

# DCS-100



## User's Guide

- Manual #: 26-0604000-00
- Revision: 02



---

# DCS-100 • User's Guide

## Copyright

© Barco. May 30, 2008

All rights reserved. No part of this document may be copied, reproduced or translated. It shall not otherwise be recorded, transmitted or stored in a retrieval system without the prior written consent of Barco.

## Notice

Barco provides this manual "as is" without warranty of any kind, either expressed or implied, including but not limited to the implied warranties or merchantability and fitness for a particular purpose. Barco may make improvements and/or changes to the product(s) and/or the program(s) described in this publication at any time without notice.

This publication could contain technical inaccuracies or typographical errors. Changes are periodically made to the information in this publication; these changes are incorporated in new editions of this publication.

## Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference.

## Guarantee and Compensation

Barco provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults. Barco must be informed immediately in writing of any complaints.

The period of guarantee begins on the date of transfer of risks, in the case of special systems and software on the date of commissioning, at latest 30 days after the transfer of risks. In the event of justified notice of complaint, Barco can repair the fault or provide a replacement at its own discretion within an appropriate period. If this measure proves to be impossible or unsuccessful, the purchaser can demand a reduction in the purchase price or cancellation of the contract. All other claims, in particular those relating to compensation for direct or indirect damage, and also damage attributed to the operation of software as well as to other services provided by Barco, being a component of the system or independent service, will be deemed invalid provided the damage is not proven to be attributed to the absence of properties guaranteed in writing or due to the intent or gross negligence or part of Barco.

If the purchaser or a third party carries out modifications or repairs on goods delivered by Barco, or if the goods are handled incorrectly, in particular if the systems are commissioned operated incorrectly or if, after the transfer of risks, the goods are subject to influences not

agreed upon in the contract, all guarantee claims of the purchaser will be rendered invalid. Not included in the guarantee coverage are system failures which are attributed to programs or special electronic circuitry provided by the purchaser, e.g. interfaces. Normal wear as well as normal maintenance are not subject to the guarantee provided by Barco either.

The environmental conditions as well as the servicing and maintenance regulations specified in this manual must be complied with by the customer.

## Trademarks

Brand and product names mentioned in this manual may be trademarks, registered trademarks or copyrights of their respective holders. All brand and product names mentioned in this manual serve as comments or examples and are not to be understood as advertising for the products or their manufactures.

---

## Company Address



**Barco Media and Entertainment**  
11101 Trade Center Drive  
Rancho Cordova, California 95670  
USA

- Phone: (916) 859-2500
- Toll Free: (888) 414-7226
- Fax: (916) 859-2515
- Website: [www.barco.com](http://www.barco.com)

**Barco N.V.**  
Noordlaan 5  
8520 Kuurne  
BELGIUM

- Phone: +32 56.36.82.11
- Fax: +32 56.35.16.51
- Website: [www.barco.com](http://www.barco.com)

### Technical Support

- Tech Line: (866) 374-7878 — 24 hours per day, 7 days per week

---

## 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 équilatéral signale à alerter l'utilisateur qu'il y a des instructions d'opération et d'entretien très importantes dans la littérature qui accompagne l'appareil.



### VORSICHT

Ein Ausrufungszeichen innerhalb eines gleichwinkligen 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-100 User's Guide.

**Table 0-1.** Change History

Rev	Date	ECP #	Description	Approved By
01	December 17, 2007	553987	DCS-100 User's Guide	R. Pellicano
02	May 30, 2008	558518	DCS-100 User's Guide Revisions: <ul style="list-style-type: none"><li>• Addition of File Association</li><li>• Addition of Executive Lockout Mode</li><li>• Addition of the Auto Take user preference</li></ul> For more information, refer to Chapter 1, the <a href="#">"What's New in Firmware Version 1.03"</a> section on page 16.	R. Pellicano



# Table of Contents

- Chapter 1 Introduction ..... 13**
  - In This Chapter ..... 13
  - Chapter Structure ..... 13
  - How to Use This Guide ..... 14
    - Navigating ..... 14
    - Table of Contents and Index ..... 14
  - Conventions ..... 14
  - About the DCS-100 ..... 15
    - Overview ..... 15
    - Features ..... 15
    - What's New in Firmware Version 1.03 ..... 16
    - A Word About HDCP ..... 18
  - Connectivity Diagram ..... 19
  - Application Questions ..... 19
  
- Chapter 2 Hardware Orientation ..... 21**
  - In This Chapter ..... 21
  - DCS-100 Front Panel ..... 22
    - Display Section ..... 23
    - Inputs Section ..... 24
    - Effects Section ..... 25
    - Take ..... 26
  - DCS-100 Rear Panel ..... 27
  
- Chapter 3 Installation ..... 29**
  - In This Chapter ..... 29
  - Safety Precautions ..... 30
  - Unpacking and Inspection ..... 30
  - Site Preparation ..... 30
  - Cable and Adapter Information ..... 30
  - Rack-Mount Installation ..... 31
  - Power Installation ..... 31
    - Power Cord/Line Voltage Selection ..... 31
  - Signal Installation ..... 33
  - Format Connection Table ..... 34
  
- Chapter 4 Operation ..... 35**
  - In This Chapter ..... 35
  - Control Overview ..... 36
  - Power-Up Initialization ..... 36

## Table of Contents

Button States . . . . .	37
Quick Setup and Operations . . . . .	38
Menu Tree . . . . .	40
Using the Menu System . . . . .	41
Quick Function Reference . . . . .	43
Status Menu . . . . .	46
Using the Setup Menu . . . . .	48
Trans Time. . . . .	49
Output Menu . . . . .	49
Output Format . . . . .	50
Test Pattern. . . . .	50
Sync Setup . . . . .	51
Gamma . . . . .	51
Save Output Config. . . . .	51
Input Menu. . . . .	52
Input Format . . . . .	53
Type . . . . .	54
Colorspace . . . . .	54
Background. . . . .	55
Timing Adjust. . . . .	55
Image Adjust. . . . .	58
Contrast. . . . .	59
Brightness . . . . .	59
Color Balance . . . . .	60
Processing. . . . .	61
About Input Configuration Files . . . . .	61
Reset Config . . . . .	62
Save Config. . . . .	62
Delete Config. . . . .	64
Recall Config. . . . .	65
Key Setup Menu . . . . .	65
LOGO Setup Menu . . . . .	67
User Preference. . . . .	68
In Auto Acquire . . . . .	68
Auto Input Config. . . . .	69
Auto Input Save. . . . .	70
Auto Take . . . . .	70
Black Auto Take . . . . .	70
Key Auto Take. . . . .	70
Menu Context . . . . .	70
System Menu. . . . .	71
VFD Brightness . . . . .	71
Ethernet. . . . .	72
Serial Setup. . . . .	74
EDID Setup . . . . .	75
DVI Cable Equalization . . . . .	77
File Association . . . . .	77
Temperature . . . . .	78
Diagnostics . . . . .	79
Save System State . . . . .	79
Tech Support. . . . .	80
Factory Reset . . . . .	80

Using Inputs ..... 82  
     Input Selection Rules ..... 82  
     Flip-flop Mode ..... 83  
     Understanding Auto Acquire ..... 84  
     Using HDCP ..... 84  
 Using the LOGO ..... 86  
     Saving a Logo ..... 87  
     Transitioning to a Logo ..... 87  
     Deleting a Logo ..... 88  
 Using Freeze ..... 90  
 Using Black ..... 91  
     Black Auto Take Off ..... 91  
     Black Auto Take On ..... 92  
 Using Keys ..... 93  
     Introduction to Keying ..... 93  
     Performing a Key ..... 94  
         Key Auto Take Off ..... 94  
         Key Auto Take On ..... 94  
     Key Transition Combinations ..... 95  
         Mix Key Up ..... 95  
         Mix Key Down ..... 96  
         Mix Source plus Key Up ..... 96  
         Mix Source plus Key Down ..... 96  
         Source Transition Under Key ..... 97  
         Fade to Black from Source plus Key ..... 97  
         Fade up from Black to Source plus Key ..... 98  
 Understanding Front-Panel Lockout ..... 99  
     Full Lockout Mode ..... 99  
     Executive Lockout Mode ..... 99

**Chapter 5                    GUI Operations ..... 101**  
     In This Chapter ..... 101  
     GUI Connection and Launch ..... 102  
     GUI Operations ..... 104

**Chapter 6                    Upgrading Software ..... 105**  
     In This Chapter ..... 105  
     Software Upgrade Overview ..... 106  
     Hardware Requirements ..... 106  
     Software Requirements ..... 106  
     Downloading Software ..... 107  
         Via FTP Site ..... 107  
         Via Web Site ..... 107  
     Ethernet Upgrade Method ..... 108  
         Troubleshooting Ethernet Communication ..... 111

**Appendix A                Specifications ..... 113**  
     In This Appendix ..... 113

## Table of Contents

Input Specifications . . . . .	114
Output Specifications . . . . .	114
Physical and Electrical Specifications . . . . .	115
Communications Specifications . . . . .	115
Agency Specifications . . . . .	115
Pinouts . . . . .	116
Analog 15-pin D Connector . . . . .	116
DVI-I Connector . . . . .	117
Ethernet Connector . . . . .	118
Serial Connector . . . . .	119
Format Table . . . . .	120

## Appendix B

## Remote Control . . . . . 125

In This Appendix . . . . .	125
Communicating with DCS-100 . . . . .	125
Command Protocol . . . . .	126
Command Responses . . . . .	126
Query Options . . . . .	126
IBRT . . . . .	126
Error Codes . . . . .	128
Error Codes: General Failures . . . . .	128
Error Codes: No Error . . . . .	128
DCS-100 Command List . . . . .	129
Remote Commands . . . . .	132
Ethernet Commands . . . . .	132
DHCP . . . . .	132
EMAC . . . . .	132
GATEWAY . . . . .	132
IP . . . . .	132
SUBNET . . . . .	133
Input Commands . . . . .	133
ACQ . . . . .	133
AUTOACQ . . . . .	133
BACKGND . . . . .	133
BLKVID . . . . .	134
CBLEQ . . . . .	134
EDID . . . . .	134
EDIDTYPE . . . . .	134
FREEZE . . . . .	135
IAR . . . . .	135
IAUTO . . . . .	135
IAVAIL . . . . .	136
IBRT . . . . .	136
ICDEL . . . . .	136
ICNT . . . . .	136
ICPHO . . . . .	137
ICREC . . . . .	137
ICRST . . . . .	137
ICSAV . . . . .	137
ICSP . . . . .	138

IHATV	138
IHCROP	138
IHPAN	139
IHPOS	139
IHTOTAL	139
IHUE	139
IMAP	140
IRBRT	140
IRCNT	140
IRES	141
ISAT	141
ISEL	141
ISLICE	142
ISMP	142
ISYNC	142
ITYPE	143
IVATV	143
IVCROP	143
IVPAN	144
IVPOS	144
IVTOTAL	144
PCOMP	144
TAKE	144
Output Commands	145
BLACK	145
OCSAV	145
OGM	145
ORBМ	145
ORES	145
OSYNC	146
OTPM	146
OTPT	147
System Commands	148
AUTOCFG	148
AUTOSAVE	148
AUTOTAKE	148
BLKTRAN	148
CONTEXT	148
DIAG	149
DIAGD	149
ISTAT	149
LCLR	149
LDMP	149
LFEN	150
LINT	150
LOCKOUT	150
OSTAT	150
PREVIEW	150
PROGRAM	151
RESET	151
SAVE	151
SERIAL	151

## Table of Contents

TEMP .....	152
TRNTIME .....	152
VER .....	152
VFDBRT .....	152
Key Commands .....	153
LKEY .....	153
LOGO Commands .....	154
LOGODEL .....	154
LOGOSAVE .....	154
LOGOSEL .....	154
LOGOSTAT .....	154

## Appendix C      Contact Information .....155

In This Appendix .....	155
Warranty .....	155
Return Material Authorization (RMA) .....	155
Contact Information .....	156

## Index .....157

# 1. Introduction

---

## In This Chapter

This chapter is designed to introduce you to the DCS-100 User's Guide. Areas to be covered are:

- [Chapter Structure](#)
- [How to Use This Guide](#)
- [Conventions](#)
- [About the DCS-100](#)
- [Connectivity Diagram](#)
- [Application Questions](#)

---

## Chapter Structure

The following chapters provide instructions for all aspects of DCS-100 operations:

- Chapter 1, "[Introduction](#)" provides a system overview, a list of features, and a system connectivity diagram.
- Chapter 2, "[Hardware Orientation](#)" on page 21 provides detailed diagrams of the system's front and rear panels.
- Chapter 3, "[Installation](#)" on page 29 provides comprehensive system installation instructions.
- Chapter 4, "[Operation](#)" on page 35 provides a menu tree, plus comprehensive system operating instructions.
- Chapter 5, "[GUI Operations](#)" on page 101 provides launch and operating instructions for the system's web-based GUI.
- Chapter 6, "[Upgrading Software](#)" on page 105 outlines procedures for upgrading system software components.
- Appendix A, "[Specifications](#)" on page 113 lists the DCS-100's specifications.
- Appendix B, "[Remote Control](#)" on page 125 provides information regarding remote control protocol.
- Appendix C, "[Contact Information](#)" on page 155 lists important Barco contact, RMA, warranty and technical support details.

# 1. Introduction

## How to Use This Guide

---

## 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.
- 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-100

The following topics are discussed in this section:

- [Overview](#)
- [Features](#)
- [What's New in Firmware Version 1.03](#)
- [A Word About HDCP](#)

### Overview

DCS-100 is a high-quality presentation switcher designed to provide true seamless switching between various input sources. High image scaling quality is maintained throughout. DCS-100 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-100 provides a full-screen output only, with no PIP capability.

DCS-100 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-100 also allows you to capture and store up to three images to be used as full-screen logos 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-100, please follow all procedures in the following chapters:
  - ~ Chapter 2, “[Hardware Orientation](#)” on page 21.
  - ~ Chapter 3, “[Installation](#)” on page 29.
  - ~ Chapter 4, “[Operation](#)” on page 35.
- Should you have any questions regarding the installation or operation of the DCS-100 system, please consult with the factory. Refer to Appendix C, “[Contact Information](#)” on page 155 for contact details.

### Features

The major features of the DCS-100 system are listed below:

- The system provides true seamless switching between all inputs and up to three stored full-screen logos.
- 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.
-------------------------------

- Supports DVI, analog computer and video formats on the DVI-I inputs.
  - ~ HDCP protocol is supported, and the DCS-100 is considered an HDCP repeater in this configuration. Incoming encrypted data is encrypted

# 1. Introduction

About the DCS-100

going out, and all analog outputs, plus the freeze and LOGO store functions are disabled when the DCS-100 processes HDCP content. Refer to the [“A Word About HDCP”](#) section on page 18 for more details.

- ~ 1080i RGB input is supported on the DVI digital input.
- 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)
- Stores and recalls up to three full screen logos. When a logo is on Program, it appears visually on top of all other sources, including inputs with keys.
- An **Auto Take** feature (in the **User Preference Menu**) supports transitioning from one input source to another without pressing **TAKE**.
- 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-100 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.
- 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.
- 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.
- Provides an integrated test pattern generator.
- Offers an HD/SD SDI input as standard.
- Provides a built-in web-based GUI, which enables you to perform all setup and transition functions, just like the front panel.

## What’s New in Firmware Version 1.03

This section lists the new or modified features that have been implemented since the last revision of the DCS-100 User’s Guide. Reference links are provided for additional details.

- **File Association**

The DCS-100 provides the ability to save and recall up to 64 input configuration files. This library of configuration settings is stored in non-volatile memory and is available for use by each of the nine inputs (1 through 8, plus **SDI**). Refer to the [“File Association”](#) section on page 77 for detailed information about this feature.

To support File Association, a number of menus, submenus, and commands have been modified or added. These additions and modifications are listed in this section and detailed later in this guide.

