be performed. For more information about this function, refer to the "**Understanding Auto Acquire**" section on page 86.

Key Setup Menu

A luminance key is a video effect in which one video source cuts into a background image. The "key source" is essentially an electronic hole which is cut into a background image, as shown in the following illustration. In this illustration, *DCS-200* is the key, which cuts into the background image.

Figure 4-36. Example of a Key

In the DCS-200, the key hole is filled with video from one of the two DVI digital input sources (inputs **7** and **8**). You cannot use an analog input as a key source.

From the **Setup Menu**, select **Key Setup** to display the **Key Setup Menu**, which enables you to select a digital key source and set key parameters. If **Menu Context** is **ON**, the menu appears automatically when the **KEY** button is pressed.

Figure 4-37. Key Setup Menu (sample)

Following are descriptions of each **Key Setup Menu** function:

- **Input Source** — This field enables you to select the desired digital key source.

    - ~ **Selections**: 7, 8

    - ~ **Default**: 7

Note	This field is bracketed once the key is on Program.

- **Clip** — This value adjusts the threshold of the video that "cuts" into the background image. A hole will be cut into the background anywhere that foreground luminance is greater than the clip level.

    - ~ **Adjustment range**: 0 to 1023

    - ~ **Default**: 0

- **Gain** — This value adjusts the sensitivity of the keyer, enabling you to change the sharpness of the keyed image. Gain only affects the key hole, as set by the clip.

    - ~ **Adjustment range**: 0 to 1023.99

    - ~ **Default**: 1.00

- **Opacity** — This value adjusts key opacity.

    - ~ **Adjustment range**: 0 (fully opaque) to 1023 (fully transparent)

    - ~ **Default**: 1023

- **H Offset** — This value adjusts the key source's horizontal offset (in pixels), if the key source's resolution is greater than (or less than) the output resolution.

- **V Offset** — This value adjusts the key source's vertical offset (in pixels), if the key source's resolution is greater than (or less than) the output resolution.

Tip	Always select the desired key source and adjust the key parameters prior to your production. The key must be visible on Program in order to visually adjust clip, gain and opacity.

Refer to the "**Using Keys**" section on page 95 for more information on using keys.

LOGO Setup Menu

A logo is a full-screen video source that, when you transition to it, appears *on top* of all other sources. From the **Setup Menu**, select **LOGO Setup** to display the **LOGO Setup Menu**, which enables you select, save and delete up to three full-screen logos.

```
LOGO SETUP
   Selection                    LOGO1
                             [1024x768]

   Save Pgm to Logo
   Delete LOGO1
```

Figure 4-38. LOGO Setup Menu (sample)

Following are descriptions of each **Key Setup Menu** function:

- **LOGO Selection** — This field enables you to select the desired logo.

    - ~ **Selections**: LOGO1, LOGO2 and LOGO3

    - ~ **Default**: LOGO1

- **[resolution]** — This field shows the current resolution of the saved logo, if the output resolution matches the resolution at which the logo was captured. The field shows [**EMPTY**] if nothing has been saved at the selected location, or [**INVALID [resolution]**] — e.g. [**INVALID 1600x1200**] — if the logo resolution does not match the current output resolution.

    Because the field is not user selectable, all data is shown between brackets.

- **Save Pgm to Logo** — Choose this field and press **SEL** to save the current input (on Program) to the selected logo memory register. The **Save Pgm to Logo** field does not appear if the logo is pending or on Program.

Important	If a key is enabled in the input source, the key becomes part of the stored logo and transitions to Program when you press **TAKE**.

- **Delete LOGO** — Choose this field and press **SEL** to delete the logo from the selected memory register. The **Delete LOGO** field does not appear if the logo is pending or on Program.

Refer to the "**Using the LOGO**" section on page 88 for more information on using logos.

User Preference

From the **Setup Menu**, select **User Preference** to display the **User Preference Menu**:

```
USER PREFERENCE
>  In Auto Acquire        ON
   Auto Input Cfg.        OFF
   Auto Input Save        ON
   Black Auto Take        OFF
   Key Auto Take          OFF
   Menu Context           OFF
```
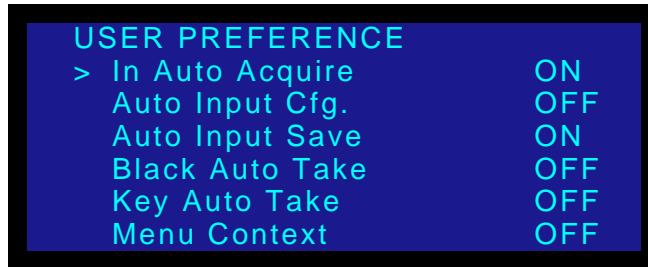
Figure 4-39. User Preference Menu (sample)

The following functions are available:

- **In Auto Acquire**
- **Auto Input Config**
- **Auto Input Save**
- **Auto Take**
- **Black Auto Take**
- **Key Auto Take**
- **Menu Context**

In Auto Acquire

The **In Auto Acquire** function enables or disables the **Input Auto Acquire** mode, which acquires a signal for the input. Values for In Auto Acquire are: **OFF** and **ON** (default).

When In Auto Acquire is **ON**, and an input has a saved configuration file, the system attempts to use the saved file. If the input timing matches the timing in the saved configuration file, the saved file is used.

The system always performs a full sync (timing) acquisition on the selected input signal under the following conditions:

- When an input *without* a saved configuration file is selected
- When the input type is changed
- When the input signal's sync rate is changed
- When an input *with* a saved configuration file is selected, but the input timing is different from the saved configuration

When In Auto Acquire is **ON**, and the input source is **non-digital**, the system uses the following library search order:

- Saved configuration files defined in the **File Association Menu** for each input channel
- The user's library of saved files
- The standard Input Format table defined in Appendix A, in the "**Format Table**" section on page 122
- A best guess

When In Auto Acquire is **ON**, and the input source is **digital**, the system uses the following search order:

- Saved configuration files defined in the **File Association Menu** for each input channel

- The user's library of saved files

- Direct measurement of the signal

If the input signal's timing is too different from the saved configuration, a good lock may not be possible. In this situation, the "**Invalid Signal**" message is displayed, and the video output will be black. You will also see "**Invalid Signal**" if the configuration file for an input has been deleted.

Note	When you turn I**n Auto Acquire ON**, the DCS-200 automatically turns **Auto Input Config** and **Auto Input Save ON** as well. Similarly, if you turn **In Auto Acquire OFF**, **Auto Input Config** and **Auto Input Save** turn **OFF** as well. If you wish to adjust these fields independently, you can still do so.

Please note the following important points:

- It is recommended that you leave the **In Auto Acquire** mode **ON**. Then, if the timing changes on any input (whether or not you have a saved config file), you will always get an output image. On the other hand, if the mode is **OFF** and the input timing changes, the output will be black.

- When the **In Auto Acquire** mode is **ON**, the DCS-200 automatically detects and acquires the input video type and resolution (in most cases), and limits menu selections to those applicable to the detected video type.

- If you are an advanced user and you know the exact timing parameters for your input(s), you can turn the **In Auto Acquire** mode **OFF**, and dial in your timing parameters manually.

Tip	If you have already saved configuration files for your inputs, it is recommended that you turn the **In Auto Acquire** mode **OFF**. This provides the fastest transition times. When the mode is **ON**, transition times will be greater, due to the time required to analyze the input timing for each source.

Auto Input Config

The **Auto Input Config** function enables or disables the automatic input configuration mode. Values are: **OFF** and **ON** (default).

Note	This is the "automatic" version of the manual **Auto Config** mode, which is located in both the **Image Adjust Menu**, and the **Timing Adjust Menu**. Refer to the "**Timing Adjust**" section on page 57 for details.

Note	The **In Auto Acquire** mode must be **ON**, in order for the **Auto Input Cfg** mode to function. If **In Auto Acquire** is **OFF**, the **Auto Input Cfg** mode is bracketed.

- When **ON**, the system automatically finds the first and last pixel on each edge of the selected input, and ensures (to the best possible extent) that the entire image is visible. In addition, the system automatically phases the input to determine the correct sampling phase.

  These functions will only be performed under the following conditions:

  - ~ When an input *without* a saved configuration file is selected.

  - ~ When the input signal changes sync rates.

  - ~ When an input *with* a saved configuration file is selected, but the input timing is different from the saved configuration.

- When **OFF**, the system uses the last known configuration for each input, to the greatest extent possible.

Auto Input Save

When the **Auto Input Save** mode is enabled, the system automatically saves the selected input after it has been acquired for the first time. If the **In Auto Acquire** mode is **OFF**, the field has no effect. The default is **ON**.

Auto Take

The **Auto Take** mode allows you to bring an input source to Program by simply pressing an input button (**1** through **8**, **SDI**, or **LOGO**), and without requiring a Take.

Regardless of your **In Auto Acquire** settings, the input button you select blinks "fast," to indicate that the system is performing an action such as an auto acquire, file association, or another action. When the system completes its tasks for the input, the button blinks "slow" to indicate that the input is ready to be taken to Program. Lastly, the button lights solid and the source goes to Program automatically.

- When **ON**, **Auto Take** overrides user preferences for **Black Auto Take** and **Key Auto Take**. The values for these two menu items are bracketed.

- When **OFF**, the selected input button blinks "fast" and then "slow." Press **TAKE** to perform the transition.

Black Auto Take

The **Black Auto Take** function controls the behavior of the **BLACK** button:

- When **ON**, the **BLACK** button transitions the Program output to/from black, as soon as the button is pushed.

- When **OFF**, the **BLACK** button blinks when pressed, to indicate "pending." Press **TAKE** to perform a transition to/from black.

Refer to the "**Using Black**" section on page 93 for details.

Key Auto Take

The **Key Auto Take** function controls the behavior of the **KEY** button:

- When **ON**, the **KEY** button performs a **Key Up** or **Key Down** transition, as soon as the button is pushed.

- When **OFF**, the **KEY** button blinks when pressed, to indicate "pending." Press **TAKE** to perform a **Key Up** or **Key Down**.

Refer to the "**Using Keys**" section on page 95 for details.

Menu Context

The **Menu Context** function determines the behavior of certain menus when an **Input**, **LOGO** or **KEY** button is pressed. The following conditions apply:

- When **ON**, regardless of the current menu, the **Input Menu**, **LOGO Menu** or **Key Menu** will automatically be displayed when the associated button is pressed.

- When **OFF**, menu context does not change when an **Input**, **LOGO** or **KEY** button is pressed.

System Menu

From the **Setup Menu**, select **System** to display the **System Menu**, which enables you to adjust VFD brightness, input configurations, front panel lockout modes, Ethernet parameters and many other "system" related functions:

```
SYSTEM
> VFD Brightness          10
  Ethernet                >>
  Serial Setup            >>
  EDID Setup              >>
  DVI Cable Equal         >>
  Executive Mode          >>
  File Association        >>
  Temperature             >>
  Diagnostics             >>
  Save System State
```

Figure 4-40. System Menu (sample)

The following sections describe each **System Menu** function:

- **VFD Brightness**
- **Ethernet**
- **Serial Setup**
- **EDID Setup**
- **DVI Cable Equalization**
- **Executive Lockout Mode**
- **File Association Menu**
- **Temperature**
- **Diagnostics**
- **Save System State**

VFD Brightness

From the **System Menu**, select **VFD Brightness** to control the intensity of the front panel VFD (vacuum fluorescent display).

- **Adjustment range**: 1 - 16 (1 is the dimmest setting)

- **Default**: 10

Note	It is recommend that you use a low intensity setting to avoid "burn-in" of the display.

Ethernet

From the **System Menu**, select **Ethernet** to display the **Ethernet Menu**:

```
ETHERNET
> DHCP                    OFF
  Config Network          >>
  IP      192.168.000.010
  M      00:04:a5:19:10:52
```

Figure 4-41. Ethernet Menu (sample)

The following Ethernet functions are available:

- **DHCP** — DHCP can be turned **OFF** or **ON**.

  - **~** When **OFF**, the **Config Network** field appears, which enables you to manually enter a static IP address, Subnet mask and Gateway.

Note	Always consult with your network administrator to obtain valid IP, subnet mask and gateway addresses.

  - **~** When **ON**, the DCS-200 queries the DHCP server for a valid IP address, and the **Config Network** field is hidden.
    - If the DCS-200 finds a DHCP server and receives an IP address, the address is displayed.
    - If a server is not found, an IP address is not assigned.

- **Config Network** — select this function to display the **Config Network Menu**, which enables you to choose the specific Ethernet address you wish to change.

```
CONFIG NETWORK
> Set Static IP           >>
  Set Netmask             >>
  Set Gateway             >>
```

Figure 4-42. Config Network Menu (sample)

~ Select **Set Static IP** to display the **Static IP Menu**, which enables you to set a static IP address when a DHCP server is not available. The editing procedure is discussed below.

```
STATIC IP
>          192.168.000.010
```
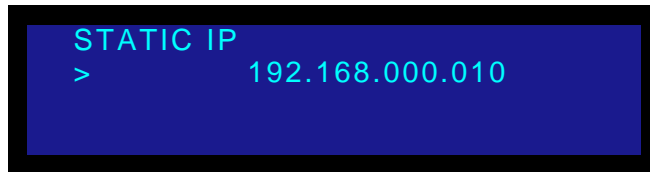
Figure 4-43. Static IP Menu (sample)

~ Select **Set Netmask** to display the **Netmask Menu**, which enables you to set a netmask. The editing procedure is discussed below.

```
Netmask
>          255.255.255.000
```

Figure 4-44. Netmask Menu (sample)

~ Select **Set Gateway** to display the **Gateway Menu**, which enables you to set a gateway. The editing procedure is discussed below.

```
Gateway
>          192.168.000.002
```

Figure 4-45. Gateway Menu (sample)

■ Use the following steps to edit the IP address, Netmask or Gateway. Valid fields range from 000 to 255.

a. Press **SEL** to begin editing. This action highlights the first digit, and displays the carat "**^**."

b. Use the **ADJUST** knob to move the carat left and right through the address.

c. When the desired digit is highlighted, press **SEL** to edit the value. The carat changes to the pound sign "**#**."

d. Use the **ADJUST** knob to select the desired value (0 - 9).

e. Once the value is selected, press **SEL** to "accept" the new value. The pound sign "**#**" changes back to the carat "**^**."

f. Repeat the process from step **b** for all additional digits that you wish to change.

g. When complete, press **ESC** to display the **Apply Changes Menu**.
   • Select **Yes** (**SEL**) to apply all changes.
   • Select **No** (**ESC**) to exit the procedure without saving changes.

In each case, system returns to the root menu.

When Ethernet setup is complete, you can communicate with the DCS-200 via the Ethernet port.

~ In Appendix B, refer to the "**Remote Commands**" section on page 134 for details on communicating with the DCS-200 via Telnet.

~ In Chapter 5, refer to the "**GUI Connection and Launch**" section on page 104 for details on running the web-based GUI.

• **IP Address** — The **IP** line is an information-only line that shows the current IP address in all modes (with DHCP on or off). If an IP address has not been established (no DHCP server found, or the network cable is not connected), the address reads "**000.000.000.000**."

Note	The DCS-200's default IP address is **192.168.0.10**

• **MAC Address** — The **M** line is an information-only line that shows the MAC (hardware) address of the unit's Ethernet port.

Serial Setup

From the **System Menu**, select **Serial Setup** to display the **Serial Setup Menu**, which enables you to set system RS-232 parameters for the serial port.

```
SERIAL SETUP
> Baud                    115200
  Parameters              N81
  Handshaking             ON
  Reset
```
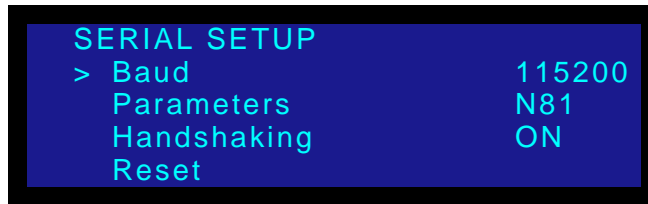
Figure 4-46. Serial Setup Menu (sample)

The following functions are available:

• **Baud** — Use this function to set the baud rate.

~ **Adjustment range**: 9600, 38400, 57600 and 115200

~ **Default**: 115200

• **Parameters** — This function is a combined setting of Parity, Data Bits and Stop bits (in this order).

~ **Adjustment range**: N81, E71, O71, E72, O72

~ **Default**: N81

• **Handshaking** — This function controls the hardware flow of the serial port.

~ **Adjustment range**: ON, OFF

~ **Default**: ON

When **ON**, RTS/CTS and DSR/DTR are used to control the data flow in and out of the serial port. When **OFF**, the state of these control lines is ignored.

• **Reset** — Use this function to reset all serial values to their default settings.

