DSC HD-HD 4K PLUS A Series • Setup Guide

The Extron DSC HD-HD 4K PLUS A and DSC HD-HD PLUS A xi are high performance, HDCP 1.4 and 2.2 compliant scalers capable of processing HDMI resolutions up to 4K @ 60 Hz with full 4:4:4 signal processing. They feature HDMI 2.0 connections that support data rates up to 18 Gbps. Both models support 4K @ 60 Hz signals at 4:4:4 on a single connection, with the DSC HD-HD 4K PLUS A xi also supporting 4K @ 60 Hz signals as columns using two connections. This setup guide provides step-by-step instructions for an experienced user to set up and configure the DSC HD-HD 4K PLUS A series. It covers how to perform basic operations using front panel controls, the OSD menu system, and Simple Instruction Set™ (SIS™) commands.

Installation

ATTENTION:
- Installation and service must be performed by authorized personnel only.
- L’installation et l’entretien doivent être effectués par le personnel autorisé uniquement.


Rear Panel Features

Figure 1. DSC HD-HD 4K PLUS A Rear Panel

Figure 2. DSC HD-HD 4K PLUS A xi Rear Panel

Setup Overview

1. Disconnect power — Turn off or disconnect all equipment power sources.
2. Mount the unit (Optional) — Mount the DSC HD-HD 4K HD PLUS A either in a rack using shelf mounting bracket kits or under furniture using mounting brackets (see the instructions provided with the kit).
3. Connect the HDMI video inputs and outputs — Connect HDMI video sources and displays to one or both (xi model) HDMI input B and output C connectors. Secure each HDMI device to the connector with a provided LockIt® bracket.
4. Connect audio input and output devices (Optional) — Connect analog audio sources and outputs to the 3.5 mm captive screw Audio In and Audio Out connectors (D).
5. Connect a control device — For remote control, connect a computer or control system to any of these ports:
   - Remote RS-232 — This 3-pole captive screw RS-232 connector (E) enables serial control via SIS commands. RS-232 protocol for this port is 9600 baud, 1 stop bit, no parity, 8 data bits, and no flow control.
   - USB — This front panel USB mini-B port (F in the front panel illustration on the next page) enables configuration and control via SIS commands or the Extron PCS Configuration software.
   - LAN — This RJ-45 Ethernet jack (G) connects the unit to a network, enabling you to configure the DSC via SIS commands, the PCS software, or the DSC HD-HD 4K PLUS A series Web page.
Front Panel Overview

**A** Status LED (power and signal) — This bicolor LED lights amber when the unit is powered on but no signal is present, blinks amber every 3 seconds when the unit is in standby mode, and lights green when both power and an input video signal are present.

**B** USB configuration port — Connect a host to this USB mini-B port for device configuration, control, or firmware updates.

**C** Input LEDs — Light to indicate the following:
- **Signal** — An input signal is present.
- **HDCP** — The input signal is encrypted with HDCP.
- **Audio** — An audio signal (two-channel LPCM or multi-channel PCM) is present in the HDMI input.

**D** Output LEDs — Light to indicate the following:
- **Signal** — HDMI video is being output. If the video is muted, this LED does not light.
- **HDCP** — The output signal is encrypted with HDCP.
- **Audio** — An audio signal (two-channel LPCM or multi-channel PCM) is present in the HDMI output.

**E** Menu and Enter buttons — Let you access the on-screen display (OSD) and make selections from the submenus.

**F** Navigation buttons (right ▶, left ◀, up ▲, and down ▼ arrow buttons) — Let you navigate through the OSD submenus, lock the front panel (see the next section), perform Auto-Image™ (press ▶), and reset the output rate (hold ▼ for 5 seconds).

**Configuring the DSC HD-HD 4K PLUS A Series**

The DSC HD-HD 4K PLUS A series can be configured through a host connected to the RS-232, USB, or LAN port using Extron PCS configuration software (available at no charge at [www.extron.com](http://www.extron.com)), SIS commands (see page 4 for a selection of basic commands), or the Web page (see the [DSC HD-HD 4K PLUS A Series User Guide](http://www.extron.com), available at [www.extron.com](http://www.extron.com)). You can also configure the scaler using the OSD menu system.

**OSD Menu System**

The on-screen display (OSD) menu system consists of seven submenus and one information screen. To access the menus, press the front panel **Menu** button. With the main menu displayed, use the arrow buttons to step through the submenus and submenu items. Press the **Enter** button to select highlighted items. The Device Info screen is read-only and does not provide selections.