~ **File Association Menu**

The **System Menu** now includes a **File Association** option that lets you associate one or more configuration files to each of the nine inputs (**1** through **8** and **SDI**), change or recall a configuration file for an input, and delete configuration files.

~ **Recall Config Menu**

To support File Association, the **Input Menu** has been modified to include the **Recall Config** submenu. This submenu lets you restore a configuration file to the input currently on Program. For more information, refer to the "[Recall Config](#)" section on page 65.

~ **Changes to the Save Config and Delete Config operations**

Save Config and Delete Config now support saving or deleting any configuration file, even files not associated with the current input. For more information, refer to the "[Save Config](#)" section on page 62, and the "[Delete Config](#)" section on page 64.

~ **Command modifications**

- A new command, **IMAP**, has been added to support the File Association feature and the changes to the Save Config, Recall Config, and Delete Config operations. For information about this command, refer to the "[IMAP](#)" section on page 140 in Appendix B.
- The **ISEL**, **ICSAV**, **ICDEL** and **ICREC** commands now include a -f (file) parameter, to support specifying the input configuration file to select, save, delete, and recall. For more information, refer to the following sections in Appendix B: the "[ISEL](#)" section on page 141, the "[IMAP](#)" section and "[ICDEL](#)" section on page 136, and the "[ICREC](#)" section on page 137.

• **Auto Take**

You can now transition input sources to Program without pressing **TAKE**, by turning on the **Auto Take** feature in the **User Preference Menu**. For more information, refer to the "[Auto Take](#)" section on page 70.

• **Executive Lockout Mode**

In addition to supporting full front-panel lockout, the DCS-100 now supports executive lockout mode. In executive mode, the front panel is locked from source selections *except* for the nine Inputs buttons (**1** through **8** and **SDI**) and **LOGO**, allowing the user to transition from one source to another without pressing **TAKE**.

To support the addition of this mode, a new command, **LOCKOUT**, has been added. For more information, refer to the "[Executive Lockout Mode](#)" section on page 99 and the "[LOCKOUT](#)" section on page 150 in Appendix B.

• **Multiple Full-screen Logos**

You can now create, save, and delete up to three full-screen logos. For more information, refer to the "[Using the LOGO](#)" section on page 86.

# 1. Introduction

About the DCS-100

## 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<sup>®</sup>, 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-100 is used, when an HDCP compliant device is connected to the DCS-100, 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.

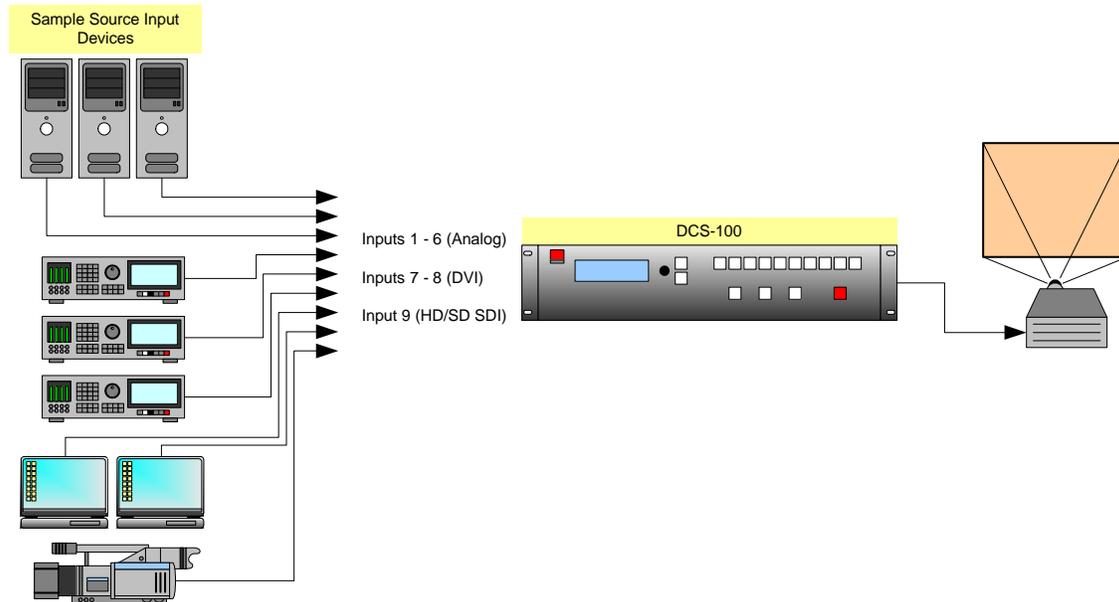
Please note the following important points:

- When an HDCP compliant device is connected to the DCS-100 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-100’s **Status Menu**, indicating that video cannot be shown.
- HDCP compliant repeaters cannot be connected to the output of the DCS-100, as the DCS-100 *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 46 for additional details.

---

## Connectivity Diagram

The figure below illustrates a basic DCS-100 system.



**Figure 1-1.** Block diagram, DCS-100 system

In the diagram:

- Up to nine sources can be connected to the DCS-100:
  - ~ 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-100 connects to the projector (or other target device) via analog or DVI.

In Chapter 2, refer to the "[Inputs Section](#)" heading on page 24 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 155 for details.

# 1. Introduction

Application Questions

## 2. Hardware Orientation

---

### In This Chapter

This chapter provides detailed diagrams of the DCS-100's front and rear panels, along with comprehensive explanations of each.

The following topics are discussed:

- [DCS-100 Front Panel](#)
- [DCS-100 Rear Panel](#)

## 2. Hardware Orientation

### DCS-100 Front Panel

# DCS-100 Front Panel

The figure below illustrates the DCS-100 front panel:

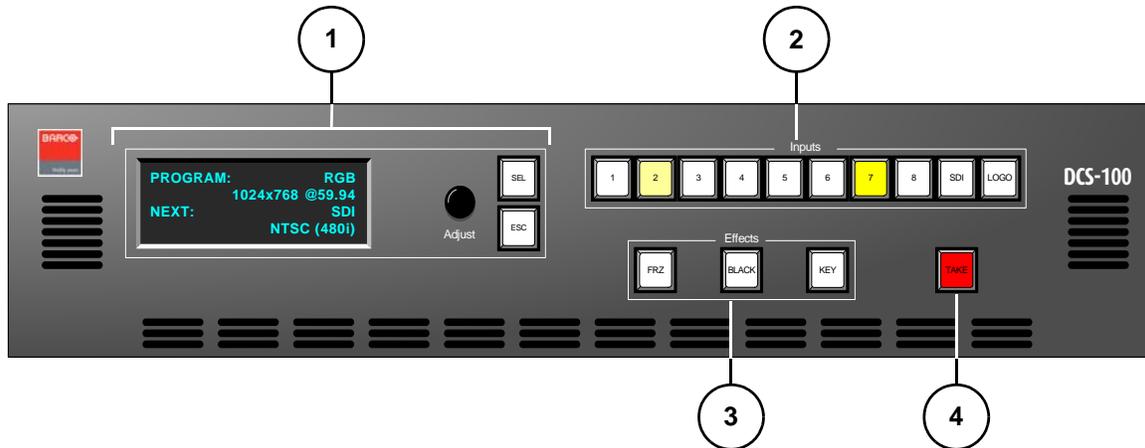


Figure 2-1. DCS-100 Front Panel

1) <a href="#">Display Section</a>	3) <a href="#">Effects Section</a>
2) <a href="#">Inputs Section</a>	4) <a href="#">Take Button</a>

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 23 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 24 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 25 for complete details.

#### 4) Take Button

The red **TAKE** button initiates a transition to the selected source. Refer to the “[Take](#)” section on page 26 for details.

### Display Section

The figure below illustrates the **Display Section**:



**Figure 2-2.** Display Section with sample Main 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-100 menus and sub-menus. Brightness is adjustable. The following illustration shows a typical setup menu:



**Figure 2-3.** Sample Setup Menu Display

For all setup menus, please note:

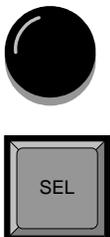
- ~ The top line names the current menu, in all capital letters.
- ~ The navigation cursor (>) in the left-hand column indicates the current line on which action can be taken.
- ~ The double arrow (>>) indicates that a sub-menu is available.

**Note**

The **Status Menu** layout is different from the “setup” menu display. In Chapter 4, refer to the “[Status Menu](#)” section on page 46 for details.

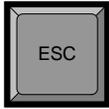
In Chapter 4, refer to the “[Menu Tree](#)” section on page 40 for additional details on the system’s menu tree.

- **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

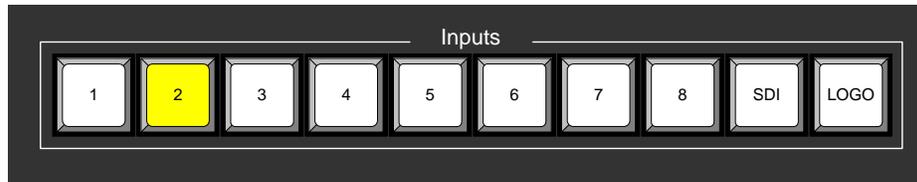
### DCS-100 Front Panel



- **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

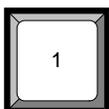
If an input button is blinking slow, and the **Status Menu** shows “**Invalid Signal**,” the system has attempted to acquire the source, but has failed.

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

In Chapter 4, refer to the “[Flip-flop Mode](#)” section on page 83 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.





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



- 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 86 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**:

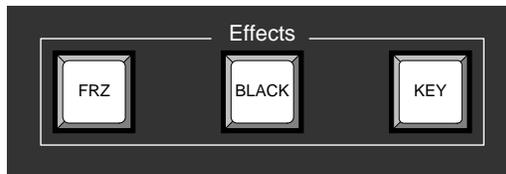


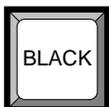
Figure 2-5. Effects Section

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:



- 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 90 for details.



- 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-100 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 91 for details.



- 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 93 for details.

## 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 83 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 68 for details on the **User Preference Menu**.

# DCS-100 Rear Panel

The figure below illustrates the DCS-100 rear panel:

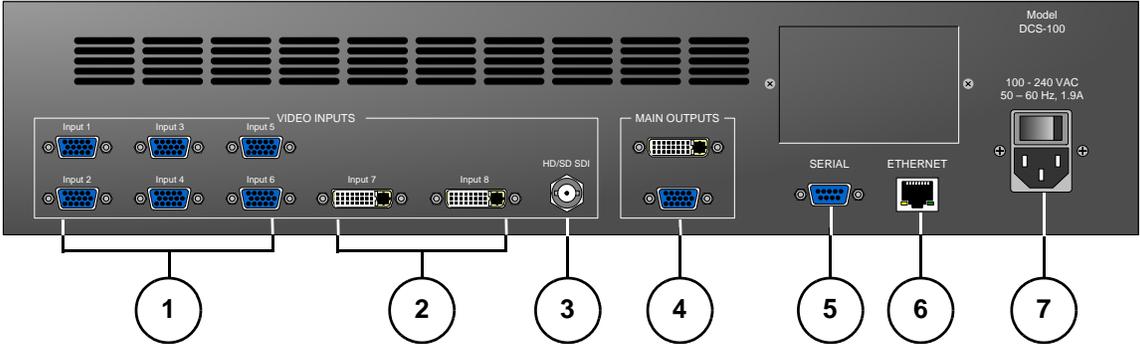


Figure 2-1. DCS-100 Rear Panel

1) <a href="#">Analog Inputs</a>	4) <a href="#">Main Outputs</a>	7) <a href="#">AC Power</a>
2) <a href="#">DVI and Analog Inputs</a>	5) <a href="#">Serial</a>	
3) <a href="#">HD/SD SDI Input</a>	6) <a href="#">Ethernet</a>	

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 34 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 116 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 117 for pinouts.

## 2. Hardware Orientation

### DCS-100 Rear Panel

#### 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-100'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 117 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 116 for pinouts

#### 5) Serial

One DB-9 connector is provided for **Serial** communications with the DCS-100 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-100 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 118 for pinouts.

#### 7) AC Power

One **AC Connector** is provided for connecting DCS-100 to AC. The integral switch turns the chassis on and off. In Appendix A, refer to the "[Physical and Electrical Specifications](#)" section on page 115 for power details.

## 3. Installation

---

### In This Chapter

This chapter provides detailed instructions for installing the DCS-100 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](#)

### 3. Installation

#### Safety Precautions

---

## Safety Precautions

For all DCS-100 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-100 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-100 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-100 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-100:
  1. Connect an AC power cord to the AC Power Connector on the rear of the DCS-100, 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.

## Power Cord/Line Voltage Selection

DCS-100 is rated to operate with the following specifications:

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

DCS-100 performs line voltage selection automatically, and no user controls are required.

### 3. Installation

#### Power Installation

The AC power cords must be accessible so that they can be removed during field servicing.



#### Warning

When the DCS-100 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-100 Transformateur Graphique. On n'a pas besoin du controller usager pour la choix de la ligne de voltage.

#### Warnung

Das DCS-100 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-100 system. Use this figure for reference during the signal installation process.

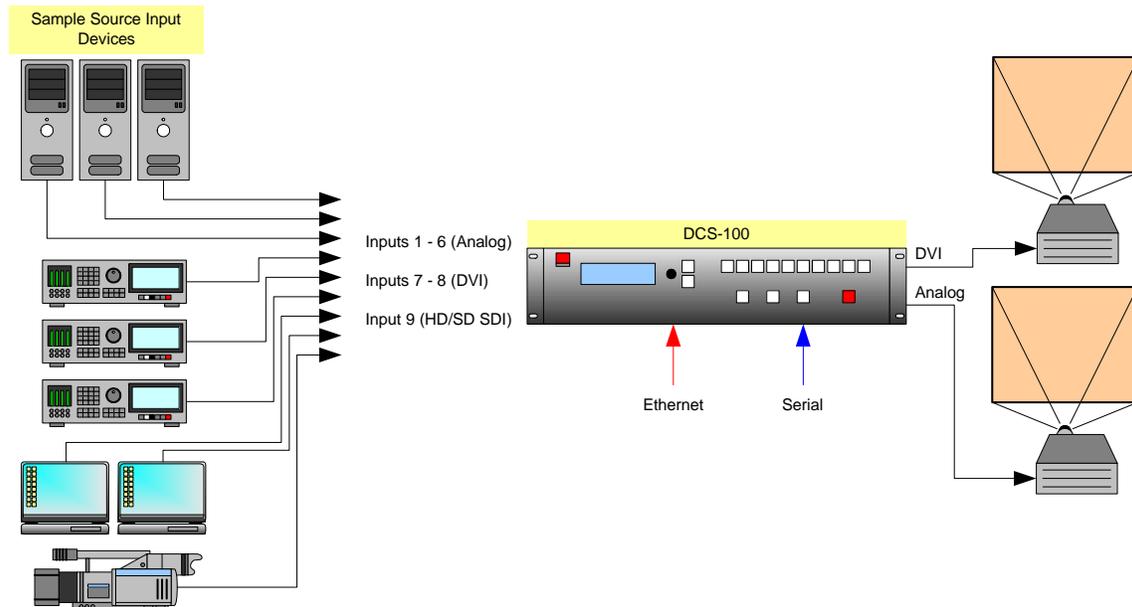


Figure 3-2. DCS-100 System Diagram (sample)

- Use the following steps to install signals to/from the DCS-100:
  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 34 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** — one or both outputs can be connected:
    - a. If you connected the DCS-100 to a digital projector (for example) or other target monitoring device, connect the **DVI Output** to the projector’s DVI input.
    - b. If you connected the DCS-100 to an analog projector (for example) or other target monitoring device, connect the **Analog Output (HD-15)** to the projector’s analog input.

### 3. Installation

#### Format Connection Table

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 you have Java Version 6 or later on your PC (or laptop).
  - d. Connect the DCS-100'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 101 for installation and operating instructions.

