



INSTALLATION MANUAL FOR SR-1000 STANDALONE INTEGRATED MEDIA BLOCK™

SMS Version 17.0

February 07th, 2022



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Thank you for purchasing a GDC SR-1000 Standalone Integrated Media Block™ from GDC Technology Limited.

To ensure proper operation and to maximize value of the SR-1000, please review this Installation Manual. It will guide you through all the features and benefits of the new SR-1000 Standalone Integrated Media Block™.

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MANUAL DISCLAIMER

This manual is made with version 17.0 and there might be slight differences depending on the software version the IMB is running. The contents, features and specifications stated in this manual are subject to change without notice due to continuous product development and improvements. In no other event shall GDC Technology Limited be liable for any loss of profit or any other commercial damages, including but not limited to special, consequential, or other damages.

FCC COMPLIANCE STATEMENT

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.

NOTE: 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.

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1 INTRODUCTION

This document is a guide through the process of setting up the SR-1000 with the projector, audio system, and automation devices used in cinema theatres.

In this manual, the SR-1000 Web UI is used to configure the SR-1000. The Dashboard of the SR-1000 Web UI is shown below (Refer to **Figure 1**).

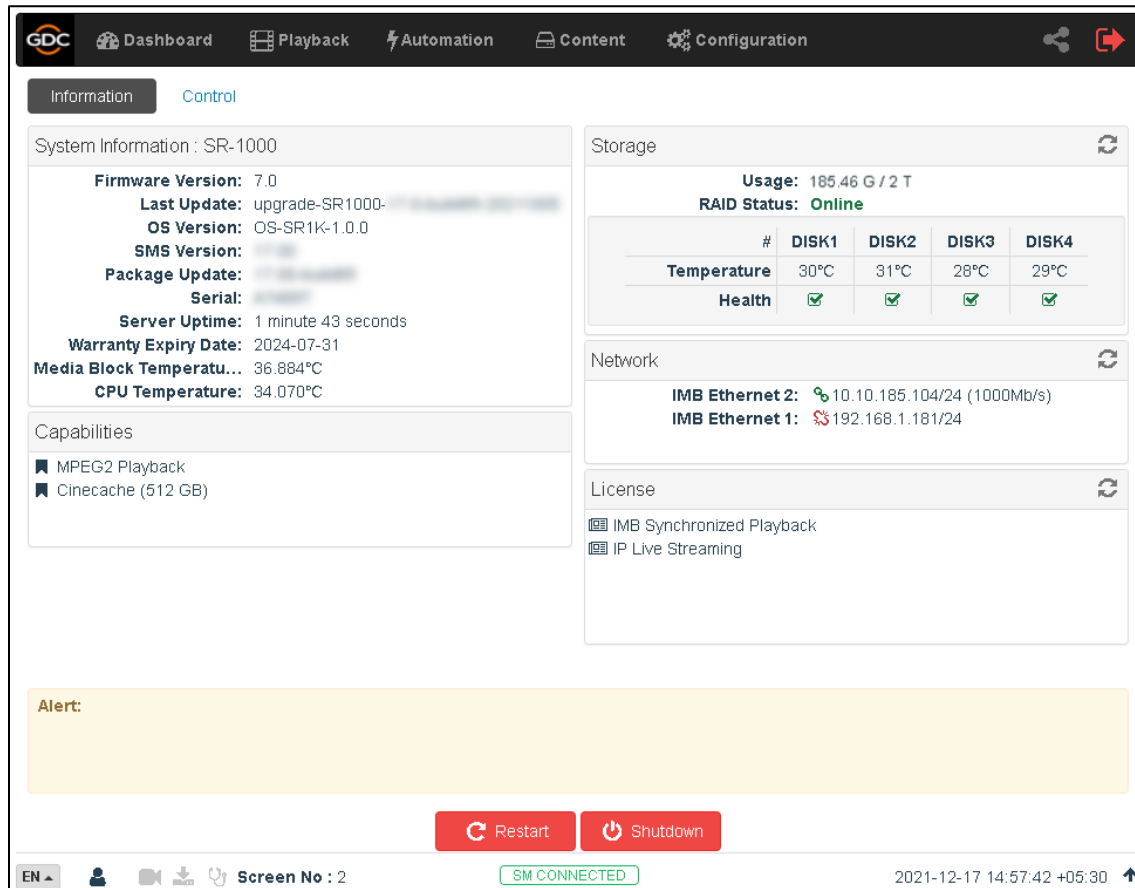


Figure 1: Dashboard tab

1.1 Equipment List

This section provides a suggested installation configuration of GDC SR-1000 for reference. Please contact our sales representative to specify the accessories needed for the installation.

