

NGS-D200

User Guide



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- **Software version:** 4.3.r1
- **Manual version:** 1.2.1
- **NGS-D200 Release version:** v1.2.1

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Chapter 1: How to Use this Manual

This user guide is for advanced configuration of the NGS-D200.

The NGS-D200 can be integrated into several operational workflows, satisfying a variety of AV streaming and collaboration cases:

- DVI-input node for the TransForm-N solution
 - See the document *"Installation and Configuration of TransForm N (R591408_00_Installation.pdf)"*
- Replacement for the V2D XP line of encoders for users of the 4.x Barco Collaboration Suite. When used with the 4.x Collaboration Suite, the NGS-D200 enables recording and playback of DVI sources
 - See the document *"4.x Admin UI Setup Guide (922-10060)"*
- Standalone unit for simple point-to-point sharing of video, audio, and keyboard/mouse
 - For more information, see *"Modes of Operation" on page 8*

1.1 Conventions Used in this Manual

The following conventions may be used in this manual:

Convention	Description
	Electrical warning
	Reference the user manual
	Warning
	Tip: gives extra advice about the described subject
	Note: gives extra information about the described subject
Blue box with text	Additional detailed information about the described subject
<i>Green Italics</i>	Pointer to the highlighted topic/item E.g. <i>Menu > Configuration > Option 1</i>

Chapter 2: Product Overview

The following topics are covered in this chapter:

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2.3 Physical Specifications	3
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2.1 NGS-D200 Features

- On-the-fly digital compression and transmission
- Encoder/decoder functionality in a single unit
- Low end-to-end latency
- Complete remote desktop sharing with remote USB keyboard and mouse(KbM) support
- Redundant LAN
- Passive video loop through
- Dual Link resolution support (NGS-D200 Pro & NGS-D200 Pro 3D only)
- 3D stereoscopic graphics support (NGS-D200 Pro 3D only)

2.2 NGS-D200 Summary

Barco's NGS-D200 encoders (Tx)/decoders (Rx) enable seamless, point-to-point video, stereoscopic graphics and audio distribution, plus keyboard/mouse control all with low latency. They ensure high quality collaborative experience in any network and for any bandwidth allocation. Multisite collaboration, simulation, training, testing and application sharing are readily provided to small and large enterprises with unmatched visual fidelity.

The NGS-D200 leverages the power of the Barco's V2D (Video-to-data) codec. The Video-to-Data (V2D) codec is optimized for collaboration and transmitting ultra HD computer graphics and data across networks. V2D is architected for very high image quality, accurate color representation and sharp resolution of details and fine lines.

2.3 Physical Specifications

Table 2-1: NGS-D200 Physical Specifications

Size	H: 1.62" (41.15 mm), W: 4.8" (121.92 mm), D: 6" (152.44 mm)
------	---

Weight	3.6 lbs. (1.6 kg)
Power	110/220 V AC, 60/50 Hz, 40 W, external, auto switchable
Operating Temperature Range	0-40° C

2.4 Front Panel Overview

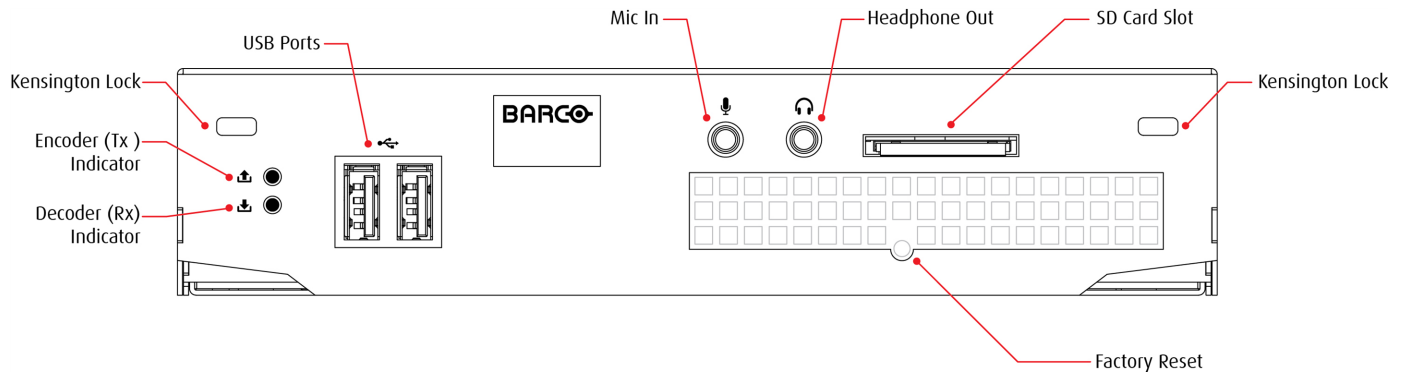


Figure 2-1: Front panel of the NGS-D200



NOTE: The included SD card must always be plugged into the slot before powering up the NGS-D200.



NOTE: Make sure to properly shutdown and power off the unit before removing the SD card.

2.4.1 Reset the NGS-D200 to Factory Defaults

If you need to revert the device back to the factory defaults, you can do so with the **Factory Reset** button.

2.4.1.1 Procedure

1. Insert a pin into the small hole on the front panel grill (nine slots from the left-hand side of the grill)
2. Press the button for eight seconds
3. The front panel LEDs will flash and the system will reset

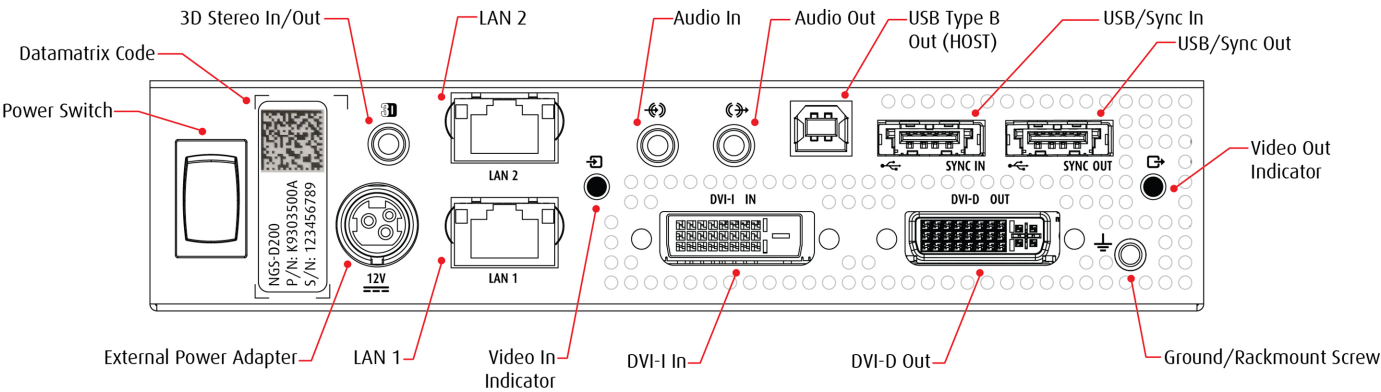
2.4.2 Front panel LEDs

The NGS-D200 features has two LEDs on the front panel that are used to identify the connection status of the device.

Table 2-2: Front Panel LED overview

LED		Legend:
Encoder ⬆		The device is not configured as an encoder
		The device is configured as an encoder. If blinking, the encoder is connected to a decoder and streaming video
Decoder ⬇		The device is not configured as a decoder
		Passive loopback video is available (power provided from a USB or DVI connection)
		The device is configured as a decoder. If blinking, the decoder is connected to an encoder and receiving video

2.5 Rear Panel Overview



NOTE: End-to-end sync is not currently available.

2.5.1 Rear Panel LEDs

The NGS-D200 has two LEDs on the back panel that can be used to identify the configuration and status of the device:

Table 2-3: Video In Indicator Overview

Color	Status
Off	No video detected
Solid Red	Video signal is detected, but a valid LUT is not detected
Solid Green	Video signal is detected and a valid LUT is detected
Blinking Green	- Encoder: Video signal and LUT are detected and valid. The device is streaming to a decoder - Decoder: Video signal and LUT are detected and valid. The device is configured in "Local" mode

Table 2-4: Video Out Indicator Overview

Color	Status
Off	No monitor detected
Solid Red	Monitor is detected, but the NGS-D200 is unable to read its EDID
Blinking Red	Monitor is detected, but the NGS-D200 is unable to display the video because the output signal is unsupported by the monitor
Solid Green	Monitor is detected, and the video output is supported by the monitor
Blinking Green	Decoder: Video is being decoded and is being displayed on the connected monitor

2.6 Video Connection and Sync Specifications

- The NGS-D200 supports video input configured as either encoder or decoder.

Table 2-5: Video Specifications

Function:		NGS-D200 Lite	NGS-D200 Pro	NGS-D200 Pro 3D
Video	Resolution	Digital: 800 x 600 to 1920 x 1200 Max pixel clock rate of 165 MHz	Digital: 800 x 600 to 2560 x 1600 Max pixel clock rate of 330 MHz	Digital: 800 x 600 to 2560 x 1600 Max pixel clock rate of 330 MHz
		Analog: 800 x 600 to 1920 x 1200 Max pixel clock rate of 170 MHz	Analog: 800 x 600 to 1920 x 1200 Max pixel clock rate of 170 MHz	Analog: 800 x 600 to 1920 x 1200 Max pixel clock rate of 170 MHz
	Refresh rate	Up to 120 Hz	Up to 120 Hz	Up to 120 Hz
Video Input	Stereo	No	No	TTL stereo out via 3.5 mm-to-RCA cable
	Connectors	Single-link DVI-I (Analog and Digital)	Dual-link DVI-I (Analog and Digital)	Dual-link DVI-I (Analog and Digital)
	Minimum/maximum levels	Analog: 0.5V to 1.0V p-p	Analog: 0.5V to 1.0V p-p	Analog: 0.5V to 1.0V p-p
	Impedance	Analog: 75 Ω	Analog: 75 Ω	Analog: 75 Ω
	Maximum DC offset	4.0V	4.0V	4.0V
Video Output	Stereo	No	No	TTL stereo out via 3.5 mm-to-RCA cable
	Connectors	Single-link DVI-D (Digital)	Dual-link DVI-D (Digital)	Dual-link DVI-D (Digital)

2.7 Audio Connection Specifications

Table 2-6: Audio Connection Specifications

Audio Input	Type	Stereo (two-channel), unbalanced
	Connectors	3.5 mm stereo jack, 3.5 mm mic
	Impedance	3 k Ω , DC coupled
Audio Output	Type	Stereo (two-channel), unbalanced
	Connectors	3.5 mm stereo jack, 3.5 mm headphone
	Impedance	500 Ω , AC coupled

2.8 Device Defaults

All systems come with the following network configuration:

- **Multicast:** Yes
- **Enabled:** Yes
- **Primary:** Yes
- **DHCP:** Yes
- **MTU Size:** 1500 bytes



NOTE: For more information, see "Network Configuration" on page 25

2.9 Modes of Operation

The system has two unique operating modes:

- Standalone Mode - Each device must be individually configured and managed



NOTE: TransForm N users will operate the device in this mode.

- Managed Mode (Barco Collaboration Suite) - Each device is centrally managed by the Barco Management Server

The unit must be set to operate in one of these modes. *For more information, see "Standalone Mode" on page 58*

2.9.1 Managed Mode

In Managed Mode, the device is used as part of networked, centrally managed, collaboration solution under the control of the 4.x Barco Management Server. Bandwidth consumption can be dynamically provisioned in Managed mode.

If using Managed Mode, simply connect the unit to your network. If Auto Registration is enabled on the Management Server, the NGS-D200 will be automatically registered and discovered. You can configure advanced settings centrally from the Admin UI or use the Web UI, as described later in this document. *Please see the 4.x Admin UI Setup Guide for more.*

- The device is part of a centrally managed collaboration solution that enables flexible stream routing, synchronous recording, advanced policy management and more
- *4.x Collaboration Suite users, select this mode.*

2.9.2 Standalone Mode

The device is used for simple point-to-point connections enabling sharing of visually lossless video and graphics, audio, and ultra-low latency keyboard/mouse control over IP. In Standalone Mode, the decoder is setup to connect to the encoder without the help of a management system.

If using the NGS-D200 as a Transform-N DVI input node, then use the device in Standalone Mode. *Please see "Installation and Configuration of TransForm N" for more on using the NGS-200 as part of the TransForm N environment*

2.9.2.1 Standalone Mode Requirements

- Both the encoders and decoders involved must:
 - Have the appropriate network settings configured
 - Have **Standalone Mode** enabled via the "Standalone Mode" page. *For more information, see "Standalone Mode" on page 58*

- Decoders:
 - Establish connections with the encoder (via **Connection Manager Table**)
 - *For more information, see "Connection Manager Table" on page 35*

Chapter 3: Unpacking the System

The following topics are covered in this chapter:

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3.1 What's in the Box?

The following equipment is shipped with the NGS-D200 unit:

1. Power cord for Europe
2. Power cord for USA
3. 12 V DC power supply
4. SD card*



NOTE: *The SD card contains all necessary licensing information. If you have purchased the NGS-D200 Pro or NGS-D200 Pro 3D, you will receive an additional SD card that will enable additional functionality beyond what is supported by the NGS-D200 Lite. The NGS-D200 Pro 3D also comes with the 3D stereo kit (part # C9826147).



Figure 3-1: NGS-200 accessories

3.1.1 NGS-D200 Pro 3D

The NGS-D200 Pro 3D also includes the 3D stereo kit (part # C9826147).

*Figure 3-2: 3D Stereo Kit*

3.1.2 Included documentation:

- Hardcopy of the NGS-D200 Quick Start Guide (K5903053-00)



TIP: You can access the Quick Start Guide and NGS-D200 HW Guide through the Web UI.

3.2 Unpacking the System

3.2.1 Unpacking the unit

You should unpack and check the pieces of the NGS-D200 unit as soon as the system arrives.

3.2.2 Procedure

1. Carefully open the box
2. Clear a space large enough for the NGS-D200 unit
3. Remove the NGS-D200 unit and set it on a cleared, flat surface for inspection
4. Check the chassis for any damage that may have occurred in shipping
5. Remove the accompanying accessories and check to see that everything is present



NOTE: If any accessories are missing or damaged, contact Customer Support for an immediate replacement.