4. **Communications connection** — two methods are available for remote control:
  - a. Connect the DCS-100'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-100 via Telnet. In Appendix B, refer to the “[Communicating with DCS-100](#)” section on page 125 for details.
  - b. For a serial remote connection, connect the DCS-100's **Serial** port to the serial port of a laptop or a PC. In Appendix B, refer to the “[Communicating with DCS-100](#)” section on page 125 for details

This completes system signal installation. Please continue with system setup, menu orientation and operations, as outlined in Chapter 4, “[Operation](#)” on page 35.

## Format Connection Table

Use the following table to connect various source formats to the DCS-100, using the analog HD-15 connectors (on **Inputs 1** through **6**). Please note:

- **RGB format** — typical devices: Computers
- **YUV or YP<sub>b</sub>P<sub>r</sub> (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 <sub>b</sub> P <sub>r</sub> )	RGB Sync on Green	RGB Comp Sync	RGB Separate H V
R			✓ (P <sub>r</sub> )	✓	✓	✓
G	✓	✓ (Lum)	✓ (Lum)	✓	✓	✓
B		✓ (Chrom)	✓ (P <sub>b</sub> )	✓	✓	✓
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 156 for details.

# 4. Operation

---

## In This Chapter

This chapter provides comprehensive menu descriptions and detailed operating instructions for the DCS-100. 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](#)

## 4. Operation

### Control Overview

---

## Control Overview

There are several ways to control the DCS-100:

- 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 101 for additional details.
- The DCS-100 can also be controlled remotely via **Ethernet** or **Serial** communications. See Appendix B "[Remote Control](#)" on page 125 for additional details.

---

## Power-Up Initialization

After connecting power to the DCS-100, 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)

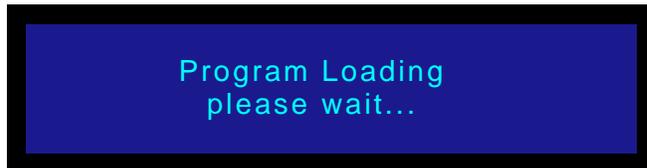


Figure 4-2. System Initialization Message 2 (sample)

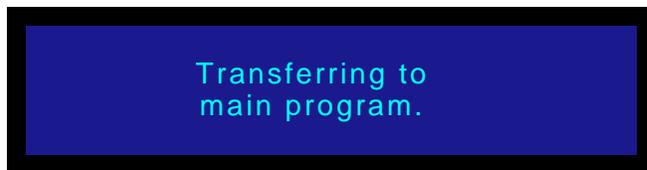


Figure 4-3. System Initialization Message 3 (sample)



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-100 that has stored logos, a message like the one in the following illustration appears during initialization:

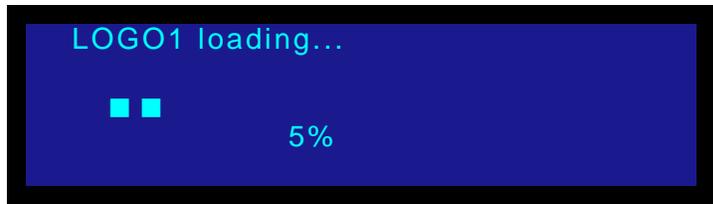


Figure 4-5. LOGO Initialization Message (sample)

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-100 automatically flip-flops the current source on Program with the “pending” source. Refer to the [“Flip-flop Mode”](#) section on page 83 for additional information.

## 4. Operation

### Quick Setup and Operations

---

## 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-100. (Chapter 3, "[Power Installation](#)," page 31.)
2. **Connect inputs** — Connect all input sources to the DCS-100. (Chapter 3, "[Signal Installation](#)," page 33.)
3. **Connect outputs** — Connect the output(s) of the DCS-100 to your projector(s) or other target devices. (Chapter 3, "[Signal Installation](#)," page 33.)
4. **Turn on power** — Turn on power to the DCS-100, your projector(s), and to all peripheral equipment. (This chapter, "[Power-Up Initialization](#)," page 36.)
5. **Factory reset** — If you are using the DCS-100 for the first time, or if you are using a DCS-100 that has just returned from another event, perform a full factory reset to restore system configurations. (This chapter, "[Factory Reset](#)," page 80.)
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-100, then launch the GUI. (Chapter 5, "[GUI Operations](#)," page 101.)
7. **Set output format** — Set the desired output resolution and frame rate. (This chapter, "[Output Format](#)," page 50.)
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 50.)
9. **Save output configuration** — After completing all output adjustments, save the output configuration. (This chapter, "[Save Output Config](#)," page 51.)
10. **Select and adjust inputs** — As required, select an input, and perform the necessary adjustments. (This chapter, "[Input Menu](#)," page 52.)
11. **Save input configuration** — After completing all adjustments for an input, save the input configuration. (This chapter, "[Save Config](#)," page 62.)
12. **Repeat for each input** — repeat steps 9 and 10 for each input that you have connected to the DCS-100.
13. **Adjust key source** — As required, select the desired key source, and adjust its clip, gain and opacity. (This chapter, "[Using Keys](#)," page 93.)
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 49 and "[System Menu](#)," page 71.)
15. **Save system configuration** — After completing all system adjustments, save the system configuration. (This chapter, "[Save System State](#)," page 79.)
16. (**Optional**) **Remote Control** — To control the DCS-100 remotely, ensure that Ethernet or Serial communications are connected, then establish communications and issue commands. (Appendix B, "[Remote Control](#)," page 125.)

## 4. Operation

### Quick Setup and Operations

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 43, and select the function that you wish to perform.

## 4. Operation

### Menu Tree

## Menu Tree

The figure below illustrates the entire DCS-100 menu tree. Please use this diagram for reference as you learn how to operate the system.

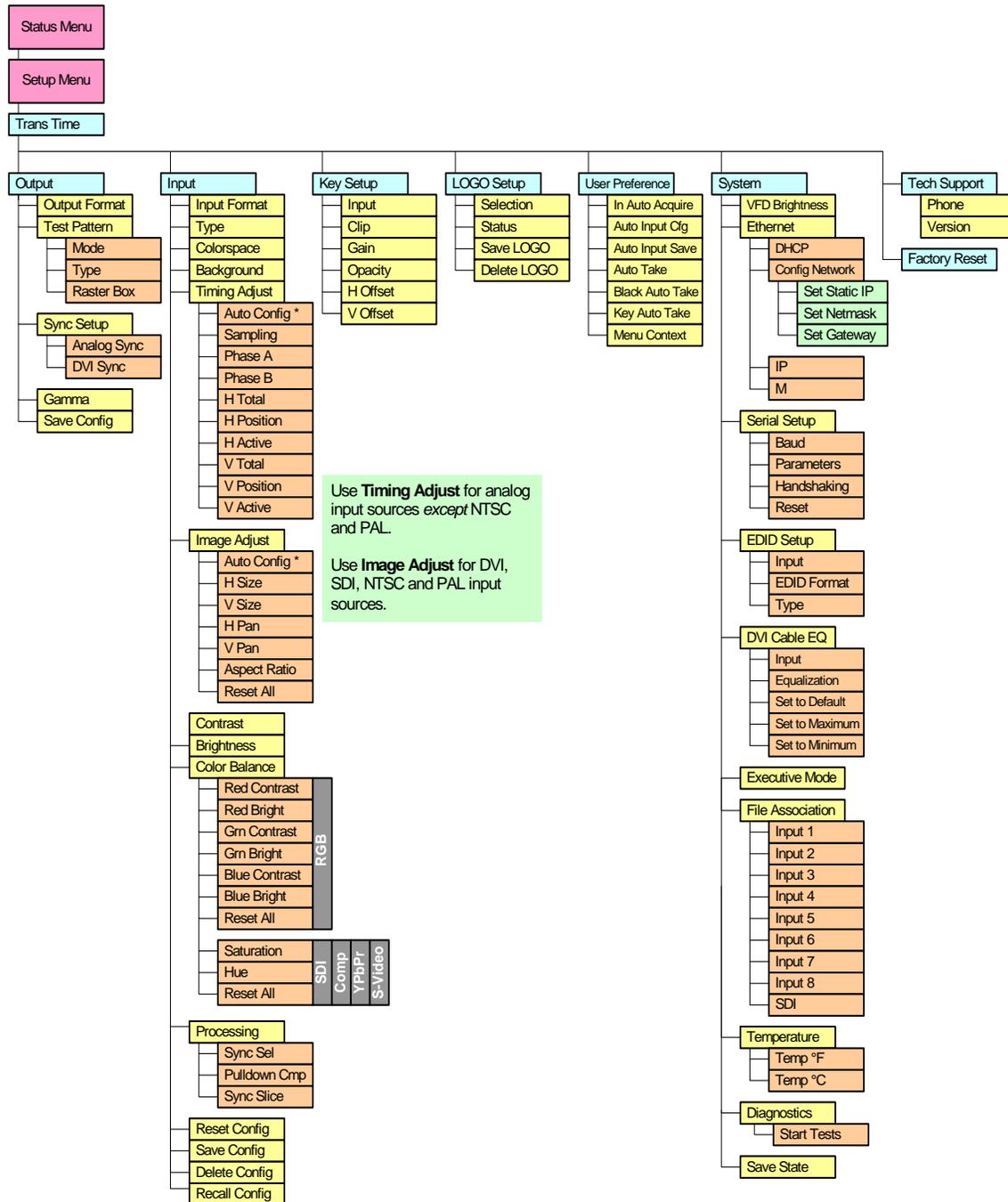


Figure 4-6. DCS-100 Menu Tree

\* The "Auto Config" selection is only available for analog inputs.

---

## Using the Menu System

This section lists the rules and conventions for using DCS-100's menu system. For reference, the figure below illustrates the **Setup Menu**:



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-100 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-100 Quick Function Reference Table

How to:	Use the Following Section:	Page
Adjust background color	<a href="#">Background</a>	55
Adjust gamma	<a href="#">Gamma</a>	51
Adjust image brightness	<a href="#">Brightness</a>	59
Adjust image color balance	<a href="#">Color Balance</a>	60
Adjust image contrast	<a href="#">Contrast</a>	59
Adjust input processing	<a href="#">Image Adjust</a>	58
Adjust input timing	<a href="#">Timing Adjust</a>	55
Adjust the image	<a href="#">Image Adjust</a>	58
Adjust transition time	<a href="#">Trans Time</a>	49
Check software version	<a href="#">Tech Support</a>	80
Contact Tech Support	<a href="#">Tech Support</a>	80
Create a full-screen logo	<a href="#">Using the LOGO</a>	86
Delete input configuration	<a href="#">Delete Config</a>	64
Display a test pattern	<a href="#">Test Pattern</a>	50
Display the raster box	<a href="#">Test Pattern</a>	50
Identify button states	<a href="#">Button States</a>	37
Learn the menu tree	<a href="#">Menu Tree</a>	40
Lock out the front panel completely	<a href="#">Full Lockout Mode</a>	99
Lock out the front panel, except inputs	<a href="#">Executive Lockout Mode</a>	99
Perform a key	<a href="#">Performing a Key</a>	94
Perform factory reset	<a href="#">Factory Reset</a>	80
Perform key combinations	<a href="#">Key Transition Combinations</a>	95
Perform quick setup and operations	<a href="#">Quick Setup and Operations</a>	38
Perform system diagnostics	<a href="#">Diagnostics</a>	79
Power up the system	<a href="#">Power-Up Initialization</a>	36
Reset input configuration	<a href="#">Reset Config</a>	62
Reset system	<a href="#">Factory Reset</a>	80
Save input configuration	<a href="#">Save Config</a>	62

## 4. Operation

### Quick Function Reference

**Table 4-1.** DCS-100 Quick Function Reference Table (Continued)

<b>How to:</b>	<b>Use the Following Section:</b>	<b>Page</b>
Save output configuration	<a href="#">Save Output Config</a>	51
Save system state	<a href="#">Save System State</a>	79
Select inputs	<a href="#">Input Selection Rules</a>	82
Set Auto Input Config mode	<a href="#">Auto Input Config</a>	69
Set Auto Input Save mode	<a href="#">Auto Input Save</a>	70
Set Auto Take mode	<a href="#">Auto Take</a>	70
Set Black Auto Take mode	<a href="#">Black Auto Take</a>	70
Set color input space	<a href="#">Colorspace</a>	54
Set DVI cable equalization	<a href="#">DVI Cable Equalization</a>	77
Set Ethernet parameters	<a href="#">Ethernet</a>	72
Set In Auto Acquire mode	<a href="#">In Auto Acquire</a>	68
Set input format	<a href="#">Input Format</a>	53
Set input type	<a href="#">Type</a>	54
Set Key Auto Take mode	<a href="#">Key Auto Take</a>	71
Set Menu Context mode	<a href="#">Menu Context</a>	71
Set or change multiple input configurations	<a href="#">File Association</a>	77
Set or change a single input configuration	<a href="#">Recall Config</a>	65
Set output format	<a href="#">Output Format</a>	50
Set Serial port parameters	<a href="#">Serial Setup</a>	74
Set up EDID	<a href="#">EDID Setup</a>	75
Set up Key	<a href="#">Key Setup Menu</a>	65
Set up LOGO	<a href="#">LOGO Setup Menu</a>	67
Set up sync	<a href="#">Sync Setup</a>	51
Set user preferences	<a href="#">User Preference</a>	68
Set VFD brightness	<a href="#">VFD Brightness</a>	72
Use auto acquire	<a href="#">Understanding Auto Acquire</a>	84
Use Black	<a href="#">Using Black</a>	91
Use Freeze	<a href="#">Using Freeze</a>	90
Use HDCP	<a href="#">Using HDCP</a>	84
Use inputs	<a href="#">Using Inputs</a>	82
Use Keys	<a href="#">Using Keys</a>	93
Use the Input Menu	<a href="#">Input Menu</a>	52
Use the Key Setup Menu	<a href="#">Key Setup Menu</a>	65

## 4. Operation

### Quick Function Reference

**Table 4-1.** DCS-100 Quick Function Reference Table (Continued)

<b>How to:</b>	<b>Use the Following Section:</b>	<b>Page</b>
Use the LOGO Setup Menu	<a href="#">LOGO Setup Menu</a>	67
Use the menu system	<a href="#">Using the Menu System</a>	41
Use the Output Menu	<a href="#">Output Menu</a>	49
Use the Setup Menu	<a href="#">Using the Setup Menu</a>	48
Use the Status Menu	<a href="#">Status Menu</a>	46
Use the System Menu	<a href="#">System Menu</a>	71
Use the User Preference Menu	<a href="#">User Preference</a>	68
View chassis temperature	<a href="#">Temperature</a>	78
View LOGO status	<a href="#">LOGO Setup Menu</a>	67
View software version	<a href="#">Tech Support</a>	80
View Tech Support number	<a href="#">Tech Support</a>	80

## 4. Operation

### Status Menu

---

## Status Menu

The **Status Menu** is the system's top level display, which appears by default after the DCS-100 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**:



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	<b>No symbols.</b> The current format is an exact match from the table. The format has not been “best guessed” or saved.
*Hact x Vact @ Vr*	<b>Asterisks.</b> The format has been “best guessed.”
[Hact x Vact @ Vr]	<b>Brackets.</b> The exact table match has been saved.
[*Hact x Vact @ Vr*]	<b>Brackets plus Asterisks.</b> 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

## 4. Operation

Using the Setup Menu

---

### Using the Setup Menu

After DCS-100 initialization is complete, the **Status Menu** appears. This is the system's top-level menu. Refer to the "[Status Menu](#)" section on page 46 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 Preference Menu**, the system automatically saves inputs.

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



Figure 4-9. Setup Menu (sample)

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

- [Trans Time](#)
- [Output 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-100 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.

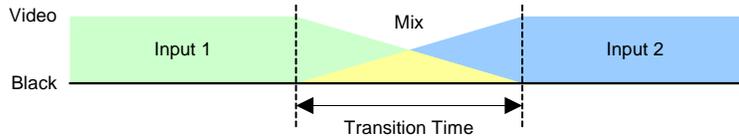


Figure 4-10. Transition Interval Diagram — Mix Between Sources

- **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.