The SR-1000 Packaging Includes:

Item	Qty	Photo
SR-1000 Unit with projector cover plate	1	
RJ45 AES Audio Cable	1 [#]	
RJ45 GPIO Cables	2 [#]	
Network Cable	1	
RJ45 to DB25 Audio Converter	[#]	

[#] Subject to actual configuration. Please specify with our sales representative.

2 INSTALLING SR-1000 INTO THE PROJECTOR

NOTE: If the projector comes with the GDC IMB pre-installed, the instructions in this section can be skipped.

This section of the manual describes the physical installation of the SR-1000 into the projector. If the projector does not have the GDC SR-1000 installed, follow the steps below to install the SR-1000 into the projector.

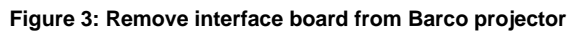


Figure 2: SR-1000 Standalone IMB™

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Figure 3 shows an interface board (with SMPTE 292 inputs) connected to a Barco projector. This board must be removed in order to install the SR-1000, as shown in **Figure 4**.



2.1.2 Christie Projector Placement

Figure 5 shows the location where the SR-1000 should be installed on a Christie projector. Remove any existing interface boards or placeholder faceplates from this position before installing the SR-1000.



Figure 5: SR-1000 Placement on Christie projector

2.1.3 NEC Projector Placement

Figure 6 shows the location where the SR-1000 should be installed on a NEC projector. Remove any existing interface boards or placeholder faceplates from this position before installing the SR-1000.



Figure 6: SR-1000 Placement on NEC projector

NOTE: When installing the SR-1000 into any NEC projector, it is recommended to install it into the top slot of the projector. If the SR-1000 is installed into the bottom slot, the board runs the risk of coming in contact with the IMB enclosure.

Please refer to the respective projector manuals for more details on preparing the projector for SR-1000 installation.

2.2 Installing the SR-1000 into the projector

Please make sure the projector is powered off before installing the SR-1000 on the projector.

NOTE: Please check the SR-1000 for any physical damage like loose or burnt component before installing it into the projector.



Figure 7: Installing the SR-1000 into the projector

Insert the SR-1000 as shown in **Figure 7**. The SR-1000 should slide into the projector on the rails provided by the IMB slot, and the SR-1000 faceplate should be flush with the other existing faceplates once properly inserted.

2.3 Projector Network

Connect the provided Cat 5e LAN cable from the SR-1000 Gigabit 2 port to cinema network. Please see **Section 5** for IP network instructions after the SR-1000 is installed.

3 CONNECTING PORTABLE STORAGE/ENTERPRISE STORAGE WITH THE SR-1000

For installation of Portable Storage or Enterprise Storage, please refer to *Installation Manual for Portable Storage and Enterprise Storage*.

3.1 Connecting the Portable Storage

1. Take out the adapter from the packaging and connect to the DC power connector.
2. Connect the eSATA cable to the back panel for data transfer.



Figure 8: Connect eSATA cable to the Portable Storage

Making the connections to the SR-1000

3. Insert the eSATA cable into the SR-1000 eSATA port.



Figure 9: Insert eSATA cable into SR-1000 eSATA port

NOTE: To use Portable Storage as the content source, it MUST be connected to the eSATA port of the SR-1000 board.

3.2 Connecting the Enterprise Storage

1. Take out the power cord from the packaging and connect to the power connector of Enterprise Storage.
2. Connect the eSATA cable to the back panel of the Enterprise Storage for data transfer.



Figure 10: Connect eSATA cable to the Enterprise Storage

Making the connections to the SR-1000

3. Insert the eSATA cable into the SR-1000 eSATA port.



Figure 11: Insert eSATA cable into SR-1000 eSATA port

NOTE: To use the Enterprise Storage as the content source, it **MUST** be connected to the eSATA port of the SR-1000 board.

4 SR-1000 WEB UI ACCESS

The SR-1000 uses a web-based user interface. The following steps show how to access the SR-1000 Web UI:

1. Connect a laptop or PC to the same network as the SR-1000.
2. The SR-1000 Web UI can be accessed by a web browser (Google Chrome or Mozilla Firefox are recommended).
3. Enter the IP address of the SR-1000 in the web browser, to access the login page on the Web UI. The default IP address of the SR-1000 is 192.168.1.12.
4. There are three levels of users available (**User/Technician/Maintenance**). Select the required access level and enter the corresponding password to login to the Web UI.