NOTE: Do not place any weight on top of the unit. It is not designed to support weight and internal components can be damaged if objects are placed on top of the NGS-D200 unit.

Chapter 4: Installation and Connections

The following topics are covered in this chapter:

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4.2 Installation Diagram	13
4.3 Overview of Encoder/Decoder Dataflow	15
4.4 Connections for 3D/Stereoscopic Video	17

4.1 Mounting the NGS-D200

The NGS-D200 is designed to function as a desktop model. It is equipped with rubber feet to prevent scratching the surface it is placed on. Additionally, two units can be mounted within a 1U rack space using the NGS-D200 rack mount kit (part number C9826136 - *not included*).

4.2 Installation Diagram

The NGS-D200 should be installed according to the following diagram.

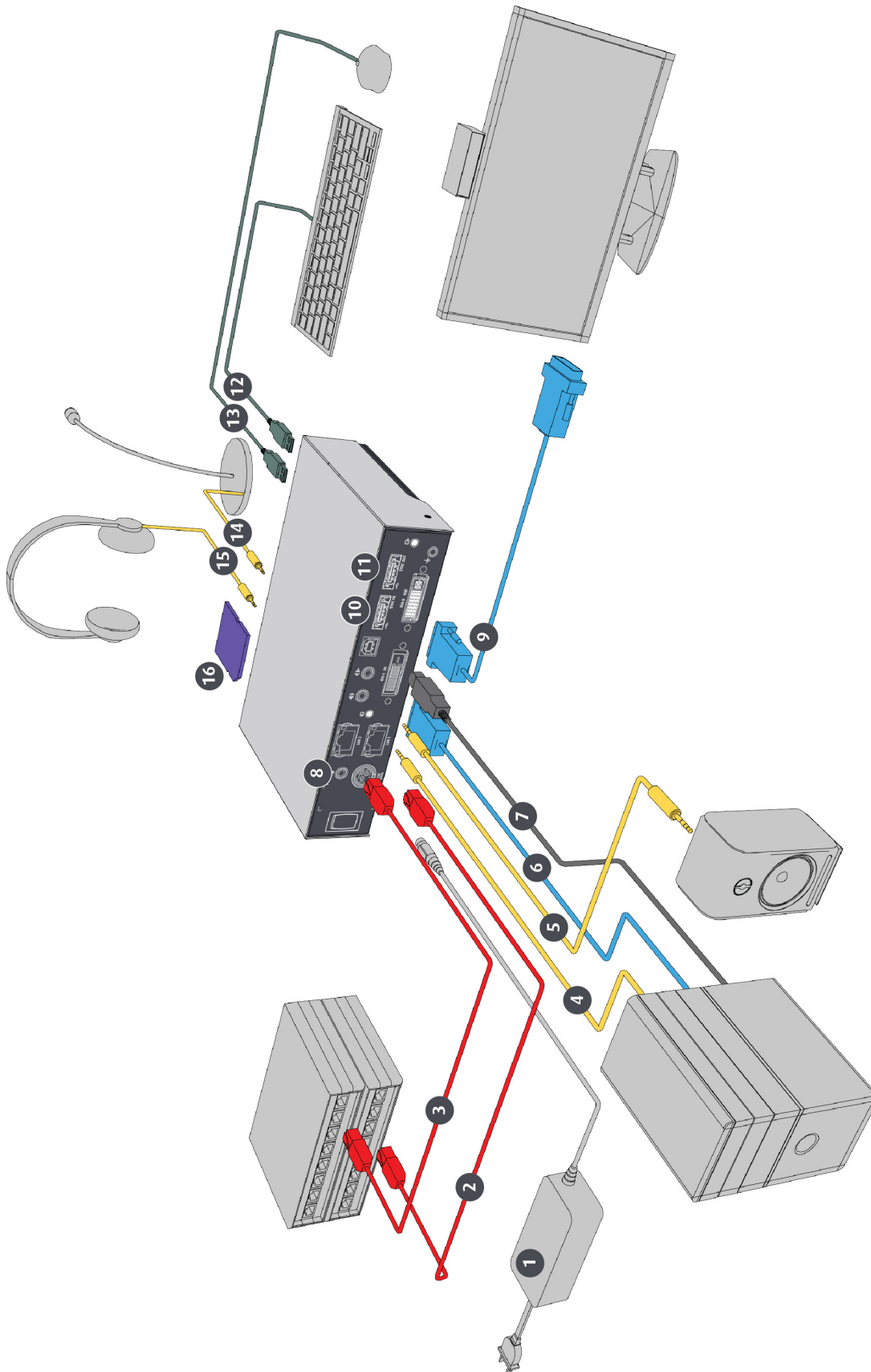


Table 4-1: Encoder/Decoder Configuration

	Description
1	Power Adaptor
2	Primary LAN
3	Redundant LAN
4	Audio In (3.5 mm jack)
5	Audio Out (3.5 mm jack)
6	DVI-I In (DVI-D to DVI-D or VGA to DVI-A)
7	HOST USB (Type B)
8	3D
9	DVI-D Out
10-13	USB Slots for Keyboard/Mouse
14	Mic In
15	Headphone Out
16	SD Card

4.3 Overview of Encoder/Decoder Dataflow

This section outlines the dataflow between the encoder and decoder.

After making a connection, the decoder side will see, hear, and control encoder-side source by default.

On the encoder side, the NGS-D200 loopback feature allows video, audio, and peripheral (USB) signals and data to pass through for connection to a monitor, speakers and the source. This enables collaboration between the two sites as the user at the encoder side can continue to operate their workstation as it is being shared with the decoder side.



NOTE: Video, audio and USB loopback are enabled by default on the encoder.

4.3.1 Typical Dataflow

The following diagrams outline the typical dataflow between an encoder and decoder.

4.3.1.1 Encoder to Hardware Decoder

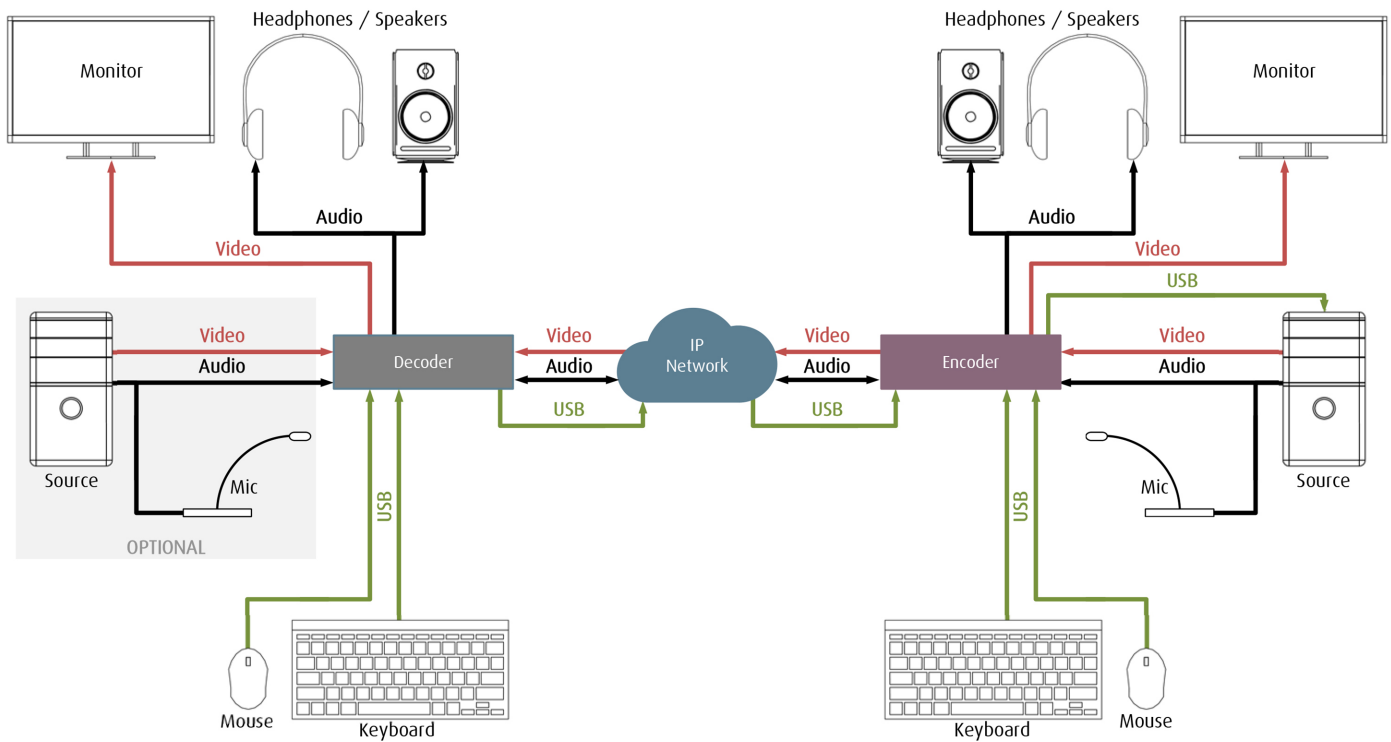
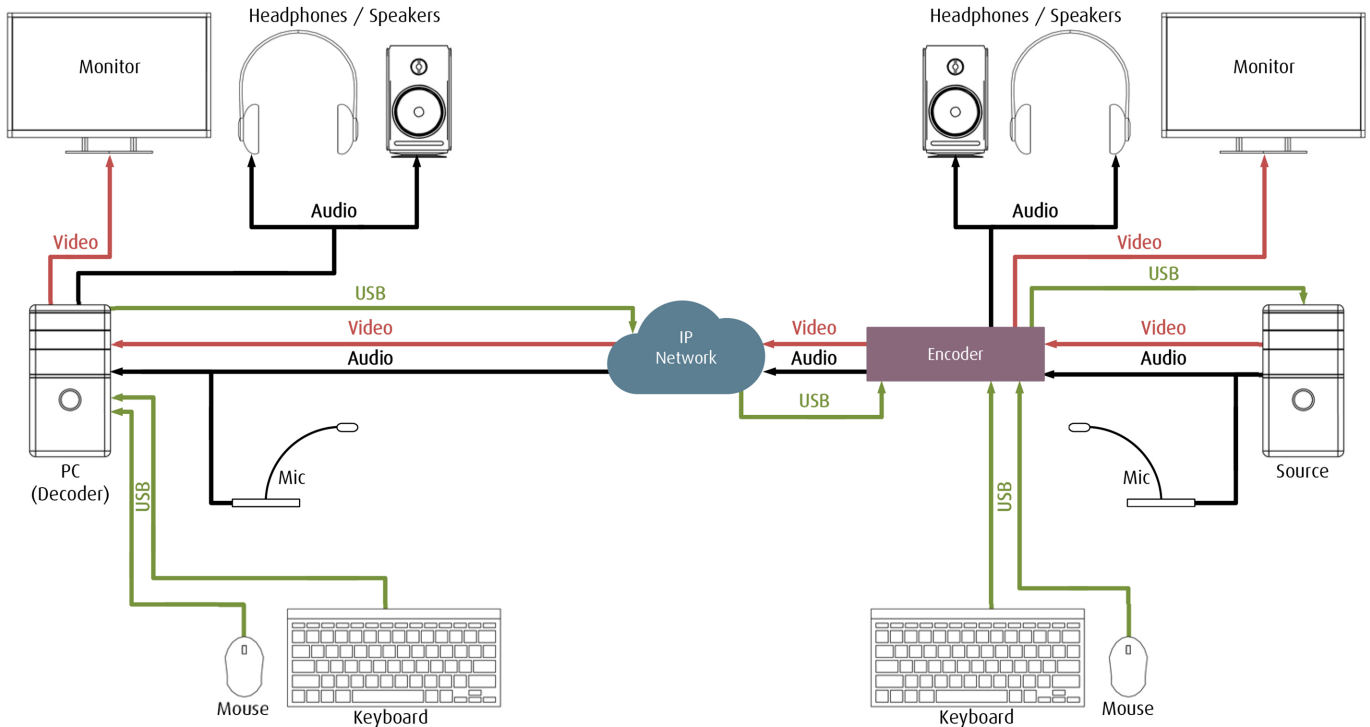


Figure 4-1: Typical dataflow between the encoder and hardware decoder

4.3.1.2 Encoder to Software Decoder



4.3.2 Decoder Local Mode Dataflow

For workflow flexibility, the decoder can be operated in "Local" mode to enable users to operate the workstation (local source PC) at their desk.

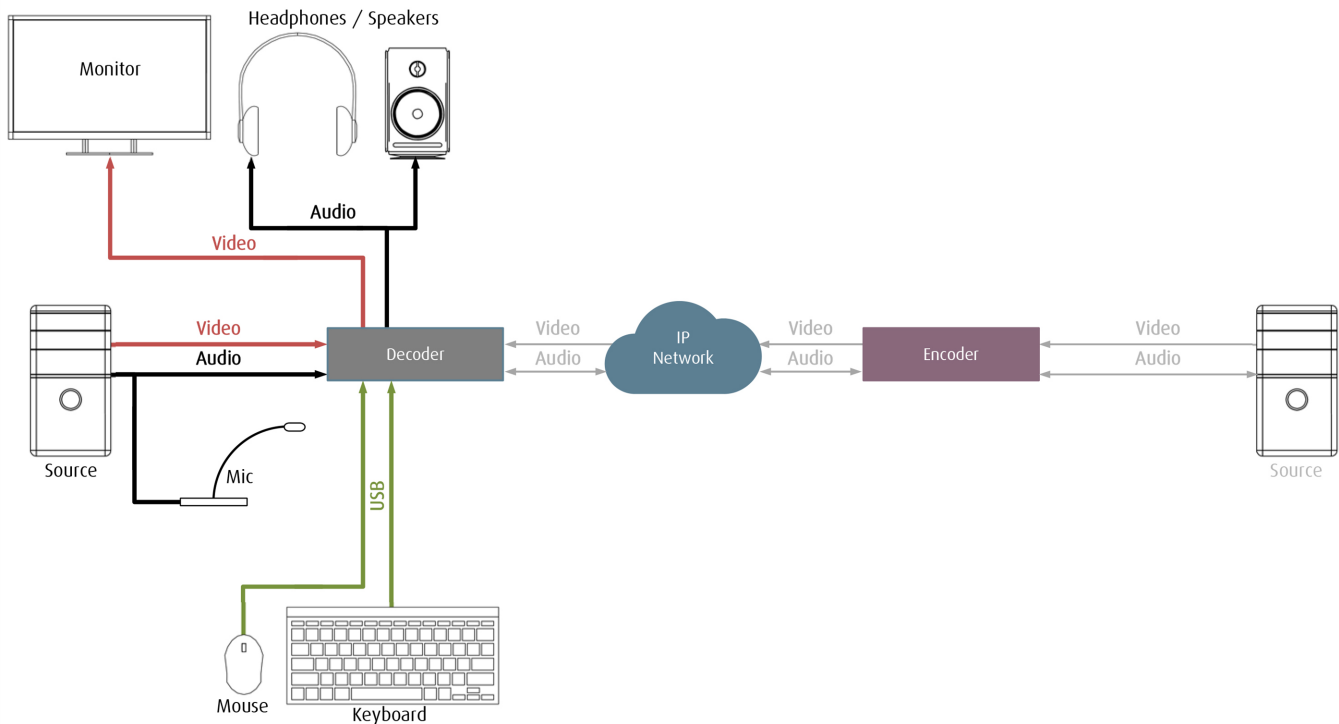


Figure 4-2: The decoder operating in Local Mode

4.3.2.1 Setting the Decoder to Local Mode

Video, audio and keyboard/mouse mode must be set to "Local" mode to pass the respective input back to the source.