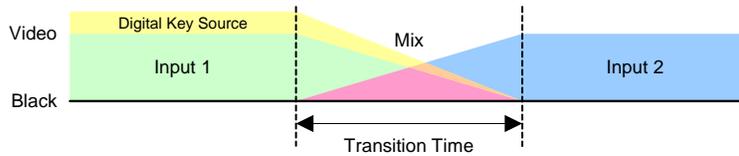


Figure 4-11. Transition Interval Diagram — Mix Between Sources and a Digital Key

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**.

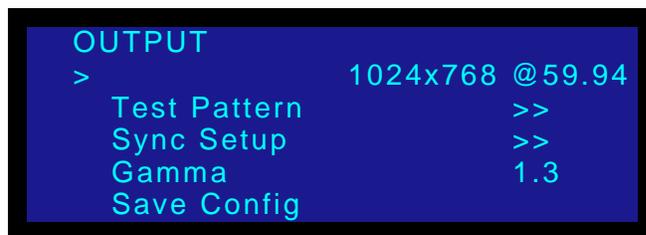


Figure 4-12. Output Menu (sample)

## 4. Operation

### Using the Setup Menu

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-100 can be set to any of the progressive outputs in the format table. In Appendix A, refer to the "[Format Table](#)" section on page 120 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**:



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**:



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**.



Figure 4-15. Saving Output Configuration Message (sample)

## 4. Operation

### Using the Setup Menu

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:

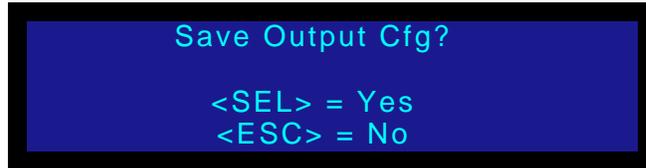


Figure 4-16. Save Output Configuration Prompt

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

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

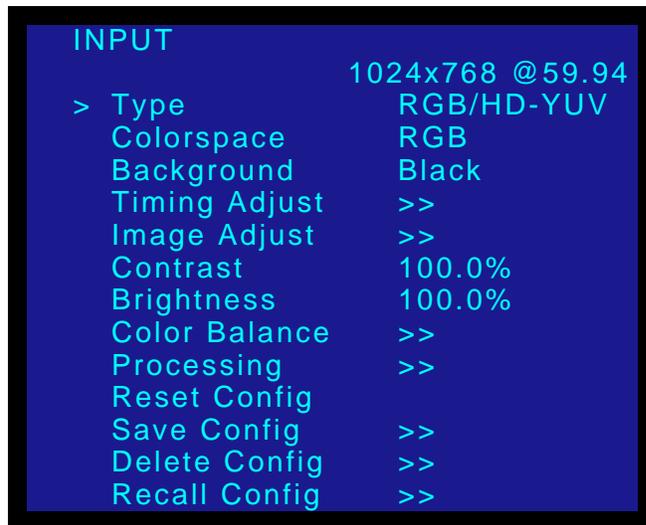


Figure 4-17. Input Menu (sample)

### Important

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

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](#)
- [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 **OFF** (as selected 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 120
- ~ A best guess (to the closest video format in the library)

For **digital sources**, when **In Auto Acquire** is **OFF**, 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.

## 4. Operation

### Using the Setup Menu

- ▲ \*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 output remains black, and the display indicates “**Invalid Signal.**”

### 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 **Y**P**<sub>b</sub>P<sub>r</sub>** or **YUV** is **SMPTE**. In Appendix A, refer to the “[Format Table](#)” on page 120 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.

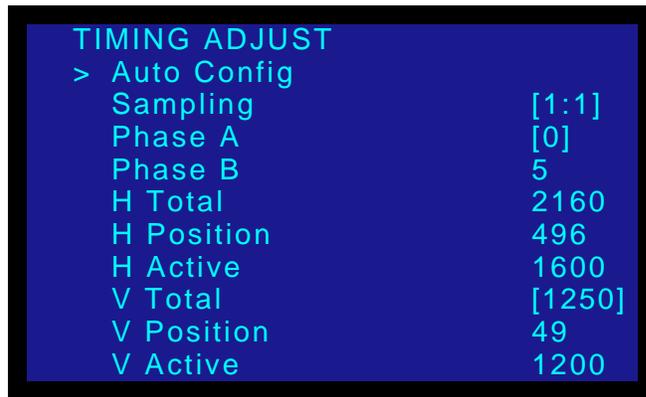


Figure 4-18. Timing Adjust Menu (sample)

### 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 58.

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.

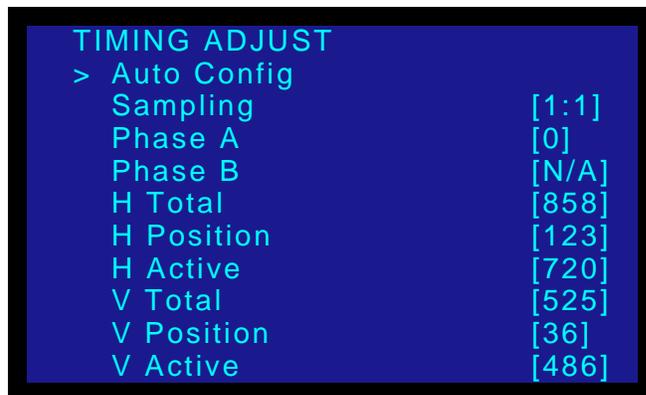


Figure 4-19. Timing Adjust Menu — DVI Digital, NTSC, PAL (sample)

## 4. Operation

### Using the Setup Menu

For information about adjusting these inputs, refer to the [“Image Adjust”](#) section on page 58.

#### 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 selected source on Program.

#### Note

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

When **Auto Config** is selected, the DCS-100 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

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<sub>b</sub>P<sub>r</sub> 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 scalars. Typically, they do not need to be adjusted. Refer to the [“Adjusting Sample Phase”](#) section on page 57 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<sub>b</sub>P<sub>r</sub> sources only, but 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<sub>b</sub>P<sub>r</sub> 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-100 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.



Figure 4-20. Timing Adjust Menu, phase indication of active scaler

## 4. Operation

### Using the Setup Menu

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 enables you to adjust input parameters such as size, pan and aspect ratio:



Figure 4-21. 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 55.

- Select **Auto Config** to perform an automatic input configuration on the selected 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 when an analog input is chosen.

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.

## 4. Operation

### Using the Setup Menu

- 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-100 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-100 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%

## 4. Operation

Using the Setup Menu

### 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](#)
- [Hue/Saturation Color Balance Menu](#)

#### RGB Color Balance Menu

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



Figure 4-22. 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.

#### Hue/Saturation Color Balance Menu

If the current input's type is set to **Composite**, **S-video**, **YP<sub>b</sub>P<sub>r</sub>**, or **SDI**, the **Hue/Saturation Color Balance Menu** appears:



Figure 4-23. Hue/Saturation 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<sub>b</sub>P<sub>r</sub>): 75.0% to 125.0%
- **Hue** is measured in degrees, and is [N/A] for YP<sub>b</sub>P<sub>r</sub> 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**:



Figure 4-24. Processing Menu (sample)

The following functions are available:

- **Sync Selection** — This function applies only to **Analog RGB** inputs. The DCS-100 automatically selects the syncs for digital sources, composite, S-video, and YP<sub>b</sub>P<sub>r</sub> 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<sub>b</sub>P<sub>r</sub> analog component video sources. When DCS-100 detects Macrovision copy protection on the incoming YP<sub>b</sub>P<sub>r</sub> 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-100 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, recall or save the configuration file for an input. You can associate any number of saved files to any number of inputs.

When you change the configuration file for an input, the timing in the new configuration file

## 4. Operation

### Using the Setup Menu

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](#)

### 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 by selecting **Save Config**. **Save Config** saves input configuration parameters in non-volatile memory. You can save the changes to the current configuration file for the selected input, or to a different file.

- To save changes to an input's configuration, use the following procedure:
  1. Select **Save Config** from the **Input Menu**. A menu like the one in the following illustration appears.



Figure 4-25. 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.

**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**.



Figure 4-26. 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:

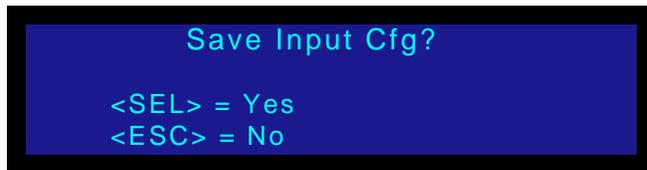


Figure 4-27. Save Input Configuration Prompt (sample)

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

## 4. Operation

### Using the Setup Menu

#### 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**. When **In Auto Acquire** (in the **User Preference Menu**) is **ON** and an input does *not* have a saved configuration file, the DCS-100 does a full sync (timing) acquisition on the selected input signal.

When **In Auto Acquire** is **ON**, and you delete the current configuration file for an input, the system attempts to revert to a saved configuration for the input.

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-100 displays the “**Invalid Signal**” message.

For more information about **In Auto Acquire**, refer to the “[Understanding Auto Acquire](#)” section on page 84 and the “[In Auto Acquire](#)” section on page 68.

■ 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:



Figure 4-28. Delete Config Menu (sample)

The value of **File Number** is set to the current configuration file for the input. You can either delete the current file, select another saved 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**.

#### 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.

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

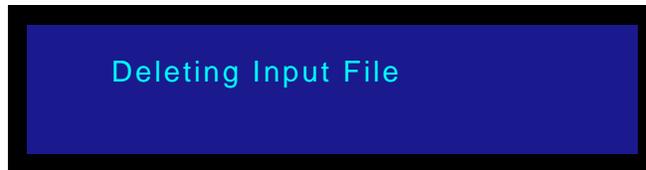


Figure 4-29. Deleting Input Configuration Message (sample)

## 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.



Figure 4-30. 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 84.

## 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-100* is the key, which cuts into the background image.

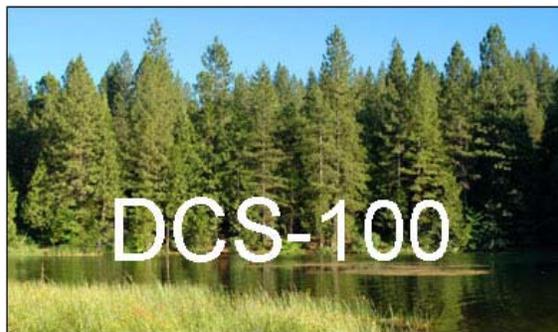


Figure 4-31. Example of a Key

In the *DCS-100*, 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

## 4. Operation

### Using the Setup Menu

menu appears automatically when the **KEY** button is pressed.



Figure 4-32. 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 93 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.



Figure 4-33. LOGO Setup Menu (sample)

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

- **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.

**Note**

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 86 for more information on saving and using LOGOs.

## 4. Operation

Using the Setup Menu

### User Preference

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



Figure 4-34. 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 120
- A best guess

## 4. Operation

### Using the Setup Menu

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. You will also see "**Invalid Signal**" if the configuration file for an input has been deleted.

#### Note

When you turn **In Auto Acquire ON**, the DCS-100 automatically turns **Auto Input Config** and **Auto Input Save ON** as well. When 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:

- With **In Auto Acquire** mode **ON**, 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-100 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, turning the **In Auto Acquire** mode **OFF** 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 55 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.

## 4. Operation

### Using the Setup Menu

- 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** is a global setting that applies to all inputs.
- 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 91 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 93 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.



Figure 4-35. 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](#)
- [Temperature](#)

## 4. Operation

Using the Setup Menu

- [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 4-36. 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-100 queries the DHCP server for a valid IP address, and the **Config Network** field is hidden.
  - If the DCS-100 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 4-37. Config Network Menu

- ~ 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.



**Figure 4-38.** 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.



**Figure 4-39.** Netmask Menu (sample)

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



**Figure 4-40.** Gateway Menu (sample)

- Use the following steps to edit the IP address, Netmask or Gateway. Valid fields range from 000 to 255.
  - Press **SEL** to begin editing. This action highlights the first digit, and displays the carat “^.”
  - Use the **ADJUST** knob to move the carat left and right through the address.
  - When the desired digit is highlighted, press **SEL** to edit the value. The carat changes to the pound sign “#.”
  - Use the **ADJUST** knob to select the desired value (0 - 9).
  - Once the value is selected, press **SEL** to “accept” the new value. The pound sign “#” changes back to the carat “^.”
  - Repeat the process from step **b** for all additional digits that you wish to change.
  - 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.

## 4. Operation

### Using the Setup Menu

In each case, system returns to the root menu.

When Ethernet setup is complete, you can communicate with the DCS-100 via the Ethernet port.

- ~ In Appendix B, refer to the "[Remote Commands](#)" section on page 132 for details on communicating with the DCS-100 via Telnet.
- ~ In Chapter 5, refer to the "[GUI Connection and Launch](#)" section on page 102 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-100'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.

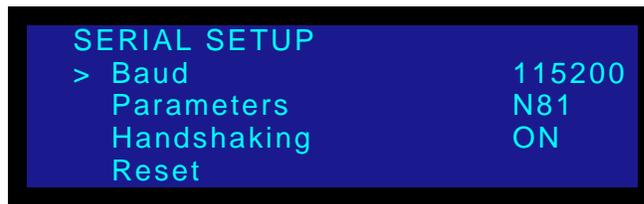


Figure 4-41. Serial Setup Menu (sample)

The following Serial 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-100.



Figure 4-42. 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-100'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-100 system. The DCS-100 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-100 can program the EDID EEPROM with the DVI cable connected.

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



Figure 4-43. Programming EDID Message 1

## 4. Operation

### Using the Setup Menu

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

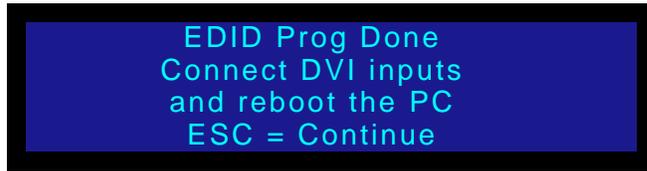


Figure 4-44. Programming EDID Message 2

#### 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:



Figure 4-45. 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**.

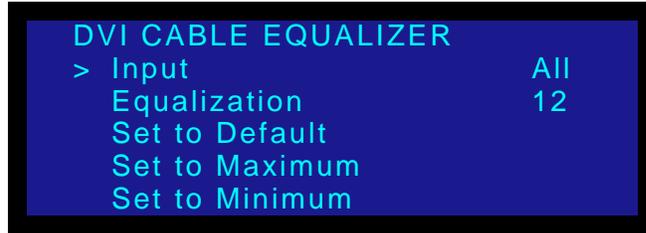


Figure 4-46. DVI Cable Equalizer Menu (sample)

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

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-100 can store up to 64 input configuration files in non-volatile memory.

Each time you press an input button, the DCS-100 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.

## 4. Operation

### Using the Setup Menu

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

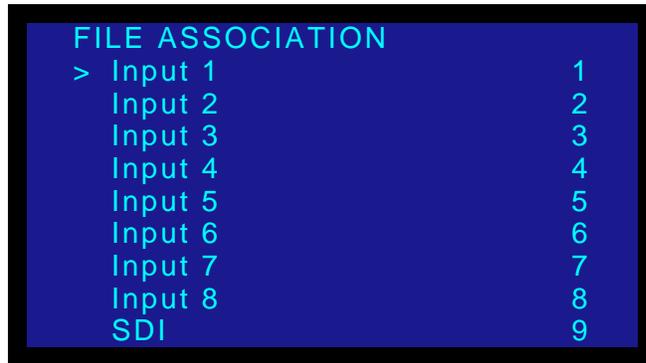


Figure 4-47. File Association Menu (sample)

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 61 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**.



Figure 4-48. System Temperature Menu (sample)

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

Note that the DCS-100 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:



Figure 4-49. Over Temperature Warning (sample)

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-100. 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**:



Figure 4-50. Diagnostics Menu

If you suspect a problem with the DCS-100, 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 156 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-100 returns to the **System Menu**.