Figure 12: SR-1000 Web UI Login Page

5 SR-1000 IP ADDRESS SETUP

The IP address of the SR-1000 IMB will need to be set for proper operation.

5.1 IMB Network Setup

Change the IP addresses of the SR-1000 using the following steps:

1. Login as **Maintenance** user.
2. Under the **Configuration** tab in the menu, click the **System** sub-tab.
3. Go to **Network Configuration** section.
4. Enter the IP values for **Subnet Mask**, **Gateway** and **IMB Ethernet 2** fields.
5. Once the settings have been entered, click **Validate IPs**.

The screenshot displays the 'Network Configuration' section of the GDC interface. The 'System' sub-tab is selected. The 'IMB Ethernet 2' section is highlighted with a red box, showing the following values: IP Address: 192.168.2.34, Subnet Mask: 255.255.255.0, and Gateway: 192.168.2.254. The 'Server Content IP' dropdown is set to 'IMB Ethernet 2'. Below this, the 'IMB Ethernet 1' section is visible with empty 'IP Address' and 'Subnet Mask' fields. At the bottom right of the configuration section, the 'Validate IPs' button is highlighted with a red box. The 'Log' section at the bottom provides options to 'Extract logs & Configuration' (1 Week, 1 Month, 3 Months, All) and 'Generate logs', as well as 'Extract Performance log' (From Datetime ... To Datetime ...) and 'Generate Perf log'. The status bar at the bottom indicates 'SM CONNECTED' and the date/time '2021-12-17 15:53:02 +05:30'.

Figure 13: Network Configuration settings

6. If all of the IP addresses are valid, a popup window will appear as shown in **Figure 14**.

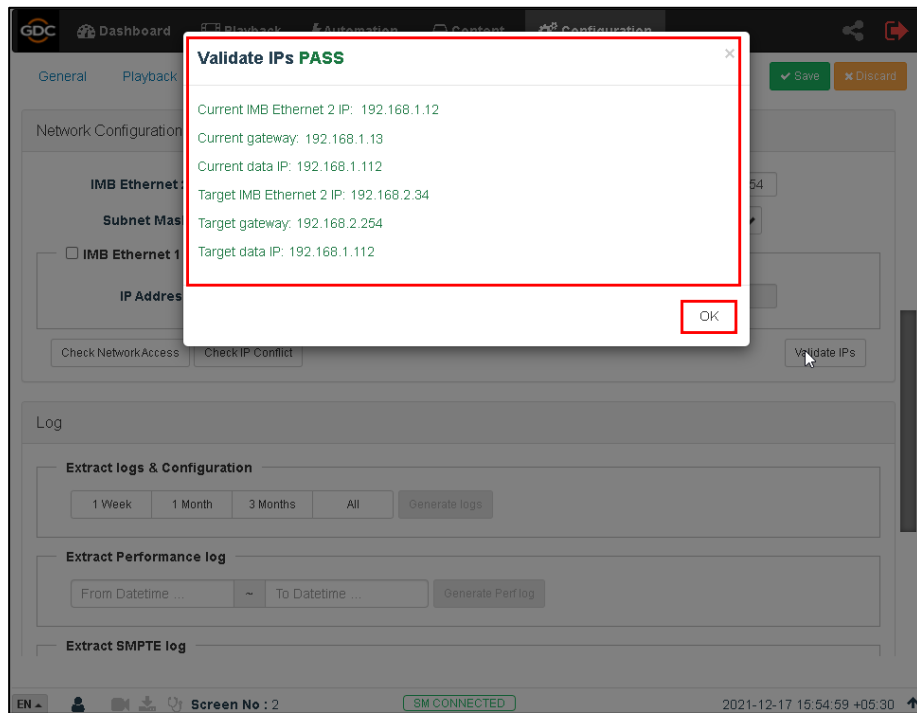


Figure 14: Network Configuration settings

7. Click **OK** to exit.
8. Click **Save** to save the settings.

6 STORAGE CONFIGURATION

SR-1000 Storage can be configured using the Configuration tab's Storage sub-tab.