1. Video - Set the video to Local mode. *For more information, see "Decoder Input Video Parameters" on page 45*
2. Audio - Ensure the decoder audio mixer is appropriately configured. *For more information, see "Audio Mixer Configuration" on page 51*
3. Keyboard/Mouse - Set the keyboard/mouse mode to "Local" mode. *For more information, see "Decoder Keyboard/Mouse Parameters" on page 56*

4.4 Connections for 3D/Stereoscopic Video



NOTE: 3D/Stereoscopic video is only supported on the NGS-D200 Pro 3D. For information on upgrading to the Pro 3D, please contact Barco Sales.

This outlines a simple setup in which a single stereo source will be transmitted to the remote side.

4.4.1 Tools and equipment required

- 3D-visualization engine or other stereo video generating device
- Stereo emitter (with power cords)

- Stereoscopic goggles or viewing device
- 3d stereo kit (part # C9826147)
- Female BNC-to-male RCA adapters (2 included with NGS-D200 Pro 3D)
- BNC cables



NOTE: The encoder requires active L/R sync input to detect stereoscopic video.

4.4.2 Configuration

1. Connect the stereo emitter by following the manufacturer's instructions
2. Follow the configuration diagram below:

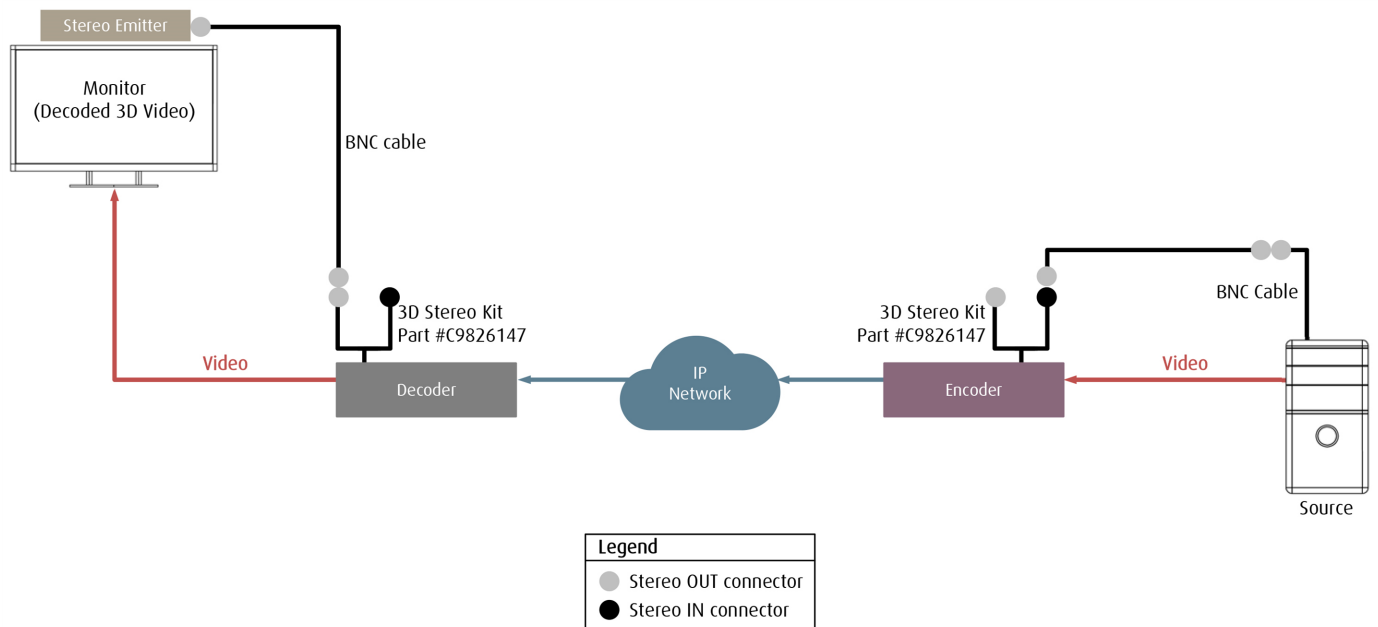


Figure 4-3: Simple 3D/stereoscopic video setup

Chapter 5: Discovering the NGS-D200 and Accessing the Web UI

This chapter discusses how to discover the NGS-D200 on your network, and how to access the Web UI to configure device settings.

5.1 Powering on the NGS-D200

Now that the unit is connected, it is ready to be powered up.

5.1.1 Tools and equipment required

- Power cord

5.1.2 Procedure

1. Plug one end of the power cord into the unit and the other end into a wall electrical outlet (100-240 V 50/60 Hz)
2. Ensure that the included SD card is properly inserted into the slot
3. Power on the unit via the power switch



NOTE: If the front panel LEDs fail to illuminate, a hardware failure has occurred. Please contact Customer Support.

5.2 Locate the Device

It is recommended to work with your deployment's IT department to appropriately configure and provision your network before installing the unit. By default, the device is configured to use DHCP.

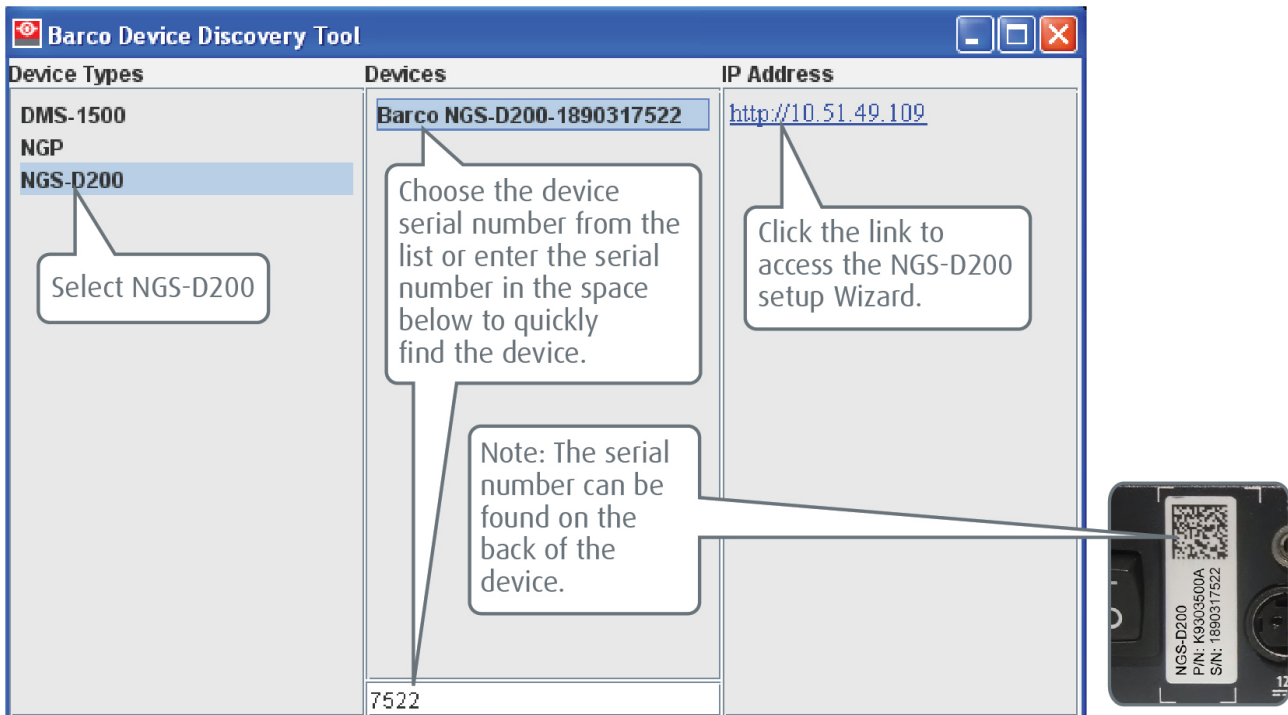
You can use the Barco Device Discovery Tool to locate devices on your local network segment (VLAN) and determine their IP addresses.

5.2.1 Procedure

1. Download the Barco Device Discovery Tool:

<http://www.barco.com/networktools>

2. Follow the instructions below:



TIP: The serial number can be found on the back of the device and can be scanned using a Datamatrix code reader.

5.3 Configuration Wizard



NOTE: You will only be required to use the configuration wizard the first time the device is used or reverted to factory defaults. You can use the Reset button on the front panel to revert the device to factory defaults.

5.3.1 What you'll need

- A new device name and password



WARNING: Make sure to document the configured device name and password. You will have to revert the system to factory defaults if this is lost or forgotten. *For more information, see "Reset the NGS-D200 to Factory Defaults" on page 4*

- Management Server IP/DNS name (if using the device in Managed Mode as part of the 4.x Collaboration Suite)
- NTP Server IP/DNS name
- If not using DHCP:
 - IP address/DNS name
 - gateway IP address/DNS name
 - subnet mask
- The multicast streaming address (optional)



NOTE: If setting up encoder for streaming using Multicast mode, make sure that no two encoders have the same multicast address. This can be achieved by either using Standalone mode and setting a unique multicast address on each encoder. OR, Using managed mode, and setting up a pool of multicast addresses on Management Server - the management server will assign unique multicast IP address to different encoders

- The keyboard locale: See [Keyboard Locale](#)
 - Your choice of how the device will operate: encoder or decoder
 - If configuring the system as an encoder, you will be prompted to select the **source type**:
 - Remote Desktop Interaction - optimized for capturing computer desktop screens
 - High Resolution Graphics - optimized for highest image quality
 - Full Motion Video - optimized for high frame rate
 - Custom - create your own custom connection profile
-



NOTE: Once you have finished with the wizard, you will be taken to the Web UI.



NOTE: You can return to the wizard and change settings again from "Quick Setup" on the left navigation panel on Web UI

5.4 Accessing the Web UI

The Web UI is used for device configuration and operation.

5.4.1 Procedure

1. Navigate to the IP address of the device from a web browser (e.g. 10.1.5.50)
 2. At the top of the page, enter the credentials created via the configuration wizard
-



NOTE: You can change the login credentials if necessary. *For more information, see "Admin Account" on page 58*

Chapter 6: Web UI Overview

The following topics are covered in this chapter:

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6.2 Organization	23

6.1 General Functionality

- **Expand/Collapse:** Every section of the Web UI can be expanded or collapsed by clicking on the arrow next to the section. Also, the entire page can be expanded or collapsed by clicking "Expand All" or "Collapse All" at the top of the page
- **Page Refresh (F5):** Refreshes the web page
- **Apply/Cancel Changes:** Click "Apply" to make your changes take effect
- **Save Settings:** Click "Save Settings" to permanently save you changes to the system SD card. The changes will persist across device reboots

6.2 Organization

The Web UI is organized into several subsections:

- **Dashboard:** provides an overview of the system info, status, and health.
- **System Information:** provides an overview of key software, firmware, system, memory, time and temperature information
- **Quick Setup:** allows you to change basic settings thru the configuration wizard used during initial installation
- **Network:** allows you to set the device network settings
- **Streaming:** allows you configure streaming settings
- **Encoding/Decoding:** allows you configure settings specific to the encoder/decoder
- **Video:** enables you to configure specific video input and output settings
- **Audio:** enables you to configure specific audio input and output settings
- **Keyboard/Mouse:** allows you to configure keyboard and mouse settings
- **Administration:** allows you to configure device management and administration settings
- **Discovery:** shows other devices on your network. This is helpful for finding other clients and servers that you can connect to
- **Documentation:** provides links to the product documentation

Chapter 6: System Information

The System Information page provides the following system status and access to system settings

System Status

- **Software Information:** provides build version number, date, serial number, model type and license type for the device.
- **Firmware Information:** provides firmware versions and dates of different firmware on the device.
- **System Information:** provides uptime and load average.
- **Memory Utilization:** provides system memory utilization
- **System Time:** shows system time and NTP status
- **Temperature and Fan Information:** provides temperature of different critical components and zones on the devices

System Settings

- **Fan Speed of the System:** provides way to change the fan speed on the Device. The default fan speed option is set to Auto (High). Other options are High, Medium and Low. After changing the settings, they take effect immediately. To make the change persistent across reboots, hit **Save Settings:** button under left navigation panel



WARNING: It is highly recommended to not change the fan speed setting and leave it at factory default value of Auto.



WARNING: Reducing the fan speed can adverse effect of the operation of the device and will reduce MTBF and product reliability. If the fan speed is reduced (e.g. for acoustic purposes,), it shall be done at customers own risk. *For more information, see "Authorization Table" on page 33*

Chapter 7: Network Configuration

Network Configuration allows you to set the device network settings as well as get real-time network statistics.