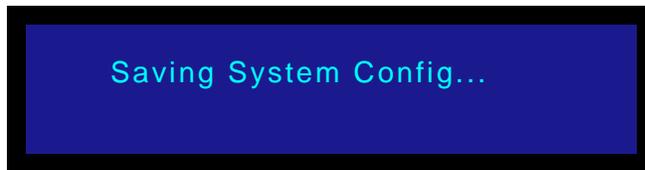


Figure 4-51. Saving System Configuration Message

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-100 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.

## 4. Operation

### Using the Setup Menu

- 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:

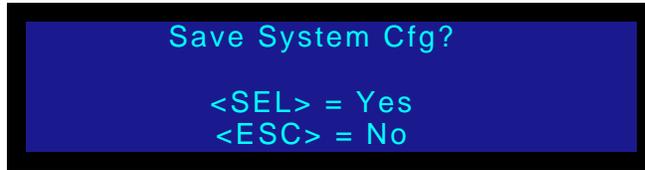


Figure 4-52. Save System Configuration Prompt

- ~ 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**:



Figure 4-53. 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 106 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**:



Figure 4-54. Factory Reset Menu

This function enables you to reset the DCS-100 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.

## 4. Operation

### Using the Setup Menu

- 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

## 4. Operation

### Using Inputs

---

## 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-100 flip-flops sources in the **Inputs Section**. Refer to the “[Flip-flop Mode](#)” section on page 83 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 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.

## 4. Operation

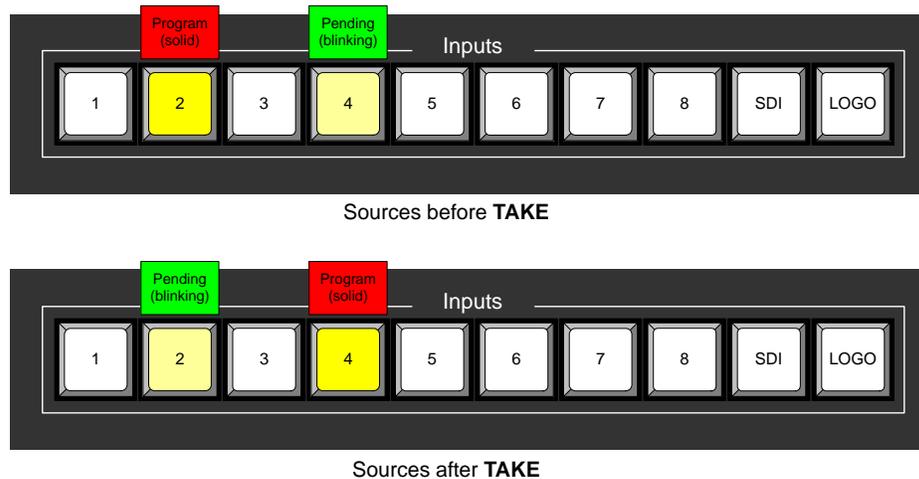
### Using Inputs

- For information about using the system in conjunction with HDCP inputs, refer to the “[Using HDCP](#)” section on page 84.

## Flip-flop Mode

Whenever you press **TAKE** to mix between inputs (including the **LOGO**), the DCS-100 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.



**Figure 4-55.** 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.

## 4. Operation

### Using Inputs

## 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 has 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-100 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 18 prior to reading this section.

With DCS-100, 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:



Figure 4-56. Error Message: HDCP Not Supported

## 4. Operation

### Using Inputs

- 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-100'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.

## 4. Operation

### Using the LOGO

---

## Using the LOGO

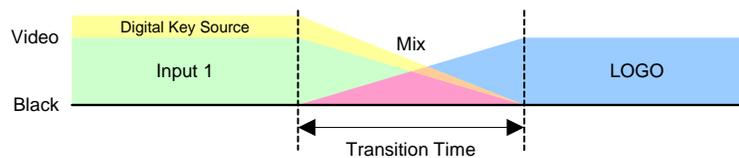
A **logo** is a full-screen video source which, when transitioned to Program, appears *on top* of all other sources. The DCS-100 can store up to three logos in non-volatile memory.

You can 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 as described in the “[Flip-flop Mode](#)” section on page 83.

To take a logo to Program, you must have a saved logo that matches the output resolution of the source on Program. If you change the output resolution while the logo is pending or on Program, the logo becomes invalid.

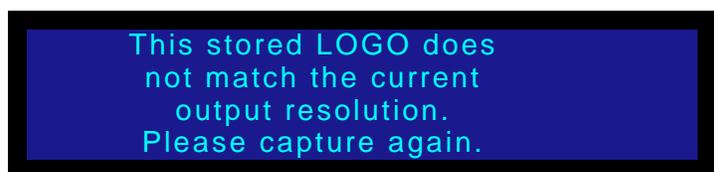
Please note the following important points:

- 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:



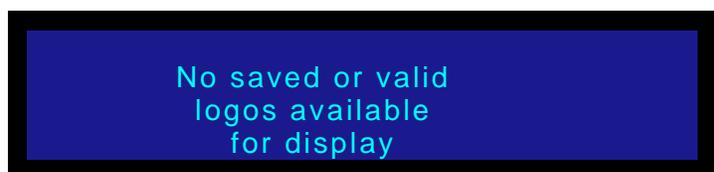
**Figure 4-57.** Transition to LOGO from Source Plus Key

- 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.



**Figure 4-58.** LOGO Output Resolution Message (sample)

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



**Figure 4-59.** LOGO Error Message (sample)

## 4. Operation

### Using the LOGO

- When you first start up a DCS-100 that has stored logos, a message like the one in the following illustration appears during initialization:

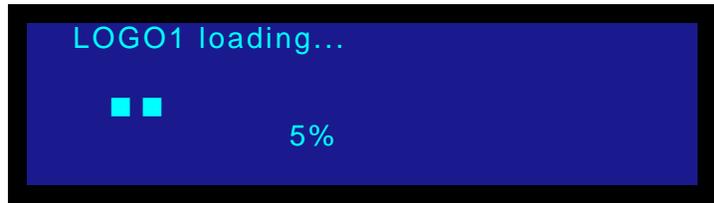


Figure 4-60. LOGO Initialization Message (sample)

Ensure that you are familiar with the **LOGO Setup Menu**. Refer to the "[LOGO Setup Menu](#)" section on page 67 for details.

## Saving a 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 4-61. 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:

## 4. Operation

### Using the LOGO

- ~ 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:



**Figure 4-62.** 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:



**Figure 4-63.** LOGO Setup Menu — Logo on Program

#### Note

When the system transitions to the logo, the DCS-100 flip-flops sources in the **Inputs Section**. Refer to the [“Flip-flop Mode”](#) section on page 83 for additional information.

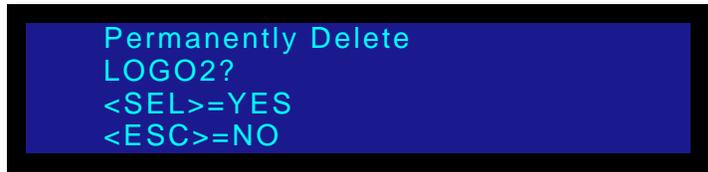
## Deleting a Logo

- 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.

## 4. Operation

### Using the LOGO

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



**Figure 4-64.** Delete LOGO Message (sample)

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

## 4. Operation

### Using Freeze

---



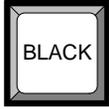
The **FRZ** (Freeze) button is used to create a still image from a video source.

- 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 the **FRZ** button 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.

## Using 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 68 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.

## 4. Operation

### Using Black

## 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



The following topics are discussed in this section:

- [Introduction to Keying](#)
- [Performing a Key](#)
- [Key Transition Combinations](#)

### Introduction to Keying

The DCS-100 enables you to perform a luminance 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 65 for details.

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-100 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 65 for details.

## 4. Operation

### Using Keys

## 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 68 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. 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.

Refer to the “[Key Transition Combinations](#)” section on page 95 for descriptions of the many key combinations that can be performed with the DCS-100.

## 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 can not be adjusted until the transition is over.

Refer to the “[Key Transition Combinations](#)” section on page 95 for descriptions of the many key combinations that can be performed with the DCS-100.

## 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 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:

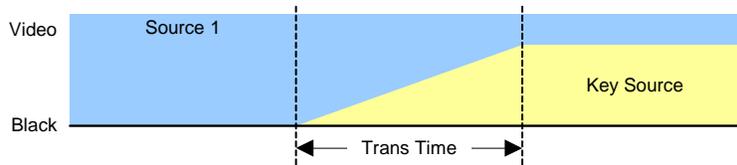
- [Mix Key Up](#)
- [Mix Key Down](#)
- [Mix Source plus Key Up](#)
- [Mix Source plus Key Down](#)
- [Source Transition Under Key](#)
- [Fade to Black from Source plus Key](#)
- [Fade up from Black to Source plus Key](#)

### 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 4-65.** 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.

## 4. Operation

### Using Keys

#### Mix Key Down

- Use the following steps to mix a key down:

**Initial system state:** Key is **ON** Program

**Key Auto Take:** **ON**

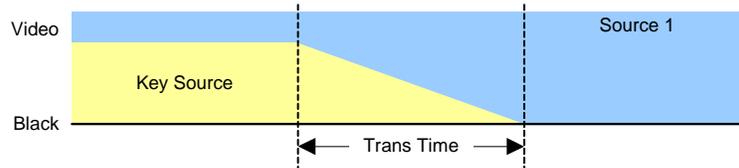


Figure 4-66. Mix Key Down

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**

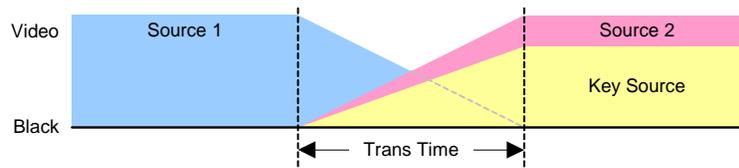


Figure 4-67. Mix Source Plus Key Up

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**

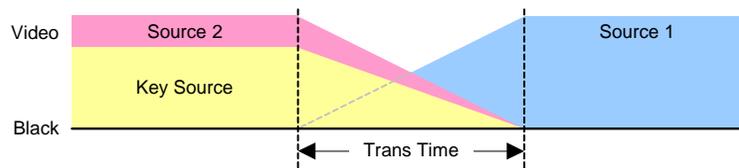


Figure 4-68. Mix Source Plus Key Down

1. Select the source that you want to be the *next* background. The button blinks.
2. Press **KEY**. The button blinks to indicate “pending.”

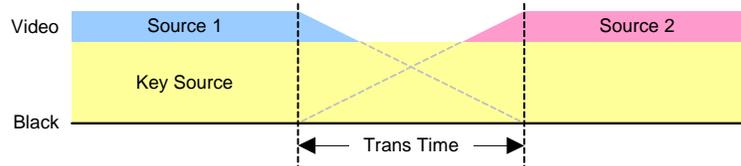
3. Press **TAKE** to transition to the new source and mix the key down.

### 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 4-69.** 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.

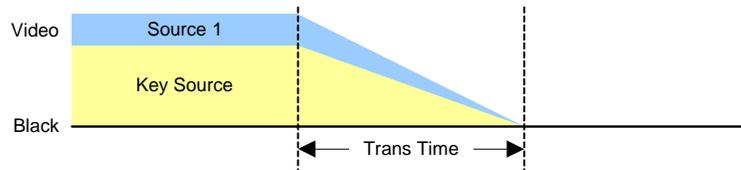
### Fade to Black from Source plus Key

- Use the following steps 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 4-70.** Transition Source Plus Key to Black

1. Press **BLACK** to transition both the key and the source to black.

## 4. Operation

### Using Keys

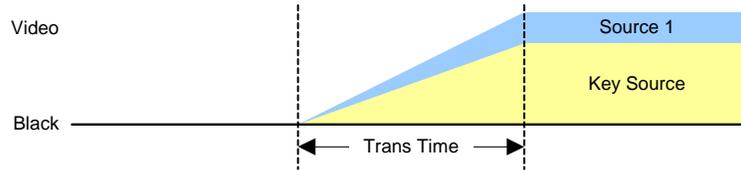
#### Fade up from Black to Source plus Key

- 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 4-71.** 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-100 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:

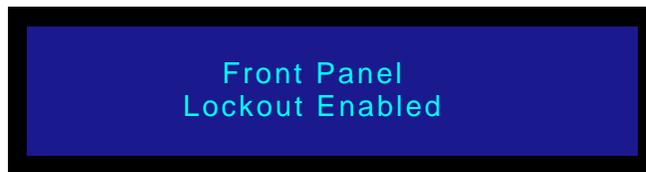


Figure 4-72. System Message: Lockout Enabled

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

### Understanding Front-Panel Lockout

- 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 sub-menu appears:



Figure 4-73. Executive Mode Menu (sample)

3. Press **SEL**. The confirmation message shown in the following illustration appears:



Figure 4-74. 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-100 setup and transition functions, just like the system's "physical" front panel.

The following topics are discussed:

- [GUI Connection and Launch](#)
- [GUI Operations](#)

## 5. GUI Operations

### GUI Connection and Launch

---

## 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-100's Ethernet port to a Switch.
  5. Connect the Switch to your PC (or laptop).
  6. Power-up the DCS-100.
  7. Note the DCS-100'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-100'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.

## 5. GUI Operations

### GUI Connection and Launch

- When the PC establishes communications with the DCS-100, several web pages are downloaded into the PC, and the DCS-100 **Home Page** appears:

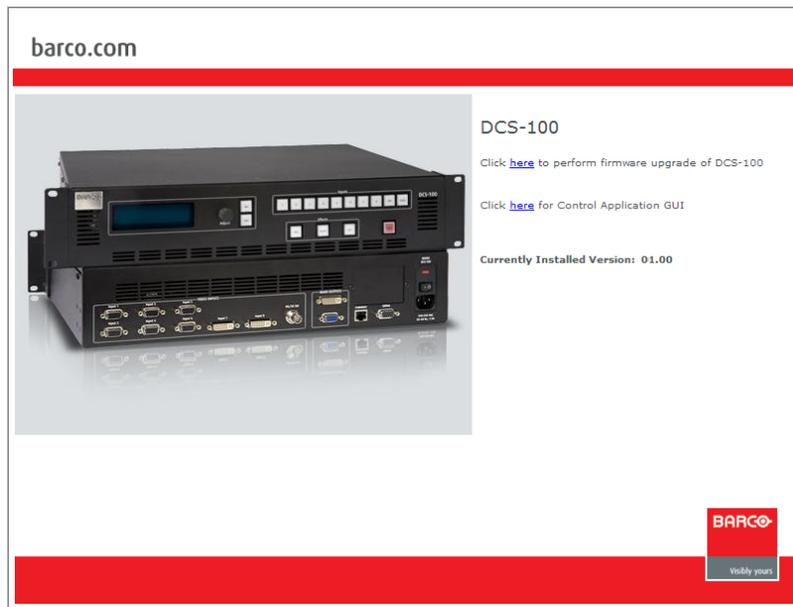


Figure 5-2. DCS-100 Home Page

- Click the **Control Application GUI** link to launch the GUI. The **GUI Status Menu** page appears, as shown below:

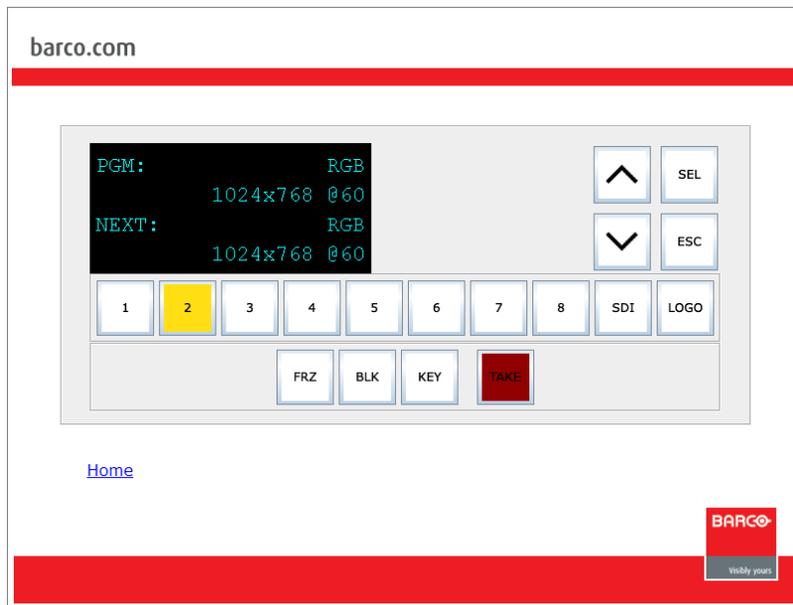


Figure 5-3. DCS-100 GUI Status Menu

#### Note

If you cannot see the image shown above, check that you have the latest version of Java installed on your PC or laptop.