EDID Setup

From the **System Menu**, select **EDID Setup** to display the **EDID Setup Menu**, which enables you to update the preferred EDID (Extended Display Identification Data) resolution for the DCS-200.

```
EDID SETUP
> Input                        7
                   1280x1024@60
   Type (7, 8)           Digital
```

Figure 4-47. EDID Setup Menu (sample)

Important	This menu is designed for advanced users only. Do not reprogram EDID unless it is necessary.

EDID is a VESA standard data format that contains information about a display device and its capabilities, including the preferred (as well as the allowed) device resolutions.

The DCS-200's EDID file is stored in non-volatile memory. This file is read by a computer's DVI graphics card during boot-up, when its DVI output is connected to a DVI-I input connector on the DCS-200 system. The DCS-200 must be powered on first for the EDID information to be read.

The following functions are available:

- **Input** — selects the inputs that you wish to program: **ALL**, **1**, **2**, **3**, **4**, **5**, **6**, **7**, or **8**.
- **EDID Format** — displays the current EDID format, and enables you to select a new format to program into memory. Press **SEL** to program the preferred DVI resolution, as defined on the **EDID Format** line.

Note	The DCS-200 can program the EDID EEPROM with the DVI cable connected.

When **SEL** is pressed, the following message is briefly displayed.

```
Programming EDID
Please wait...
```
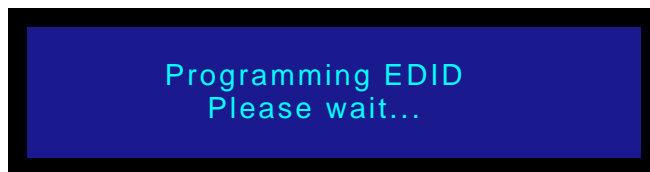
Figure 4-48. Programming EDID Message 1

If the programming is successful, the following message is displayed:

```
        EDID Prog Done
      Connect DVI inputs
       and reboot the PC
       ESC = Continue
```
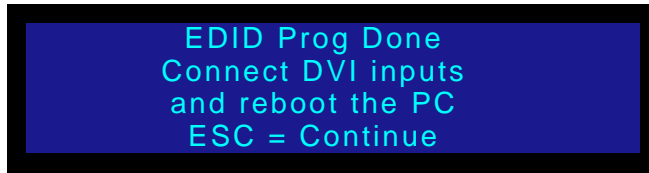
Figure 4-49.   Programming EDID Message 2

Note	At this point, reboot the external computer(s) in order for the new EDID information to be read, and the new preferred resolution to become available.

If the EDID programming failed, the following message will be displayed:

```
       EDID Prog failed!
        ESC = Continue
```
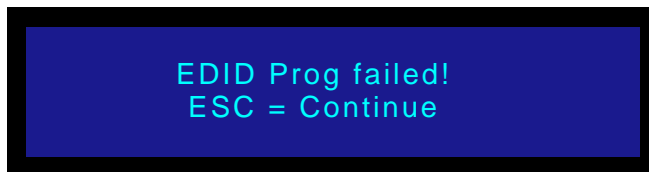
Figure 4-50.   EDID Programming Failed Message

If this message persists, please contact customer service for technical support.

- **Type (7, 8)** — This field applies to inputs **7** and **8** only, allowing you to select between **Digital** or **Analog** EDID for these inputs. Please note:

    ~   When the **Input** field is set to inputs 1 - 6, the **Type** field shows **[ANALOG]**, and cannot be changed.

    ~   When the **Input** field is set to **7** or **8**, the **Type** field is selectable between **ANALOG** or **DIGITAL**, and the current **Type** is reflected. Changing this field triggers the programming process as soon as **SEL** is pressed, using the currently shown resolution in the **Format** field.

    ~   When **ALL** is selected in the **Input** field, the **Type** field reflects Input **7**. Any triggering of the programming process changes both inputs **7** and **8** to the selected option in this field.

DVI Cable Equalization

From the **System Menu**, select **DVI Cable Equal** to display the **DVI Cable Equalizer Menu**, which enables you to adjust input cable equalization parameters for both DVI inputs simultaneously, or individually for inputs **7** or **8**.

```
DVI CABLE EQUALIZER
>  Input                All
   Equalization         12
   Set to Default
   Set to Maximum
   Set to Minimum
```

Figure 4-51. DVI Cable Equalizer Menu (sample)

The following functions are available:

- **Input** — selects the exact inputs that you wish to set: **ALL** (inputs 7 and 8), **7** (individually), or **8** (individually).

Note	Inputs **7** or **8** do not need to be selected on the front panel for this menu to change, and to apply the equalization settings.

- **Equalization** — The equalization adjustment range is from **0** (short cable equalization) to **15** (long cable equalization).   The default value is **12**, which indicates "moderate" equalization.

  In general, the default should be adequate for most users, unless cables longer than 5M are used, and unless your signals are running at high pixel clock rates (e.g., UXGA).

- **Set to Default** — sets the Equalization field to the default setting of 12.

Note	Equalization is a subjective "visual" adjustment, which depends on three important factors: cable length, signal quality and cable quality. If you adjust the equalization, optimize the setting for the lowest amount of visual artifacts.

- **Set to Maximum** — sets the Equalization field to the maximum setting of 15.
- **Set to Minimum** — sets the Equalization field to the minimum setting of 0.

File Association Menu

From the **System Menu**, select **File Association** to display the **File Association Menu**, which enables you to select or change a configuration file for each of nine physical inputs (**1** through **8** and **SDI**). The configuration file contains settings that govern everything from pixel resolution to aspect ratio and color balance — any setting you can change using the **Input Menu**. The DCS-200 can store up to 64 input configuration files in non-volatile memory.

Each time you press an input button, the DCS-200 uses the configuration file associated with that input. The file is designated by a number from 1 to 64. The default file for each input is the same as the input number—Input 1 uses configuration file 1, and so on. The default file for the SDI input is 9.

You can view and change the current setting for each input by using the **File Association Menu**, shown in the following illustration:

```
File Association
>  Input 1                    1
   Input 2                    2
   Input 3                    3
   Input 4                    4
   Input 5                    5
   Input 6                    6
   Input 7                    7
   Input 8                    8
   SDI                        9
```
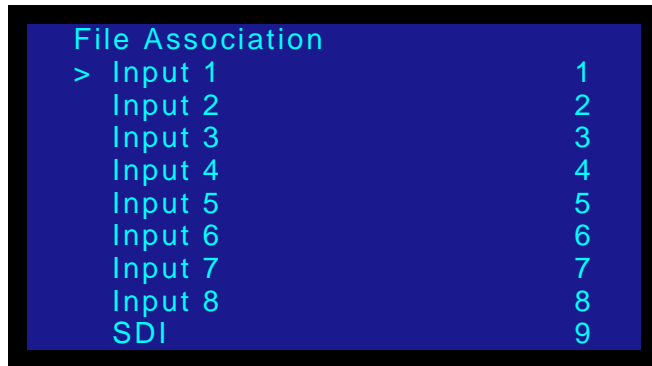
Figure 4-52.   File Association Menu (sample)

When you associate a configuration file with a specific input, the file is used by any input source connected to that input.

To change a setting, scroll to an input number and press **SEL**. Choose a new configuration file and press **SEL** again. The change takes effect the next time the input button is pressed.

Refer to the "**About Input Configuration Files**" section on page 63 for additional information about setting, recalling, saving and deleting input configuration files.

Temperature

From the **System Menu**, select **Temperature** to display the **System Temperature Menu**.

```
SYSTEM TEMPERATURE

   Temperature          °F  85.8
   Temperature          °C  29.9
```
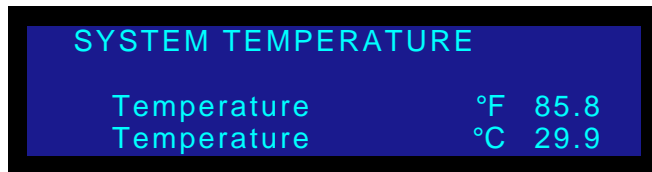
Figure 4-53.   System Temperature Menu (sample)

The **System Temperature Menu** indicates the chassis' internal temperature in both celsius and farenheit. When the menu is displayed, temperature values update every 4 seconds.

Note that the DCS-200 measures the internal temperature for an "over-temp" condition every 5 minutes. If the system's internal temperature exceeds 122° F (50° C), the following message appears:

```
OVER TEMPERATURE
   Contact factory if
   condition persists.
   ESC = Continue
```
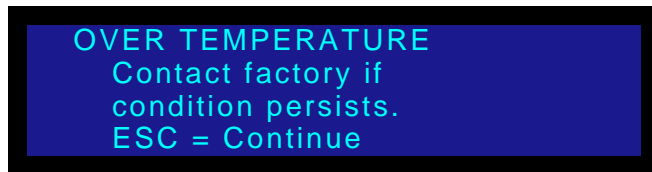
Figure 4-54.   Over Temperature Warning

To clear the message and continue operations, press **ESC**.

Note	This message is a warning only, which does not prevent the operation of the DCS-200. If this message appears, it is recommended that you contact Barco Customer Service.

Diagnostics

From the **System Menu**, select **Diagnostics** to display the **Diagnostics Menu**:

```
DIAGNOSTICS
> SEL = Start Tests
```
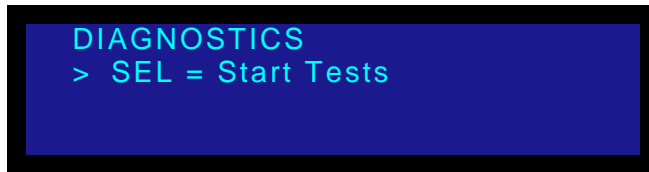
Figure 4-55. Diagnostics Menu

If you suspect a problem with the DCS-200, press **SEL** to run a series of internal diagnostic tests. The menu will report back "**PASS**" or "**FAIL**."

Note	If the menu reports "**FAIL**," contact Barco Customer Service. In Appendix C, refer to the "**Contact Information**" section on page 160 for contact details.

Save System State

From the **System Menu**, select **Save Config** to save all current "system" settings so that they may be restored at power up. A message is briefly shown, after which the DCS-200 returns to the **System Menu**.

```
Saving System Config...
```
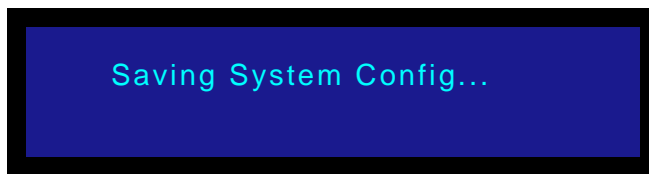
Figure 4-56. Saving System Configuration Message

Please note the following important points regarding the system configuration file:

- When you perform the **Save Config** function, all configuration parameters from the **System Menu** are saved in non-volatile memory. If you *do not* perform the function, data will not be restored upon the next system power up sequence.

- This command also saves the current **input** as the default power-up selection.

Note	If you want the DCS-200 to always power up and acquire an input other than input **1**, perform the **Save System State** command while the desired input is selected on Program.

- If you *do not* perform the **Save System State** function, data will not be restored upon the next system power up sequence.

- If you make a change in the **System Menu** and attempt to exit the menu (by pressing **ESC**) *without* saving changes, the system displays the following prompt::

```
Save System Cfg?

<SEL> = Yes
<ESC> = No
```
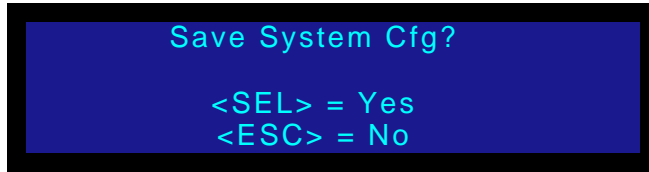
Figure 4-57. Save System Configuration Prompt

~ Select **Yes** (**SEL**) to save changes.

~ Select **No** (**ESC**) to continue operation without saving the changes.

Tech Support

From the **Setup Menu**, select **Tech Support** to display the **Tech Support Menu**:

```
TECH SUPPORT
Version                01.00
Phone          866-374-7878
```

Figure 4-58. Tech Support Menu

The **Tech Support Menu** displays the following information:

- **Version** — displays the current version of installed operating firmware. This number changes when you update system software. In Chapter 6, refer to the "**Software Upgrade Overview**" section on page 108 for update instructions.

- **Phone** — lists the technical support phone number.

Factory Reset

From the **Main Menu**, select **Factory Reset** to display the **Factory Reset Menu**:

```
Clear All Saved
Configurations?
<SEL> = Yes
<ESC> = No
```
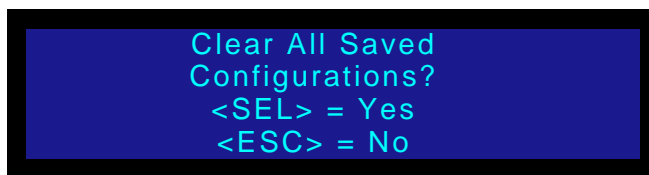
Figure 4-59. Factory Reset Menu

This function enables you to reset the DCS-200 to its factory default condition, in which all user-defined input, output and system configuration files are deleted. When the command is executed, a confirmation menu is shown.

- Press **SEL** to reset the system.

- Press **ESC** to cancel the operation, and return to the **Setup Menu**.

The following attributes constitute a "factory default" condition:

- Input **1** is on Program.

- The **Output** is set to 1024x768@59.94.

- The **Output Raster Box** is OFF.

- The **Status Menu** is displayed.

- All menu items are set to their default values (as specified in this chapter).

- The serial port is set to the following default values:

    ~ **Baud**: 115200

    ~ **Parameters**: N81 (No Parity, 8 Data Bits, 1 Stop Bit)

    ~ **Handshaking**: OFF

Using Inputs

This section provides background information and instructions for using inputs. The following topics are discussed:

- **Input Selection Rules**
- **Flip-flop Mode**
- **Understanding Auto Acquire**
- **Using HDCP**

Input Selection Rules

■ To transition an input to Program:

1. Select the desired input in the **Inputs Section**. Once a button is pressed, it blinks, indicating that the source is "pending."

2. Press **TAKE** to transition the input to Program, using the current transition rate (as entered on the **Setup Menu**).

Note	Whenever **TAKE** is pressed, the DCS-200 flip-flops sources in the **Inputs Section**. Refer to the "**Flip-flop Mode**" section on page 85 for additional information.

Please note the following important points:

- All input buttons are selectable, whether or not they are physically connected, and whether or not they have valid signals.

    ~ When a button is blinking **fast**, it is being acquired by the system.

    ~ When a button is blinking **slow**, it is ready to be transitioned to Program.

Note	If an input button is blinking slow and the **Status Menu** shows "**Invalid Signal**," the system has attempted to acquire the source, but has failed.

- If you *do not* want to pend a source (which may be desirable in some situations), simply press the blinking source button. It turns off, leaving only the button for the source on Program lit solid. If **TAKE** is pressed, no transition will occur.

- When the **Status Menu** is on and you select an input, one of two actions occur:

    ~ The **Input Menu** automatically appears if **Menu Context** is **ON** (in the **User Preference Menu**).

    ~ The **Status Menu** remains on display if **Menu Context** is **OFF**.

- The "**Invalid Signal**" message appears under the following conditions:

    ~ If you select an input, and it does not have a valid signal.

    ~ If an input was previously valid and its signal is lost.

    ~ If the current "user-selected" format does not match the *detected* input signal for the selected input.

- For information about using the system in conjunction with HDCP inputs, refer to the "**Using HDCP**" section on page 86.

Flip-flop Mode

Whenever you press **TAKE** to mix between inputs (including the **LOGO**), the DCS-200 automatically flip-flops inputs. Two actions occur when **TAKE** is pressed:

- The blinking "next" source transitions to Program. Once it is fully on Program, the button lights solid.

- The previous (solid) source on Program automatically becomes the pending "next" source, and the button blinks.

Sources before **TAKE**
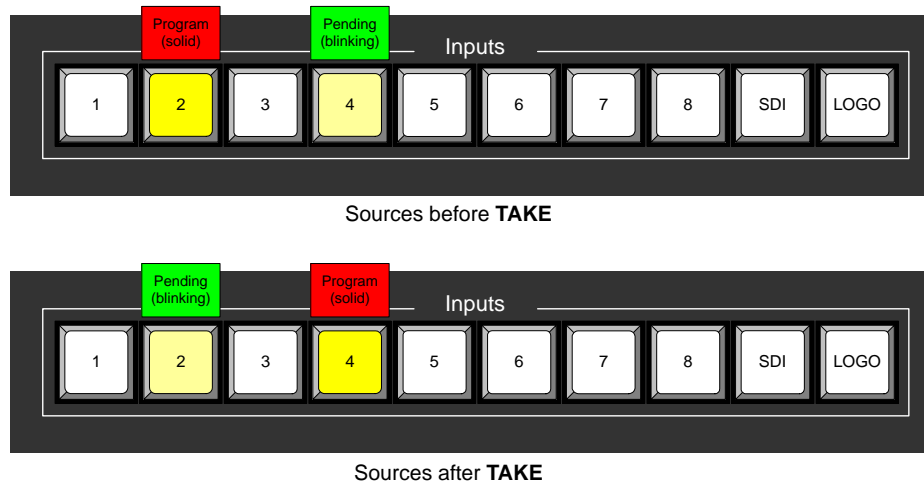
Sources after **TAKE**

Figure 4-60. Flip-flop mode, before and after TAKE

Repeatedly pressing **TAKE** continues to flip-flop the current and pending sources in this manner. Please note:

- If **Black Auto Take** is **OFF** (in the **User Preference Menu**), you must press **TAKE** to transition to black. If a source is pending, the source flip-flops to Program — after the system is fully in black.