The following topics are covered in this chapter:

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7.2 Network Settings	25

7.1 Network Statistics

7.1.1 Interface

The **Interface** section gives real-time information about the device network interface

7.1.2 Routing

The **Routing** section gives real-time information about device static routes

7.2 Network Settings

7.2.1 Network Interface (IP Address Configuration)

You may want to reconfigure the default network settings of the device:

- **DHCP:** Enables DHCP on the device



NOTE: Ensure DHCP is enabled if you wish to use the Device Discovery feature in the 4.x Collaboration Suite.

- **MTU Size:** Specifies the maximum transmission unit (MTU) size (in bytes). The default size is 1500.
- **IP Address:** If not using DHCP, specifies the statics IP address of the device
- **Netmask:** Specifies the interface netmask



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

7.2.2 Domain Name Service (DNS) Client

You can specify the DNS server and the device host name.

7.2.2.1 Notes

- You must have preconfigured your DNS server
- If using the device in Managed mode, DNS must already be configured on the Management Server. *See the 4.x Admin UI Setup Guide*

- **Host name:** Enter the host name for the device (e.g. `my_system`)
- **Local Domain Name:** Enter the local domain name for you network



NOTE: If using the device in Managed mode, enter the domain name of the Management Server (e.g. `barco.com`)

- **DNS Server IP Address:** Enter the IP address of your deployment's DNS server



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

7.2.3 NTP Client Configuration

You can configure the device as a client to an NTP server.

- **Enable:** Enables the system to be an NTP Client to the specified server
- **NTP Server:** Enter the IP address of the NTP server



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

7.2.4 Static Routes

You can configure static routes for the device if you need to communicate with devices outside of your LAN (e.g. 10.1.5.x).

1. Click "Add" to add a new route
2. Configure the following:
 - **Destination:** Specify the remote LAN network address
 - **Netmask:** Specify the netmask of the network address (e.g. 255.255.0.0)
 - **Gateway:** Specify the IP address of your network gateway



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

Chapter 8: Streaming

The Streaming menu is used to define audio/video, multicast, and control port ranges, enable or disable reverse audio, as well make and break Standalone connections between encoder and decoder.

The following topics are covered in this chapter:

8.1 Streaming Statistics	27
8.2 Streaming Settings	28

8.1 Streaming Statistics

the **Streaming Statistics** page gives real-time information about the status of a connection. After making a connection, you can use this page to get detailed information from the perspective of the encoder or decoder.

8.1.1 Connection Information (Encoder)

- **Client:** Displays the IP address of the currently connected client. For multicast connections, the system will display the IP address of the first client that connected
- **Status:** Displays the connection status of the encoder`
- **LUT:** Displays the name field of the currently matching LUT entry
- **Max BW:** Displays the configured maximum bandwidth allowed to connected clients



NOTE: Max BW should not normally change unless a currently connected client disconnects and a new client joins matching a different Authorization Entry. It may also change if you manually change the Max BW via the user interface (e.g. from a separate SSH or console session).

- **Interface:**
 - **Analog HV:** Indicates if the input video is RGB (H sync and V sync detected)
 - **Analog SOG:** Indicates if the input video is RGB with Sync on Green (SoG) or composite sync
 - **DVI:** Indicates if the input video is DVI
 - **“????”:** Indicates that no input video is detected
- **Video Bytes:** Displays the number of bytes currently consumed by video data
- **Audio Bytes:** Displays the number of bytes currently consumed by audio data
- **Horiz. Freq:** Displays the refresh rate of the horizontal video signal from the DVI inputs (Hz)
- **Vert. Freq:** Displays the refresh rate of the vertical video signal from the DVI input (Hz)
- **Horizontal Lines:** Indicates the total number of horizontal lines observed in the connected video signal
- **Stereo:** Indicates if a stereo video signal is detected
- **Frames:** Displays the total number of frames processed so far
- **Slices:** Displays the total number of slices processed so far
- **Frame Rate:** Indicates the number of frames processed per second
- **Slice Rate:** Indicates the number of slices processed per second
- **Local Video Output:** Indicates if the encoder is displaying its encoded video source out via the **DVI-D OUT** port
- **Reverse Audio Bytes:** Displays the number of bytes currently consumed by reverse (bidirectional) audio

8.1.2 Streaming Statistics (Decoder)

- **Server:** Displays the IP address of the currently connected encoder server
- **Status:** Displays the connection status of the decoder

- **Remote LUT:** Displays the name field of the LUT used to process video on the V2D encoder
- **Display LUT:** The name field of the LUT the decoder is using to override the Remote LUT if Override is enabled



NOTE: The 'Display LUT' field will show "???" if decoder override is disabled.

- **Current Bytes:** Displays the total amount of bytes the decoder is currently using to decode
- **Genlock Status:** Indicates if a stereo video signal is detected
- **Video Bytes:** Displays the number of video bytes the decoder has so far received from the connected encoder
- **Video Packets:** Displays the total number of UDP video packets so far received from the connected encoder
- **Video Lost:** Displays the number of video packets lost so far from the connected encoder
- **Video Order:** Displays the number of out of order video packets received so far from the connected encoder
- **Video Dropped:** Displays the number of video packets dropped so far from the connected encoder
- **Video Frames:** Displays the number of video frames so far processed by the decoder
- **Video Slices:** Displays the number of video slices so far processed by the decoder
- **Audio Bytes:** Displays the number of audio bytes the decoder has so far received from the connected encoder
- **Audio Packets:** Displays the total number of UDP audio packets so far received from the connected encoder
- **Audio Lost:** Displays the number of audio packets lost so far from the connected encoder
- **Audio Order:** Displays the number of out of order audio packets received so far from the connected encoder
- **Rev Audio Bytes:** Displays the number of reverse audio bytes the decoder has so far received from the connected encoder
- **Audio Dropped:** Displays the number of audio packets dropped so far from the connected encoder
- **Queue Drops:** Displays the number of queued packets dropped so far from the connected encoder
- **Video Output:** Indicates if the decoder is outputting video

8.2 Streaming Settings

8.2.1 Connection Profile

The **Connection Profile** defines the quality and encoding parameters of the device.



WARNING: When you use a Connection Profile, any decoder on your network will be able to connect to the encoder. If you would like to restrict access to the encoder, make sure to enable and configure the Authorization Table option. *For more information, see "Authorization Table" on page 33*

Table 8-1: Default/Valid Connection Profile Settings

Field	Default Value	Valid Entries
Use Authorization Table	No	No, Yes
Profile	Remote Desktop Interaction	Remote Desktop Interaction, High Resolution Graphics, Full Motion Video, Custom
Max Bandwidth	10.0 M	N/A
Low Compression	6	0-10
High Compression	6	0-10

- **Use Authorization Table:** Enable this if you wish to use an Authorization Table. This protects unwanted access to your encoder by authorizing only clients from specific IP addresses or networks to connect to the encoder.



NOTE: After enabling this field and clicking "Apply", the **Authorization Table** section of the page will appear.

- **Profile:** Select the appropriate Connection Profile
 - Remote Desktop Interaction - optimized for capturing computer desktop screens
 - High Resolution Graphics - optimized for highest image quality
 - Full Motion Video - optimized for high frame rate
 - Custom - create your own custom profile



NOTE: You will only need to configure the following settings if you select a "Custom" Profile

- **Bandwidth:** Sets the bandwidth that the encoder will allocate for the decoder (client) to consume (Mbps)
- **Low Compression:** Sets the compression level applied to portions of the input video where the image is static or has very little motion (e.g. mouse cursor moving). Values between 0-7 are recommended for the best visual results. Higher values (8-10) are recommended for networks with bandwidth constraints
- **High Compression:** Sets the compression level applied to portions of the input video where the image is detected to be dynamic. Values between 0-7 are recommended for the best visual results. Higher values (8-10) are recommended for networks with bandwidth constraints



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.



TIP: See [Appendix II](#) for additional instructions on making connections between units.

8.2.2 Encoder Splash Parameters

The encoder will display a splash screen when there is no local input video detected. You can configure the settings of the splash screen or force the splash screen to always display with this menu.



NOTE: You will see the encoder splash screen if you connect an idle encoder to an decoder on the decoder output.

Table 8-2: Default/Valid Splash Parameters

Field	Default Value	Valid Entries
Splash Screen	Blue Screen	Blue Screen, Grid Lines
Splash B/W	1.00 M	0-supported bandwidth of device
Enable Splash	Yes	Yes, No
Stereo?	No	Yes, No
Horiz. Resolution	1280	0-size of monitor (pixels)
Vert. Resolution	1024	0-size of monitor (pixels)
Refresh Rate	60.02	1-500 (Hz)
Pixel Clock Rate	108.00	20-330 (MHz)
Horiz. Front Porch	48	0-1000 (pixels)
Vert. Front Porch	1	0-1000 (lines)
Horiz. Back Porch	248	0-1000 (pixels)
Vert. Back Porch	38	0-1000 (lines)
Horiz. Synch	112	0-1000 (pixels)
Vert. Synch	3	0-1000 (lines)

- **Splash Screen:** Allows you to select the appearance of the splash screen
- **Splash B/W:** Allows you to adjust the bandwidth consumed by the splash screen
- **Enable Splash:** Enables or disables the splash screen. If disabled, you will see a blank screen instead of the typical blue or grid splash screen
- **Stereo?:** Enables the splash screen to be displayed in stereo
- **Horiz. Resolution:** Allows you to adjust the horizontal resolution of the displayed encoder splash screen
- **Vert. Resolution :** Allows you to adjust the vertical resolution of the displayed encoder splash screen
- **Refresh Rate:** Enables you to adjust how often the splash screen will refresh itself



NOTE: The following parameters should only be adjusted by very advanced users.

- **Pixel Clock Rate:** Adjusts the pixel clock of the video
- **Horiz. Front Porch:** Allows you to adjust the number of columns of horizontal front porch
- **Vert. Front Porch:** Allows you to adjust the number of lines of vertical front porch
- **Horiz. Back Porch:** Allows you to adjust the number of columns of horizontal back porch
- **Vert. Back Porch:** Allows you to adjust the number of lines of vertical back porch
- **Horiz. Sync:** Allows you to adjust the number of columns of horizontal synchronization
- **Vert. Sync:** Allows you to adjust the number of lines of vertical synchronization

8.2.3 Decoder Splash Parameters

A splash screen will be displayed on the decoder when it is not connected to an encoder. You can modify the splash screen using this page.

Table 8-3: Default/Valid Splash Parameters

Field	Default Value	Valid Entries
Splash Screen	Grid Lines	Blue Screen, Grid Lines
Enable Splash	Yes	Yes, No
Stereo?	No	Yes, No
Horiz. Resolution	1280	0-size of monitor (pixels)
Vert. Resolution	1024	0-size of monitor (pixels)
Refresh Rate	60.02	1-500 (Hz)
Pixel Clock Rate	108.00	20-330 (MHz)
Horiz. Front Porch	48	0-1000 (pixels)
Vert. Front Porch	1	0-1000 (lines)
Horiz. Back Porch	248	0-1000 (pixels)
Vert. Back Porch	38	0-1000 (lines)
Horiz. Synch	112	0-1000 (pixels)
Vert. Synch	3	0-1000 (lines)

- **Splash Screen:** Allows you to select the appearance of the splash screen
- **Enable Splash:** Enables or disables the splash screen. If disabled, you will see a blank screen instead of the typical blue or grid splash screen
- **Stereo?:** Enables the splash screen to be displayed in stereo
- **Horiz. Resolution:** Allows you to adjust the horizontal resolution of the displayed encoder splash screen (pixels)
- **Vert. Resolution :** Allows you to adjust the vertical resolution of the displayed encoder splash screen (pixels)
- **Refresh Rate:** Allows you to adjust how often the splash screen will refresh itself (ms)



NOTE: The following parameters should only be adjusted by very advanced users.

- **Pixel Clock Rate:** Allows you to adjust the pixel clock of the video (MHz)
- **Horiz. Front Porch:** Allows you to adjust the number of columns of horizontal front porch (pixels)
- **Vert. Front Porch:** Allows you to adjust the number of lines of vertical front porch (lines)
- **Horiz. Back Porch:** Allows you to adjust the number of columns of horizontal back porch (pixels)
- **Vert. Back Porch:** Allows you to adjust the number of lines of vertical back porch (lines)
- **Horiz. Sync:** Allows you to adjust the number of columns of horizontal synchronization (pixels)
- **Vert. Sync:** Allows you to adjust the number of lines of vertical synchronization (lines)



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

8.2.4 Force Splash Screen (Encoder)

You can choose to always display the splash screen, even if the encoder is actively encoding video. This is helpful if you are having trouble displaying a video source and need to ensure the problem is not related to a network connection to the decoder.

- **Force Splash Screen:** Check the box to enable splash mode
- **Splash Mode:** After enabling the check box, click "Splash Mode" to force the encoder to display the splash screen



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

8.2.5 Encoder Control Port Range

If you need to adjust the default control ports range of a particular device, you can do so here.

- Configure the following entries:
 - **Control Port Start**
 - **Control Port End**



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

8.2.6 Multicast Parameters

You can adjust the multicast parameters of each system including the multicast address range and TTL.



NOTE: By default, the system uses a mutlicast range of 226.1.1.1 - 226.1.1.50.

- Configure the following fields:
 - **Multicast Address Start**
 - **Mutlicast Address End**



NOTE: This field is not currently supported. Please specify the same address for the both **Multicast Address Start** and **Multicast Address End**.

- **Multicast TTL (Time-to-live)**



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

8.2.7 Reverse Audio

Reverse audio will send audio from a Standalone decoder to encoder, enabling two-way communication between the locations.

8.2.7.1 Notes

- Reverse Audio can only be used by devices in Standalone Mode.
- Reverse Audio must be enabled on both ends of the connection (encoder or decoder) via the **Streaming** page

- You must specify the connection to use audio via the **Connection Manager Table** page.

8.2.7.2 Enabling Reverse Audio

- **Enable:** check to enable reverse audio



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.



NOTE: You can choose which audio input (Mic in  or Line In ) will be used for reverse audio. *For more information, see "Audio Mixer Configuration" on page 51*

8.2.8 Audio/Video Ports Range

You can adjust the audio/video port ranges of the device if needed.



NOTE: The default A/V port range is 6060 - 6399.

- **For Standalone encoders:** designate any open ports 6060 - 7000 (default range)
 - **For Standalone decoders:** designate any port range outside of the default range
-



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

8.2.9 Authorization Table

The **Authorization Table** provides protection against unwanted access to your encoder. You can authorize clients from specific IP addresses or networks to connect to be able to connect to the encoder.