## 5. GUI Operations

### GUI Operations

- The DCS-100 GUI is now ready for use. Refer to the [“GUI Operations”](#) section on page 104 for important operating notes.

#### Note

If you have trouble establishing communications between your PC and the DCS-100, in Appendix 6, refer to the [“Troubleshooting Ethernet Communication”](#) section on page 111 for instructions.

---

## GUI Operations

The figure below illustrates a sample GUI screen:

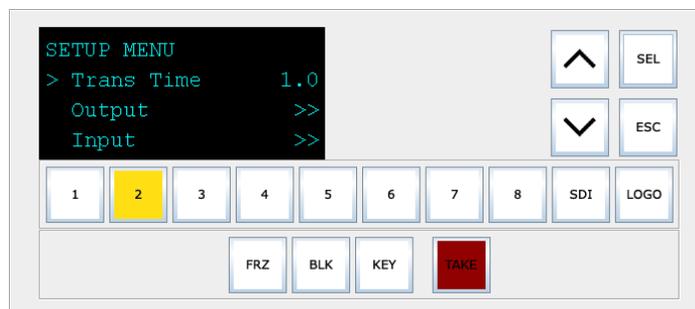


Figure 5-4. DCS-100 GUI Setup Menu

Running the DCS-100 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 41 for details.
- All input, transition, and “effect” selection methods are the same. In Chapter 4, refer to the [“Using Inputs”](#) section on page 82 for details.
- All buttons blink states are the same. In Chapter 4, refer to the [“Button States”](#) section on page 37 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-100 **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 either **Front Panel Lockout** mode from the GUI.



# 6. Upgrading Software

---

## In This Chapter

This chapter provides detailed instructions for upgrading DCS-100 system software. The following topics are discussed:

- [Software Upgrade Overview](#)
- [Hardware Requirements](#)
- [Software Requirements](#)
- [Downloading Software](#)
- [Ethernet Upgrade Method](#)

## 6. Upgrading Software

### Software Upgrade Overview

---

## Software Upgrade Overview

Firmware files for the DCS-100 are loaded into the hardware at power-up. These files are stored in the unit's onboard flash memory.

The DCS-100'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-100.
- Launch a web browser.
- Connect to the DCS-100 using its IP address.
- Follow the upgrade instructions in the browser.

---

## Hardware Requirements

The following hardware items are required for upgrading DCS-100 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-100's software:

- Ensure that your PC (or laptop) uses the Windows<sup>®</sup> 2000 or Windows XP operating systems.
- Ensure that your PC (or laptop) has a web browser installed, such as Windows Internet Explorer<sup>®</sup> or Mozilla Firefox<sup>®</sup>.

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-100 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-100).
  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-100/**
  5. Transfer the following file to the target folder on your PC:  
**DCS-100\_##\_##\_tar.gz**
  6. Please continue with the "[Ethernet Upgrade Method](#)" section on page 108.

### Via Web Site

Barco's web site address is: [www.barco.com](http://www.barco.com).

- To download software from the web site:
  1. Create a target folder on your PC (e.g., DCS-100).
  2. Ensure that your PC is connected to the internet.

## 6. Upgrading Software

### Ethernet Upgrade Method

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-100_##_##_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 “[Ethernet Upgrade Method](#)” section on page 108.

---

## Ethernet Upgrade Method

- Use the following steps to upgrade DCS-100 software:
  1. Ensure that your PC (or laptop) uses the Windows® 2000 or Windows XP operating systems.
  2. Connect the DCS-100's Ethernet port to a Switch.
  3. Connect the Switch to your PC (or laptop).
  4. Power-up the DCS-100.
  5. Note the DCS-100'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-100'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.

## 6. Upgrading Software

### Ethernet Upgrade Method

- When the PC establishes communications with the DCS-100, several web pages are downloaded into the PC, and the DCS-100 **Home Page** appears:

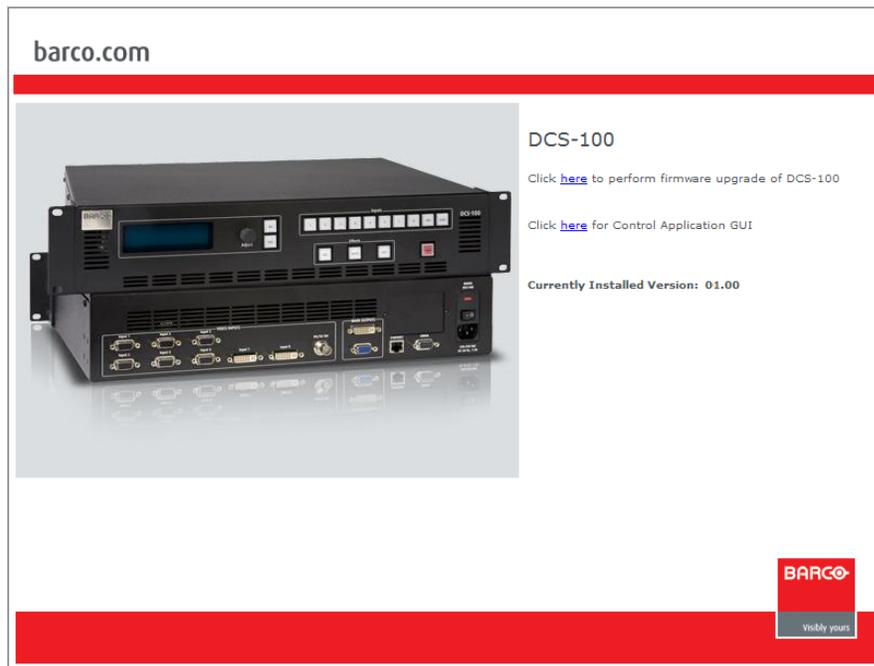


Figure 6-2. DCS-100 Home Page

- Click the **Firmware Upgrade** link to continue the upgrade process. The **Select File** page appears, as shown below:

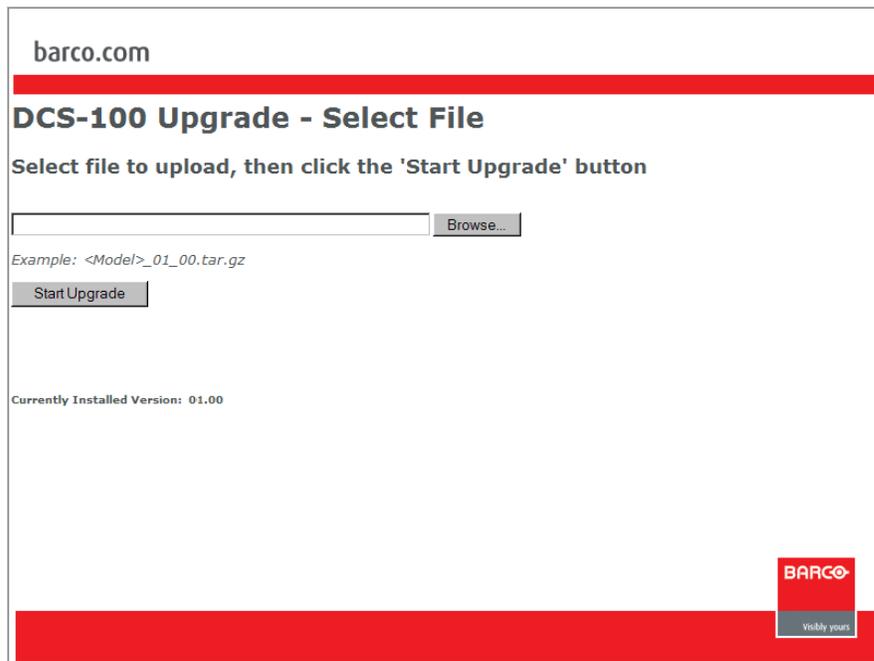
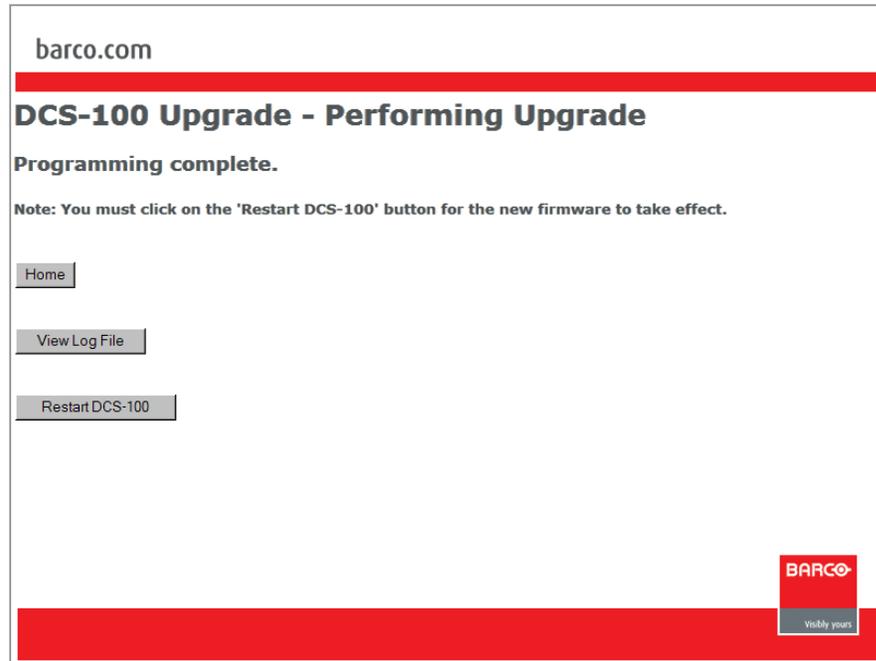


Figure 6-3. DCS-100 Select File Page

## 6. Upgrading Software

### Ethernet Upgrade Method

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:  
**DCS-100\_##\_##.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-100 Upload Status Page

13. When the procedure is complete, you have three options:
  - ~ Click **Home** to return to the DCS-100 **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-100** to complete the entire upgrade procedure.
14. Close your browser, and resume operations on the DCS-100.

#### 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-100, and establish proper communications:
  1. Power-up the DCS-100.
  2. Note the DCS-100'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-100 as follows:
    - a. Connect the DCS-100'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-100, 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 108.
- g. If you see a "**Request timed out**" message, the PC is unable to locate the DCS-100. 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 156 for details.

## 6. Upgrading Software

Ethernet Upgrade Method

# A. Specifications

---

## In This Appendix

This appendix provides detailed technical specifications for the DCS-100. The following topics are discussed:

- [Input Specifications](#)
- [Output Specifications](#)
- [Physical and Electrical Specifications](#)
- [Communications Specifications](#)
- [Agency Specifications](#)
- [Pinouts](#)
- [Format Table](#)

## A. Specifications

### Input Specifications

---

## Input Specifications

The table below lists DCS-100 input specifications.

**Table A-1.** DCS-100 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: <ul style="list-style-type: none"><li>• 1920x1080p@60 (173.0 MHz)</li><li>• 1920x1200@60 (193.25 MHz)</li><li>• 2048x1080p@60 (183.75 MHz)</li></ul>
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-100 output specifications:

**Table A-2.** DCS-100 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-100 physical and electrical specifications.

**Table A-3.** DCS-100 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-100 communications specifications.

**Table A-4.** DCS-100 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-100 agency specifications.

**Table A-5.** DCS-100 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

## A. Specifications

### Pinouts

---

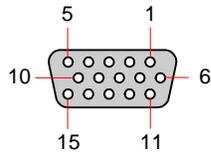
## Pinouts

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	
2	Green	10	GND
3	Blue	11	
4		12	
5		13	H Sync or C Sync
6	Red return	14	V Sync
7	Green return	15	
8	Blue return		

## DVI-I Connector

The figure below illustrates the DVI-I connector:

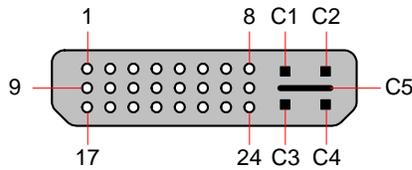


Figure A-2. DVI-I connector

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

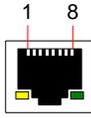
Pin	Signal	Pin	Signal
1	T.M.D.S. Data 2-	13	T.M.D.S. Data 3+
2	T.M.D.S. Data 2+	14	+5V Power
3	T.M.D.S. Data 2/4 Shield	15	ground (for +5V)
4	T.M.D.S. Data 4-	16	Hot Plug Detect
5	T.M.D.S. Data 4+	17	T.M.D.S. Data 0-
6	DDC Clock	18	T.M.D.S. Data 0+
7	DDC Data	19	T.M.D.S. Data 0/5 Shield
8	Analog Vertical 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 -
<b>MicroCross Pins</b>			
C1	Analog Red Video	C4	Analog Horizontal Sync
C2	Analog Green Video	C5	Analog Common Ground Return
C3	Analog Blue Video		

## A. Specifications

### Pinouts

## Ethernet Connector

The figure below illustrates the Ethernet connector:



**Figure A-3.** Ethernet connector

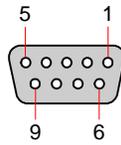
The table below lists Ethernet connector pinouts.

**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

## A. Specifications

### Format Table

---

## Format Table

The table below lists the available input and output formats for the DCS-100. 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-100's output can be set to progressive formats only.