- If **Black Auto Take** is **ON**, simply press **BLACK** to transition to black. If a source is pending, it *remains* pending after the transition. There is no flip-flop.

- If **Key Auto Take** is **OFF** (in the **User Preference Menu**), you must press **TAKE** to transition the key up or down. If a source is pending, you will transition to the new source and add the key, and the new source flip-flops to Program.

- If **Key Auto Take** is **ON**, simply press **KEY** to transition the key up or down. If a source is pending, it *remains* pending after the transition. There is no flip-flop.

Understanding Auto Acquire

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

- If **In Auto Acquire** is **ON** and a valid input is selected that does *not* have a saved **Input Config File** associated with it, the system attempts to acquire the source and save an **Input Config** file. This process *may* take a few moments.

Note	The **Input Config** file will only be saved if the "**Auto Input Save**" mode is **ON** in the **User Preference Menu**.

- If an input is selected that *does* have a saved **Input Config File** associated with it, the (blinking) source will transition to program after **TAKE** is pressed.

- When the system performs an **Auto Acquire** for **Inputs 7** or **8**, the DCS-200 first checks for a DVI signal. If not found, the system looks for a valid analog signal.

- If **In Auto Acquire** is **OFF** and a valid input is selected (either with or without a saved **Input Config** file), the system compares the library file to the input's incoming timing.

    ~ If the timings match, the system transitions to the input after **TAKE** is pressed.

    ~ If the timings do not match, the "**Invalid Signal**" message appears, and the system transitions to black after **TAKE** is pressed.

Using HDCP

Note	As a prerequisite, ensure that you have read the "**A Word About HDCP**" section in Chapter 1 on page 17 prior to reading this section.

With DCS-200, the HDCP mode is essentially automatic. Provided that you connect an HDCP compliant monitor, you can select and switch between unprotected sources and "protected" HDCP sources (e.g., a Blu-Ray player) without restriction.

- Inputs **1** - **6** (analog) are unprotected sources.
- Inputs **7** and **8** (analog) are unprotected sources.
- Inputs **7** and **8** (digital) are protected when an HDCP source is connected.

Please note the following important points regarding HDCP operations:

- When the input signal is an HDCP source on DVI inputs **7** or **8**, the following message appears if a non HDCP-compliant monitor is connected:

Selection Not Allowed

Output Display does
not support HDCP

Figure 4-61. Error Message: HDCP Not Supported

- When the input signal is an HDCP source on DVI inputs **7** or **8** and a valid HDCP monitor is connected, the following actions occur:

    ~ The DCS-200's analog output is disabled.

    ~ You cannot store a **LOGO** from a "protected" source. However, "unprotected" LOGOs that are already stored in the system can be switched to Program.

    ~ You cannot use the **FRZ** button.

Using the LOGO

A **logo** is a full-screen video source which, when transitioned to Program, appears on top of all other sources. The DCS-200 can store up to three logos in non-volatile memory.

The DCS-200 enables you to transition to or from a full-screen logo, in the same way that you transition to or from video inputs. When you press **TAKE**, the system transitions the selected logo to or from Program at the current transition rate, and the sources flip-flop in the manner described in the "**Flip-flop Mode**" section on page 85.

Please note the following important points:

- If a source *and* a key are already on Program, both will dissolve out as the logo dissolves in. The figure below illustrates this transition:
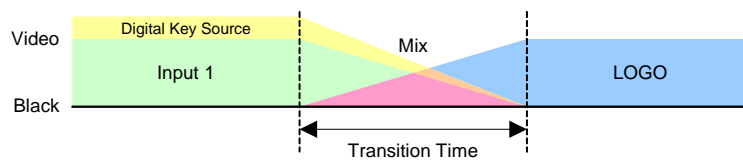
Figure 4-62.   Transition to LOGO from Source Plus Key

- If a key is enabled in the input source, and you save the source as a logo, the key becomes part of the stored logo.

- A logo will be labeled **INVALID** if it was captured at a resolution that does not match the current output resolution The resolution at which it was captured will also be displayed — e.g., **[INVALID 1600x1200].**

- If you scroll to an invalid logo, the **LOGO** button cannot be activated. The following message will appear.

This stored LOGO does
not match the current
output resolution.
Please capture again.
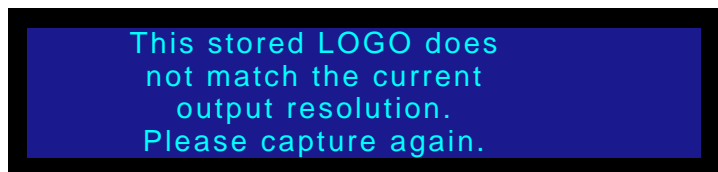
Figure 4-63.   LOGO Output Resolution Message (sample)

- If **LOGO** is selected when there are no saved or valid logos, the following message will appear:

No saved or valid
logos available
for display

Figure 4-64.   LOGO Error Message (sample)

- When you first start up a DCS-200 that has stored logos, a message like the one in the following illustration appears during initialization:
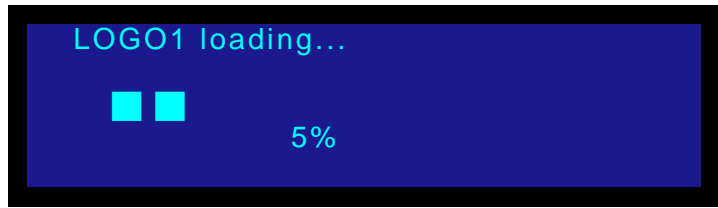
Figure 4-65. LOGO Initialization Message (sample)

Ensure that you are familiar with the **LOGO Setup Menu**. Refer to the "**LOGO Setup Menu**" section on page 69 for details.

Saving a Logo

LOGO

■ Use the following steps to capture and store a logo:

1. To capture and store a full-screen logo, first select the input that you wish to store, and transition it to Program with a **TAKE**.

2. From the **Setup Menu**, select **LOGO Setup** to display the **LOGO Setup Menu**.

Figure 4-66. LOGO Setup Menu (sample)

3. In the **Selection** field, press **SEL** and choose the "register" into which you want to save the **LOGO** (e.g., LOGO1, LOGO2 or LOGO3). Press **SEL** again.

4. Scroll to the **Save Pgm to Logo** field, and press **SEL** to save the input as a full-screen logo.

Note	When a logo is pending or already on Program, the **Save Pgm to Logo** field does not appear.

5. Repeat steps **1** through **4** to save up to two additional logos.

Important	When a "protected" HDCP source is selected (inputs **7** or **8**), and an HDCP compliant monitor is connected to the output, you cannot save a logo.

Transitioning to a Logo

■ To transition from the source on Program to a saved logo:

1. With an output source on Program, press the **LOGO** button. Please note:

~ If **Menu Context** is **ON** (in the **User Preference Menu**), the **LOGO Setup Menu** automatically appears when the **LOGO** button is pressed.

~ If **Menu Context** is **OFF**, the **Status Menu** (or the current menu) remains on when the **LOGO** button is pressed.

The **LOGO** button blinks "slow" to indicate that a logo is pending, and the **LOGO Setup Menu** appears:

```
LOGO SETUP
> Selection                 LOGO1
                         [1024x768]
```

Figure 4-67. LOGO Setup Menu — Selecting a Logo

2. Press **SEL** and scroll to select a saved logo.

Logos appear in this list only if their resolution matches the output resolution.

3. Press **TAKE**.

The logo appears on Program and the **LOGO Setup Menu** displays the logo number in brackets, as shown in the following illustration:

```
LOGO SETUP
> Selection               [LOGO3]
                         [1024x768]
```

Figure 4-68. LOGO Setup Menu — Logo on Program

Note	When the system transitions to the logo, the DCS-200 flip-flops sources in the **Inputs Section**. Refer to the "**Flip-flop Mode**" section on page 85 for additional information.

Deleting a Logo

■ Use the following procedure to delete a saved logo:

1. In the **LOGO Setup Menu**, scroll to Selection and press **SEL**.

2. Select the logo to delete. Press **SEL**.

The **DELETE LOGO** line displays the logo number you selected.

3. Scroll to **DELETE LOGO** and press **SEL**. A message like the one in the following illustration appears:

```
Permanently Delete
LOGO2?
<SEL>=YES
<ESC>=NO
```
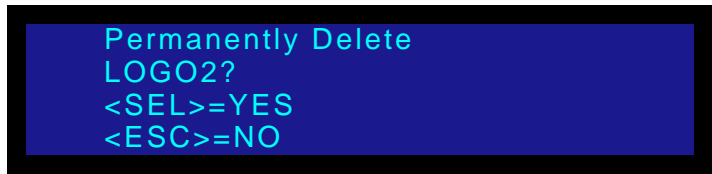
Figure 4-69. Delete LOGO Message (sample)

4. Press **SEL** to delete the logo, or **ESC** to continue without deleting.

4. Operation

Using Freeze

Using Freeze
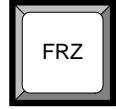
You can use the FRZ (Freeze) button to create a still image from a video image, typically for use as a full-screen logo.

FRZ

■ Use the following steps to freeze and un-freeze an input:

1. Select the desired input and transition it to program with a **TAKE**.

2. Press **FRZ** to immediately freeze the source. The button lights.

3. To un-freeze the source, press **FRZ** again. The light turns off.

Important	When a "protected" HDCP source is selected (inputs **7** or **8**), and an HDCP compliant monitor is connected to the output, you cannot use the **FRZ** button.

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Using Black
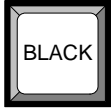
BLACK

The **BLACK** button is used to transition the system's output to/from black, no matter what combination of sources are currently on Program. For example:

- If a *single source* is on Program (e.g., **Input 1**), the system will mix to black at the current transition rate.

- If *multiple sources* are on Program (e.g., **Input 1 + Key**), the system will mix all sources to Black at the current transition rate.

When **BLACK** is pressed, one of two different actions can occur, depending on how the "**Black Auto Take**" function is set in the **User Preference Menu**.

- **Black Auto Take Off**

- **Black Auto Take On**

Note	Refer to the "**User Preference**" section on page 70 for details on setting parameters in the **User Preference Menu**.

Black Auto Take Off

When the "**Black Auto Take**" function is **OFF** in the **User Preference Menu**, you must use the **TAKE** button to transition to/from black.

■ Use the following steps to transition to/from black, when **Black Auto Take** is **OFF**:

1. Press **BLACK**. The button blinks to indicate that a transition to/from black is pending.

2. Press **TAKE**. The system transitions to/from black, at the current transition rate. Please note:

   ~ If the transition is "**to**" black, the **BLACK** button lights solid when black is fully on Program.

   ~ If the transition is "**from**" black, the **BLACK** button automatically turns off when the selected source is fully on Program.

Important	When the **Black Auto Take** function is **OFF**, if a source is pending when **TAKE** is pressed, that source transitions to Program *after* black is fully reached, and sources flip-flop in the normal manner. If you do not want to transition to a new source, simply press the blinking source to "un-pend" it.

Black Auto Take On

When the "**Black Auto Take**" function is **ON** in the **User Preference Menu**, you *do not* need to press **TAKE** to perform a transition to/from black. The transition occurs immediately, once **BLACK** is pressed.

■   Use the following steps to transition to/from black, when **Black Auto Take** is **ON**:

1.   Press **BLACK**. The system immediately transitions to/from black, at the current transition rate.

Please note:

~   If the transition is "**to**" black, the **BLACK** button blinks fast during the transition interval, then lights solid when black is on Program.

~   If the transition is "**from**" black, the **BLACK** button blinks fast during the transition interval, then automatically turns off when the selected source is fully on Program.

Important	When the **Black Auto Take** function is **ON**, if a different source is pending when **TAKE** is pressed, that source *remains pending* (blinking) *after* black is fully reached. The system does not transition to the pending source, and sources do not flip-flop. If desired, you can transition to the pending source *underneath* black, by pressing **TAKE** in the normal manner, and then pressing **BLACK** to immediately fade up to the new source.

Using Keys

KEY
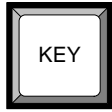
The following topics are discussed in this section:

- **Introduction to Keying**
- **Performing a Key**
- **Key Transition Combinations**

Introduction to Keying

A key is a video effect in which one video source cuts into a background image. The DCS-200 enables you to perform a key over any selected source, using either DVI input **7** or **8** as the key source. All key transitions are seamless, at the same rate as the full-screen source transitions.

Note	You cannot use an analog input as a key source. You cannot key over the **LOGO**.

A variety of "key" transitions can be performed:

- Mix key up, over the selected source
- Mix key down, over the selected source
- Mix from a source without a key, to a new source + key
- Mix from a source + key to another source without a key
- Mix between two sources under a key
- Fade to black from a source + key
- Fade up from black to a source + key

Before you perform a key transition, ensure that the key source is selected on the **Key Setup Menu**, and that the key's clip, gain and opacity have been adjusted. The key *must* be transitioned to Program in order to adjust its parameters. See the "**Key Setup Menu**" section on page 67 for details.

Important	In Preview mode, when you press **KEY** to "pend" the key transition, you will not see the key overlay on the Preview monitor. If you then press **TAKE**, the input and key appear on Program.
	To see the key on the Preview monitor, you can route the source from Program to Preview using the **Output Src** selection of the **Preview Menu**. This selection places a copy of the Program image on the Preview monitor, including the key. For more information about this function, refer to the "**Output Src**" section on page 51.

Please note:

- The resolution of the digital key source can be the same, greater than or less than the system's selected output resolution.

> ~ If the key source resolution is greater than the output resolution, the DCS-200 only displays an area equal to the output resolution. This area can be positioned using the **H Offset** and **V Offset** fields on the **Key Setup Menu**.
>
> ~ If the key source resolution is less than the output resolution, the key is centered in the middle of the screen. **H Offset** and **V Offset** can be used to position the key within the output active space.

Tip	Select the key source and adjust key parameters prior to your production. The key must be visible on Program in order to visually adjust clip, gain and opacity. Refer to the "**Key Setup Menu**" section on page 67 for details.

Performing a Key

When the **KEY** button is pressed, one of two different actions can occur, depending on how the "**Key Auto Take**" function is set in the **User Preference Menu**.

- **Key Auto Take Off**
- **Key Auto Take On**

Note	Refer to the "**User Preference**" section on page 70 for details on setting parameters in the **User Preference Menu**.

Key Auto Take Off

When the "**Key Auto Take**" function is **OFF** in the **User Preference Menu**, you must use the **TAKE** button to perform a "key" transition.

■ Use the following steps to mix a key up or down, when **Key Auto Take** is **OFF**:

1. Press **KEY**. The button blinks to indicate that a "key' transition is pending. If **Menu Context** is **ON**, the **Key Setup Menu** appears, enabling you to change the key source or adjust key properties.

2. Press **TAKE**. The system mixes the key up or down, at the current transition rate. Please note:

   ~ If the transition is a "**key up**," the **KEY** button lights solid when the key is fully on Program.

   ~ If the transition is a "**key down**," the **KEY** button automatically turns off when the key is fully off of Program.

Important	When **Key Auto Take** is **OFF**, if a source is pending, you will transition to the new source *and* add (or remove) the key when **TAKE** is pressed. Sources will flip-flop. If you do not want to transition to a new source, simply press the blinking source button to "un-pend" it.

~ Refer to the "**Key Transition Combinations**" section on page 97 for descriptions of the many key combinations that can be performed with the DCS-200.

Key Auto Take On

When the "**Key Auto Take**" function is **ON** in the **User Preference Menu**, you *do not* need to press **TAKE** to perform a key transition. The transition occurs immediately, once the **KEY** button is pressed. In addition, if a source is pending, it *remains* pending after the transition. There is no flip-flop.

■ Use the following steps to mix a key up or down, when **Key Auto Take** is **ON**:

   1. Press **KEY**. The system immediately mixes the key up or down, at the current transition rate. Please note:

   ~ If the transition is a "**key up**," the **KEY** button blinks fast during the transition interval, then lights solid when the key is fully on Program.

   ~ If the transition is a "**key down**," the **KEY** button blinks fast during the transition, then automatically turns off when the key is off Program.

Note	If **Menu Context** is **ON**, the **Key Setup Menu** appears when you press **KEY**, enabling you to change the key source or adjust properties. However, because **Key Auto Take** is **ON**, parameters cannot be adjusted until the transition is over.