NOTE: You must select "Use Authorization Table" under the **Connection Profile** section of the page in order to expose the **Authorization Table** section of the page.



NOTE: The Authorization Table only applies for Standalone Mode connections. *For more information, see "Standalone Mode" on page 58*

Certain priorities apply when overlapping Authorization Tables entries are configured:

For example, assume there are two entries in the list:

1. IP Address: 10.1.0.0, Netmask: 255.255.0.0, Bandwidth: 10M
2. IP Address: 10.1.5.50, Netmask: 255.255.255.255, Bandwidth: 10 M

The more specific entry (Entry #2) will be solely enforced.

Suppose a third entry is added to the list. Two entries are equally 'specific':

1. IP Address: 10.1.0.0, Netmask: 255.255.0.0, Bandwidth: 10M
2. IP Address: 10.1.5.50, Netmask: 255.255.255.255, Bandwidth: 10 M
3. IP Address: 10.1.5.50, Netmask: 255.255.255.255, Bandwidth: 20 M

Entry #2 will be solely enforced because it is higher in the list than Entry #3



TIP: See [Appendix II](#) for additional instructions on making connections between units.

8.2.10 Procedure

1. Click "Add" to add a new entry
2. Configure the following:

Table 8-4: Default/Valid Authorization Parameters

Field	Default Value	Valid Entries
Host/Network IP	0.0.0.0	N/A
Netmask	0.0.0.0	N/A
Enable	Yes	Yes, No
Max Bandwidth	10 M	0- Maximum supported bandwidth of device
Low Compression	6	0-10
High Compression	6	0-10
Unicast?	Yes	Yes, No
Preemptible?	No	Yes, No
Int Multicast	Yes	Yes, No
Join Multicast	Yes	Yes, No

- **Network:** Enter the IP address or domain name of the device or network you wish to authorize to connect to the encoder
- **Netmask:** Enter the netmask of the device or network you wish to authorize to connect to the encoder



TIP: To allow any decoder (client) to establish a connection with the encoder, set **Network** and **Netmask** to 0.0.0.0.



TIP: To authorize an entire network, enter the network IP address/domain name (e.g. 10.1.5.0) into the **Network** field and enter the network netmask (e.g. 255.255.255.0) into the **Netmask** field.



TIP: To authorize a specific decoder (client), enter its specific IP address/domain name into the **Network** field and set the **Netmask** to 255.255.255.255.

- **Enable:** Enables you to disable an entry without actually deleting it. When set to "No," the entry is ignored
- **Bandwidth:** Allows you to cap the maximum bandwidth that a connected client can consume (Mbps)
- **Low Compression:** Allows you to control the amount of compression applied to portions of the input video where the image is static or has very little motion (e.g. mouse cursor moving). Values between 0-7 are recommended for the best visual results. Higher values (8-10) are recommended for networks with bandwidth constraints
- **High Compression:** Allows you to control the amount of compression applied to portions of the input video where the image is detected to be dynamic. Values between 0-7 are recommended for the best visual results Higher values (8-10) are recommended for networks with bandwidth constraints

- **Unicast:** Clients matching this rule are allowed to make unicast connections
- **Preemptible:** Manages the number of active connections to the encoder. If another client is currently connected and a second client attempts to connect to that encoder (when **Preemptible** is set to "Yes") the original client will be preempted (disconnected)
- **Multicast Init.:** Clients matching this rule are allowed to initiate a multicast session (does not imply participation)
- **Multicast Join:** Clients matching this rule are allowed to participate (join) a preconfigured multicast session
- **Init Multicast:** Clients matching this rule are allowed to initiate a multicast session (does not imply participation)
- **Join Multicast:** Clients matching this rule are allowed to participate (join) a preconfigured multicast session



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

8.2.11 Connection Manager Table

The Connection Manager Table is used to connect an NGS-D200 decoder directly to an encoder. The decoder can switch connections to different encoders by selecting different entries from this menu.

Before attempting to make a connection, ensure that:

- Both devices are operating in Standalone Mode

8.2.11.1 Adding an Encoder (Server) to Connect to

1. Click "Add" to add a new entry
2. Configure the following:

Table 8-5: Default/Valid Connection Manager Parameters

Field	Default Value	Valid Entries
Server	N/A	N/A
Port	6060	Valid port on the encoder
Bandwidth	10 M	0- maximum supported bandwidth of device
Multicast	No	Yes, No
Audio/Video	Video	Video, Audio, Both
Bidirectional	No	Yes, No

- **Server:** Specify the IP address or host name of the encoder to connect to
- **Port:** Specify the server port number on the encoder to connect to



NOTE: The default server port for any V2D encoder is 6060.

- **Bandwidth:** Specify the desired bandwidth for the connection (Mbps)
- **Multicast:** Choose to enable multicast connections
- **Audio/Video:** Specify the supported connection(s)
- **Bidirectional:** Choose to enable transmission of audio in the reverse manner, from decoder to encoder



NOTE: You can choose which audio input (Mic in  or Line In ) will be used for reverse audio. *For more information, see "Audio Mixer Configuration" on page 51*



NOTE: Reverse (bidirectional) Audio must be enabled on both the encoder and decoder through the Streaming Configuration Menu.



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

8.2.11.2 Connect the Encoder to the Decoder

- From the Connection Manager main page, select the entry of the server (encoder) you would like to connect your decoder to. You can also use the Connection Manager to break any existing connections between the decoder and the encoder by clicking "Disconnect."



NOTE: You can get real-time connection information about the connection from the Streaming Statistics section of the page. *For more information, see "Streaming Statistics" on page 27*



TIP: See [Appendix II](#) for instructions on making connections between units.

Chapter 9: Encoding

The following topics are covered in this chapter:

9.1 Encoding Settings37

The **Encoding** page is used to configure various encoder settings.

9.1 Encoding Settings

9.1.1 Encoder Connection Parameters

Once a connection is made, you can dynamically optimize the video quality by adjusting the connection parameters.

Table 9-1: Default/Valid Encoder Connection Parameters

Field	Default Value	Valid Entries
Max Bandwidth	10.0 M	0- Maximum supported bandwidth of the device (Mbps)
Low Compression	6	0-10
High Compression	6	0-10
AV Option	Both	Audio, Video, Both
FrameRate Divider	1	1-256
Min Refresh	10	0-255 (Hz)
Max Refresh	30	0-255 (Hz)
Color Sampling	4:2:2	4:2:2, Static 4:4:4, Dynamic 4:4:4
Allow K/M Switch	No	Yes, No
K/M Idle Limit	5	3-30 (s)

- **Max Bandwidth:** Enables you to specify the maximum bandwidth the connection can utilize (Mbps)
- **Frame Rate Divider:** Allows you to specify the fraction of video frames the encoder processes

For example, if the input video has a refresh rate of 60, a value of 3 in this parameter will make the system process at most 20 frames per second, so flow control will not be necessary as long as the maximum bandwidth is sufficiently high to accommodate 20 frames per second

- **Low Compression:** Allows you to control the amount of compression applied to portions of the input video where the image is static or has very little motion (e.g. mouse cursor moving). Values between 0-7 are recommended for the best visual results. Higher values (8-10) are recommended for networks with bandwidth constraints
- **High Compression:** Allows you to control the amount of compression applied to portions of the input video where the image is detected to be dynamic. Values between 0-7 are recommended for the best visual results. Higher values (8-10) are recommended for networks with bandwidth constraints
- **Min/Max Refresh:** The encoder continuously sends updated video information to connected clients. Only small sections of the screen are sent for every video frame, and over a period of time, the whole screen is completely

refreshed. This mechanism compensates for lost packets on the network and allows the client to always be in sync with the latest video data. The rate of these continuous updates can be configured using Min and Max Refresh

- **Min Refresh:** Setting high values for Min Refresh gives better error resiliency on a lossy network at the cost of higher bandwidth usage. Adjust this setting if you are losing packets and seeing latent video
- **Max Refresh:** The encoder recognizes video transition from dynamic to static motion and can give a momentary boost to the refresh rate to make the static image quickly appear at a higher quality. The Max Refresh controls the rate of this faster refresh that continues until a whole screen of data is transmitted. Increasing the Max Refresh will refresh the screen faster by generating a larger burst
- **Color Sampling :**
 - **4:2:2** - (Default) Standard color sampling
 - **Static 4:4:4** - Use this setting if you are looking at static images that require very accurate colors
 - **Dynamic 4:4:4** - Use this setting if you are looking at moving images that require very accurate colors



NOTE: It is recommended to use Static and Dynamic 4:4:4 sampling only if you have enough bandwidth available. For best quality, set **Min Refresh** to a high value when using 4:4:4 color sampling.

- **Allow K/M Switch:** Enable if you wish to allow multiple remote clients to control a PC (via keyboard & mouse) that is connected to a multicast encoder. When using remote keyboard & mouse to control a host PC, KbM data is transferred from the decoder to encoder to host PC on a first come, first serve basis. By default, the first client to connect to the encoder will be the "controlling client." After a period of inactivity (**K/M Idle Limit**), other clients will have the opportunity to become the controlling client
- **K/M Idle Limit:** If **Allow K/M Switch** is enabled, this setting determines how long (seconds) the controlling client can be idle before another client can contend to become the controlling client



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

9.1.2 Encoder Keyboard/Mouse Server Parameters

If necessary, you can configure the encoder to behave as an RFB client. *For more information, see "Making RFB Connections" on page 55*

You will configure the encoder to connect to the host PC acting as a RFB server:

- **Enable:** Enables the encoder (RFB client) to connect to the host PC (RFB server): Set to "Yes" or "No"
- **IP Address:** Enter the IP address of the host PC
- **Password:** If the host PC RFB server requires a password, enter it here
- **Port:** Specifies the port to connect to on the host PC
- **XOffset:** Specifies the X-coordinate in reference to the host PC that you want the system to reference as a starting coordinate for KbM control

For example, if you are encoding the right-hand side of a PC that is configured in extended desktop mode with two 1600 x 1200 displays, you would enter "1600" for the XOffset entry

- **YOffset:** Specifies the Y-coordinate in reference to the host PC that you want the system to reference as a starting coordinate for KbM control

For example, if you are encoding the bottom side of a PC that is configured in vertical extended desktop mode with two 1600 x 1200 displays, you would enter "1200" for the YOffset entry



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

Chapter 10: Decoding Settings

The following topics are covered in this chapter:

10.1 Decoding Settings 41

This menu is used to configure various decoder settings.

10.1 Decoding Settings

10.1.1 Display Parameters

Decoder Display Parameters is used to switch the decoder video mode from Local to Remote modes and is also used to set the positioning of the video on the decoder and encoder sides.

Table 10-1: Default/Valid Decoder Display Parameters

Field	Default Value	Valid Entries
Video Source	Remote	Local, Remote
Override	Monitor	Monitor, None
Override Color	Blue	Blue, Yellow, Magenta, Cyan, Black, White, Gray, Red, Green
Horiz/Vert Position	Location, Location	Location, Offset
Horiz Location	Left	Left, Center, Right
Vert Location	Top	Top, Middle, Bottom
Horiz/Vert Offset	0, 0	0-horizontal (from left) or vertical (from top) pixels

- **Video Source:** Allows you to switch output video from Local, Remote modes
- **Override:** This menu allows you to define the scheme to render video on the decoder. You can choose to render video in one of several ways:
 - **Monitor:** Video is rendered to fit the best supported resolution of the monitor
 - **None:** Video is rendered to match the resolution of the encoded video (at the encoder end)
- **Override Color:** If the scheme you select to render your video creates a negative space boarder around your video, you can select what color the negative space will be
- **Horz/Vert Position:** Controls what scheme the system uses to offset the video



NOTE: When set to 'Location,' Horiz/Vert Location will be used to offset the video. When set to "Offset," Horiz/Vert Offset will be used to specify the offset (pixels).

- **Horiz Location:** When Horiz Position is set to 'Location,' specifies the horizontal location of your video
- **Horiz Offset:** When Horiz Position is set to 'Offset,' specifies the horizontal location of your video in relation to the left edge of the display
- **Vert Location:** When Vert Position is set to 'Location,' specifies the vertical location of your video

- **Vert Offset:** When Vert Position is set to 'Offset,' specifies the horizontal location of your video in relation to the top edge of the display



NOTE: If the horizontal or vertical pixel offset is out of the range of your monitor, the system will automatically adjust the video to fit your monitor.



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

Chapter 11: Video

The Video menu is used to get real-time information regarding the device or monitor EDID as well as to configure the device video settings.

The following topics are covered in this chapter:

11.1 Video Diagnostics	43
11.2 Video Settings	43

11.1 Video Diagnostics

11.1.1 EDID to Video Source

The **EDID to Video Source** section displays the EDID being presented to the connected source.

11.1.2 Monitor EDID

The **Monitor EDID** section gives real-time information about the EDID from the connected monitor.

11.2 Video Settings

11.2.1 Use Preferred Video Timings from Monitor

You can automatically synchronize the system EDID with that of the local monitor. The NGS-D200 will read the EDID information from the monitor and use this to automatically create a video look up table to capture the input video.

- **Enable:** check to enable



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.



TIP: If you wish to connect a monitor to the NGS-D200 simply to get the EDID for image capture, then do the following: from the **Video** section of the Web UI, you must first delete the "List of Preferred Timings in EDID to Source" then select to "Use Preferred Video Timings from Monitor," click "Apply," click "Save Settings" and then reboot the system. Note that the "List of Preferred Timings in EDID to Source" section of the page will only appear when the "Use Preferred Video Timings from Monitor" setting is disabled.

11.2.2 Video Input Type

You can set the EDID video input for either digital or analog video.

- **EDID Video Input:** Select "Digital" or "Analog"



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

11.2.3 Auto Detect Video Timings From DVI



NOTE: This option is used when DVI input is used.

- **Enable AutoLUT:** check to enable

It makes the operation in DVI mode easier. User does not need to create look up tables (LUTs) manually for input video timing detection. NGS-D200 can automatically create a video LUT from input video timings.

When this option is enabled, other LUTs created in the system are ignored for video detection and the auto created LUT takes precedence.