1. Go to **IMB Storage** section and select the required **Storage Type** option.
2. The following options are available:
 - **NAS**: Connect to NFS server for storage
 - **CineCache™**: Use CineCache™ for storage (For SR-1000 with CineCache™ installed only)
 - **Portable/Enterprise Storage**: Configure the SR-1000 to use Portable or Enterprise Storage

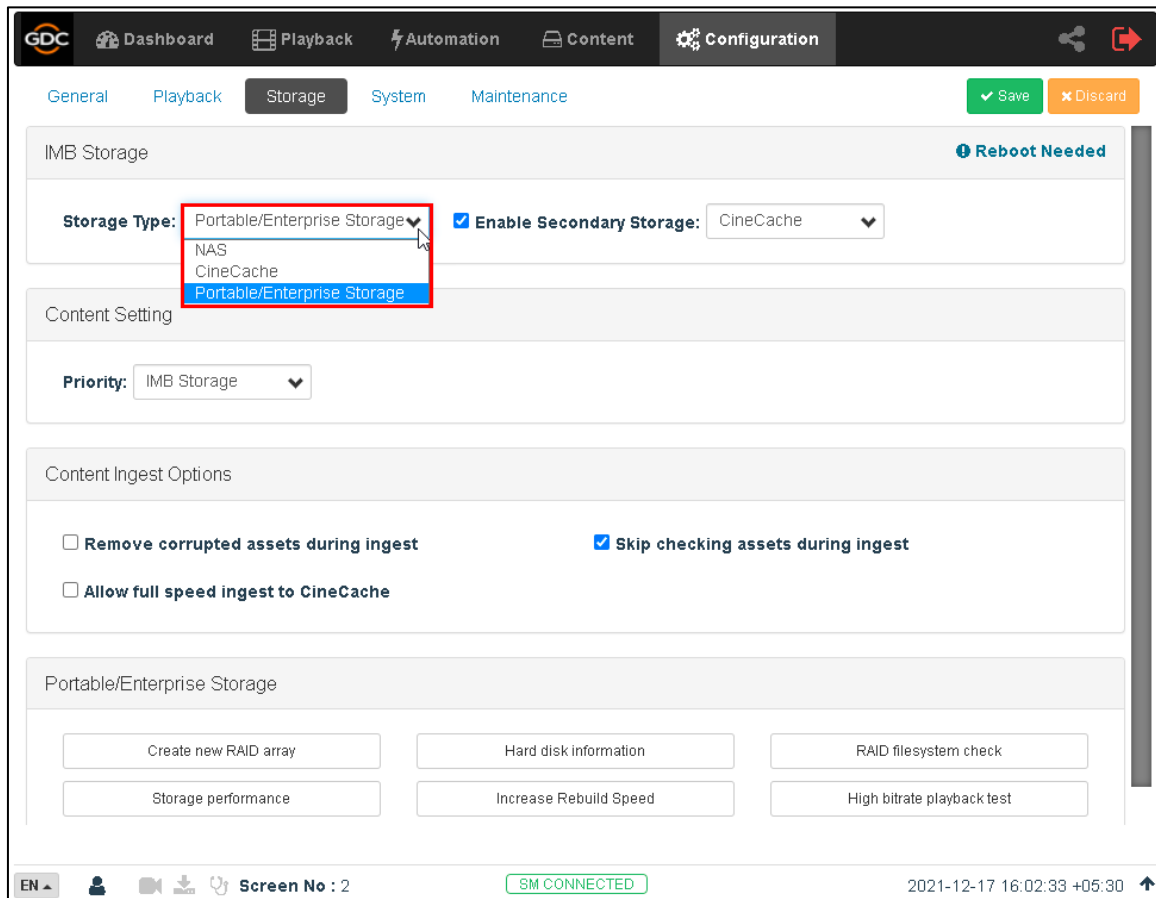


Figure 15: IMB Storage settings

3. Go to **Dashboard**, click **Restart**, followed by **OK** to confirm. This is to ensure all components in the SR-1000 are able to detect the selected storage after restart.
4. The SR-1000 will restart and use the selected option for storage.