Refer to the "**Key Transition Combinations**" section on page 97 for descriptions of the many key combinations that can be performed with the DCS-200.

Key Transition Combinations

In this section, brief instructions are provided for each individual key transition. Please remember the following points:

• If **Menu Context** is **ON**, the **Key Setup Menu** appears when the **KEY** button is pressed.

• Key **Clip**, **Gain**, **Opacity**, **H offset** and **V offset** can only be adjusted when the key is visible on Program. The **Key Input** field, however, can only be changed when the key is off Program. Once the key is on, the **Input** field is bracketed.

• Whenever **TAKE** is pressed, the current Program source and the pending program source will flip-flop. If you do not want to transition to a new source, simply press the blinking source button to "un-pend" it.

The following combinations are described:

• **Mix Key Up**

• **Mix Key Down**

• **Mix Source plus Key Up**

• **Mix Source plus Key Down**

• **Source Transition Under Key**

• **Fade to Black from Source plus Key**

• **Fade up from Black to Source plus Key**

Mix Key Up

■ Use the following steps to mix a key up, over a selected source:

Initial system state: Key is **OFF** Program
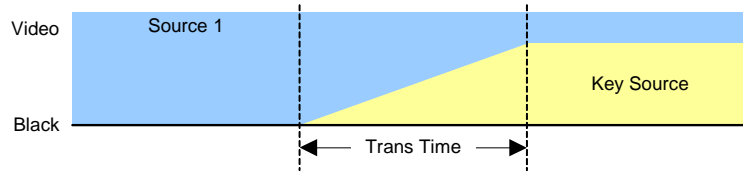
Key Auto Take: **ON**

Figure 4-70. Mix Key Up

1. Select the desired "background" source, and transition it to program with a **TAKE**.
2. Press **KEY** to mix the key up.

Mix Key Down

■ Use the following steps to mix a key down:

Initial system state: Key is **ON** Program
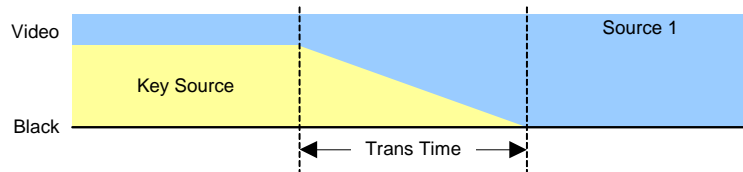
Key Auto Take: **ON**

Figure 4-71. Mix Key Down

1. Press **KEY** to mix the key down.

Mix Source plus Key Up

■ Use the following steps to transition to a new source, and mix a key up:

Initial system state: Key is **OFF** Program

Key Auto Take: **OFF**
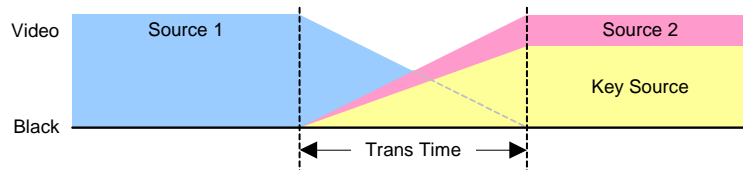
Figure 4-72. Mix Source plus Key Up

1. Select the source that you want to be the *next* background. The button blinks.
2. Press **KEY**. The button blinks to indicate "pending."
3. Press **TAKE** to transition to the new source and mix the key up.

Mix Source plus Key Down

■ Use the following steps to transition to a new source, and mix a key down:

Initial system state: Key is **ON** Program

Key Auto Take: **OFF**
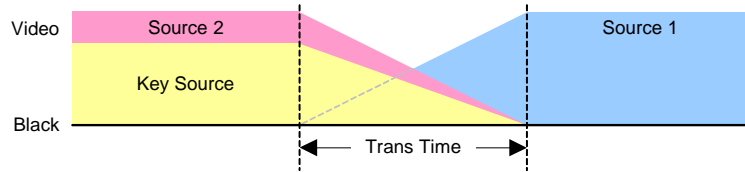
Figure 4-73. Mix Source plus Key Down

1. Select the source that you want to be the *next* background. The button blinks.

2. Press **KEY**. The button blinks to indicate "pending."

3. Press **TAKE** to transition to the new source and mix the key down.

Source Transition Under Key

■ Use the following steps to transition between sources under a key:

Initial system state: Key is **ON** Program

Key Auto Take: **ON** or **OFF**
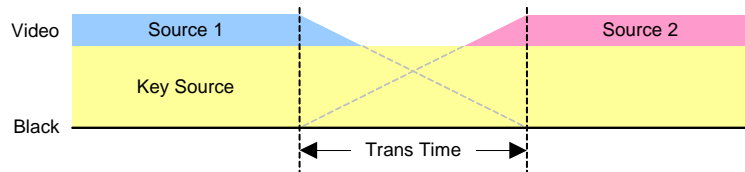
Figure 4-74. Transition Sources under Key

1. Select the source that you want to be the *next* background. The button blinks.

2. Press **TAKE** to transition to the new source underneath the key.

Fade to Black from Source plus Key

■ Use the following step to fade both the source and a key to black:

Initial system state: Key is **ON** Program

Key Auto Take: **ON** or **OFF**

Black Auto Take: **ON**
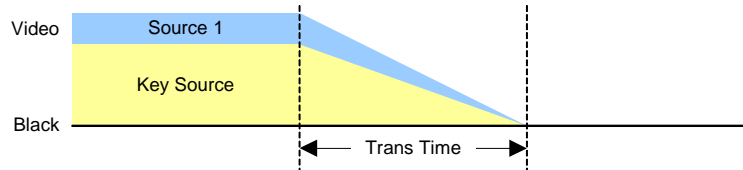
Figure 4-75. Transition Source plus Key to Black

1. Press **BLACK** to transition both the key and the source to black.

Fade up from Black to Source plus Key

■ Use the following steps to transition up from black to a source plus a key:

Initial system state: Key is **OFF** Program

Key Auto Take: **OFF**

Black Auto Take: **OFF**
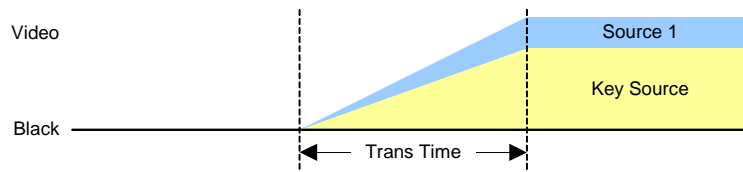
Figure 4-76. Transition from Black to Source plus Key

1. Pend a new source for the next background. The button blinks.
2. Press **BLACK**. The button blinks to indicate "pending."
3. Press **KEY**. The button blinks to indicate "pending."
4. Press **TAKE** to transition both the key and the source up from black.

Understanding Front-Panel Lockout

The DCS-200 includes two front-panel lockout modes:

- Full lockout mode, which locks the front panel from all source selections

- Executive mode, which locks all front panel selections *except* the nine input buttons (**1** through **8** and **SDI**) and **LOGO.** In executive mode, the user can transition from one input source to another without pressing **TAKE**.

Full Lockout Mode

In the full lockout mode:

- All button pushes and all turns of the rotary knobs will be ignored.

- All Ethernet and serial communications commands will function normally.

- All button lights will continue to reflect the proper state of the inputs.

■ Use the following steps to fully lock and unlock the front panel:

1. Press and hold the **SEL** and **ESC** buttons simultaneously for 3 seconds. Once this button combination has been detected, the following display appears:

Front Panel
Lockout Enabled
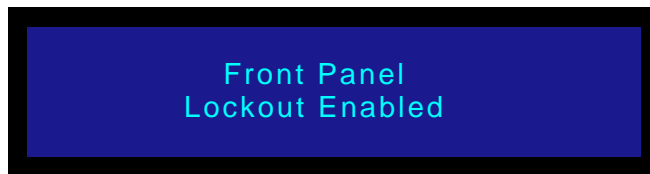
Figure 4-77. System Message: Lockout Enabled

2. To disable the front panel full lockout mode, press and hold the **SEL** and **ESC** buttons simultaneously for 3 seconds. When the button combination is detected, the system returns to the menu that was displayed before full lockout mode was enabled.

Executive Lockout Mode

From the **System Menu**, select **Executive Mode** to initiate a limited front-panel lockout. Executive mode enables seamless transitions between input sources *without* the need to press **TAKE**. In executive lockout mode:

- Button pushes will be ignored for all buttons *except* the nine **input buttons** and **LOGO**. All turns of the rotary knobs will be ignored.

- To take an input source to Program, press the input or **LOGO** button *without* pressing **TAKE**. The transition is seamless, even if you have **Auto Take** (in the **User Preference Menu**) turned off.

- All Ethernet and serial communications commands will function normally.

- All button lights will continue to reflect the proper state of the inputs.

4. Operation

■ Use the following steps to enable and disable executive lockout mode:

1. From the **Setup Menu**, choose the **System Menu**.

2. Select **Executive Mode**. The following submenu appears:

```
EXECUTIVE MODE

  <SEL> = Enable
  <ESC> = Cancel
```
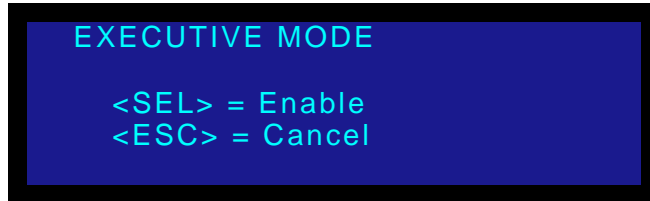
Figure 4-78.   Executive Mode Menu (sample)

3. Press **SEL**. The confirmation message shown in the following illustration appears:

```
        Executive Mode
          Enabled
```

Figure 4-79.   Executive Mode Confirmation Message

4. Press an **input button** or **LOGO**.

    The button will blink "fast" to indicate that the system is performing an action such as an auto acquire, file association, or another action. When the system completes its tasks for the input, the button blinks "slow" to indicate that the input is ready to be taken to Program. The input source signal automatically goes to Program without requiring a Take, regardless of your **Auto Take** setting.

5. To disable the front panel executive lockout mode, press and hold the **SEL** and **ESC** buttons simultaneously for 3 seconds. When the button combination is detected, the system returns to the menu that was displayed before executive lockout mode was enabled.

5. GUI Operations

In This Chapter

This chapter provides connection, launch and operating instructions for the system's web-based GUI, which enables you to perform all DCS-200 setup and transition functions, just like the system's "physical" front panel.

The following topics are discussed:

- **GUI Connection and Launch**
- **GUI Operations**

GUI Connection and Launch

■ Use the following steps to connect a PC or laptop, and launch the GUI:

1. Ensure that your PC (or laptop) uses Windows® 2000 or Windows XP.

2. Ensure that your PC (or laptop) has a web browser installed, such as Windows Internet Explorer® or Mozilla Firefox®.

3. Ensure that your PC (or laptop) uses Java Version 6 or later.

4. Connect the DCS-200's Ethernet port to a Switch.

5. Connect the Switch to your PC (or laptop).

6. Power-up the DCS-200.

7. Note the DCS-200's *current* IP address:

    a. From the **Status Menu**, press **SEL** to display the **Setup Menu**.

    b. Select **System** to display the **System Menu**.

    c. Select **Ethernet** to display the **Ethernet Menu**.

    d. Make a note of the information on the **IP** line, which shows the current IP address in all modes (with DHCP on or off).

Note	The default IP address is **192.168.0.10**.

8. On your PC (or laptop), open up a web browser.

9. In the browser's address bar, enter the DCS-200's IP address as shown in the following illustration.
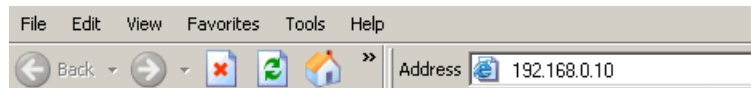
Figure 5-1. Address bar with sample IP address

Note	Avoid using leading zeros in the IP address. If your display panel shows 192.168.000.010, for example, type the address as shown in the preceding illustration, not as shown on the display.

10. When the PC establishes communications with the DCS-200, several web pages are downloaded into the PC, and the DCS-200 **Home Page** appears:

Figure 5-2. DCS-200 Home Page

11. Click the **Control Application GUI** link to launch the GUI. The **GUI Status Menu** page appears, as shown below:
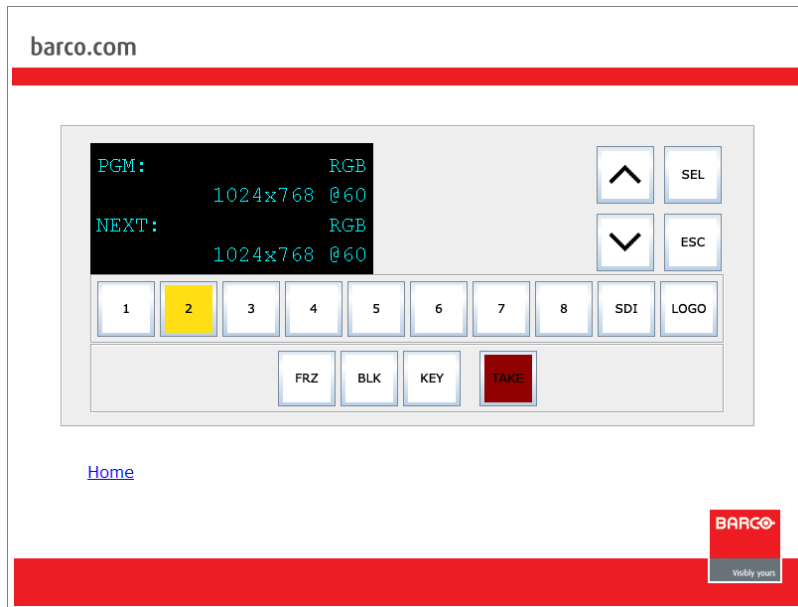
Figure 5-3. DCS-200 GUI Status Menu

Note	If you cannot see the image shown above, check that you have the latest version of Java installed on your PC or laptop.

12. The DCS-200 GUI is now ready for use. Refer to the "**GUI Operations**" section on page 106 for important operating notes.

Note	If you have trouble establishing communications between your PC and the DCS-200, in Chapter 6, refer to the "**Troubleshooting Ethernet Communication**" section on page 113 for instructions.

GUI Operations

The figure below illustrates a sample GUI screen:
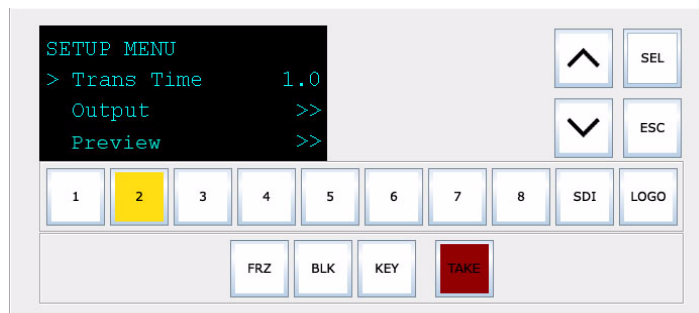
Figure 5-4. DCS-200 GUI Setup Menu

Running the DCS-200 GUI is virtually identical to running the system from the physical front panel. The similarities are:

- All control panel sections and menus are the same. In Chapter 4, refer to the "**Using the Menu System**" section on page 39 for details.

- All input, transition, and "effect" selection methods are the same. In Chapter 4, refer to the "**Using Inputs**" section on page 84 for details.

- All buttons blink states are the same. In Chapter 4, refer to the "**Button States**" section on page 35 for details.

The differences are:

- "Click" instead of press.

- Use the **Up/Down** arrows in place of the **ADJUST** knob:

  ~ Click the **Up Arrow** to scroll up the menu tree.

  ~ Click the **Down Arrow** to scroll down the menu tree.

- Click "**Home**" to return to the DCS-200 **Home Page**, if required.

- All actions taken on the GUI are mirrored on the physical front panel, and similarly, all actions taken on the front panel are mirrored on the GUI.

- You can not enter or leave the **Front Panel Lockout** mode from the GUI.

6. Upgrading Software

In This Chapter

This chapter provides detailed instructions for upgrading DCS-200 system software. The following topics are discussed:

- **Software Upgrade Overview**
- **Hardware Requirements**
- **Software Requirements**
- **Downloading Software**
- **Ethernet Upgrade Method**

Software Upgrade Overview

Firmware files for the DCS-200 are loaded into the hardware at power-up. These files are stored in the unit's onboard flash memory.

The DCS-200's system software can be easily upgraded using the following steps:

- Download the appropriate "upgrade" file from the Barco FTP site or website.
- Connect a PC (or laptop) to the DCS-200.
- Launch a web browser.
- Connect to the DCS-200 using its IP address.
- Follow the upgrade instructions in the browser.