- **Quick Setup**
- **Picture Controls**
- **Audio**
- **Input**
- **Advanced**
- **Output**
- **Communication**
- **Device Info**

**NOTE:** The OSD times out and closes after 1 minute if no buttons are pressed.
Setting Up the DSC HD-HD 4K PLUS A Series Using the OSD Menu

The Quick Setup submenu is displayed when the OSD opens. This submenu contains items that you are most likely to need when configuring the DSC for the first time. To perform a basic system setup to get started, select the following items as needed:

- **Input EDID** — Select an input EDID (resolution and refresh rate) to match the output rate or set a discrete EDID. The default EDID is Auto (match the current output resolution).

- **Output Rate** — Select the scaler output resolution and refresh rate from 80 available factory-installed rates (see output rates table, below). You can also select one of 3 custom slots to add a user-defined resolution. The default rate is 1080p @ 60 Hz.

- **HDCP Authorized** — Select whether the input will report to a source as an HDCP-authorized device, thereby allowing HDCP-encrypted content (On), or will block input encryption (Off). The default is On.

- **Auto Memory** — Set the DSC to automatically save and recall the current input configuration and picture control values for each detected input resolution. After selecting Auto Memory, press any arrow button to toggle Auto Memories on and off. The default is On.

- **Aspect Ratio** — Configure aspect ratio compensation. Selections include Fill (inputs fill the entire output raster) and Follow (maintains the native aspect ratio of the input signal). After selecting Aspect Ratio, press any arrow button to toggle between Fill and Follow. The default is Fill.

- **Test Pattern** — Select from six test patterns to aid in setting up the DSC and the output display. Available test patterns include Crop, Alternating Pixels, Crosshatch, Color Bars, Grayscale, and Audio Test. The default is Off.

- **Output Audio Format** — Select between stereo and dual mono. The default is Stereo.

### Locking the Front Panel

To prevent unauthorized access or accidental changes to DSC settings, you can lock the front panel controls, making control available only by SIS commands. (The default state is unlocked.) You can lock and unlock the front panel using:

- **Front panel buttons** — To lock, press the Menu and ▼ buttons simultaneously and hold them until the OSD displays Executive Mode Enabled (approximately 5 seconds). To unlock, repeat this process.

- **SIS commands** — To lock (enable executive mode), enter 1X. To unlock (disable executive mode), enter 0X.

### Output Scaler Rates

Output rates can be set using the OSD menu or SIS commands. The table at right gives the rates and their SIS variables (see the SIS table on the next page).

### Output Rate Reset

If an image cannot be displayed due to an incompatible output rate, you can reset the output rate as follows:

With the OSD off, press and hold the ▼ button for approximately 5 seconds to toggle between 1024x768 @ 60 Hz and 720p @ 60 Hz.
## Basic SIS Commands

The DSC HD-HD 4K PLUS A series can be configured with specific SIS commands via RS-232, USB, and LAN connection. This table lists a selection of basic commands. For a full list of SIS commands and variables see the [DSC HD-HD 4K PLUS A Series User Guide](https://www.extron.com), available at [www.extron.com](http://www.extron.com).