**Table A-10.** DCS-100 Input and Output Formats

Format	Input Color Space	Input/Output
Apple 1200p @60	RGB	Input/Output
NTSC (480i)	SMPTE	<b>Input Only</b>
PAL (576i)	SMPTE	<b>Input Only</b>
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-100 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	<b>Input Only</b>
1280x720 @60 II	RGB	<b>Input Only</b>
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	<b>Input Only</b>
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-100 Input and Output Formats (Continued)

<b>Format</b>	<b>Input Color Space</b>	<b>Input/Output</b>
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	<b>Input Only</b>
1920x1080i @59.94	SMPTE, RGB	<b>Input Only</b>
1920x1080i @60	SMPTE, RGB	<b>Input Only</b>
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

## A. Specifications

### Format Table

**Table A-10.** DCS-100 Input and Output Formats (Continued)

<b>Format</b>	<b>Input Color Space</b>	<b>Input/Output</b>
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	<b>Output Only</b>
1920x1080p II @60	SMPTE, RGB	<b>Input Only</b>
1920x1080sF@23.98	SMPTE, RGB	<b>Input Only</b>
1920x1080sF@24	SMPTE, RGB	<b>Input Only</b>
1920x1200p @60	RGB	Input/Output
1920x1200p II @60	RGB	<b>Output Only</b>
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	<b>Output Only</b>

## 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-100](#)
- [Command Protocol](#)
- [Error Codes](#)
- [DCS-100 Command List](#)
- [Remote Commands](#)

---

### Communicating with DCS-100

- Use the following steps to communicate with the DCS-100 via Telnet:
  1. Connect the DCS-100'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 72 for details.
  3. For Telnet communications, use the DCS-100'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-100, you are presented with the login prompt:

```
Welcome to DCS-100.  
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 132 for a complete list of commands.

## B. Remote Control

### Command Protocol

---

## Command Protocol

The DCS-100'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 128 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>
```