Hardware Requirements

The following hardware items are required for upgrading DCS-200 software:

- IBM compatible computer with an available Ethernet port
- Local Ethernet network, including an Ethernet switch

Software Requirements

The following list outlines software requirements for upgrading the DCS-200's software:

- Ensure that your PC (or laptop) uses the Windows® 2000 or Windows XP operating systems.
- Ensure that your PC (or laptop) has a web browser installed, such as Windows Internet Explorer® or Mozilla Firefox®.

Software files can be downloaded from either the Barco Folsom FTP site or the Barco website, as described in the following "**Downloading Software**" section.

Downloading Software

Two different methods can be used to download DCS-200 software:

- **Via FTP Site**
- **Via Web Site**

Via FTP Site

Barco Folsom's FTP site address is: **ftp.folsom.com**

■ To download software from the FTP site:

1. Create a target folder on your PC (e.g., DCS-200).

2. Ensure that your PC is connected to the internet.

3. Log on to the FTP site using one of the following methods:

   a. If you are using an FTP client such as **Ipswitch WS_FTP Professional**, log on to our site as follows:
      - **FTP Site**: ftp.folsom.com
      - **User name**: anonymous
      - **Password**: your email address

      ▲ **Example**: johndoe@somecompany.com

   b. If you are using a web browser, point the browser to:

      ftp://ftp.folsom.com

Note	If you are using **Internet Explorer 7**, after entering the FTP address, click **Page**, and then click **Open FTP Site in Windows Explorer**.

   c. To use Windows Explorer, right-click the **Start** button, then click **Explore**. When the Explorer window opens, enter the FTP site in the address bar.

4. Once logged on, navigate to the following directory:

   ftp://ftp.folsom.com/Image Processing/DCS-200/

5. Transfer the following file to the target folder on your PC:

   DCS-200_##_##.tar.gz

6. Please continue with the "**Ethernet Upgrade Method**" section on page 110.

Via Web Site

Barco's web site address is: **www.barco.com**

■ To download software from the web site:

1. Create a target folder on your PC (e.g., DCS-200).

2. Ensure that your PC is connected to the internet.

3. On the web, navigate to:

http://www.barco.com

4. Navigate to the "Presentation Systems" home page:

   http://www.barco.com/corporate/en/products/

5. Log in to the **Barco Partnerzone**.

6. Navigate to the "**Software Updates**" link, and download the latest version of code:

   DCS-200_##_##.tar.gz

7. When the **File Download Dialog** appears, click **Save**.

8. When the **Save As Dialog** appears, navigate to the target folder and click **Save**.

9. Please continue with the "<u>**Ethernet Upgrade Method**</u>" section on page 110.

Ethernet Upgrade Method

■ Use the following steps to upgrade DCS-200 software:

1. Ensure that your PC (or laptop) uses the Windows® 2000 or Windows XP operating systems.

2. Connect the DCS-200's Ethernet port to a Switch.

3. Connect the Switch to your PC (or laptop).

4. Power-up the DCS-200.

5. Note the DCS-200's *current* IP address:

   a. From the **Status Menu**, press **SEL** to display the **Setup Menu**.

   b. Select **System** to display the **System Menu**.

   c. Select **Ethernet** to display the **Ethernet Menu**.

   d. Make a note of the information on the **IP** line, which shows the current IP address in all modes (with DHCP on or off).

Note	The default IP address is **192.168.0.10**.

6. On your PC (or laptop), open up a web browser.

7. In the browser's address bar, enter the DCS-200's IP address.
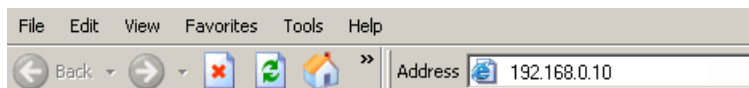
Figure 6-1. Address bar with sample IP address

Note	Avoid using leading zeros in the IP address. If your display panel shows 192.168.000.010, for example, type the address as shown in the preceding illustration, not as shown on the display.

8. When the PC establishes communications with the DCS-200, several web pages are downloaded into the PC, and the DCS-200 **Home Page** appears:
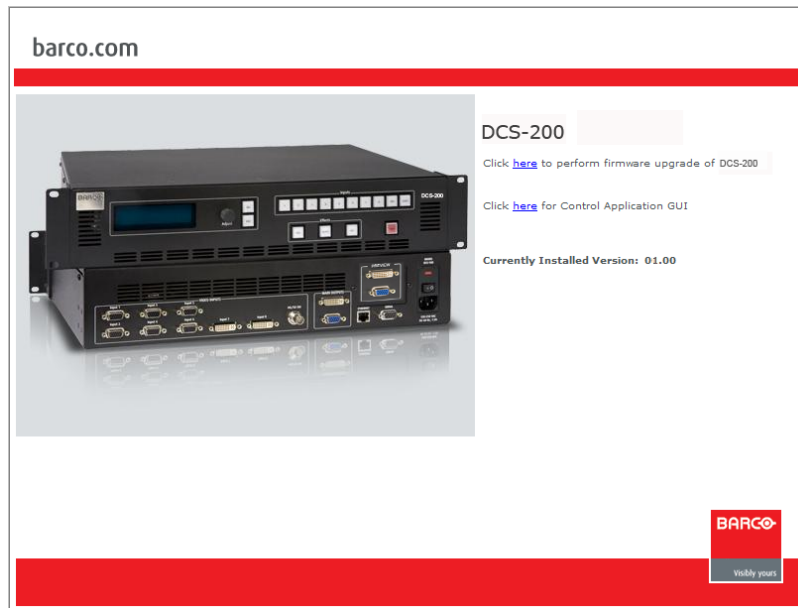
Figure 6-2. DCS-200 Home Page

9. Click the **Firmware Upgrade** link to continue the upgrade process. The **Select File** page appears, as shown below:
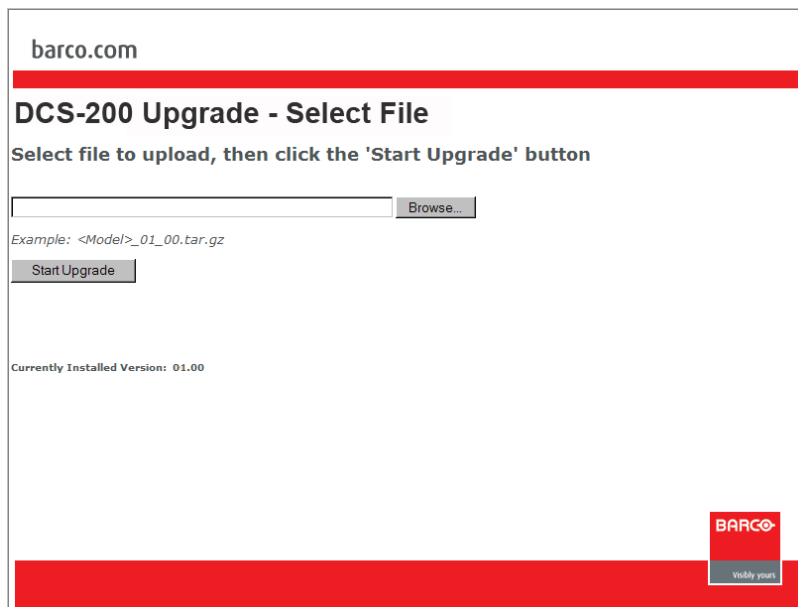
Figure 6-3. DCS-200 Select File Page

10. Click the **Browse** button, and navigate to the folder on your PC where you saved the latest version of code.

11. In the **Upload Dialog**, select the file:

DCS200_##_##.tar.gz

... and click **Open**.

12. In the **Select File** page, click **Start Upgrade**.

The **Upload Status** page appears, which provides status during the upload procedure:

Figure 6-4. DCS-200 Upload Status Page

13. When the procedure is complete, you have three options:

~ Click **Home** to return to the DCS-200 **Home Page**.

~ If a problem was encountered during the process, click **View Log File** to display a text-based log of the upload procedure.

~ If the upload was successful, click **Restart** DCS-200 to complete the entire upgrade procedure.

14. Close your browser, and resume operations on the DCS-200.

Note	Be sure to check the **Software Version Menu** to verify that the system has been updated. From the **Setup Menu**, select **Tech Support** to display the **Tech Support Menu**, which lists the current software version at the top.

Troubleshooting Ethernet Communication

■ Use the following steps to determine the IP address of the DCS-200, and establish proper communications:

1. Power-up the DCS-200.

2. Note the DCS-200's *current* IP address:

    a. From the **Status Menu**, press SEL to display the **Setup Menu**.

    b. Select **System** to display the **System Menu**.

    c. Select **Ethernet** to display the **Ethernet Menu**.

    d. Make a note of the information on the **IP** line, which shows the current IP address in all modes (with DHCP on or off).

3. Attempt to ping the DCS-200 as follows:

    a. Connect the DCS-200's Ethernet port to a Switch.

    b. Connect the Ethernet Switch to your PC.

    c. Turn on the PC or laptop.

    d. Open a command prompt window on the PC. Click **Start > Programs > Accessories > Command Prompt**.

    e. On the command prompt line, type:

        ```
        ping 192.168.0.10
        ```

        ... followed by **Enter**.

Note	Use the unit's actual IP address, as determined in step **2** above.

    f. If the computer can successfully communicate with the DCS-200, you will see a series of "**replies**" from the target IP address. Repeat the upgrade procedure as outlined in the "**Ethernet Upgrade Method**" section on page 110.

    g. If you see a "**Request timed out**" message, the PC is unable to locate the DCS-200. If this is the case:

        •   Check your network connections and settings as described above, or ...

        •   Contact your network administrator, or ...

        •   Contact **Technical Support**. In Appendix C, refer to the "**Contact Information**" section on page 160 for details.

6. Upgrading Software

Ethernet Upgrade Method

A. Specifications

In This Appendix

This appendix provides detailed technical specifications for the DCS-200. The following topics are discussed:

- **Input Specifications**
- **Output Specifications**
- **Physical and Electrical Specifications**
- **Communications Specifications**
- **Agency Specifications**
- **Pinouts**
- **Format Table**

Input Specifications

The table below lists DCS-200 input specifications.

Table A-1. DCS-200 Input Specifications

Parameter	Detail	Specification
Inputs 1 - 6	Connector	HD-15 VGA
	Format	RGBHV / RGBS / RGsB computer video, YPbPr video (SD or HD), S-video, or composite video
	Sampling	10-bits/color at 165 MHz maximum
		Supports 1:1 sampling up to 1600x1200@60 Hz
		Sources with native pixel rates > 165 MHz will be filtered and undersampled at 165 Mhz, including: • 1920x1080p@60 (173.0 MHz) • 1920x1200@60 (193.25 MHz) • 2048x1080p@60 (183.75 MHz)
Inputs 7 - 8	Connector	DVI-I, per DDWG 1.0
	Format (Digital)	8-bit DVI, RGBHV data via analog pins
	Format (Analog)	RGBHV / RGBS / RGsB computer video, YPbPr video (SD or HD), S-video, or composite video
	HDCP hardware support	HDCP version 1.0 compliant
Input 9	Connector	BNC
	Format	SD-SDI per SMPTE 259M-C (NTSC/PAL resolution)
		HD-SDI per SMPTE 292M (HDTV)

Output Specifications

The table below lists DCS-200 output specifications:

Table A-2. DCS-200 Output Specifications

Parameter	Detail	Specification
Outputs	DVI output	1 x DVI connector
	RGB output	1 x HD-15 VGA connector
	HDCP Encryption	On DVI connector only

Physical and Electrical Specifications

The table below lists DCS-200 physical and electrical specifications.

Table A-3. DCS-200 Physical and Electrical Specifications

Parameter	Detail	Specification
Power	Connector	Standard IEC, integral on/off switch
	Power	100-240 VAC, 50-60 Hz
Mechanical	Chassis	**H:** 3.50 in. (8.89 cm), 2 RU rack mount
		W: 17.00 in. (43.18 cm), 19.00 in. (48.26 cm) + wings
		D: 14.25 in. (36.19 cm)
Temperature		0-40 degrees C
Humidity		0-95% non-condensing
Weight		7.5 lbs (3.40 kg)
Shipping Weight		22.0 lbs (9.97 kg)

Communications Specifications

The table below lists DCS-200 communications specifications.

Table A-4. DCS-200 Communications Specifications

Parameter	Detail	Specification
Communications	Ethernet	RJ-45, 10/100 Mbps
	Serial	DB-9 Female, DCE, 115k Baud

Agency Specifications

The table below lists DCS-200 agency specifications.

Table A-5. DCS-200 Agency Specifications

Parameter	Detail	Specification
Agency Specifications	EMI/EMC	EN55103-1 E4, EN55103-2, FCC Part 15 Subpart B Class A
	Safety	EN 60950 Class 1

Pinouts

The following topics are discussed in this section:

- **Analog 15-pin D Connector**
- **DVI-I Connector**
- **Ethernet Connector**
- **Serial Connector**

Analog 15-pin D Connector

The figure below illustrates the analog 15-pin D connector:
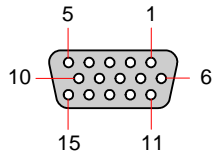
Figure A-1. Analog 15-pin D connector, chassis view

The table below lists Analog 15-pin D connector pinouts.

Table A-6. Analog 15-pin D Connector Pinouts

Pin	Signal	Pin	Signal
1	Red	9	+5V DDC Power
2	Green	10	GND
3	Blue	11	
4		12	DDC Data
5		13	H Sync or C Sync
6	Red return	14	V Sync
7	Green return	15	DDC Clock
8	Blue return		

DVI-I Connector

The figure below illustrates the DVI-I connector:
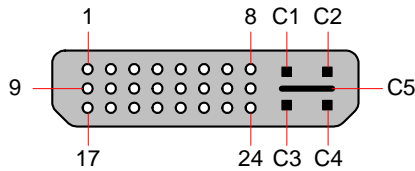
Figure A-2. DVI-I connector

The table below lists DVI-I connector pinouts. Please note:

- T.M.D.S = Transition Minimized Differential Signal
- DDC = Display Data Channel

Table A-7. DVI-I Connector Pinouts

Pin	Signal	Pin	Signal
1	T.M.D.S. Data 2-	13	T.M.D.S. Data 3+
2	T.M.D.S. Data 2+	14	+5V Power
3	T.M.D.S. Data 2/4 Shield	15	ground (for +5V)
4	T.M.D.S. Data 4-	16	Hot Plug Detect
5	T.M.D.S. Data 4+	17	T.M.D.S. Data 0-
6	DDC Clock	18	T.M.D.S. Data 0+
7	DDC Data	19	T.M.D.S. Data 0/5 Shield
8	Analog Vertical Sync	20	T.M.D.S. Data 5-
9	T.M.D.S. Data 1-	21	T.M.D.S. Data 5+
10	T.M.D.S. Data 1+	22	T.M.D.S. Clock Shield
11	T.M.D.S. Data 1/3 Shield	23	T.M.D.S. Clock +
12	T.M.D.S. Data 3-	24	T.M.D.S. Clock -
MicroCross Pins			
C1	Analog Red Video	C4	Analog Horizontal Sync
C2	Analog Green Video	C5	Analog Common Ground Return
C3	Analog Blue Video		

Ethernet Connector

The figure below illustrates the Ethernet connector:
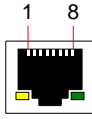
Figure A-3. Ethernet connector

The table below lists Ethernet connector pinouts.

Table A-8. 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

Serial Connector

The figure below illustrates the DB-9 **Serial** connector.
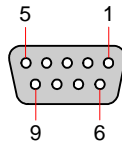
Figure A-4. Serial connector

The table below lists **Serial** connector pinouts.

Table A-9. Serial Connector Pinouts

Pin	RS-232 Signal	Description
1	CD	Carrier Detect
2	TXD	Transmitted Data
3	RXD	Received Data
4	DSR	Data Set Ready
5	GND	Signal Ground
6	DTR	Data Terminal Ready
7	CTS	Clear To Send
8	RTS	Request To Send
9	RI	Unused

Format Table

The table below lists the available input and output formats for the DCS-200. Each entry uses the following convention: **Format @Fv (Hz)**. Most of the formats listed in this table are supported for inputs *and* outputs. Formats that are supported only for input or only for output sources are designated in bold in the **Input/Output** column.

Note	The DCS-200's output can be set to progressive formats only.