<table>
<thead>
<tr>
<th>Command</th>
<th>ASCII Command (Host to Scaler)</th>
<th>Response (Scaler to Host)</th>
<th>Additional Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audio Input Format</strong></td>
<td></td>
<td></td>
<td>Set the audio format for the current input to X48.</td>
</tr>
<tr>
<td>Set audio input format</td>
<td>Eso 1* X58 AFMT</td>
<td>Eso AFMT 1* X58</td>
<td>View the current audio input format.</td>
</tr>
<tr>
<td>View audio input format</td>
<td>Eso I 1 AFMT</td>
<td>X58</td>
<td>Set output volume level to X58.</td>
</tr>
<tr>
<td><strong>Audio Input Gain</strong> (Affects analog audio input on 5-pole captive screw connector only.)</td>
<td></td>
<td></td>
<td>Set the gain on the analog audio input to X34.</td>
</tr>
<tr>
<td>Set gain</td>
<td>X58 G</td>
<td>Aud</td>
<td>X54</td>
</tr>
<tr>
<td>Increment gain</td>
<td>+G</td>
<td>Aud</td>
<td>X54</td>
</tr>
<tr>
<td>Decrement gain</td>
<td>-G</td>
<td>Aud</td>
<td>X54</td>
</tr>
<tr>
<td>View gain</td>
<td>G</td>
<td>X54</td>
<td>View the audio gain level of the current input.</td>
</tr>
<tr>
<td><strong>Volume</strong> (Analog and embedded digital audio)</td>
<td></td>
<td></td>
<td>Set output volume level to X58.</td>
</tr>
<tr>
<td>Set volume</td>
<td>X58 V</td>
<td>Vol</td>
<td>X50</td>
</tr>
<tr>
<td>Increment volume</td>
<td>+V</td>
<td>Vol</td>
<td>X50</td>
</tr>
<tr>
<td>Decrement volume</td>
<td>-V</td>
<td>Vol</td>
<td>X50</td>
</tr>
<tr>
<td>View</td>
<td>V</td>
<td>X50</td>
<td>View current volume setting X58.</td>
</tr>
<tr>
<td><strong>Output Resolution and Rate</strong></td>
<td></td>
<td></td>
<td>Select output resolution and refresh rate X21 (for X21 values, see the resolution and refresh rate table on the previous page).</td>
</tr>
<tr>
<td>Set output scaler rate</td>
<td>Eso 1* X21 RATE</td>
<td>Rate 1* X21</td>
<td>Show the current output rate for the DSC.</td>
</tr>
<tr>
<td>View output rate</td>
<td>Eso 1 RATE</td>
<td>X21</td>
<td></td>
</tr>
<tr>
<td><strong>HDMI Output Format</strong></td>
<td></td>
<td></td>
<td>Set output format X48 for HDMI output X3.</td>
</tr>
<tr>
<td>Set format</td>
<td>Eso X3 * X48 VTP0</td>
<td>Eso VTP0 X3 * X48</td>
<td>Show the current output format X48 for the DSC.</td>
</tr>
<tr>
<td>View output rate</td>
<td>Eso X3 VTP0</td>
<td>X48</td>
<td></td>
</tr>
<tr>
<td><strong>Screen Saver Mode</strong> (Takes place when no signal is detected on the input.)</td>
<td></td>
<td></td>
<td>Set the screen saver mode to X48.</td>
</tr>
<tr>
<td>Set screen saver mode</td>
<td>Eso M 1* X48 SSAVE</td>
<td>Ssav M 1* X48</td>
<td>View current screen saver mode X48.</td>
</tr>
<tr>
<td>View screen saver mode</td>
<td>Eso M 1 SSAVE</td>
<td>X48</td>
<td>View the amount of time X28 before sync timeout.</td>
</tr>
<tr>
<td>Set screen saver duration before output sync timeout</td>
<td>Eso T 1* X28 SSAVE</td>
<td>Ssav T1* X28</td>
<td>View the screen saver status X63.</td>
</tr>
<tr>
<td>View sync timeout duration</td>
<td>Eso T 1 SSAVE</td>
<td>X28</td>
<td></td>
</tr>
<tr>
<td>View screen saver status</td>
<td>Eso S 1 SSAVE</td>
<td>X63</td>
<td></td>
</tr>
<tr>
<td><strong>Reset</strong></td>
<td></td>
<td></td>
<td>Reset all device settings to the factory defaults, retaining IP settings.</td>
</tr>
<tr>
<td>System reset</td>
<td>Eso ZXXX</td>
<td>Zpx</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**
- **X2** = Output: 1 = HDMI A, 2 = HDMI B (x1 model only)
- **X3** = Output scaler rate: See the resolution and refresh rate table on the previous page for the rate variables.
- **X21** = Output sync timeout duration in seconds: 1 - 500 in 1-second increments. 501 = never (default), 0 = immediate timeout.
- **X28** = Screen saver mode: 1 = black (default), 2 = blue, 3 = user screen saver logo.
- **X3** = Volume: 0 dB to 100 dB in 1.0 dB steps. (Default is -10 dB.)
- **X48** = Audio input gain: -18 dB to +24 dB. (Default is +12 dB.)
- **X28** = Audio input format: 0 = none, 1 = analog, 2 = LPCM-2Ch, 3 = Multi-Ch, 4 = LPCM 2Ch Auto (default), 5 = Multi-Ch Auto.
- **X63** = Screen saver status: 0 = active, timer not running, 1 = no active input, timer running, output sync active, 2 = No active input, timer expired, output sync disabled.

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