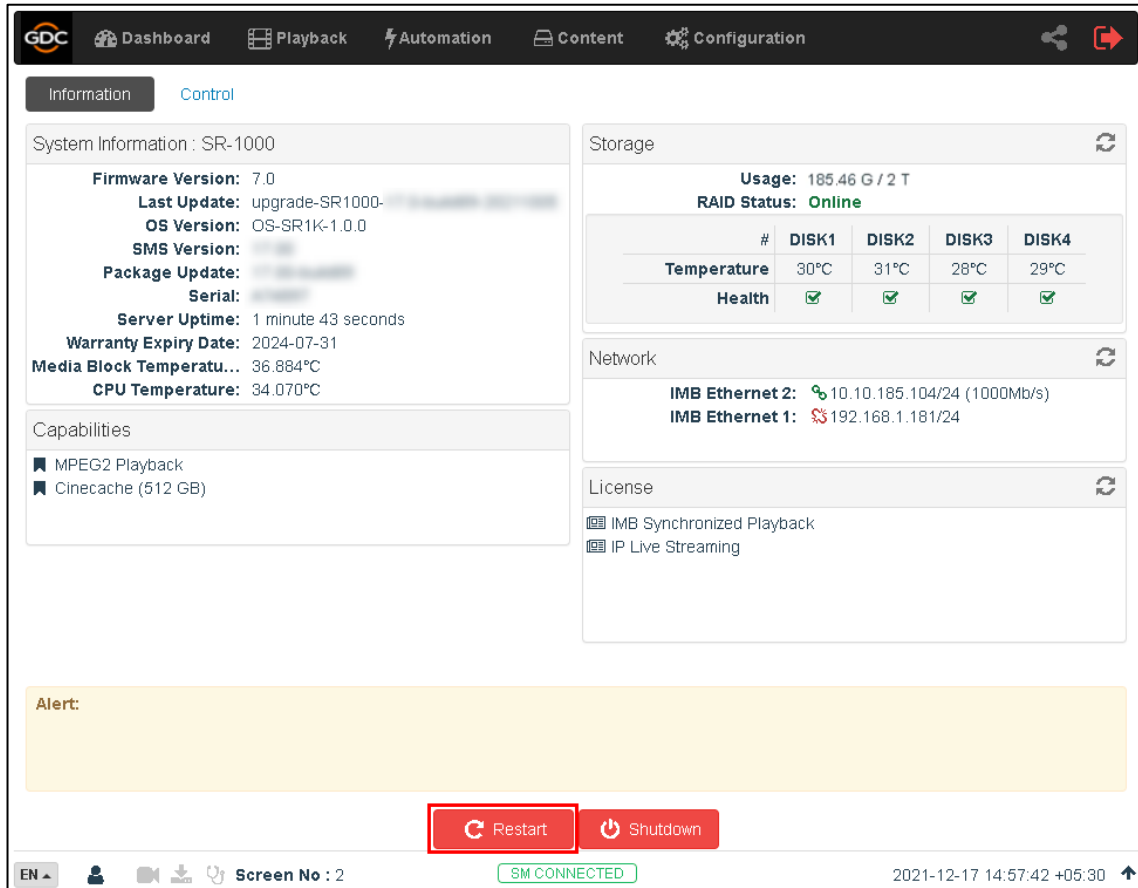


Figure 16: Dashboard tab



Figure 17: Restart window

NOTE: 'CineCache' should be selected as Primary Storage in **Storage Type** only when used with **Priority** as 'Attached Storage'.

If **Priority** is set as 'IMB Storage', then 'Portable/Enterprise Storage' should be selected as Primary Storage in **Storage Type** with the option of selecting 'CineCache' as Secondary Storage.

7 SERIES 2 PROJECTOR SETUP

To play content with the SR-1000 in a projector, follow the instructions below:

- IMB Marriage must be done,
- Service door tamper must be cleared
- The projector must be set up according to the requirements of the projector manufacturer.

7.1 IMB Marriage and Clearing the Service Door Tamper from the SR-1000

Follow the steps below to perform the marriage between the SR-1000 and to clear the service door tamper on the SR-1000:

1. Under the **Configuration** tab in the menu, click the **System** sub-tab.
2. Go to **Clear IMB Tampers** section.
3. Click **Marry** to perform the marriage of the projector and the SR-1000.
4. Click **Close** to clear the door tamper errors with the projector
5. After the Marriage is performed and the tampers are cleared, green **Married** and **Closed** buttons will be shown respectively (as seen in **Figure 18**).