Table A-10. DCS-200 Input and Output Formats

Format	Input Color Space	Input/Output
Apple 1200p @60	RGB	Input/Output
NTSC (480i)	SMPTE	**Input Only**
PAL (576i)	SMPTE	**Input Only**
640x480 @59.94	RGB	Input/Output
640x480 @60	RGB	Input/Output
640x480 @72	RGB	Input/Output
640x480 @75	RGB	Input/Output
640x480 @85	RGB	Input/Output
720x480p	SMPTE, RGB	Input/Output
720x575p	SMPTE, RGB	Input/Output
800x600 @50	RGB	Input/Output
800x600 @56	RGB	Input/Output
800x600 @59.94	RGB	Input/Output
800x600 @60	RGB	Input/Output
800x600 @72	RGB	Input/Output
800x600 @75	RGB	Input/Output
800x600 @85	RGB	Input/Output
875p	RGB	Input/Output
1024x768 @47.95	RGB	Input/Output
1024x768 @48	RGB	Input/Output
1024x768 @50	RGB	Input/Output
1024x768 @59.94	RGB	Input/Output
1024x768 @60	RGB	Input/Output
1024x768 @70	RGB	Input/Output
1024x768 @71.93	RGB	Input/Output

Table A-10. DCS-200 Input and Output Formats (Continued)

Format	Input Color Space	Input/Output
1024x768 @72	RGB	Input/Output
1024x768 @75	RGB	Input/Output
1024x768 @85	RGB	Input/Output
1152x864 @75	RGB	Input/Output
1280x720 @60	RGB	**Input Only**
1280x720 @60 II	RGB	**Input Only**
1280x720p @48	SMPTE, RGB	Input/Output
1280x720p @50	SMPTE, RGB	Input/Output
1280x720p @59.94	SMPTE, RGB	Input/Output
1280x720p @60	SMPTE, RGB	Input/Output
1280x768 @47.95	RGB	Input/Output
1280x768 @48	RGB	Input/Output
1280x768 @50	RGB	Input/Output
1280x768 @59.94	RGB	Input/Output
1280x768 @75	RGB	Input/Output
1280x800 @60	RGB	Input/Output
1280x800 @60 II	RGB	**Input Only**
1280x960 @50	RGB	Input/Output
1280x960 @59.94	RGB	Input/Output
1280x960 @60	RGB	Input/Output
1280x960 @85	RGB	Input/Output
1280x1024 @47.95	RGB	Input/Output
1280x1024 @48	RGB	Input/Output
1280x1024 @50	RGB	Input/Output
1280x1024 @59.94	RGB	Input/Output
1280x1024 @60	RGB	Input/Output
1280x1024 @71.93	RGB	Input/Output
1280x1024 @72	RGB	Input/Output
1280x1024 @75	RGB	Input/Output
1280x1024 @85	RGB	Input/Output
1360x768 @60	RGB	Input/Output
1364x768 @47.95	RGB	Input/Output
1364x768 @48	RGB	Input/Output

A. Specifications

Format Table

Table A-10. DCS-200 Input and Output Formats   (Continued)

Format	Input Color Space	Input/Output
1364x768 @50	RGB	Input/Output
1364x768 @59.94	RGB	Input/Output
1364x768 @75	RGB	Input/Output
1364x1024 @47.95	RGB	Input/Output
1364x1024 @48	RGB	Input/Output
1364x1024 @50	RGB	Input/Output
1364x1024 @59.94	RGB	Input/Output
1364x1024 @75	RGB	Input/Output
1366x768 @50	RGB	Input/Output
1366x768 @59.94	RGB	Input/Output
1400x1050 @48	RGB	Input/Output
1400x1050 @50	RGB	Input/Output
1400x1050 @59.94	RGB	Input/Output
1400x1050 @60	RGB	Input/Output
1400x1050 @75	RGB	Input/Output
1440x900 @60	RGB	Input/Output
1440x900 @75	RGB	Input/Output
1440x900 @85	RGB	Input/Output
1536x768 @50	RGB	Input/Output
1536x768 @59.94	RGB	Input/Output
1600x1200 @47.95	RGB	Input/Output
1600x1200 @48	RGB	Input/Output
1600x1200 @50	RGB	Input/Output
1600x1200 @59.94	RGB	Input/Output
1600x1200 @60	RGB	Input/Output
1680x1050 @60	RGB	Input/Output
1920x1080i @50	SMPTE, RGB	**Input Only**
1920x1080i @59.94	SMPTE, RGB	**Input Only**
1920x1080i @60	SMPTE, RGB	**Input Only**
1920x1080p @23.98	SMPTE, RGB	Input/Output
1920x1080p @24	SMPTE, RGB	Input/Output
1920x1080p @25	SMPTE, RGB	Input/Output
1920x1080p @29.97	SMPTE, RGB	Input/Output

Table A-10. DCS-200 Input and Output Formats   (Continued)

Format	Input Color Space	Input/Output
1920x1080p @30	SMPTE, RGB	Input/Output
1920x1080p @48	SMPTE, RGB	Input/Output
1920x1080p @50	SMPTE, RGB	Input/Output
1920x1080p @59.94	SMPTE, RGB	Input/Output
1920x1080p @60	SMPTE, RGB	Input/Output
1920x1080p II @50	SMPTE, RGB	**Output Only**
1920x1080p II @60	SMPTE, RGB	**Input Only**
1920x1080sF @23.98	SMPTE, RGB	**Input Only**
1920x1080sF @24	SMPTE, RGB	**Input Only**
1920x1200p @60	RGB	Input/Output
1920x1200p II @60	RGB	**Output Only**
2048x1080p @48	RGB	Input/Output
2048x1080p @50	RGB	Input/Output
2048x1080p @59.94	RGB	Input/Output
2048x1080p @60	RGB	Input/Output
2048x1080p II @50	RGB	Input/Output
2048x1080p II @60	RGB	**Output Only**

A. Specifications

Format Table

B. Remote Control

In This Appendix

This appendix provides information regarding remote control protocol.   The following topics are discussed:

- **Communicating with DCS-200**
- **Command Protocol**
- **Error Codes**
- **DCS-200 Command List**
- **Remote Commands**

Communicating with DCS-200

■ Use the following steps to communicate with the DCS-200 via Telnet:

1. Connect the DCS-200's Ethernet port to an Ethernet switch, and connect the switch to your PC or laptop.

2. Ensure that all Ethernet parameters are properly set up. In Chapter 4, refer to the "**Ethernet**" section on page 74 for details.

3. For Telnet communications, use the DCS-200's IP address and port 23. On a Microsoft Windows PC, open a command prompt window and enter the following:

    ```
    > telnet xxx.xxx.xxx.xxx  23
    ```

4. After you "Telnet" into the DCS-200, you are presented with the login prompt:

    ```
    Welcome to DCS-200.
    Login as "user".
    Press <ENTER> for password.
    ```

    a. Type "user" and press **ENTER** to login.

    b. When prompted for a password, press **ENTER**.

    Once you have successfully logged in, the following message appears, along with the command prompt (**>**):

    ```
    ShellApp waiting for input
    >
    ```

5. You can now issue commands. Operationally, the telnet window functions in a manner similar to a serial communications session. As required, type "**help**" to see a list of supported commands.

Refer to the "**Remote Commands**" section on page 134 for a complete list of commands.

Command Protocol

The DCS-200's command protocol is compatible with GNU getopt parsing. Every parameter of the command has an option character associated with it. A **<CR>** carriage return (**ASCII 13**) terminates the command.

Note	The order of the option characters in the command does not matter.

▲ Command example:

```
ITYPE -i 2 -t 1<CR>
Or
ITYPE -t 1 -i 2<CR>
```

Command Responses

A command response is sent after each command is processed. This response consists of the command, followed by the error code, a line feed **<LF>** and a special termination character (**\x4**).

- When a command is successful, the error code is a **0** (**eERR_OK**), or some positive value.

- When a command is not successful, the error code is a negative value. A preliminary list of the error codes is included. Refer to the "**Error Codes**" section on page 130 for details.

  ▲ Command response example:

  ```
  ITYPE -e 0<LF>
  </x4>
  ```

Query Options

Query type options are available for the commands. The order of precedence for processing query option arguments is help (**--help**), query (**-?**), and list (**--list**). If more than one query option is sent in a command, the option with the highest precedence is processed, and any others are ignored.

Help Query — Commands have a "**help**" query option associated with them, (**--help**). This query lists all option flags and parameters for the command in the following format:

▲ Help option example:

```
IBRT --help<CR>
```

▲ Response:

IBRT

- **Description**: Input Brightness Adjust
- **Command Format**: IBRT -i(input) -b(bright)

- **Parameters**:

    -i(input): Input number, 1-8

    -b(bright): 75.0%-125.0%

- **Query Format**: IBRT i(input) -?

- **Query Response**: IBRT i(input) b(bright) --min 75 --max 125

    IBRT -e 0 <LF>

    </x4>

Current Setting Query — The current setting query option (**-?**) returns the command with each of the current parameter settings. Commands with minimum and maximum settings for the parameter will have these "min" and "max" values returned with option flags **--min** and **--max**.

▲ Query option example:

```
IBRT -i 4 -?<CR>
```

▲ Response:

```
IBRT -i 4 -b 100.00 --min 75 --max 125
IBRT -e 0<LF>
</x4>
```

Several commands have a list for the associated valid parameter values, such as the format commands. The list of these values can be queried with the list query option (**--list**). The list shows has the numeric value for the parameter, followed by the value text encased in quotes. A colon separates the numeric value from the string.

▲ List query option example:

```
ISMP -i 4 --list<CR>
```

▲ Response:

```
0:"OverSample"
1:"1:1"
ISMP -e 0<LF>
</x4>
```

Error Codes

This section provides DCS-200 error codes:

Error Codes: General Failures

The table below lists general failure codes:

Table B-1. DCS-200 General Error Codes

Code		Description
-9999		Generic fail
-9998		Operation is not applicable in current state
-9997		UI Related... Did not get response from device
-9996		UI Related... Did not get valid response from device
-9995		Timeout occurred
-9994		Parameter / data out of range
-9993		Searching for data in an index, no matching data
-9992		Checksum didn't match
-9991		Version didn't match
-9990		UI Related... Current device interface not supported
-9989		Pointer operation invalid
-9988		Part of command had error
-9987		Buffer overflow
-9986		Initialization is not done (still in progress)

Error Codes: No Error

The table below lists the "no error" code:

Table B-2. DCS-200 "No Error" Code

Code	Description
0	Successful

DCS-200 Command List

The table below lists DCS-200 remote commands.

Table B-3. DCS-200 Remote Commands

Command	Description	Page
Ethernet Commands		
DHCP	Enable/Disable DHCP mode	134
EMAC	Get MAC Address	134
GATEWAY	Set gateway to be used when DHCP is OFF	135
IP	Set Static IP Address to be used when DHCP is OFF	135
SUBNET	Set subnet mask to be used when DHCP is OFF	135
Input Commands		
ACQ	Input Source Acquire. Does a "force" acquire of the input	135
AUTOACQ	Auto Input Acquisition Mode	135
BACKGND	Set background color	136
BLKVID	Puts black into the scaler selected	136
CBLEQ	Set cable equalization	136
EDID	Set Input EDID Resolution	136
EDIDTYPE	Set EDID type	137
FREEZE	Freeze the input on program	137
IADJ	Selects the input path to adjust (preview or program)	137
IAR	Adjust Input Aspect Ratio	137
IAUTOC	Attempts to detect and adjust input video to the active video area	138
IAVAIL	Query only command for input availability	138
IBRT	Input brightness adjust	138
ICDEL	Delete Input Configuration	139
ICNT	Input contrast adjust	139
ICPHO	Input Phase Adjust	139
ICREC	Recalls saved input configuration for selected input	139
ICRST	Reset Input Configuration to default values	140
ICSAV	Saves Input Configuration	140
ICSP	Input Colorspace Adjust	140
IHATV	Input Horizontal Active Adjust	140
IHCROP	Input Horizontal Crop	141

Table B-3. DCS-200 Remote Commands (Continued)

Command	Description	Page
IHPAN	Input Horizontal Pan	141
IHPOS	Input Horizontal Position Adjust	141
IHTOTAL	Input Horizontal Total Adjust	142
IHUE	Input Hue Adjust	142
IMAP	Maps the input file configuration for the selected input	142
IRBRT	Input RGB Brightness Adjust	142
IRCNT	Input RGB Contrast Adjust	143
IRES	Input Resolution Select	143
ISAT	Input Saturation Adjust	143
ISEL	Selects the selected input as the current input to display	144
ISLICE	Input Sync Slice Threshold Adjust	144
ISMP	Adjust Input Sample mode	144
ISYNC	Input Sync Type Adjust	145
ITYPE	Input Type Adjust	145
IVATV	Input Vertical Active Adjust	146
IVCROP	Input Vertical Crop	146
IVPAN	Input Vertical Pan	146
IVPOS	Input Vertical Position Adjust	146
IVTOTAL	Input Vertical Total Adjust. Query-only command.	147
PCOMP	Pulldown Compensation mode adjust	147
TAKE	Take the input currently on preview onto program	147
Output Commands		
BLACK	Set the mixer output to black	147
OAVAIL	Checks availability of the preview output. Query-only command.	147
OCSAV	Save Output Configuration	147
OGM	Set Output Gamma	148
ORBM	Output Raster Box Mode	148
ORES	Output Resolution	148
OSRC	Select the input source for the preview output	149
OSYNC	Output Sync Type Adjust	149
OTPM	Output Test Pattern Mode	149
OTPT	Output Test Pattern Type	150

Table B-3. DCS-200 Remote Commands (Continued)

Command	Description	Page
System Commands		
AUTOCFG	Auto Input Configuration Mode	151
AUTOSAVE	Auto Input Settings Save	151
AUTOTAKE	Auto Take Mode	151
BLKTRAN	Set whether going to black is a direct cut or setup for a take	151
CONTEXT	Set menu context	151
DIAG	Perform a system diagnostic test	152
DIAGD	Display the results of the last performed system diagnostic test	152
ISTAT	Query only command for the input status type and format.	152
LCLR	Clear the selected log (ram copy, not flash)	152
LDMP	Display the current log messages	152
LFEN	Set the mode for the selected log	153
LINT	Set the time interval for writing the enabled logs to flash	153
LOCKOUT	Control the lockout mode of the front panel	153
OSTAT	Query only command for the output status type and format	153
PREVIEW	Query only command for the input, key and black button status on preview	153
PROGRAM	Query only command for the input, key and black button status on program	154
RESET	Reset unit	154
SAVE	System Save	154
SERIAL	Sets the serial port	154
TEMP	Query only command for the temperature of the unit	155
TRNTIME	Set transition time	155
VER	Display Version info	155
VFDBRT	Set VFD brightness	155
Key Commands		
LKEY	Luminance Key definition	155
LOGO Commands		
LOGODEL	Delete the selected logo file	156
LOGOSAVE	Save the image on Program to the selected logo fame store and file	157
LOGOSEL	Logo selection	157
LOGOSTAT	The logo format status. This command is a query only.	157

Remote Commands

This section lists DCS-200 remote commands, in the following categories:

- **Ethernet Commands**
- **Input Commands**
- **Output Commands**
- **System Commands**
- **Key Commands**
- **LOGO Commands**

Ethernet Commands

DHCP

- **Description**: Enables/disables DHCP mode.
- **Command Format**: DHCP -m (mode)
- **Command Params**: -m mode: 0-disable, 1-enable (default: on)
- **Query Format**: DHCP -?
- **Query Response**: DHCP -m (mode) --min 0 --max 1

EMAC

- **Description**: Gets MAC Address.
- **Command Format**: N/A
- **Command Params**: N/A
- **Query Format**: EMAC -?
- **Query Response**: EMAC -a (addr)
- **Response Params**: -a (addr): MAC address formatted xx.xx.xx.xx.xx.xx

GATEWAY

- **Description**: Sets gateway to be used when DHCP is OFF.
- **Command Format**: GATEWAY -s (static addr)
- **Command Params**: s static addr: format will be: xxx.xxx.xxx.xxx
- **Query Format**: GATEWAY -?
- **Query Response**: GATEWAY -a (active addr) -s (static addr)
- **Query Params**: -a (active addr): Active gateway active address

IP

- **Description**: Sets Static IP Address to be used when DHCP is OFF.
- **Command Format**: IP -s (static)
- **Command Params**: -s static addr with format xxx.xxx.xxx.xxx
- **Query Format**: IP -?
- **Query Response**: IP -a (active addr) -s (static addr)
- **Response Params**: -a (active addr): returns active address

SUBNET

- **Description**: Sets subnet mask to be used when DHCP is OFF.
- **Command Format**: SUBNET -s (static addr)
- **Command Params**: -s static address formatted xxx.xxx.xxx.xxx
- **Query Format**: SUBNET -?
- **Query Response**: SUBNET -a(active addr) -s(static addr)
- **Response Params**: -a(active addr): returns active address

Input Commands

ACQ

- **Description**: Input Source Acquire. Does a "force" acquire of the input.
- **Command Format**: ACQ -i (input)
- **Parameters**: -i (input): Input number
- **Query Format**: N/A

AUTOACQ

- **Description**: Auto Input Acquisition Mode
- **Command Format**: AUTOACQ -m (mode)
- **Command Params**: -m mode: 0-off, 1-on (Default: on)
- **Query Format**: AUTOACQ -?
- **Query Response**: AUTOACQ -m (mode) --min 0 --max 1

BACKGND

- **Description**: Sets background color.
- **Command Format**: BACKGND -i (input) -b (background)
- **Parameters**: -b (background):1-black, 2-gray
- **Query Format**: BACKGND -?
- **Query Response**: BACKGND -b (background) --min 1 -- max 2
- **List Format**: BACKGND --list
- **List Response**: 1:"Black"

      2:"Gray"

BLKVID

- **Description**: Puts black into the selected scaler.
- **Command Format**: BLKVID -s (scaler) -m (mode)
- **Parameters**:

      -s (scaler): 1 - 2

      -m (mode): 0 - off, 1 - on
- **Query Format**: N/A
- **Query Response**: N/A

CBLEQ

- **Description**: Sets cable equalization. Command valid only for DVI input channels.
- **Command Format**: CBLEQ -i(input) -c(cable equalization)
- **Parameters**:

      -i (input): 7-8

      -c (cable equalization): 0 - 15 (Default: 12)
- **Query Format**: CBLEQ -i(input) -?
- **Query Response**: CBLEQ -i(input) -c (cable equalization) --min 0 --max 15

EDID

- **Description**: Sets Input EDID Resolution.
- **Command Format**: EDID -i (input) [-f (format) | -n (index)]
- **Parameters**:

      -i (input) : 1-8

      -f (format): Format string, i.e. "1024x768 @59.94"

      or

      -n (index): Video format index
- **Query Format**: EDID -i (input) -?
- **Query Response**: EDID -i (input) -f (format)
- **List Format**: EDID -i (input) --list

- **List Response**:

    2:"720x480p"

    4:"720x575p"

    5:"640x480 @59.94"

    Etc.