**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>
```

## B. Remote Control

### Error Codes

---

## Error Codes

This section provides DCS-100 error codes:

### Error Codes: General Failures

The table below lists general failure codes:

**Table B-1.** DCS-100 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-100 “No Error” Code

Code	Description
0	Successful

## DCS-100 Command List

The table below lists DCS-100 remote commands.

Table B-3. DCS-100 Remote Commands

Command	Description	Page
<b>Ethernet Commands</b>		
<a href="#"><u>DHCP</u></a>	Enable/Disable DHCP mode	132
<a href="#"><u>EMAC</u></a>	Get MAC Address	132
<a href="#"><u>GATEWAY</u></a>	Set gateway to be used when DHCP is OFF	132
<a href="#"><u>IP</u></a>	Set Static IP Address to be used when DHCP is OFF	132
<a href="#"><u>SUBNET</u></a>	Set subnet mask to be used when DHCP is OFF	133
<b>Input Commands</b>		
<a href="#"><u>ACQ</u></a>	Input Source Acquire. Does a "force" acquire of the input.	133
<a href="#"><u>AUTOACQ</u></a>	Auto Input Acquisition Mode	133
<a href="#"><u>BACKGND</u></a>	Set background color	133
<a href="#"><u>BLKVID</u></a>	Puts black into the scaler selected	134
<a href="#"><u>CBLEQ</u></a>	Set cable equalization. Query only command.	134
<a href="#"><u>EDID</u></a>	Set Input EDID Resolution	134
<a href="#"><u>EDIDTYPE</u></a>	Set EDID type	134
<a href="#"><u>FREEZE</u></a>	Freeze the input on program	135
<a href="#"><u>IAR</u></a>	Adjust Input Aspect Ratio	135
<a href="#"><u>IAUTO</u></a>	Attempts to detect and adjust input video to the active video area	135
<a href="#"><u>IAVAIL</u></a>	Query only command for input availability	136
<a href="#"><u>IBRT</u></a>	Input brightness adjust	136
<a href="#"><u>ICDEL</u></a>	Delete Input Configuration	136
<a href="#"><u>ICNT</u></a>	Input contrast adjust	136
<a href="#"><u>ICPHO</u></a>	Input Phase Adjust	137
<a href="#"><u>ICREC</u></a>	Recalls saved input configuration for selected input	137
<a href="#"><u>ICRST</u></a>	Reset Input Configuration to default values	137
<a href="#"><u>ICSAV</u></a>	Saves Input Configuration	137
<a href="#"><u>ICSP</u></a>	Input Colorspace Adjust	138
<a href="#"><u>IHATV</u></a>	Input Horizontal Active Adjust	138
<a href="#"><u>IHCROP</u></a>	Input Horizontal Crop	138
<a href="#"><u>IHPAN</u></a>	Input Horizontal Pan	139

## B. Remote Control

### DCS-100 Command List

Table B-3. DCS-100 Remote Commands (Continued)

Command	Description	Page
<a href="#">IHPOS</a>	Input Horizontal Position Adjust	139
<a href="#">IHTOTAL</a>	Input Horizontal Total Adjust	139
<a href="#">IHUE</a>	Input Hue Adjust	139
<a href="#">IMAP</a>	Maps the input file configuration for the selected input	140
<a href="#">IRBRT</a>	Input RGB Brightness Adjust	140
<a href="#">IRCNT</a>	Input RGB Contrast Adjust	140
<a href="#">IRES</a>	Input Resolution Select	141
<a href="#">ISAT</a>	Input Saturation Adjust	141
<a href="#">ISEL</a>	Selects the selected input as the current input to display	141
<a href="#">ISLICE</a>	Input Sync Slice Threshold Adjust	142
<a href="#">ISMP</a>	Adjust Input Sample mode	142
<a href="#">ISYNC</a>	Input Sync Type Adjust.	142
<a href="#">ITYPE</a>	Input Type Adjust	143
<a href="#">IVATV</a>	Input Vertical Active Adjust	143
<a href="#">IVCROP</a>	Input Vertical Crop	143
<a href="#">IVPAN</a>	Input Vertical Pan	144
<a href="#">IVPOS</a>	Input Vertical Position Adjust	144
<a href="#">IVTOTAL</a>	Input Vertical Total Adjust. Query only.	144
<a href="#">PCOMP</a>	Pulldown Compensation mode adjust	144
<a href="#">TAKE</a>	Take the input currently on preview onto program	144
<b>Output Commands</b>		
<a href="#">BLACK</a>	Set the mixer to output black	145
<a href="#">OCSAV</a>	Save Output Configuration	145
<a href="#">OGM</a>	Set Output Gamma	145
<a href="#">ORBM</a>	Output Raster Box Mode	145
<a href="#">ORES</a>	Output Resolution	145
<a href="#">OSYNC</a>	Output Sync Type Adjust	146
<a href="#">OTPM</a>	Output Test Pattern Mode	146
<a href="#">OTPT</a>	Output Test Pattern Type	147
<b>System Commands</b>		
<a href="#">AUTOCFG</a>	Auto Input Configuration Mode	147
<a href="#">AUTOSAVE</a>	Auto Input Settings Save	148
<a href="#">AUTOTAKE</a>	Auto Take Mode	148

Table B-3. DCS-100 Remote Commands (Continued)

Command	Description	Page
<a href="#">BLKTRAN</a>	Sets whether going to black is a direct cut or setup for a take	148
<a href="#">CONTEXT</a>	Sets menu context	148
<a href="#">DIAG</a>	Performs a system diagnostic test	149
<a href="#">DIAGD</a>	Display the results of the last performed system diagnostic test	149
<a href="#">ISTAT</a>	Query only command for the input status type and format	149
<a href="#">LCLR</a>	Clear the selected log (ram copy, not flash)	149
<a href="#">LDMP</a>	Display the current log messages	149
<a href="#">LFEN</a>	Sets the mode for the selected log.	150
<a href="#">LINT</a>	Sets the time interval for writing the enabled logs to flash	150
<a href="#">LOCKOUT</a>	Controls the lockout mode of the front panel	150
<a href="#">OSTAT</a>	Query only command for the output status type and format	150
<a href="#">PREVIEW</a>	Query only command for the input, key and black button status on preview	150
<a href="#">PROGRAM</a>	Query only command for the input, key and black button status on program	151
<a href="#">RESET</a>	Reset unit	151
<a href="#">SAVE</a>	System Save	151
<a href="#">SERIAL</a>	Sets the serial port	151
<a href="#">TEMP</a>	Query only command for the temperature of the unit	152
<a href="#">TRNTIME</a>	Set transition time	152
<a href="#">VER</a>	Display version info	152
<a href="#">VFDBRT</a>	Set VFD brightness	152
<b>Key Commands</b>		
<a href="#">LKEY</a>	Luminance Key definition	153
<b>LOGO Commands</b>		
<a href="#">LOGODEL</a>	Delete the selected logo file	154
<a href="#">LOGOSAVE</a>	Save the image on Program to the selected logo fame store and file	154
<a href="#">LOGOSEL</a>	Logo selection	154
<a href="#">LOGOSTAT</a>	The logo format status. This command is a query only.	154

## B. Remote Control

### Remote Commands

---

## Remote Commands

This section lists DCS-100 remote commands, in the following categories:

- [Ethernet Commands](#)
- [Input Commands](#)
- [Output Commands](#)
- [System Commands](#)
- [Key Commands](#)
- [LOGO Commands](#)

## Ethernet Commands

### DHCP

- **Description:** Enable/Disable 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:** Get 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:** Set 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:** Set 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:** Set 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:** Acquire input source. 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:** Set 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"

## B. Remote Control

### Remote Commands

#### 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:** Set 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:** Set 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:** Set EDID type. 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:** Freeze 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

### 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"

### IAUTO

- **Description:** Attempts to detect and adjust input video to the active video area. This command is only for analog input types.
- **Command Format:** IAUTO -i (input)
- **Parameters:** -i (input): 1 - 8 for adjustments (7 & 8 only if itype is analog)
- **Query Format:** N/A

## B. Remote Control

### Remote Commands

- **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 the input configuration file. If the file parameter is not specified, the command uses the current file number from the ICREC query.
- **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 file number specified in 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 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 the input configuration file. The input's IMAP is updated if the -f (file) parameter is specified. If the file parameter is not specified, the command uses the current file number from the ICREC query.
- **Command Format:** ICSAV -i (input) -f (file)
- **Parameters:** -i (input): 1 - 9

## B. Remote Control

### Remote Commands

-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
- **List Response:** 0:"RGB"  
1:"SMPTE"

### 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) -?

### 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)
- **Query Response:**
  - IHTOTAL -i (input) -a (active) --min (active min) -- max (active 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

## B. Remote Control

### Remote Commands

-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 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 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 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

## 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)

## B. Remote Control

### Remote Commands

#### 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)

## B. Remote Control

### Remote Commands

#### 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

### OCSAV

- **Description:** Save Output Configuration
- **Command Format:** OCSAV
- **Parameters:** -o output: 1 - 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
  - 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

## B. Remote Control

### Remote Commands

-f (format): format string, i.e. "1600x1200 @60"

(Default: 1400x1050 @ 59.94)

or

-n (index): video format index

- **Query Format:** ORES -o (output) -?
- **Query Response:** ORES -o (output) -f(format)
- **List Format:** ORES -o (output) --list
- **List Response:**

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"

### OSYNC

- **Description:** Output Sync Type Adjust
- **Command Format:** OSYNC -o (output) -s (sync)
- **Parameters:**
  - o (output): 1 - DVI, 2 - 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
  - 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
  - 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"

## B. Remote Control

### Remote Commands

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

## B. Remote Control

### Remote Commands

#### 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: 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)

## B. Remote Control

### Remote Commands

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"

## B. Remote Control

### Remote Commands

## LOGO Commands

### LOGODEL

- **Description:** Delete the selected logo file.
- **Command Format:** LOGODEL -I (logo)
- **Command Params:** -I 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 -I (logo)
- **Command Params:** -I logo: 1 - 3 (Default: 1)
- **Query Format:** N/A
- **Query Response:** N/A

### LOGOSEL

- **Description:** Logo selection
- **Command Format:** LOGOSEL -I (logo)
- **Command Params:** -I logo: 1 - LOGO1, 2 - LOGO2, 3 - LOGO3 (Default: LOGO1)
- **Query Format:** LOGOSEL -?
- **Query Response:** LOGOSEL -I (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:** -I logo: 1 - LOGO1, 2 - LOGO2, 3 - LOGO3
- **Query Format:** LOGOSTAT -I (logo) -?
- **Query Response:** LOGOSTAT -I (logo) -s (status string)

## 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

## C. Contact Information

Contact Information

---

### Contact Information

#### **Barco Media and Entertainment**

11101 Trade Center Drive  
Rancho Cordova, California 95670  
USA

- Phone: (916) 859-2500
- Toll Free: (888) 414-7226
- Fax: (916) 859-2515
- Website: [www.barco.com](http://www.barco.com)

#### **Sales Contact Information**

- Direct: (916) 859-2505
- Toll Free: (888) 414-7226
- E-mail: [folsomsales@barco.com](mailto:folsomsales@barco.com)

#### **Barco N.V.**

Noordlaan 5  
8520 Kuurne  
BELGIUM

- Phone: +32 56.36.82.11
- Fax: +32 56.35.16.51
- Website: [www.barco.com](http://www.barco.com)

#### **Technical Support**

- Tech Line: (866) 374-7878 — 24 hours per day, 7 days per week

# Index

## Numerics

10/100BaseT	28
1-1 Sampling	56
3-2 film pulldown	61

## A

### AC

connector	28
power and voltage selection	31
power cords	32
power installation	31

ACQ (command)	133
---------------	-----

Acrobat usage	14
navigating and searching	14

Adapter information	30
---------------------	----

### Address

company	3
IP	73
MAC	74

### ADJUST

knob	22, 23
using knob	41

### Adjust

background color	55
brightness	59
color balance	60
colorspace	54
contrast	59
hue/saturation color balance	60
image	58
input format	53
input parameters	58
input type	54
output format	50
output gamma	51
output sync	51
processing	61
raster box	51
RGB color balance	60
sample phase	57
test pattern	50

timing	55
transition time	49
VFD brightness	71
Agency specifications	115

### Analog

15-pin D connector pinouts	116
inputs	27
output	28
sync	51

Application questions	19
-----------------------	----

Aspect Ratio	59
--------------	----

Asterisks	46, 53
-----------	--------

### Auto

black, take	70
config	56, 58
input config	69
input save	70
key, take	70
sync	61
take	70

### Auto acquire

mode	68
understanding	84

### Auto take

off	70
off, black	91
off, key	94
on	70
on, black	92
on, key	94

AUTOACQ (command)	133
-------------------	-----

AUTOCFG (command)	148
-------------------	-----

AUTOSAVE (command)	148
--------------------	-----

AUTOTAKE (command)	148
--------------------	-----

## B

BACKGND (command)	133
-------------------	-----

Background color, adjust	55
--------------------------	----

### Barco

contact information	156
sales contact information	156
technical support information	3, 156

## Index

warranty ..... 155  
Baud ..... 74  
Best guess format ..... 53  
Black  
    auto take ..... 70  
    auto take off ..... 91  
    auto take on ..... 92  
    background ..... 55  
    button ..... 25  
    using ..... 91  
BLACK (command) ..... 145  
Black Auto Take  
    off ..... 25  
    on ..... 26  
Blinking (button) ..... 24, 37  
BLK, using ..... 91  
BLKTRAN (command) ..... 148  
BLKVID (command) ..... 134  
Block diagram ..... 19  
BNC breakout cable ..... 34  
Brackets ..... 42, 46, 54  
Brightness ..... 59  
    VFD ..... 71  
Button  
    BLACK ..... 25  
    FRZ ..... 25  
    input ..... 24  
    KEY ..... 26  
    LOGO ..... 25  
    SDI ..... 25  
    states ..... 37  
    TAKE ..... 22, 26  
Button state  
    blinking ..... 24, 37  
    lit solid ..... 24, 37  
    off ..... 24, 37

## C

Cable  
    equalization ..... 77  
    information ..... 30  
CBLEQ (command) ..... 134  
Change history ..... 6  
Chapter structure ..... 13  
Chassis internal temperature ..... 78  
Clip ..... 66  
Color  
    background ..... 55  
    balance ..... 60  
Colorspace ..... 54  
Command  
    ACQ ..... 133  
    AUTOACQ ..... 133  
    AUTOCFG ..... 148  
    AUTOSAVE ..... 148

AUTOTAKE ..... 148  
BACKGND ..... 133  
BLACK ..... 145  
BLKTRAN ..... 148  
BLKVID ..... 134  
CBLEQ ..... 134  
CONTEXT ..... 148  
DHCP ..... 132  
DIAG ..... 149  
DIAGD ..... 149  
EDID ..... 134  
EDIDTYPE ..... 134  
EMAC ..... 132  
FREEZE ..... 135  
GATEWAY ..... 132  
IAR ..... 135  
IAUTOC ..... 135  
IAVAIL ..... 136  
IBRT ..... 136  
ICDEL ..... 17, 136  
ICNT ..... 136  
ICPHO ..... 137  
ICREC ..... 17, 137  
ICRST ..... 137  
ICSAV ..... 17, 137  
ICSP ..... 138  
IHATV ..... 138  
IHCROP ..... 138  
IHPAN ..... 139  
IHPOS ..... 139  
IHTOTAL ..... 139  
IHUE ..... 139  
IMAP ..... 17, 140  
IP ..... 132  
IRBRT ..... 140  
IRCNT ..... 140  
IRES ..... 141  
ISAT ..... 141  
ISEL ..... 17, 141  
ISLICE ..... 142  
ISMP ..... 142  
ISTAT ..... 149  
ISYNC ..... 142  
ITYPE ..... 143  
IVATV ..... 143  
IVCROP ..... 143  
IVPAN ..... 144  
IVPOS ..... 144  
IVTOTAL ..... 144  
LCLR ..... 149  
LDMP ..... 149  
LFEN ..... 150  
LINT ..... 150  
LKEY ..... 153  
LOCKOUT ..... 17, 150  
LOGODEL ..... 154  
LOGOSAVE ..... 154



## Index

- Documentation conventions and symbols . . . . 14
- Double arrow . . . . . 23
- Download software . . . . . 107
  - via FTP site . . . . . 107
  - via web site . . . . . 107
- DVI
  - cable equalization . . . . . 77
  - cable equalizer menu . . . . . 77
  - inputs . . . . . 27
  - output . . . . . 28
  - sync . . . . . 51
- DVI-I
  - connector pinouts . . . . . 117
  - connectors . . . . . 27
  
- E**
- EDID
  - format . . . . . 75
  - input . . . . . 75
  - setup . . . . . 75
  - setup menu . . . . . 75
  - type (7, 8) . . . . . 76
- EDID (command) . . . . . 134
- EDIDTYPE (command) . . . . . 134
- Edit cursor . . . . . 41
- Effects section . . . . . 22, 25
- Electrical specifications . . . . . 115
- EMAC . . . . . 132
- Equalization . . . . . 77
  - set to default . . . . . 77
  - set to maximum . . . . . 77
  - set to minimum . . . . . 77
- Equipment marking terms . . . . . 5
- Error codes . . . . . 128
  - general failures . . . . . 128
  - no error . . . . . 128
- ESC . . . . . 24
  - using . . . . . 41, 42
- Ethernet
  - address . . . . . 72
  - connection . . . . . 34
  - connector . . . . . 28
  - connector pinouts . . . . . 118
  - Menu . . . . . 72
  - troubleshoot connection . . . . . 111
- Executive lockout mode . . . . . 99
- Extended Display Identification Data . . . . . 75
  
- F**
- Factory
  - default . . . . . 80
  - reset . . . . . 80
- reset menu . . . . . 80
- Fade
  - to black from source plus key . . . . . 97
  - up to source plus key . . . . . 98
- FCC statement . . . . . 2
- Features, DCS-100 . . . . . 15
- File Association
  - menu . . . . . 16, 77
- Flip-flop mode . . . . . 83
- Format
  - asterisks . . . . . 53
  - best guess . . . . . 53
  - brackets . . . . . 54
  - connection table . . . . . 34
  - input . . . . . 53
  - output . . . . . 50
- Freeze . . . . . 25
  - using . . . . . 90
- FREEZE (command) . . . . . 135
- Front panel
  - components . . . . . 22
  - display section . . . . . 22
  - executive lockout mode . . . . . 99
  - full lockout mode . . . . . 99
- FRZ
  - button . . . . . 25
  - using . . . . . 90
- FTP site . . . . . 107
- Full lockout mode . . . . . 99
- Function, quick reference table . . . . . 43
  
- G**
- Gain . . . . . 66
- Gamma . . . . . 51
- Gateway
  - menu . . . . . 73
  - set . . . . . 73
- GATEWAY (command) . . . . . 132
- Gray background . . . . . 55
- Guarantee and compensation . . . . . 2
- GUI
  - connection and launch . . . . . 102
  - connections . . . . . 34
  - differences from physical control panel . . 104
  - how to connect and launch . . . . . 102
  - operations . . . . . 104
  - similarities to physical control panel . . . 104
  - status menu . . . . . 103
  - up/down arrows . . . . . 104
  - web-based . . . . . 16

# Index

## H

H	
active	57
offset	66
pan	59
position	57
size	58
total	57
Handshaking	74
Hardware	
installation	29
orientation	21
requirements, upgrading software	106
HD-15 connectors	27
HDCP	18
compliant device	18
compliant monitor	84
protocol	15
repeater	18, 47
status	47
using	84
High-Bandwidth Digital Content Protection	18
History, change	6
Horizontal active area	57
How hot is my system	78
How to	
adjust sample phase	57
capture and store a LOGO	87
communicate with DCS-100	125
connect and launch the GUI	102
download software from FTP site	107
download software from website	107
edit IP address	73
enable/disable executive lockout	100
freeze and un-freeze an input	90
install power	31
install signals to/from DCS-100	33
lock/unlock front panel	99
power up	36
transition to a saved logo	87
transition to/from black, auto take off	91
transition to/from black, auto take on	92
transition to/from key, auto take off	94
transition to/from key, auto take on	94
troubleshoot Ethernet connection	111
upgrade software via Ethernet	108
use menu system	41
use the setup menu	48
use this guide	14
Hue	60
Hue/Saturation color balance menu	60
Hyperlinks	14

## I

IAR (command)	135
IAUTO (command)	135
IAVAILABLE (command)	136
IBRT (command)	136
ICDEL (command)	17, 136
ICNT (command)	136
ICPHO (command)	137
ICREC (command)	17, 137
ICRST (command)	137
ICSAV (command)	17, 137
ICSP (command)	138
IHATV (command)	138
IHCROP (command)	138
IHPAN (command)	139
IHPOS (command)	139
IHTOTAL (command)	139
IHUE (command)	139
Image adjust menu	58
IMAP (command)	17, 140
In Auto Acquire	53, 68
Information, cables and adapters	30
Input	
auto config	69
auto save	70
buttons	24
colorspace	54
configuration file	61
connections	33
delete configuration	64
DVI cable equalizer	77
format	46, 53
format table	120
format, next	47
menu	52
processing	61
recall configuration	65
reset configuration	62
save configuration	62
SDI	28
selection rules	82
source, key	66
specifications	114
type	46, 54
type, next	47
Inputs	
analog	27
DVI	27, 65
protected and unprotected	84
section	22, 24, 26
source signals	15
using	82

## Index

Inspection .....	30
Installation	
hardware .....	29
power .....	31
rack mount .....	31
safety precautions .....	30
signals .....	33
site preparation .....	30
unpacking and inspection .....	30
Introduction to	
DCS-100 .....	13
keying .....	93
Invalid signal .....	53, 69
IP .....	132
address .....	72, 73
address, port 23 (Telnet) .....	125
IRBRT (command) .....	140
IRCNT (command) .....	140
IRES (command) .....	141
ISAT (command) .....	141
ISEL (command) .....	17, 141
ISLICE (command) .....	142
ISMP (command) .....	142
ISTAT (command) .....	149
ISYNC (command) .....	142
ITYPE (command) .....	143
IVATV (command) .....	143
IVCROP (command) .....	143
IVPAN (command) .....	144
IVPOS (command) .....	144
IVTOTAL (command) .....	144

## K

Key	
auto take .....	70
auto take off .....	94
auto take on .....	94
clip .....	66
fade to black from source plus key .....	97
fade up to source plus key .....	98
gain .....	66
H offset .....	66
input source .....	66
introduction to .....	93
luminance .....	16, 65
mix down .....	96
mix source plus key down .....	96
mix source plus key up .....	96
mix up .....	95
opacity .....	66
performing .....	94
setup menu .....	65
transition combinations .....	95
transition source under key .....	97
using .....	93

V offset .....	66
Key Auto Take	
off .....	26
on .....	26
KEY button .....	26

## L

LCLR (command) .....	149
LDMP (command) .....	149
LFEN (command) .....	150
Line voltage selection .....	31
LINT (command) .....	150
List, commands .....	129
Lit solid (button) .....	24, 37
LKEY (command) .....	153
Lockout	
executive mode .....	17, 99
LOCKOUT (command) .....	17, 150
LOGO .....	15
button .....	25
delete .....	67
how to capture and store .....	87
in executive lockout mode .....	99
save .....	67
selection .....	67
setup menu .....	67
status .....	67
transitioning to .....	87
using .....	86
LOGODEL (command) .....	154
LOGOSAVE (command) .....	154
LOGOSEL (command) .....	154
LOGOSTAT (command) .....	154
Luminance key .....	16, 65
and logos .....	86

## M

MAC Address .....	74
Macrovision copy protection .....	61
Main outputs .....	28
Menu	
context .....	46, 70
delete input config .....	17
diagnostics .....	79
display .....	23
DVI cable equalizer .....	77
EDID setup .....	75
Ethernet .....	72
Executive Mode .....	100
factory reset .....	80
File Association .....	68
gateway .....	73

## Index

- GUI status ..... 103
- hue/saturation color balance ..... 60
- image adjust ..... 58
- input ..... 52
- input file association ..... 16, 77
- key setup ..... 65
- LOGO setup ..... 67
- netmask ..... 73
- output ..... 49
- output sync setup ..... 51
- recall input config ..... 17
- RGB color balance ..... 60
- rules and conventions ..... 41
- save input configuration ..... 17
- serial setup ..... 74
- set static IP ..... 72
- setup ..... 48
- status ..... 46
- system ..... 71
- system temperature ..... 78
- tech support ..... 80
- test pattern ..... 50
- timing adjust ..... 55
- tree ..... 40
- usage, rules ..... 41
- user preference ..... 68
- value in brackets ..... 42
- Mix
  - key down ..... 96
  - key up ..... 95
  - plus digital key ..... 49
  - source plus key down ..... 96
  - source plus key up ..... 96
- Mode
  - flip-flop ..... 83
  - test pattern ..... 50
- N**
- Navigation cursor ..... 23, 41
- Netmask
  - menu ..... 73
  - set ..... 73
- Network config ..... 72
- O**
- OCSAV (command) ..... 145
- Off (button) ..... 24, 37
- Offset
  - H ..... 66
  - V ..... 66
- OGM (command) ..... 145
- Opacity ..... 66
- Operation ..... 35
  - GUI ..... 104
  - quick setup ..... 38
- Operators safety summary ..... 4
- ORES (command) ..... 145
- Orientation, hardware ..... 21
- OSTAT (command) ..... 150
- OSYNC (command) ..... 146
- OTPM (command) ..... 146
- OTPT (command) ..... 147
- Output
  - analog ..... 28
  - connections ..... 33
  - DVI ..... 28
  - format ..... 50
  - format table ..... 120
  - gamma ..... 51
  - main ..... 28
  - menu ..... 49
  - save configuration ..... 51
  - specifications ..... 114
  - sync setup menu ..... 51
  - test pattern ..... 50
- Oversample ..... 56
- Over-temp ..... 78
- Overview
  - control ..... 36
  - software upgrade ..... 106
- P**
- Page
  - DCS-100 home ..... 103, 109
  - select file ..... 109
  - upload status ..... 110
- Pan ..... 58
- Parity ..... 74
- PCOMP (command) ..... 144
- PDF file usage ..... 14
  - navigating and searching ..... 14
- Performing a key ..... 94
- Phase A, Phase B ..... 56
- Phone, tech support ..... 80
- Physical specifications ..... 115
- Pinouts ..... 116
  - analog 15-pin D connector ..... 116
  - DVI-I connector ..... 117
  - Ethernet connector ..... 118
  - serial connector ..... 119
- Power
  - cord, line voltage selection ..... 31
  - installation ..... 31
  - precautions ..... 32
  - up and initialization ..... 36
- PREVIEW (command) ..... 150
- Processing menu ..... 61

## Index

- PROGRAM (command) ..... 151
- Protocol
  - command ..... 126
  - remote control ..... 125
- Pulldown Compensation ..... 61
  
- Q**
- Query options ..... 126
- Quick
  - function reference ..... 43
  - setup and operations ..... 38
  
- R**
- Rack mount installation ..... 31
- Raster Box ..... 51
- Ratio, aspect ..... 59
- Rear panel connectors ..... 27
- Recall
  - input config ..... 17
  - input configuration ..... 65
- Reference, quick function table ..... 43
- Remote control protocol ..... 125
- Repeater, HDCP ..... 18, 47
- RESET ..... 151
- Reset
  - all ..... 60
  - config ..... 62
  - factory ..... 80
  - input configuration ..... 62
  - serial parameters ..... 74
- Resolutions, input and output ..... 15
- Restart DCS-100 ..... 110
- Return material authorization ..... 155
- RGB color balance menu ..... 60
- RMA ..... 155
- Rules, input selection ..... 82
  
- S**
- Safety
  - precautions ..... 30
  - summary ..... 4
- Sales contact information ..... 156
- Sample phase, adjust ..... 57
- Sampling ..... 56
- Saturation ..... 60
- Save
  - config ..... 51, 63, 79
  - input config ..... 17
  - input configuration ..... 62
  - input, auto ..... 70
- LOGO ..... 67
- output configuration ..... 51
- system config ..... 79
- system state ..... 79, 80
- SAVE (command) ..... 151
- Scaling and de-interlacing ..... 16
- SDI
  - button ..... 25
  - input ..... 28
- Section
  - display ..... 22, 23
  - effects ..... 22, 25
  - inputs ..... 22, 24, 26
- SEL ..... 23
- using ..... 41, 42
- Select file page ..... 109
- Selection, input rules ..... 82
- Serial
  - communications ..... 28
  - connection ..... 34
  - connector ..... 28
  - connector pinouts ..... 119
  - setup ..... 74
  - setup menu ..... 74
- SERIAL (command) ..... 151
- Set
  - gateway ..... 73
  - netmask ..... 73
  - static IP ..... 72
- Setup
  - EDID ..... 75
  - menu, using ..... 48
  - serial ..... 74
- Signal installation ..... 33
- Site preparation ..... 30
- Size ..... 58
- Software
  - downloading ..... 107
  - requirements, upgrading ..... 106
  - upgrade overview ..... 106
  - upgrade via Ethernet ..... 108
  - upgrading ..... 105
  - version ..... 37, 80
- SOG ..... 61
- Source transition under key ..... 97
- Specifications ..... 113
- agency ..... 115
- communications ..... 115
- electrical ..... 115
- input ..... 114
- input and output format table ..... 120
- output ..... 114
- physical ..... 115
- pinouts ..... 116

# Index

Status	
HDCP	.47
LOGO	.67
menu	.46
menu, conventions	.46
menu, input format	.46
menu, input type	.46
menu, next input format	.47
menu, next input type	.47
Status menu, GUI	.103
Stop bits	.74
SUBNET (command)	.133
Support, technical information	.3, 156
Symbols	.14
Sync	
analog	.51
auto	.61
CSync	.61
DVI	.51
selection	.61
setup menu	.51
slice	.61
SOG	.61
System	
config, save	.79
diagram	.33
menu	.71
temperature menu	.78
<b>T</b>	
Table	
format connections	.34
input and output formats	.120
quick function reference	.43
TAKE	
button	.22, 26
command	.144
Tech support	
menu	.80
phone	.80
software version	.80
Technical support information	.3, 156
Telnet	.28
using	.125
TEMP (command)	.152
Temperature	.78
over-temp condition	.78
Terms, equipment marking	.5
Test pattern	
generator	.16
menu	.50
mode	.50
raster box	.51
type	.50
Timing	

1-1 sampling	.56
adjust menu	.55
oversample	.56
Trademarks	.3
Trans time	.49
Transition time	.49
Transitioning	
automatically	.70
to a saved logo	.87
Tree, menu	.40
TRNTIME (command)	.152
Troubleshoot Ethernet connection	.111
Type	
input	.54
test pattern	.50

## U

Understanding auto acquire	.84
Unpacking	.30
Up/Down arrows	.104
Upgrade	
software	.105
software via Ethernet	.108
Upload	
dialog	.110
status page	.110
User preference	
auto input save	.70
auto take	.70
menu	.68
menu context	.70
Using	
auto acquire	.68
black	.91
BLK	.91
ESC button	.41, 42
freeze	.90
HDCP	.84
inputs	.82
Keys	.93
LOGO	.86
SEL button	.41, 42
setup menu	.48

## V

v	
active	.57
offset	.66
pan	.59
position	.57
size	.59
total	.57

## Index

Vacuum Fluorescent Display .....	23
VER (command) .....	152
Version, software .....	80
Vertical active area .....	57
VFD .....	23
brightness .....	71
VFDBRT (command) .....	152

## W

Warranty .....	155
Web site .....	107