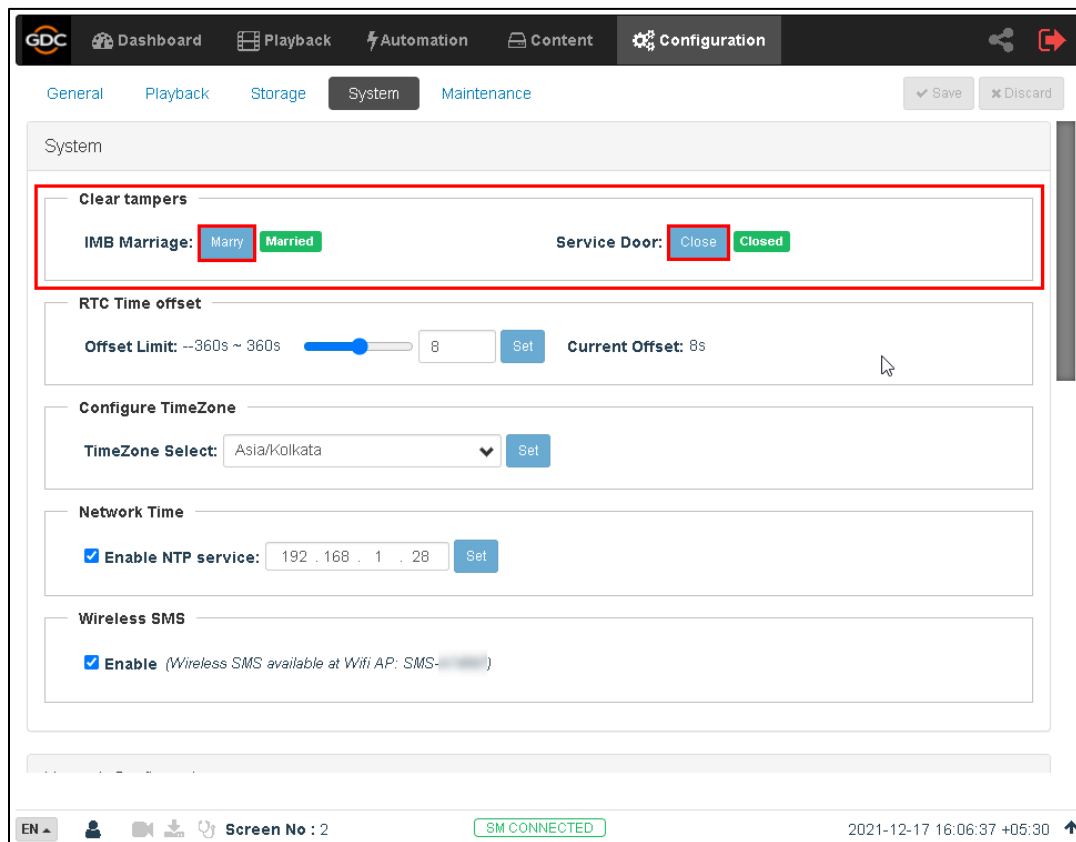


Figure 18: Clear IMB tampers

7.2 Barco Series 2 Projector Setup

No system configuration is required for Barco Series 2 projector to work with the SR-1000. The Service Door/Marriage Tamper on the server must be cleared before the SR-1000 can be used for playback.

In order to use the SR-1000 for content playback, the INPUT source of the projector macros should be set to “Mediablock” (as shown in **Figure 19**). If the input file is not present, please download and install the latest projector configuration files for your projector. For details, please refer to the projector manual.

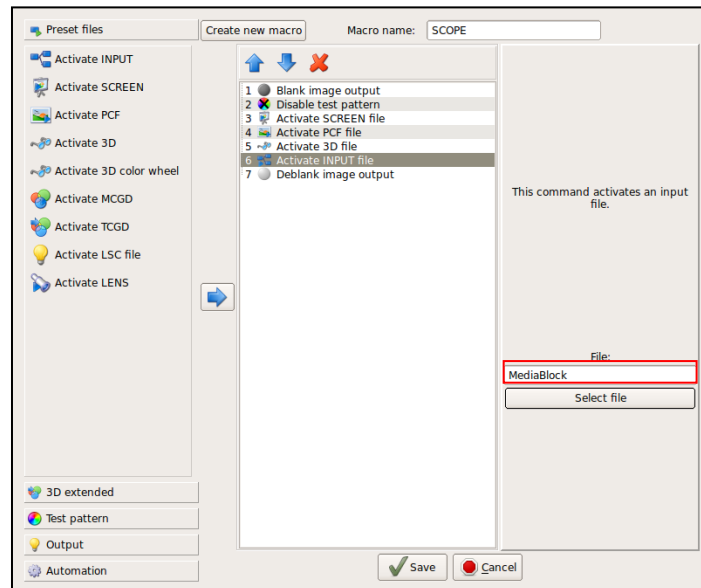


Figure 19: INPUT source settings on Barco Series 2 Projector

7.3 NEC Series 2 Projector

In order to configure an NEC Series 2 projector to work with the SR-1000, the following steps must be taken:

1. Switch on the projector so that it is in STANDBY mode.
2. Use the Digital Cinema Communicator for S2 Windows software provided by NEC to connect to the projector.
3. Select [Start] → [Mode] → [Service] and enter the Service password to activate service mode operation (as shown in **Figure 20**).