If **Use Preferred Video Timings from Monitor** option is disabled, LUTs in the system can be used to announce specific video timings over EDID to source connected at input (not a common case)



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

11.2.4 Encoder Video Parameters

Once a connection is made, you can dynamically optimize the video quality by adjusting the video parameters.

Table 11-1: Default/Valid Encoder Video Parameters

Field	Default Value	Valid Entries
Sampling Phase	0	-16-15
Local Video Output	Yes	Yes, No
Fine Noise Elim	16	1-2048
Course Noise Film	10	1-256
Horiz Position	0	-135-375 (px)
Vert Position	0	-25-50 (px)
LUT Change Pump Curr	Auto	Auto, 50, 100, 150, 250, 350, 500, 750, 1500 (μ A)
Optimize Latency	No	Yes, No
I-Frame Interval	0	1-256 (ms)

- **Sampling Phase:** (Analog Video Only) The sampling phase is adjusted to minimize noise of the video source that is result of the source's hardware (video card, cables, etc.) and video resolution. Ideally, this field should be set to a level that minimizes bandwidth usage. You can check the bandwidth usage from the Display Connection Information Page to find a sampling phase that works best for your deployment

- **Local Video Output:** Projects the video source you are encoding locally without the need for a DVI splitter. The local video output will be displayed through the **DVI-D OUT** port.
- **Fine Noise Elim:** Allows you to adjust the higher order noise threshold below which two successive frames are considered identical. It is not recommended to change this field
- **Course Noise Elim:** Allows you to adjust the lower order noise threshold below which two successive frames are considered identical. It is not recommended to change this field



NOTE: Setting both coarse and fine noise elimination to 1 means all successive frames will be considered different, i.e. all slices in all frames will be transmitted.

- **Horiz Position:** Allows you to adjust the horizontal position of the encoded video. Only adjust this field if the video output is being cut off on the left and right sides and adjusting the horizontal position of the monitor on the Rx side does not fix the problem
- **Vert Position:** Allows you to adjust the vertical position of the encoded video. Only adjust this field if the video output is being cut off on the top and bottom and adjusting the vertical position of the monitor on the Rx side does not fix the problem



NOTE: Horiz/Vert Position always apply to analog video. They will also apply to digital video when **DVI Mode** is set to "LUT."

- **Optimize Latency:** This setting improves latency when small motions cannot be seen on the video (e.g. a mouse cursor is not seen moving). Enabling this setting will increase your bandwidth usage
- **I-Frame Interval:** This setting changes the time before a complete screen refresh occurs in milliseconds (ms). Increasing this value will reduce the frame rate but increase your bandwidth usage. It is not recommended to change this value



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

11.2.5 Decoder Input Video Parameters

You can change video parameters for the local input video on the decoder (source from the **DVI-I IN** port) from this menu.

Table 11-2: Default/Valid Decoder Input Video Parameters

Field	Default Value	Valid Entries
Sampling Phase	0	-16 - 15
Horiz Position	0	-135 - supported number of horizontal pixels of the monitor
Vert Position	0	-25 - supported number of vertical pixels of the monitor
LUT Charge Pump Curr	Auto	Auto, 50, 100, 150, 250, 350, 500, 750, 1500
DVI Mode	LUT	LUT, Auto

- **Sampling Phase:** (Analog Video Only) The sampling phase is adjusted to minimize noise of the video source that is result of the source's hardware (video card, cables, etc.) and video resolution. Ideally, this field should be set to a level that minimizes bandwidth usage. You can check the bandwidth usage from Display Connection Information to find a sampling phase that works best for your deployment. *For more information, see "Streaming Statistics"*

(Decoder)" on page 27

- **Horiz Position:** Allows you to move the horizontal edge of your video in relation to the left corner of the display by the specified number of pixels
- **Vert Position:** Allows you to move the vertical edge of your video in relation to the top corner of the display by the specified number of pixels



NOTE: Horiz/Vert Position always apply to analog video. They will also apply to digital video when DVI Mode is set to "LUT."

- **LUT Charge Pump Curr:** (Analog Video Only) This is current that drives the generation of the pixel clock internal to the decoder. When set to "Auto," it defaults to the optimal setting for the specific video input defined in the LUT entry. It is not recommended to change this setting
- **DVI Mode:** Allows you to control the way the horizontal and vertical delay of digital video is handled by the V2D:
 - **Auto:** Automatically detects the horizontal and vertical delay of digital video input, and the vertical horizontal and position are appropriately adjusted
 - **LUT:** Uses the sum of the sync width and back porch defined in the in-use decoder video LUT to detect horizontal and vertical delay of the video. The vertical and horizontal position are adjusted as per the specified Horiz/Vert Position values



NOTE: You should only need to change this setting if you are experiencing strange video shifting (e.g. picture is to the right of center).



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

11.2.6 List of Video LUTs

You can modify or configure a new LUT to support the source video (from **DVI-I IN** port) if it is not automatically detected.

1. Check to see if the resolution of the local source video is listed in the encoder LUT library
2. If it is not, click "Add" to add a new entry
3. Configure or modify the following:

Table 11-3: Default/Valid LUT Parameters

Field	Default	Valid Entries
Name	"Default Entry"	N/A
LUT ID.	N/A	1-169
Stereo?	No	Yes, No
Horiz. Resolution	1280	0-size of monitor (pixels)
Vert. Resolution	1024	0-size of monitor (pixels)
Refresh Rate	60.0	1-500 (Hz)
Pixel Clock Rate	100.0	20-330 (MHz)
Horiz. Front Porch	40	0-1000 (pixels)
Vert. Front Porch	40	0-1000 (lines)
Horiz. Back Porch	40	0-1000 (pixels)
Vert. Back Porch	40	0-1000 (lines)
Horiz. Sync	40	0-1000 (pixels)
Vert. Sync	40	0-1000 (lines)
Sampling Phase	0	-16-15
Vert. Margin	0	0-3
Horiz. Position	0	-135-375 (pixels)
Vert. Position	0	-25-50 (pixels)
Coarse Noise	10	1-256
Fine Noise	16	1-2048
Color Space	RGB	RGB, YPrPb
Charge Pump Curr	Auto	Auto, 50, 100, 150, 250, 350, 500, 750, 1500 (μ A)
Red/Green/Blue Gain	128	0-255
Red/Green/Blue Offset	64	0-127

- **Name:** Name the LUT for future identification
- **LUT ID:** Designates a unique ID number for the new LUT. The system will automatically suggest a unique number for you
- **Stereo?:** Enables stereo video for the LUT entry
- **Horiz. Resolution:** Specify the horizontal resolution of the video (e.g. 1024)
- **Vert. Resolution:** Specify the vertical resolution of the video (e.g. 768)
- **Refresh Rate:** Specify the vertical refresh rate of the video



NOTE: See your video adaptor's documentation to obtain the proper horizontal and vertical timing parameters.

- **Pixel Clock Rate:** Enter the pixel clock of the video

- **Horiz. Front Porch:** Specify the number of columns of horizontal front porch
- **Vert. Front Porch:** Specify the number of lines of vertical front porch
- **Horiz. Back Porch:** Specify the number of columns of horizontal back porch
- **Vert. Back Porch:** Specify the number of lines of vertical back porch
- **Horiz. Sync:** Specify the number of columns of horizontal synchronization
- **Vert. Sync:** Specify the number of lines of vertical synchronization
- **Sampling Phase:** The sampling phase is adjusted to minimize noise of the video source that is result of the source's hardware (video card, cables, etc.) and video resolution. Ideally, this field should be set to a level that minimizes bandwidth usage. You can check your bandwidth usage from the Display Connection Information page to find a sampling phase that works best for your deployment.
- **Vert. Margin:** Specify the margin for matching the detected vertical resolution of video input source with the vertical resolution specified



NOTE: Typically for digital video, a Vert Margin of 0 (default) works well. For analog video, it is recommended to use a Vert. Margin of 1 under normal circumstances. However, if the analog input signal is not stable (e.g. the video travels through a very long cable), it is recommended to set a higher Vert Margin (maximum of 3).

- **Horiz. Position:** Specify the horizontal position of the source video. Only adjust this field if the video output is being cut off on the left and right sides and adjusting the horizontal position of the monitor on the decoder side does not fix the problem
- **Vert. Position:** Specify the vertical position of the source video. Only adjust this field if the video output is being cut off on the top and bottom and adjusting the vertical position of the monitor on the decoder side does not fix the problem
- **Coarse Noise:** Enter a lower order noise threshold below which two successive frames are considered identical. It is not recommended to change this field
- **Fine Noise:** Enter a higher order noise threshold below which two successive frames are considered identical. It is not recommended to change this field
- **Color Space:** Configure the input video for either RGB or YPrPb color models
- **Charge Pump Curr:** This is current that drives the generation of the pixel clock internal to the encoder. When set to "Auto," the system defaults to the optimal setting for the specific video input defined in the lookup table entry. It is not recommended to change this setting
- **Red/Blue/Green Gain:** Specify the range of red, blue, or green input signals. Setting higher values lowers the contrast of images
- **Red/Blue/Green Offset:** Specify the entire input range of color, changing the brightness of images



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

11.2.7 List of Preferred Timings in EDID to Source

If not using a custom resolution from the monitor, you may wish to force the device to use a specific LUT to process the local input video.



NOTE: You will only expose this section of the page when the **Use Preferred Video Timings from Monitor** option is disabled. *For more information, see "Use Preferred Video Timings from Monitor" on page 43*

Procedure:

1. Click "Add" to add a new EDID Descriptor
2. Select an LUT Id from the LUT library



NOTE: If your required LUT is not in the available list, then you must configure one manually. *For more information, see "List of Video LUTs" on page 46*

3. Select a descriptor number



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

Chapter 12: Audio

The following topics are covered in this chapter:

12.1 Audio Mixer Configuration	51
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12.1 Audio Mixer Configuration

The **Audio Mixer** allows you to adjust the volume of local audio or reverse audio coming from the decoder.

- **Local Audio:** Enables you to change the volume of the local audio source (Line or Mic)
- **Remote Audio:** Enables you to change the volume of the remote source



NOTE: When both fields are set to 100, each source will be equally mixed and at equal volume.

- **Audio Input:** Specify if you wish to use the Line or Mic audio input



TIP: The Mic input () is located on the front of the unit and the Line input () is located on the rear.



NOTE: For encoders, **Remote Audio** changes the volume of reverse (bidirectional) audio coming from the decoder.

Chapter 13: Keyboard/Mouse (KbM)

The following topics are covered in this chapter:

13.1 How it Works	53
13.2 Overview of Keyboard/Mouse (KbM) Modes	53
13.3 Making Physical Connections	54
13.4 Making RFB Connections	55
13.5 KB/M Diagnostics	55
13.6 Keyboard Locale Settings	55
13.7 KB/M Settings	56

13.1 How it Works

The decoder is capable of controlling computers being encoded on the network. KbM bytes from the decoder can be transmitted to the encoder (source) over the network. From the encoder, this KbM input data will be transmitted to the host PC in one of twoways:

1. Through a hardwired USB output
2. Over RFB, where the host PC is running an instance of an RFB server and the encoder is configured as an RFB client

13.2 Overview of Keyboard/Mouse (KbM) Modes

There are several different KbM modes that can be set for connected keyboard and mice.

13.2.1 Decoder

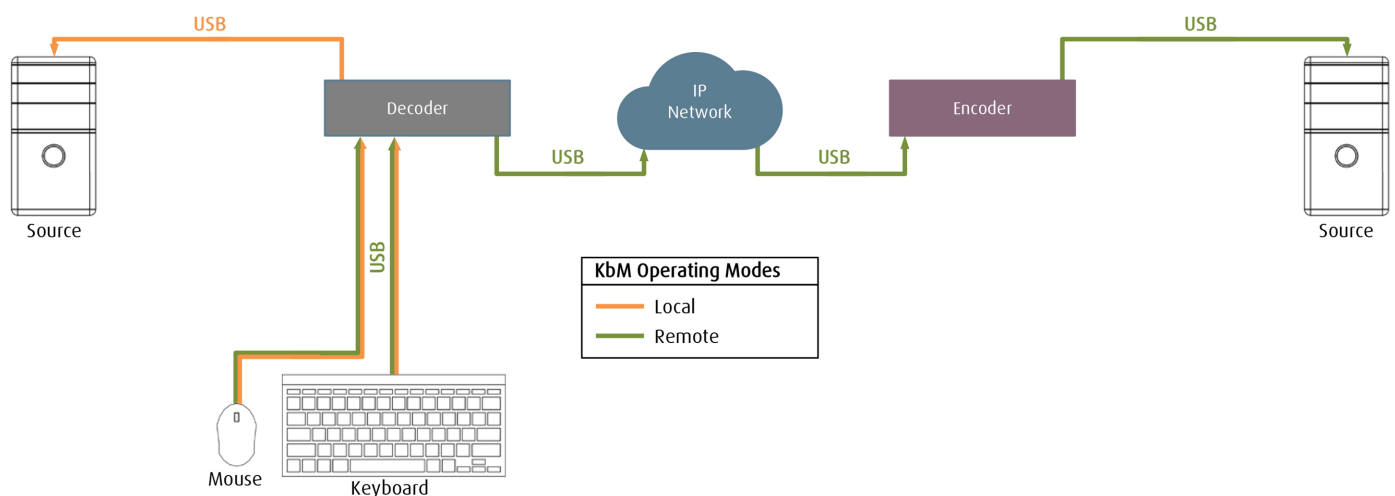


Figure 13-1: Overview of Decoder KbM Modes

13.2.1.1 Local Mode

When set to “Local” Mode, the unit will only transmit KbM bytes through the **HOST** port (USB Type B) to the local PC. KbM bytes will not be sent over the network.