EDIDTYPE

- **Description**: Sets EDID type. This command is valid only for the DVI input channels.
- **Command Format**: EDIDTYPE -i(input) -t(EDID type)
- **Parameters**:

    -i (input): 7-8

    -t (EDID type): 0 - analog, 1 - digital (Default: 1)
- **Query Format**: EDIDTYPE -i(input) -?
- **Query Response**: EDIDTYPE -i(input) -t (EDID type) --min 0 --max 1
- **List Format**: EDIDTYPE -i(input)
- **List Response**:

    0:"Analog"

    1:"Digital"

FREEZE

- **Description**: Freezes the input on program.
- **Command Format**: FREEZE -m (mode)
- **Command Params**: -m mode: 0-off, 1-on (Default: off)
- **Query Format**: FREEZE -?
- **Query Response**: FREEZE -m (mode) --min 0 --max 1

IADJ

- **Description**: Selects the input path to be adjusted (preview or program).
- **Command Format**: IADJ -p (path)
- **Parameters**:-p (path): 0-preview, 1-program
- **Query Format**: ADJ -?
- **Query Response**: IADJ -p (path)
- **List Format**: IADJ --list
- **List Response**: 0: "PREVIEW"

    1: "PROGRAM"

IAR

- **Description**: Adjust Input Aspect Ratio
- **Command Format**: IAR -i (input) -r (ratio) -c (custom ratio)

- **Parameters**:

  -i (input): 1 - 9

  -r (ratio): 1 - 1:1, 2 - 3:2, 3 - 4:3, 4 - 5:4, 5 - 16:9

  -c (custom ratio): .75 - 3.0

- **Query Format**: IAR -i (input) -?

- **Query Response**: IAR -i (input) -c (custom ratio) --min .75 -- max 3

  or

  IAR -i (input) -r (ratio) --min 1 -- max 5

- **List Format**: IAR -i (input) --list

- **List Response**: 1:"1:1"

  2:"3:2"

  3:"4:3"

  4:"5:4"

  5:"16:9"

IAUTOC

- **Description**: Attempts to detect and adjust input video to the active video area. This command is only for analog input types.

- **Command Format**: IAUTOC -i (input)

- **Parameters**: -i (input): 1 - 8 for adjustments (7 & 8 only if itype is analog)

- **Query Format**: N/A

- **Query Response**: N/A

IAVAIL

- **Description**: Query-only command for input availability. This command can be used to identify whether the SDI board is present by querying for input 9.

- **Parameters**: -i (input):1 - 9

  -m (mode): 0 - input not available, 1 - input available

- **Query Format**: IAVAIL -i (input) -?

- **Query Response**: IAVAIL -i (input) -m (mode)

IBRT

- **Description**: Input Brightness Adjust

- **Command Format**: IBRT -i(input) -b (bright)

- **Parameters**:

  -i (input): 1-9

  -b (bright): 75.0% - 125.0% (Default: 100%)

- **Query Format**: IBRT -i (input) -?

- **Query Response**: IBRT -i (input) -b(bright) --min 75 --max 125

ICDEL

- **Description**: Deletes input configuration.
- **Command Format**: ICDEL -i(input) -f(file)
- **Parameters**: -i(input):1 - 9

  -f(file): 1 - 64. If specified, update the File Association menu to reflect the selected file number. If not specified, use the current file number from the ICREC query.

- **Query Format**: N/A
- **Query Response**: N/A

ICNT

- **Description**: Input Contrast Adjust
- **Command Format**: ICNT -i(input) -c(contrast)
- **Parameters**:

  -i (input): 1-9

  -c (contrast): 75.0% - 125.0% (Default: 100%)

- **Query Format**: ICNT - i(input) -?
- **Query Response**: ICNT -i(input) -c(contrast) --min 75 --max 125

ICPHO

- **Description**: Input Phase Adjust. This command is only valid for analog input types.
- **Command Format**: ICPHO -i(input) -a(ADC) -p(phase)
- **Parameters**: -i (input): 1 - 8 (7 & 8 only if itype is analog)

  -a (ADC): A/B (A:ADC A, B:ADC B)

  -p (phase): -16 - 15 (default: 0)

- **Query Format**: ICPHO -i(input) -a(ADC) -?
- **Query Response**: ICPHO -i(input) -a(ADC) -p(phase) --min -16 --max 15

ICREC

- **Description**: Recalls the saved input configuration for selected input. The selected input's IMAP is updated if the -f (file) parameter is specified.
- **Command Format**: ICREC -i (input) -f (file)
- **Parameters**: -i (input):1 - 9

  -f (file): 1 - 64. If specified, update the File Association menu to reflect the selected file number.

- **Query Format:** ICREC -i (input) -?
- **Query Response:** ICREC -i (input) -f (file)
- **List Format:** ICREC -i (input) --list

  The list returns all saved input formats.

- **List Response:**

1:"1"

2:"2"

.

.

64:"64"

ICRST

- **Description**: Reset Input Configuration to the input default values
- **Command Format**: ICRST -i (input)
- **Parameters**: -i (input): 1 - 9
- **Query Format**: N/A
- **Query Response**: N/A

ICSAV

- **Description**: Saves Input Configuration. The input's IMAP is updated if the -f (file) parameter is specified.
- **Command Format**: ICSAV -i (input) -f (file)
- **Parameters**: -i (input):1 - 9

  -f (file): 1 - 64. If specified, update the File Association menu to reflect the selected file number. If not specified, use the current file number from the ICREC query.
- **Query Format**: N/A
- **Query Response**: N/A

ICSP

- **Description**: Input Colorspace Adjust
- **Command Format**: ICSP -i (input) -c (color)
- **Parameters**:

  -i (input): 1 - 9

  -c (color): 0-RGB, 1-SMPTE
- **Query Format**: ICSP -i (input) -?
- **Query Response**: ICSP -i (input) -c (color) --min 0 --max 1
- **List Format**: Each input type will have a different list for colorspace.

  ICSP -i (input) --list

IHATV

- **Description**: Input Horizontal Active Adjust. This command is only adjustable for analog input types. Other input types will provide query information only.
- **Command Format**: IHATV -i (input) -a (active)

- **Parameters**:

    -i (input): 1 - 8 for adjustments (7 & 8 only if itype is analog); 1 - 9 for query

    -a (active): In pixels

- **Query Format**: IHATV -i (input) -?

- **Query Response**:

    IHATV -i (input) -a (active) --min (active min) -- max (active max)

IHCROP

- **Description**: Input Horizontal Crop

- **Command Format**: IHCROP -i (input) -w (width)

- **Parameters**:

    -i (input): 1 - 9

    -w (width): In pixels

- **Query Format**: IHCROP -i (input) -?

- **Query Response**: IHCROP -i (input) -w(width) --min (pos min) -- max (pos max)

IHPAN

- **Description**: Input Horizontal Pan

- **Command Format**: IHPAN -i (input) -p (pan)

- **Parameters**:

    -i (input): 1 - 9

    -p (pan): In pixels

- **Query Format**: IHPAN -i (input) -?

- **Query Response**: IHPAN -i (input) -p (pan) --min (active min) -- max (active max)

IHPOS

- **Description**: Input Horizontal Position Adjust. This command is only adjustable for analog input types. Other input types will provide query information only.

- **Command Format**: IHPOS -i (input) -p (position)

- **Parameters**:

    -i (input): 1 - 8 for adjustments (7 & 8 only if itype is analog); 1 - 9 for query

    -p (position): In pixels

- **Query Format**: IHPOS -i (input) -?

- **Query Response**:

    IHPOS -i (input) -p (position) --min (pos min) -- max (pos max)

IHTOTAL

- **Description**: Input Horizontal Total Adjust. This command is only adjustable for analog input types. Other input types will provide query information only.
- **Command Format**: IHTOTAL -i (input) -t (total)
- **Parameters**:

    -i (input): 1 - 8 for adjustments (7 & 8 only if itype is analog); 1 - 9 for query

    -t(total): In pixels
- **Query Format**: IHTOTAL -i (input) -?
- **Query Response**: IHTOTAL -i (input) -t (total) --min (total min) -- max (total max)

IHUE

- **Description**: Input Hue Adjust. This command is only valid for SDI, Y/C and CVBS inputs.
- **Command Format**: IHUE -i (input) -h (hue)
- **Parameters**:

    -i (input): 1 - 9

    -h (hue): -90 - +90 (Default: 0)
- **Query Format**: IHUE -i (input) -?
- **Query Response**: IHUE -i (input) -h (hue) --min -90 --max 90

IMAP

- **Description:** Maps the input file configuration for the selected input.
- **Command Format:** IMAP -i (input) -f (file)
- **Parameters:** -i (input):1 - 9

    -f (file): 1 - 64
- **Query Format:** IMAP -i (input) -?
- **Query Response:** IMAP -i (input) -f (file)

IRBRT

- **Description**: Input RGB Brightness Adjust. This command is only valid for formats with the RGB color space.
- **Command Format**: IRBRT -i (input) -r (red) -g (green) -b (blue)
- **Parameters**:

    -i (input): 1 - 8

    -r (red): -25.0% - 25.0% (Default: 0%)

    -g (green): -25.0% - 25.0% (Default: 0%)

    -b (blue): -25.0% - 25.0% (Default: 0%)
- **Query Format**: IRBRT -i input -?

- **Query Response**:

    IRBRT -i (input) -r (red) -g (green) -b (blue) --min -25 --max 25

IRCNT

- **Description**: Input RGB Contrast Adjust. This command is only valid for formats with the RGB color space.

- **Command Format**: IRCNT -i (input) -r (red) -g (green) -b (blue)

- **Parameters**:

    -i (input): 1 - 8

    -r (red): -25.0% - 25.0% (Default: 0%)

    -g (green): -25.0% - 25.0% (Default: 0%)

    -b (blue): -25.0% - 25.0% (Default: 0%)

- **Query Format**: IRCNT -i (input) -?

- **Query Response**:

    IRCNT -i (input) -r(red) -g(green) -b(blue) --min 75 --max 125

IRES

- **Description**: Input Resolution Select

- **Command Format**: IRES -i (input) [-f (format) | -n (index)]

- **Parameters**: -i (input): 1 - 9

    -f (format): format string, i.e. "800x600 @59.94"

    or

    -n (index): video format index (see --list)

    -s (status): 0 - valid, non-zero - invalid

- **Query Format**: IRES -i (input) -?

- **Query Response**: IRES -i (input) -f (format) -s (status)

- **List Format**: Each input type has a different list of valid resolutions.

    IRES -i (input) --list

- **List Response**: Example for input type of analog:

    1:"NTSC (480i)"

    2:"720x480p"

    3:"PAL (576i)"

    Etc.

ISAT

- **Description**: Input Saturation Adjust. This command is only valid for the SMPTE color space.

- **Command Format**: ISAT -i (input) -s (sat)

- **Parameters**:

    -i (input): 1 - 9

    -s (saturation): 0 - 150 (Default: 100)

- **Query Format**: ISAT -i (input) -?

- **Query Response**: ISAT -i (input) -s (sat) --min 75 --max 125

- **List Response**: 0:"RGB"

    1:"SMPTE"

ISEL

- **Description**: Selects the specified input as the current input to display. This command will perform the valid sync check, route the input, recall video if saved or acquire source if not saved. Includes the -f (file) parameter option. Also, the IMAP will be updated for the input if the file parameter is specified.

- **Command Format**: ISEL -i (input) -f (file

- **Parameters**: -i (input): 1 - 9

    -f (file): 1 - 64; If specified, updates the File Association menu to reflect the selected file number. If not specified, uses the file number specified in the ICREC query.

- **Query Format**: ISEL -?

- **Query Response**: ISEL -i (input)

ISLICE

- **Description**: Input Sync Slice Threshold Adjust. This command is only valid for analog inputs.

- **Command Format**: ISLICE -i (input) -t (threshold)

- **Parameters**: -i (input): 1 - 8 for adjustments (7 & 8 only if itype is analog)

    -t(threshold): 8 - 256mV; +8 increments (default: 128mV)

- **Query Format**: ISLICE -i (input) -?

- **Query Response**: ISLICE -i (input) -t (threshold) --min 8 -- max 256

ISMP

- **Description**: Adjust Input Sample mode. This command is only adjustable for analog input types. Other input types will provide query information only.

- **Command Format**: ISMP -i (input) -s (sample mode)

- **Parameters**:

    -i (input): 1 - 8 for adjustments (7 & 8 only if itype is analog); 1 - 9 for query

    -s (sample mode): 0 - over sample, 1 - 1:1 sampling (Default: 1:1)

- **Query Format**: ISMP -i (input) -?

- **Query Response**: ISMP -i (input) -s (sample mode) --min 0 -- max 1

- **List Format**: Each input type has a different list of valid sample modes.

    ISMP -i (input) --list

- **List Response**: 0:"OverSample"

    1:"1:1"

ISYNC

- **Description**: Input Sync Type Adjust. This command is only valid for analog input types.

- **Command Format**: ISYNC -i (input) -s (sync)

- **Parameters**: -i (input): 1 - 8 (7 & 8 only if itype is analog)

    -s (sync): 0 - auto, 1 - H/V, 2- CSync, 3- SOG (Default: auto)

- **Query Format**: ISYNC -i (input) -?

- **Query Response**: ISYNC -i (input) -s(sync) --min 0 --max 3

- **List Format**: ISYNC -i (input) --list

- **List Response**: 0:"AUTO"

    1:"H/V"

    2:"CSYNC"

    3:"SOG"

ITYPE

- **Description**: Input Type Adjust. This command is only adjustable for the analog inputs. Other inputs will provide query information only.

- **Command Format**: ITYPE -i (input) -t (type)

- **Parameters**:

    -i (input): 1 - 8 for adjustments (7 & 8 only if itype is analog) ; 1 - 9 for query

    -t (type): 1-analog, 2-Y/C, 3-CVBS, 4-SDI, 5-DVI, 6-YPbPr

- **Query Format**: ITYPE -i (input) -?

- **Query Response**: ITYPE -i (input) -t (type)

- **List Format**: Each input type has a different list of valid input types.