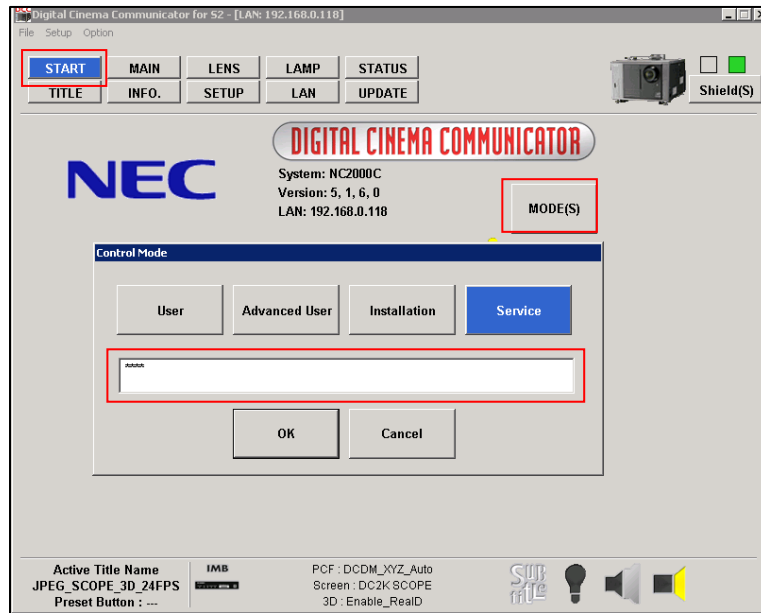


Figure 20: Service Mode on NEC Digital Cinema Communicator

4. Select [Setup] → [Option Slot] on the Digital Cinema Communicator and select IMB for Slot B in Option Slot Setting (as shown in **Figure 21**).

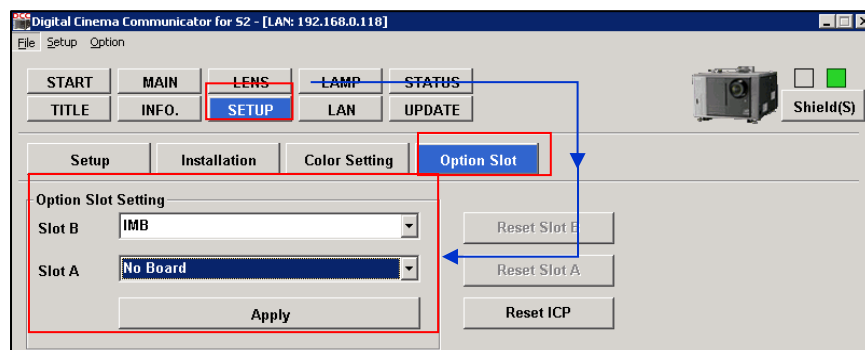


Figure 21: Option slot settings on NEC Digital Cinema Communicator

5. Select [Start] → [Power] → [On] to power on the projector.
6. Clear the Service Door/Marriage Tamper on the SR-1000.

To use the SR-1000 for content playback, the INPUT source of the projector macros must be set to IMB.

7.4 Christie Series 2 Projector

In order to configure a Christie Series 2 projector to work with the SR-1000, the following steps must be taken:

1. Switch on the projector.
2. Log in to the **[Marriage]** account on the projector TPC. Select **[Menu] → [Login]** (as shown in **Figure 22**).