13.2.1.2 Remote Mode

When set to “Remote” Mode, the decoder will transmit KbM bytes out over the IP network to any connected encoders



NOTE: For more information, see “Decoder Keyboard/Mouse Parameters” on page 56

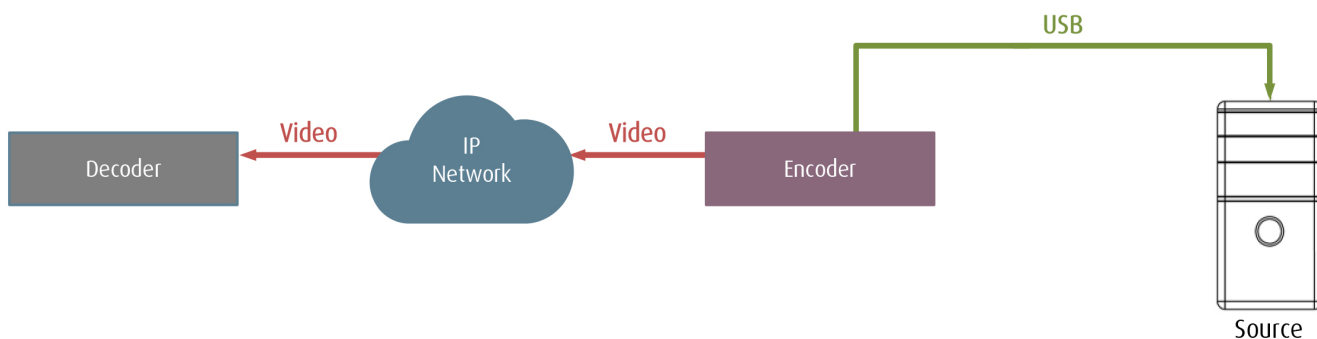
13.3 Making Physical Connections

The connection instructions are the same for an encoder and a decoder.

13.3.1 USB Connection

Tools and equipment required

- Type B- to-Type A USB patch cable
- USB keyboard and/or USB mouse

*Figure 13-2: Encoder connected to host PC (via USB connection) to allow KbM input to be transmitted*

13.3.2 Procedure

1. Connect the Type B connector end of the USB patch cable into the **HOST** port on the back panel of the encoder
2. Connect the Type A end of the patch cable to a USB port on the host PC
3. Connect a USB keyboard and/or mouse to the **USB** port (Type A USB) on the unit



NOTE: Using a hardwired (physical) KbM connection provides absolute mouse control, but does not currently support multi-head/multi-display sources in which the non primary screen is being encoded.

13.4 Making RFB Connections

The NGS-D200 encoder can run an instance of RFB client. This enables the system to be controlled by a source PC that is running an instance of RFB server. When the encoder connects to a decoder, any keyboard/mouse data from the decoder will be forwarded to the encoder (RFB client) which will in turn forward this to the source PC (RFB server).

You should use an RFB connection to:

- support legacy V2D XP installations
- support extended desktop use cases in which you need to encode and share the secondary (non-primary) screen



NOTE: When you connect the encoder as an RFB client to the host PC, all hardwired connections that were transmitting KbM bytes to the host PC will be temporarily disabled. KbM data will only be forwarded logically from the RFB client to the RFB server (host PC).

13.4.0.1 Tools and equipment required

- Host PC running RFB server software
- Encoder connected to host PC over the network

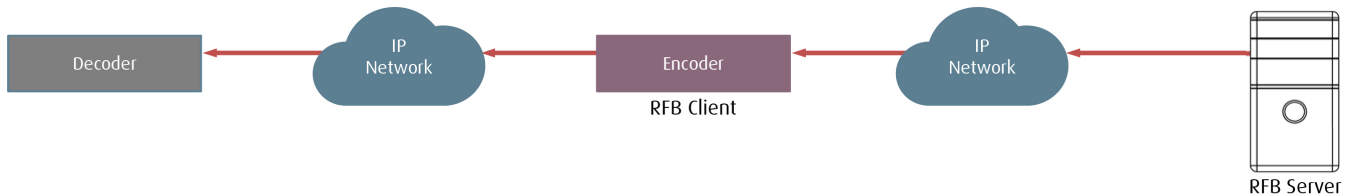


Figure 13-3: Encoder (RFB client) transmitting KbM bytes from the decoder to host PC (running RFB server software)

13.4.0.2 Procedure

- Configure the encoder Keyboard/Mouse Server Parameters Menu. *For more information, see "Encoder Keyboard/Mouse Server Parameters" on page 38*

13.5 KB/M Diagnostics

13.5.1 Encoder/Decoder KB/M Diagnostic Information

The KB/M Diagnostic Information section gives real-time information about keyboard/mouse configuration and traffic.

13.6 Keyboard Locale Settings

13.6.1 Encoder/Decoder Keyboard Layout

You can select the Keyboard Layout for the attached keyboard. This will ensure that key strokes are appropriately exchanged between the collaborating source (encoder) and destination (decoder):

- **Keyboard Layout:** Select the appropriate keyboard layout: US, German, French, Belgian French, Spanish, Dutch, Italian, Portuguese, Russian, Chinese, English UK, Swiss French

- This setting must be configured on both the connected encoder and decoder
- Only the same keyboard type can be used on both ends of the connection (e.g. if encoder is set to German and decoder/software client should also be set to German)



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

13.7 KB/M Settings

13.7.1 Decoder Keyboard/Mouse Parameters

You can specify your keyboard and mouse type to ensure it is detected by the system as well as set the KbM Mode.

You can specify what KBM Mode you wish the decoder to operate in

- **KBM Mode:** Configures the keyboard/mouse Mode:
 - **Local:** The decoder will only transmit keyboard/mouse bytes out via the **HOST** port to control a local PC
 - **Remote:** The decoder will transmit keyboard/mouse bytes out over the network to any connected encoders

Chapter 14: Administration

The following topics are covered in this chapter:

14.1 Administration	57
14.2 Management Settings	58

The Administration Menu allows you to configure the device to be used in either Managed or Standalone Mode (connections with or without the use of a 4.x Management Server respectively), point the device to a Management Server (when used in Managed Mode), and also change the default login credentials used to access the Web UI.

14.1 Administration

14.1.1 Management Status



NOTE: This menu is only applicable to users of the 4.x Collaboration Suite.

The **Management Status** section allows you to check to see if your device is logged in to the Management Server. This is helpful if you are having trouble managing the system as part of a 4.x environment.

14.1.2 System Control

System control allows you reboot, shutdown, revert to defaults, and switch the gender of the NGS-D200.

- **Factory Reset:** Resets the NGS-D200 to factory defaults
- **Reboot :** Reboots the system
- **Shutdown :** Initiates a system shutdown cycle
- **Encoder/Decoder:** Switches the NGS-D200 from an encoder to decoder, or vice versa



NOTE: After changing the gender of the system, the system will reboot. After the system comes back online, make sure to click "Save Settings" to ensure the device retains this selection.

14.1.3 Upgrade

You can upgrade the software/firmware version of the system.

NGS-D200 can be upgraded from

- Web UI of the box,
- BCS Management System (Refer to BCS Admin UI Guide)
- TFN CMS system (Refer to TransForm N installation manual).

14.1.3.1 Procedure to upgrade via Web UI

Prerequisites - a webserver needs to be installed (if not already, a webserver like WampServer can be installed <http://www.wampserver.com/en/>)

1. Untar the NGS-D200 Firmware upgrade package into a directory. It will create a directory called IMAGES
2. Place the IMAGES folder in root folder of webserver (normally a directory on webserver like www)

3. Log in to the WebUI of NGS-D200 that needs to be upgraded.
4. Go to Administration > Upgrade and configure the URL as follows and press "Upgrade" button. WEBSERVER-IPADDRESS is the IP address of the webserver.

http://WEBSERVER-IPADDRESS/IMAGES

The box will reboot after upgrade goes through.

14.2 Management Settings

14.2.1 XMPP Agent

The XMPP Agent menu points the device to a Management Server to be used in Managed Mode.

- Configure the following:
 - **XMPP Enable:** Enables the device to log on to the Management Server's XMPP server. Enable this if using the device in Managed Mode
 - **XMPP Server IP/Name:** Allows you to point the device to the IP address or host name of the Management Server. Enter the IP address/host name of the Management Server



NOTE: If you are configuring this device as part of an environment that uses High Availability (HA), then enter the primary Management Server virtual IP address or host/domain name after enabling HA.

- **Device Name:** Enter the "Device Name" that was entered into the Admin UI for the device
- **Password:** Enter the "Device Password" that was entered in the Admin UI for the device
- **XMPP Server Port:** Specifies the XMPP server port on the Management Server. This should be set to "5222"
- **XMPP Server Domain:** *Not currently in use*



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

14.2.2 Admin Account

Admin Account allows you to configure the login password for accessing the device Web UI.

- **Admin Password:** Enter a new password



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.



NOTE: You will be automatically logged out of the Web UI. Enter your new password to continue.

14.2.3 Standalone Mode

This allows you to change the device from Managed to Standalone Modes. In Managed Mode, the device is used as part of networked, centrally managed, collaboration solution under the control of the 4.x Barco Management Server. *For more*

information, see *"Modes of Operation"* on page 8

- **Standalone:** Sets the device to be used in Standalone Mode



NOTE: When you have finished making changes, click "Apply" at the bottom of the page. Click "Save Settings" to permanently save your changes to the device.

Appendix I: Supported Encoding/Decoding Resolutions

The NGS-D200 Lite can support the following resolutions:

Format	Resolution	Refresh Rate (Hz)	Horiz Front Porch	Horiz Sync	Horiz Back Porch	Vert Front Porch	Vert Sync	Vert Back Porch	Pixel Clock (MHz)
ONYX2	1024x768	96.0	16	128	112	3	6	30	99.16
ONYX2	1280x1024	96.0	20	160	252	3	6	60	179.64
SUN	1280x1024	76.1	32	64	288	2	8	32	135.00
SUN	1280x1024	67.2	16	112	224	2	8	33	117.00
VESA	800x600	56.0	24	72	128	1	2	22	36.00
VESA	800x600	60.3	40	128	88	1	4	23	40.00
VESA	800x600	72.2	56	120	64	37	6	23	50.00
VESA	800x600	75.0	16	80	160	1	3	21	49.50
VESA	1024x768	60.0	24	136	160	3	6	29	65.00
VESA	1024x768	70.1	24	136	144	3	6	29	75.00
VESA	1024x768	75.0	16	96	176	1	3	28	78.75
VESA	1152x864	60.0	64	120	240	1	3	27	81.62
VESA	1280x720	73.0	72	136	208	1	3	27	92.98
VESA	1280x960	60.0	96	112	312	1	3	36	108.00
VESA	1280x1024	60.0	48	112	248	1	3	38	108.00
VESA	1280x1024	75.0	16	144	248	1	3	38	135.00
VESA	1440x900	60.0	80	152	232	1	3	28	106.50
VESA	1600x1200	60.0	64	192	304	1	3	46	162.00
VESA	1680x1050	60.0	104	176	280	3	6	30	146.3
CEA-861	1920x1080p	60.0	88	48	144	4	5	36	148.5
CEA-861	1280X720p	60.0	112	208	48	5	5	20	74.25
CVT-RB	1280x800	59.9	48	32	80	3	6	14	71.00
CVT-RB	1920x1080	59.9	48	32	80	3	5	23	138.50

Format	Resolution	Refresh Rate (Hz)	Horiz Front Porch	Horiz Sync	Horiz Back Porch	Vert Front Porch	Vert Sync	Vert Back Porch	Pixel Clock (MHz)
CVT-RB	1920x1200	59.9	48	32	80	3	6	26	154.00
CVT	1152x900	59.9	64	120	184	3	10	21	85.00
CVT	1200x1600	59.9	88	128	216	3	10	45	162.25
CVT	1600x1200	75.0	120	168	288	3	4	48	204.75
CVT	1776x1056	59.9	112	184	296	3	10	27	155.00

The NGS-D200 Pro and NGS-D200 Pro 3D can support additional dual-link resolutions:

Format	Resolution	Refresh Rate (Hz)	Horiz Front Porch	Horiz Sync	Horiz Back Porch	Vert Front Porch	Vert Sync	Vert Back Porch	Pixel Clock (MHz)
CVT-RB	2560x1600	59.9	48	32	80	3	6	37	268.50
IPV	2048x2048	59.97	48	32	80	3	10	46	279
IPV	3840x1080	59.9	64	64	192	3	9	19	277.00
IPV	3840x1200	59.9	64	64	192	3	10	22	308.00



NOTE: For questions about support for other resolutions not listed here, please contact Customer Support.

Appendix II: Making a Simple Connection Between an NGS-D200 Encoder and Decoder

This section outlines how to directly connect Standalone NGS-D200 encoders to decoders.

II.1 Prerequisites

- Both systems are operating in "Standalone" mode

II.2 Encoder Setup

1. Launch a web browser. In the address bar, enter the IP address/domain name of the NGS-D200 unit (e.g. 10.1.5.50)
2. Ensure the device is configured as an encoder and in "Standalone" mode. You will see this information on the top of the Web UI.
 - If the system is not, navigate to the **Administration** section of the page
 - If not operating in Standalone Mode:
 - Under the **Standalone Mode** section, check the box.
 - At the bottom of the page, click "Apply"
 - Click "Save Settings"
 - If not an encoder:
 - Under the **System Control** section, click "Encoder/Decoder." The system will reboot and come up as an encoder



NOTE: After the system boots and you log back in, make sure to click "Save Settings" to ensure the device will continue to come up as an encoder after any subsequent reboots.



TIP: You can configure the encoder streaming parameters by configuring the **Connection Profile** section of the page. *For more information, see "Connection Profile" on page 28*

II.3 Decoder (client) Setup

1. Launch a web browser. In the address bar, enter the IP address/domain name of the other NGS-D200 unit
2. Ensure the device is configured as a decoder and in "Standalone" mode. You will see this information on the top of the Web UI
 - If the system is not, navigate to the Administration section of the page:
 - If not operating in Standalone Mode:
 - Under the Standalone Mode section, check the box.
 - At the bottom of the page, click "Apply"
 - Click "Save Settings"

- If not a decoder:
 - Under the System Control section, click "Encoder/Decoder." The system will reboot and come up as a decoder.



NOTE: After the system boots and you log back in, make sure to click "Save Settings" to ensure the device will continue to come up as an decoder after any subsequent reboots.

II.3.1 Create a list of Encoders to Connect to

You will need to create a list of encoders that the decoder can connect to.

1. On a standalone decoder, navigate to the **Streaming** section of the page
2. Under the Connection Manager section, click "Add"
3. Specify the encoder (server) you wish to connect to :
 - **Server:** Enter the IP address or domain name of the encoder you will connect to
 - **Port:** Specify the server port to connect to



NOTE: The default server port is 6060.