    ITYPE -i (input) --list

- **List Response**: 1:"RGB"

    2:"Y/C"

    3:"CVBS"

    4:"SDI"

    5:"DVI"

    6:"YPbPr"

IVATV

- **Description**: Input Vertical Active Adjust. This command is only adjustable for analog input types. Other input types will provide query information only.
- **Command Format**: IVATV -i (input) -a (active)
- **Parameters**:

    -i (input): 1 - 8 for adjustments (7 & 8 only if input is analog); 1 - 9 for query

    -a (active): In lines
- **Query Format**: IVATV -i (input) -?
- **Query Response**: IVATV -i (input) -a (total) --min (active min) -- max (active max)

IVCROP

- **Description**: Input Vertical Crop
- **Command Format**: IVCROP -i (input) -h (height)
- **Parameters**:

    -i(input): 1 - 9

    -h(height): In lines
- **Query Format**: IVCROP -i(input) -?
- **Query Response**: IVCROP -i(input) -h(height) --min (pos min) -- max (pos max)

IVPAN

- **Description**: Input Vertical Pan
- **Command Format**: IVPAN -i (input) -p (pan)
- **Parameters**:

    -i (input): 1 - 9

    -p (pan): In pixels
- **Query Format**: IVPAN -i (input) -?
- **Query Response**: IVPAN -i (input) -p (pan) --min (active min) -- max (active max)

IVPOS

- **Description**: Input Vertical Position Adjust. This command is only adjustable for analog input types. Other input types will provide query information only.
- **Command Format**: IVPOS -i (input) -p (position)
- **Parameters**:

    -i (input): 1 - 8 for adjustments (7 & 8 only if input is analog); 1 - 9 for query

    -p (position): In lines
- **Query Format**: IVPOS -i (input) -?
- **Query Response**: IVPOS -i (input) -p (position) --min (pos min) -- max (pos max)

IVTOTAL

- **Description**: Input Vertical Total Adjust. This command is a query only.
- **Parameters**: -i (input): 1 - 9
- **Query Format**: IVTOTAL -i (input) -?
- **Query Response**: IVTOTAL -i (input) -t (total)

PCOMP

- **Description**: Pulldown Compensation mode adjust.
- **Command Format**: PCOMP -i (input) -m (mode)
- **Parameters**: -i (input):1 - 9

    -m(mode): 0 - off, 1 - on (Default: off)
- **Query Format**: PCOMP -i (input) -?
- **Query Response**: PCOMP -i (input) -m (mode) --min 0 -- max 1

TAKE

- **Description**: Take the input currently on preview onto program.
- **Command Format**: TAKE
- **Command Params**: None

Output Commands

BLACK

- **Description**: Set the mixer to output black.
- **Command Format**: BLACK -m (mode)
- **Parameters**: -m (mode): 0 - off, 1 - on
- **Query Format**: BLACK -?
- **Query Response**: BLACK -m (mode) --min 0 --max 1

OAVAIL

- **Description**: Query-only command used to identify whether the preview output mezzanine is installed
- **Query Format**: OAVAIL -o (output) -?
- **Parameters**: -o (output): 1 - DVI, 3 - Preview DVI

    -m (mode): 0 - output not available, 1 - output available
- **Query Response**: OAVAIL -o (output) -m (mode)

OCSAV

- **Description**: Save Output Configuration
- **Command Format**: OCSAV

- **Parameters**: -o output: 1 - DVI, 3 - Preview DVI
- **Query Format**: N/A
- **Query Response**: N/A

OGM

- **Description**: Set Output Gamma
- **Command Format**: OGM -o (output) -g (gamma)
- **Parameters**:

  -o output: 1 - DVI

  -g gamma: 1.0 to 3.0; +0.1 increment (Default: 1.0)
- **Query Format**: OGM -o (output) -?
- **Query Response**: OGM -o (output) -g (gamma) --min 1 -- max 3

ORBM

- **Description**: Output Raster Box Mode
- **Command Format**: ORBM -o (output) -m (mode)
- **Parameters**:

  -o (output): 1 - DVI, 3 - Preview DVI

  -m (mode): 0-off, 1-on
- **Query Format**: ORBM -o (output) -?
- **Query Response**: ORBM -o (output) -m (mode) --min 0 -- max 1

ORES

- **Description**: Output Resolution
- **Command Format**: ORES -o (output) [-f (format) | -n (index)]
- **Parameters**: -o (output): 1 - DVI, 3 - Preview DVI

  -f (format): format string, i.e. "1600x1200 @60"

  (Default: 1024x768 @ 59.94)

  or

  -n (index): video format index (see list response)
- **Query Format**: ORES -o (output) -?
- **Query Response**: ORES -o (output) -f(format)
- **List Format**: ORES -o (output) --list
- **List Response**: 2: "720x480p"

  4: "720x575p"

  5:"640x480 @59.94"

  6:"640x480 @60"

  7:"640x480 @72"

  8:"640x480 @75"

  9:"640x480 @85"

10:"800x600 @50"

11:"800x600 @56"

12:"800x600 @59.94"

13:"800x600 @60"

14:"800x600 @72"

15:"800x600 @75"

16:"800x600 @85"

OSRC

- **Description**: Selects the input source for the preview output (preview or program).
- **Command Format**: OSRC -s (source)
- **Parameters**: -s (source): 0-preview, 1-program
- **Query Format**: OSRC -?
- **Query Response**: OSRC -s (source)
- **List Format**: OSRC --list
- **List Response**: 0:"PREVIEW"

    1:"PROGRAM"

OSYNC

- **Description**: Output Sync Type Adjust.
- **Command Format**: OSYNC -o (output) -s (sync)
- **Parameters**:

    -o (output): 1 - DVI, 2 - Analog, 3 - Preview DVI, 4 - Preview Analog

    -s (sync): 1 = +H+V, 2 = +H-V, 3 = -H+V, 4 = -H-V, 5=CSync for analog only (Defaults: DVI : +H+V, analog: -H-V)
- **Query Format**: OSYNC -o (output) -?
- **Query Response**: OSYNC -o (output) -s(sync) --min 1 --max 4 (max returned for analog is 5)
- **List Format**: OSYNC -o (output) --list
- **List Response**: 1:"+H+V"

    2:"+H-V"

    3:"-H+V"

    4:"-H-V"

    5."CSync" (returned for analog only)

OTPM

- **Description**: Output Test Pattern Mode
- **Command Format**: OTPM -o (output) - m (mode)

- **Parameters**:

    -o (output): 1 - DVI, 3 - Preview DVI

    -m (mode): 0 - off, 1 - on

- **Query Format**: OTPM -o (output) -?

- **Query Response**: OTPM -o (output) - m (mode) --min 0 -- max 1

OTPT

- **Description**: Output Test Pattern Type

- **Command Format**: OTPT -o (output) - t (type)

- **Parameters**: -o (output): 1 - DVI, 3 - Preview DVI

- **-t (type)**: 1 - H Ramp

    2 - V Ramp

    3 - 100% Col Bars

    4 - 16x16 Grid

    5 - 32x32 Grid

    6 - Burst

    7 - 75% Col bars

    8 - 50% Gray

    9 - Gray Steps 1

    10 - Gray Steps 2

    11 - White

    12 - Black

    13 - Red

    14 - Green

    15 - Blue

- **Query Format:** OTPT -o (output) -?

- **Query Response**: OTPT -o (output) - t (type) --min 1 -- max 15

- **List Format**: OTPT -o (output) --list

- **List Response**: 1:"H Ramp"

    2:" V Ramp"

    3:"100% Col Bars"

    4:"16x16 Grid"

    5:"32x32 Grid"

    6:"Burst"

    7:"75% Col bars"

    8:"50% Gray"

    9:"Gray Steps 1"

    10:"Gray Steps 2"

    11:"White"

12:"Black"

13:"Red"

14:"Green"

15:"Blue"

System Commands

AUTOCFG

- **Description**: Auto Input Configuration Mode
- **Command Format**: AUTOCFG -m (mode)
- **Parameters**: -m (mode): 0 - off, 1 - on (default: off)
- **Query Format**: AUTOCFG -?
- **Query Response**: AUTOCFG -m (mode) --min 0 -- max 1

AUTOSAVE

- **Description**: Auto Input Settings Save
- **Command Format**: AUTOSAVE -m (mode)
- **Parameters**: -m (mode): 0 - off, 1 - on (default: off)
- **Query Format**: AUTOSAVE -?
- **Query Response**: AUTOSAVE -m (mode) --min 0 -- max 1

AUTOTAKE

- **Description**: Auto Take Mode
- **Command Format**: AUTOTAKE -m (mode)
- **Parameters**: -m (mode): 0 - off, 1 - on (default: off)
- **Query Format**: AUTOTAKE -?
- **Query Response**: AUTOTAKE -m (mode) --min 0 -- max 1

BLKTRAN

- **Description**: Sets whether going to black is a direct transition or requires a TAKE.
- **Command Format**: BLKTRAN -m (mode)
- **Parameters**: -m (mode): 0 - do an immediate transition, 1 - take is required (Default: off)
- **Query Format**: BLKTRAN -?
- **Query Response**: BLKTRAN -m (mode) --min 0 -- max 1

CONTEXT

- **Description**: Sets menu context
- **Command Format**: CONTEXT -m (mode)

- **Parameters**: -m (mode): 0 - off, 1 - on
- **Query Format**: CONTEXT -?
- **Query Response**: CONTEXT -m (mode) --min 0 -- max 1

DIAG

- **Description**: Performs a system diagnostic test. The results are logged into a file which may be displayed using DIAGD.
- **Command Format**: DIAG
- **Parameters**: None
- **Query Format**: N/A
- **Query Response**: N/A

DIAGD

- **Description**: Display the results of the last performed system diagnostic test.
- **Command Format**: DIAGD
- **Parameters**: None
- **Query Format**: N/A
- **Query Response**: N/A

ISTAT

- **Description**: Query only command for the input status type and format.
- **Query Format**: ISTAT -?
- **Query Response**: ISTAT -t "(input type)" -f "(input format)"

LCLR

- **Description**: Clear the selected log (ram copy, not flash).
- **Command Format**: LCLR -l (log)
- **Parameters**: -l (log): 0-combined, 1-debug, 2-warning, 3-error
- **Query Format**: N/A
- **Query Response**: N/A

LDMP

- **Description**: Display the current log messages (ram copy, not flash) for the selected log.
- **Command Format**: LDMP -l (log)
- **Parameters**: -l (log): 0-combined, 1-debug, 2-warning, 3-error
- **Query Format**: N/A
- **Query Response**: N/A

LFEN

- **Description**: Sets the mode for the selected log. When selected, the messages for that log will be written to flash every time interval specified in (LINT).
- **Command Format**: LFEN -l (log) -m (mode)
- **Parameters**: - l (log): 0-combined, 1-debug, 2-warning, 3-error

  -m (mode): 0 - disable, 1 - enable
- **Query Format**: N/A
- **Query Response**: N/A

LINT

- **Description**: Sets the time interval for writing the enabled logs to flash.
- **Command Format**: LINT -t (time interval)
- **Parameters**: -t (time interval): 1 - 60 seconds
- **Query Format**: N/A
- **Query Response**: N/A

LOCKOUT

- **Description**: Controls the lockout mode of the front panel. With full lockout mode enabled, all keys and menu will be deactivated. The executive mode will lock out all but the input bus keys (1 through 8, SDI, and LOGO).
- **Command Format**: LOCKOUT -m (mode) -f
- **Parameters**: -m (mode): 0 - disable, 1 - full lockout, 2 - executive mode

  (default: 0 - disable)

  -f: Command from front panel
- **Query Format**: LOCKOUT -?
- **Query Response**: LOCKOUT -m (mode) -- min 0 -- max 2

OSTAT

- **Description**: Query only command for the output status type and format.
- **Query Format**: OSTAT -?
- **Query Response**: OSTAT -t "(output type)" -f "(output format)"

PREVIEW

- **Description**: Query only command for the input, key and black button status on preview. If the black, key, or scaler path is not present on preview, then these options are not returned.
- **Parameters**: -i (input): 1 - 9

  -k: key on preview

  -b: black on preview

  -l: logo on preview

  -a: A or B path of scaler input on preview

- **Query Format**: PREVIEW -?
- **Query Response**: PREVIEW -i(input) -k -b

PROGRAM

- **Description**: Query only command for the input, key and black button status on program. If the black, key, or scaler path is not present on program, then these options are not returned.
- **Parameters**: -i (input): 1 - 9

     -k: key on preview

     -b: black on preview

     -l: logo on preview

     -a: A or B path of scaler input on preview
- **Query Format**: PROGRAM -?
- **Query Response**: PROGRAM -i(input) -k -b

RESET

- **Description**: Reset unit
- **Command Format**: RESET [-f | -s]
- **Parameters**:

     -f : factory reset

     or

     -s: soft reset
- **Query Format**: N/A
- **Query Response**: N/A

SAVE

- **Description**: System Save
- **Command Format**: SAVE
- **Parameters**: N/A
- **Query Format**: N/A
- **Query Response**: N/A

SERIAL

- **Description**: Sets the serial port.
- **Command Format**: SERIAL -b (baud) -p (parity/etc.) -h (handshaking)
- **Parameters**: -b (baud): 0 - 9600, 1 - 38400, 2 - 57600, 3 - 115200 (default: 115200)

     -p (parity/etc): 0 - N81, 1 - E71, 2 - O71, 3 - E72, 4 - O72 (default: N81)

     -h (handshaking): 0 - off, 1 - on (default: on)
- **Query Format**: SERIAL -? - (option letter)

The SERIAL query will return only one option parameter at a time. If no option is specified, an error code will be returned.

- **Query Response**: SERIAL -b (baud) --min 0 -- max 3

    SERIAL -p (parity/etc) --min 0 -max 4

    SERIAL -h (handshaking) --min 0 -max 1

TEMP

- **Description**: Query only command for the temperature of the unit.
- **Query Format**: TEMP -?
- **Query Response**: TEMP -c (celsius) -f (fahrenheit)

TRNTIME

- **Description**: Set transition time
- **Command Format**: TRNTIME -s (seconds)
- **Parameters**: -s (seconds): 1.5 - 5.0 (default: 1.5)
- **Query Format**: TRNTIME -?
- **Query Response**: TRNTIME -s (seconds) --min 1.5 -- max 5

VER

- **Description**: Display Version info
- **Command Format**: VER
- **Parameters**: N/A
- **Query Format**: N/A
- **Query Response**: N/A

VFDBRT

- **Description**: Set VFD brightness
- **Command Format**: VFDBRT -b (brightness) -f
- **Parameters**:

    -b (brightness): 1 - 16 (default: 10)

    -f: Command from front panel
- **Query Format**: VFDBRT -?
- **Query Response**: VFDBRT -b (brightness) --min 1 -- max 16

Key Commands

LKEY

- **Description**: Luminance Key definition
- **Command Format**: LKEY -m (mode) -s (source) -c (clip) -g (gain) -o (opacity) -h (hoffset) -v (v offset)

- **Command Params**:

    -m mode: 0-off, 1-on (Default: off)

    -s source: 1-6 (analog) 7-8 (DVI), 9-SDI

    -c clip: 0 - 1023 (default: 0)

    -g gain: 0 - 1023.99 (default: 1.00)

    -o opacity: 0-1023 (default: 1023)

    -h hoffset: +/- ½ (input hact - output hact)

    -v voffset: +/- ½ (input vact - output vact)

- **Query Format**: LKEY -? -(option letter)

    The LKEY query will return only one option parameter at a time. If no option is specified, an error code will be returned.

- **Query Response**: LKEY -m (mode) --min 0 --max 1

    LKEY -s (source) --min 0 --max 11

    LKEY -c (clip) --min 0 --max 1023

    LKEY -g (gain) --min 0 --max 1023.99

    LKEY -o (opacity) --min 0 --max 1023

    LKEY -h (hoffset) --min (hoffset min) -max (hoffset max)

    LKEY -v (voffset) --min (voffset min) -max (voffset max)

- **List Format**: LKEY --list

    The list command for LKEY returns the possible values for the source parameter.

- **List Response**: 1:"1"

    2:" 2"

    3:"3"

    4:"4"

    5:"5"

    6:"6"

    7:"7"

    8:"8"

    9:"SDI"

LOGO Commands

LOGODEL

- **Description**: Delete the selected logo file.
- **Command Format**: LOGODEL -l (logo)
- **Command Params**: -l logo: 1 - 3 (Default: 1)
- **Query Format**: N/A
- **Query Response**: N/A

LOGOSAVE

- **Description**: Save the image on Program output to the selected logo frame store and file.
- **Command Format**: LOGOSAVE -l (logo)
- **Command Params**: -l logo: 1 - 3 (Default: 1)
- **Query Format**: N/A
- **Query Response**: N/A

LOGOSEL

- **Description**: Logo selection
- **Command Format**: LOGOSEL -l (logo)
- **Command Params**: -l logo: 1 - LOGO1, 2 - LOGO2, 3 - LOGO3 (Default: LOGO1)
- **Query Format**: LOGOSEL -?
- **Query Response**: LOGOSEL -l (logo) --min 1 --max 3
- **List Format**: LOGOSEL --list
- **List Response**: 1:"LOGO1"

    2:"LOGO2"

    3:"LOGO3"

LOGOSTAT

- **Description**: The logo format status. This command is a query only.
- **Command Params**: -l logo: 1 - LOGO1, 2 - LOGO2, 3 - LOGO3
- **Query Format**: LOGOSTAT -l (logo) -?
- **Query Response**: LOGOSTAT -l (logo) -s (status string)

B. Remote Control

Remote Commands

C. Contact Information

In This Appendix

The following topics are discussed in this Appendix:

- **Warranty**
- **Return Material Authorization (RMA)**
- **Contact Information**

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 be returned for repair, please call the following number and ask for a Sales Engineer to receive a Return Merchandise Authorization number (RMA).

- (888) 414-7226

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

Barco Media and Entertainment
11101 Trade Center Drive
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- Phone: (916) 859-2500

- Toll Free: (888) 414-7226

- Fax: (916) 859-2515

- Website: **www.barco.com**

Sales Contact Information

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Technical Support

- Tech Line: (866) 374-7878 — 24 hours per day, 7 days per week

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