- **Bandwidth:** Specify the desired bandwidth for the connection (Mbps)
 - **Multicast:** Check the box to use a multicast connection
 - **Audio/Video:** Select if the connect will support only video, only audio, or both
 - **Bidirectional:** Check the box to enable bidirectional audio. The encoder side will be able to hear the connected audio source
4. Click "Apply" at the bottom of the page, then click "Save Settings" to ensure the entry is permanently saved on the decoder

II.3.2 Making a Connection

- From the **Connection Manager Table**, click on the encoder that you wish to connect to. If you have the proper authorization, you will connect to the encoder
- If you wish to break an existing connection, click "Disconnect"

II.4 Get Information about the Connection

Navigate to the **Connection Information** section of the page. You will see real-time information about the connection: network traffic, LUT used, connected server/client, etc.

Appendix III: Stereo Emitter Cable Specifications

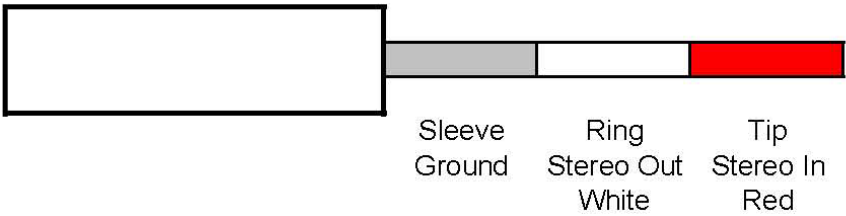


NOTE: 3D/Stereoscopic video is only supported on the NGS-D200 Pro 3D. For information on upgrading to the Pro 3D, please contact Barco Sales.

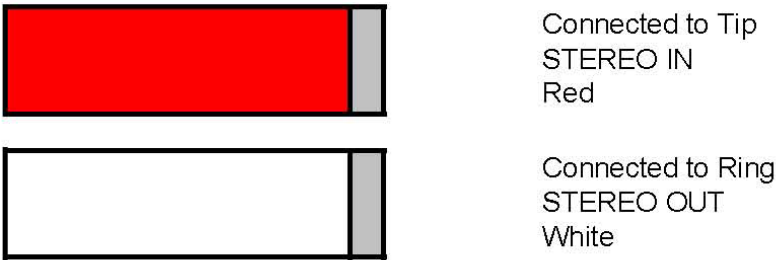


NOTE: The 3D stereo kit (part number C9826147) is included with the NGS-D200 Pro 3D.

3.5mm Stereo Connector



2 x RCA connector



Appendix IV: Required Settings to Use KbM in 4.x Collaboration Suite

Using remote keyboard and mouse control in a managed 4.x environment requires several settings in the Admin UI



NOTE: All devices and users who wish to use remote desktop sharing must use a Route that applies a KbM-enabled Profile. The default Route is not KbM-enabled.

- Login to the Admin UI
- Navigate to the "Profiles" tab
- Ensure that selected Profile has the "Enabled Keyboard/Mouse" flag checked

Profiles Tab > Add Profile/Edit Profile > Config Tab > Keyboard Mouse Settings >  Enable Keyboard/Mouse

- This Profile must be applied using the appropriately configured Route



ATTENTION: See the 4.x Admin UI Setup Guide for more on Policy Configuration.

Appendix V: Settings to Allow Remote Keyboard & Mouse (KbM) Control on Linux Systems

In order to use Remote Keyboard & Mouse (KbM) Control on a Linux System, you will have to change several OS security settings to authorize the encoder to communicate with the host PC.

V.1 Enabling KbM on a Fedora System

From the main Fedora desktop:

1. Select **Systems**
2. Select **Preferences**
3. Select **Internet and Network**
4. Select **Remote Desktop**
5. Enable the following check boxes:
 - "Allow other users to view your desktop"
 - "Allow other users to control your desktop"
6. (Optional) Configure Security settings



Figure V-1: Remote Desktop Preferences

V.2 Enable KbM on a openSUSE System

From the main Suse Desktop:

1. Click on **Computer**
2. Select **Control Center**
3. Select **Remote Desktop**
4. Enable the following check boxes:
 - "Allow other users to view your desktop"
 - "Allow other users to control your desktop"
5. (Optional) Configure Security settings

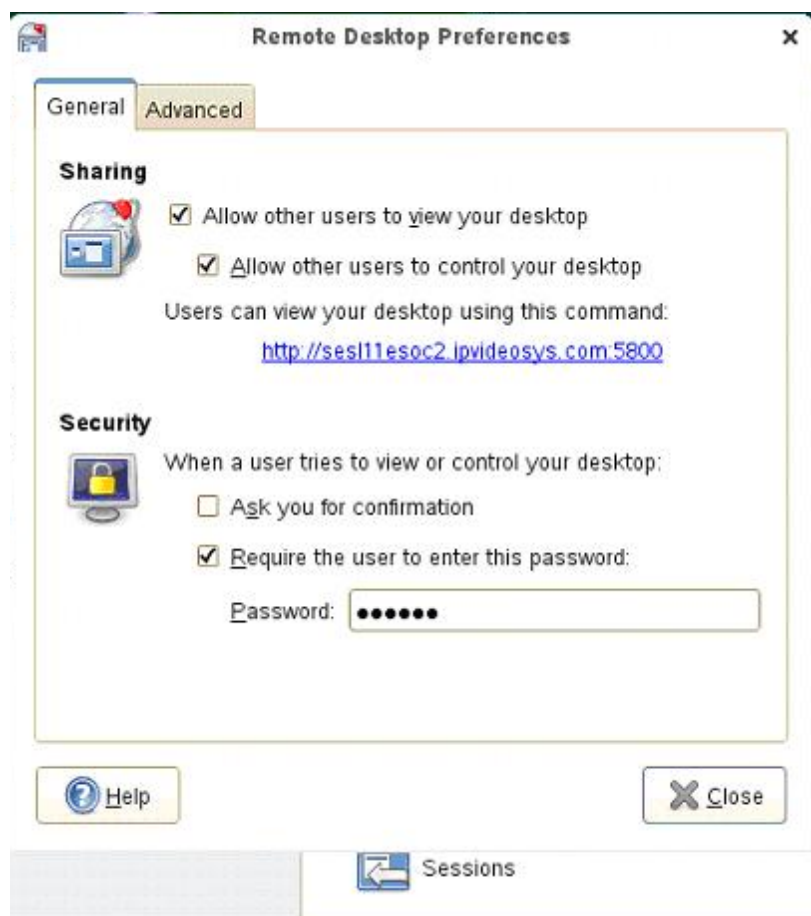


Figure V-2: Remote Desktop Preferences

Appendix VI: RFB Keyboard ASCII Guide

When using remote KbM on a decoder to control a source PC (that is connected to an encoder) keystrokes are processed differently depending on the type of connection between the encoder and the source PC:

- For hardwired USB connections between the encoder and host PC:
 - All keystrokes are sent from the Rx in the same manner as a standard US 101 keyboard
 - When the encoder is configured as an RFB client to the host PC (RFB server) certain keystrokes are sent as follows:
 - **LGUI** (L Windows key): 0x1f/0xffe7
 - **RGUI** (R Windows key): 0x27/0xffe8
 - **Application**: 0x2f/0xff20
 - **Print Screen/System Rq**: 0xff15/0xff15
 - **Scroll Lock**: 0xff13/0xff13
 - **Pause/Break**: 0xff14/0xff14

Appendix VII: Safety and Compliance Statements

VII.1 Compliance Statements

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 is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Barco is not responsible for any radio or television interference caused by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A Emission Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A Statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

European Union EMC Directive Conformance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Barco cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

VII.2 General Considerations

General safety instructions

- Before operating this equipment please read this manual thoroughly and retain it for future reference
- Installation and preliminary adjustments should be performed by qualified Barco personnel or by authorized Barco service dealers
- All warnings on the device and in the documentation manuals should be adhered to
- All instructions for operating and use of this equipment must be followed precisely
- All local installation codes should be adhered to

Notice on safety

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

VII.3 Important safety instructions

To prevent the risk of electrical shock

- This product should be operated from a mono phase AC power source
- This apparatus must be grounded (earthed) via the supplied 3 conductor AC power cable. If none of the supplied power cables are the correct one, consult your dealer
- If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug
- Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord. To disconnect the cord, pull it out by the plug. Never pull the cord itself
- Use only the power cord supplied with your device. While appearing to be similar, other power cords have not been safety tested at the factory and may not be used to power the device. For a replacement power cord, contact your dealer.
- Do not operate the device with a damaged cord. Replace the cord
- Do not operate the device if the device has been dropped or damaged - until it has been examined and approved for operation
- by a qualified service technician.
- Position the cord so that it will not be tripped over, pulled, or contact hot surfaces
- If an extension cord is necessary, a cord with a current rating at least equal to that of the device should be used. A cord rated for less amperage than the device may overheat
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock
- Do not expose this device to rain or moisture
- Do not immerse or expose this device in water or other liquids
- Do not spill liquid of any kind on this device
- Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations
- Do not disassemble this device, always take it to an authorized trained service person when service or repair work is required

- Do not use an accessory attachment which is not recommended by the manufacturer
- Lightning - For added protection for this video product during a lightning storm, or when it is left unattended and unused for long

To prevent personal injury

- To prevent injury and physical damage, always read this manual and all labels on the system before connecting to the wall outlet or adjusting the device
- To prevent injury, ensure that all covers are correctly installed. *See installation procedures*
- Before attempting to remove any of the device's covers, you must turn off the device and disconnect from the wall outlet
- When required to switch off the device, to access parts inside, always disconnect the power cord from the power net
- The power input at the device side is considered as the disconnect device. When required to switch off the device, to access parts inside, always disconnect the power cord at the device side. In case the power input at the device side is not accessible, the socket outlet supplying the device shall be installed nearby the device and be easily accessible, or a readily accessible general disconnect device shall be incorporated in the fixed wiring
- Do not place this equipment on an unstable cart, stand, or table. The product may fall, causing serious damage to it and possible injury to the user

To prevent fire hazard

- Do not place flammable or combustible materials near the device!
- Barco products are designed and manufactured to meet the most stringent safety regulations. This device radiates heat on its external surfaces and from ventilation ducts during normal operation, which is both normal and safe. Exposing flammable or combustible materials into close proximity of this device could result in the spontaneous ignition of that material, resulting in a fire. For this reason, it is absolutely necessary to leave an "exclusion zone" around all external surfaces of the device whereby no flammable or combustible materials are present. The exclusion zone must be not less than 40 cm (16"). Do not cover the device with any material while the device is in operation. Keep flammable and combustible materials away from the device at all times. Mount the device in a well ventilated area away from sources of ignition and out of direct sun light. Never expose the device to rain or moisture. In the event of fire, use sand, CO2 or dry powder fire extinguishers. Never use water on an electrical fire. Always have service performed on this device by authorized Barco service personnel. Always insist on genuine Barco replacement parts. Never use non-Barco replacement parts as they may degrade the safety of this device
- Slots and openings in this equipment are provided for ventilation. To ensure reliable operation of the device and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the device too close to walls, or other similar surface. This device should never be placed near or over a radiator or heat register. This device should not be placed in a built-in installation or enclosure unless proper ventilation is provided
- Let the device cool down completely before storing. Remove cord from the device when storing
- Heat sensitive materials should not be placed in the path of the exhausted air

To prevent device damage

- The device must always be installed in a manner which ensures free flow of air into its air inlets and unimpeded evacuation of the hot air from its cooling system
- In order to ensure that correct airflow is maintained, and that the device complies with Electromagnetic Compatibility (EMC) requirements, it should always be operated with all of its covers in place
- Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. The device should not be placed in a built-in installation or enclosure unless proper ventilation is provided

- Ensure that nothing can be spilled on, or dropped inside the device. If this does happen, switch off and unplug the mains supply immediately. Do not operate the device again until it has been checked by qualified service personnel
- Do not use this equipment near water
- Save the original shipping carton and packing material. They will come in handy if you ever have to ship your equipment. For maximum protection, repack your set as it was originally packed at the factory.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning. Never use strong solvents, such as thinner or benzine, or abrasive cleaners, since these will damage the cabinet. Stubborn stains may be removed with a cloth lightly dampened with mild detergent solution
- Rated maximum ambient temperature, $t_a = 40\text{ }^{\circ}\text{C}$ ($104\text{ }^{\circ}\text{F}$)

On servicing

- Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage potentials and risk of electric shock
- Refer all servicing to qualified service personnel
- Attempts to alter the factory-set internal controls or to change other control settings not specially discussed in this manual can lead to permanent damage to the device and cancellation of the warranty
- Unplug this product from the wall outlet and refer servicing to qualified service technicians under the following conditions:
 - When the power cord or plug is damaged or frayed
 - If liquid has been spilled into the equipment
 - If the product has been exposed to rain or water
 - If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of the other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation
 - If the product has been dropped or the cabinet has been damaged
 - If the product exhibits a distinct change in performance, indicating a need for service
- Replacement parts: When replacement parts are required, be sure the service technician has used original Barco replacement parts or authorized replacement parts which have the same characteristics as the Barco original part. Unauthorized substitutions may result in degraded performance and reliability, fire, electric shock or other hazards. Unauthorized substitutions may void warranty
- Safety check: Upon completion of any service or repairs to this device, ask the service technician to perform safety checks to determine that the product is in proper operating condition

Appendix VIII: Environmental Statements

VIII.1 Disposal of the Product (Waste Electrical and Electronic Equipment)



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

For more information about recycling of this product, please contact your local city office or your municipal waste disposal service. For details, please visit the Barco website at: <http://www.barco.com/en/AboutBarco/weee>.

VIII.2 Turkey RoHS compliance



■ Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur
[Republic of Turkey: In conformity with the WEEE Regulation]

VIII.3 Chinese Mainland RoHS

中国大陆 RoHS

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零件项目(名称) Component Name	有毒有害物质或元素 Hazardous Substances or Elements					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印制电路配件 Printed Circuit Assemblies	X	O	O	O	O	O
外接电(线)缆 External Cables	X	O	O	O	O	O
散热片(器) Heatsinks	O	O	O	O	O	O
底架 Chassis	O	O	O	O	O	O
电源供应器 Power Supply Unit	X	O	O	O	O	O
风扇 Fan	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。 O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006. X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。 X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363 2006.						

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