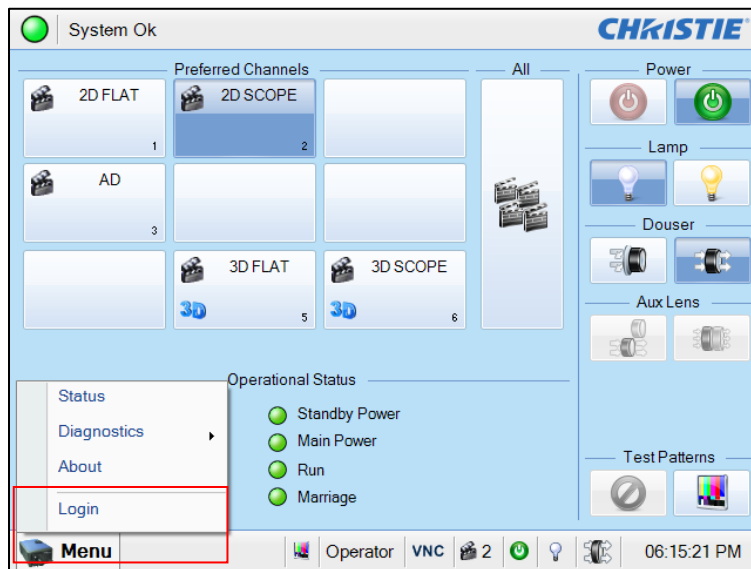


Figure 22: Marriage account

3. Enter Username as **[marriage]** and its password and click **[Login]** button (as shown in **Figure 23**).

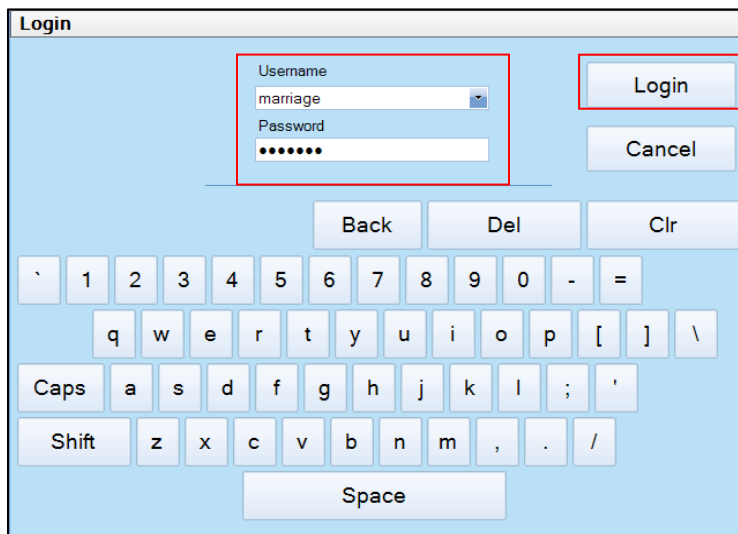


Figure 23: Marriage account login

4. Select **[Menu] → [Administrator Setup] → [Content Devices Configuration]** (as shown in **Figure 24**).

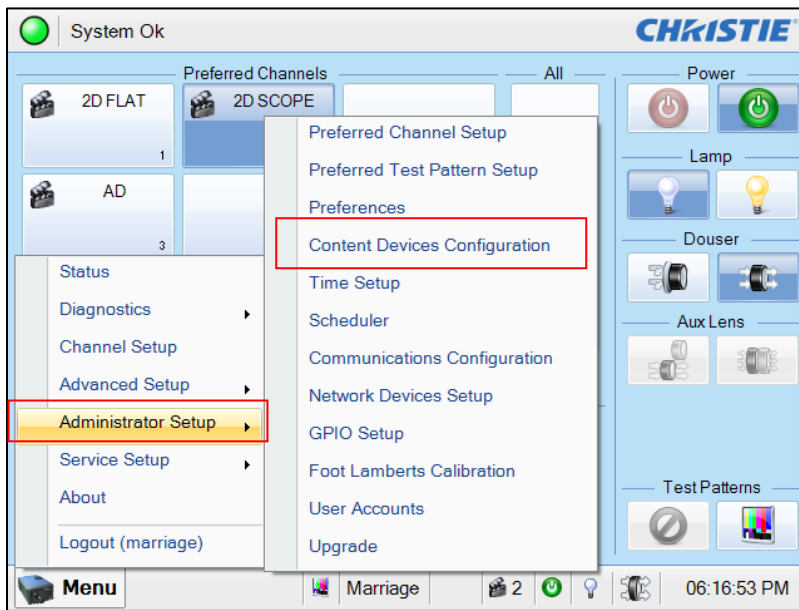


Figure 24: Content Devices Configuration

5. Select **[GDC]** for the **[IMB Installed]** (as shown in **Figure 25**).

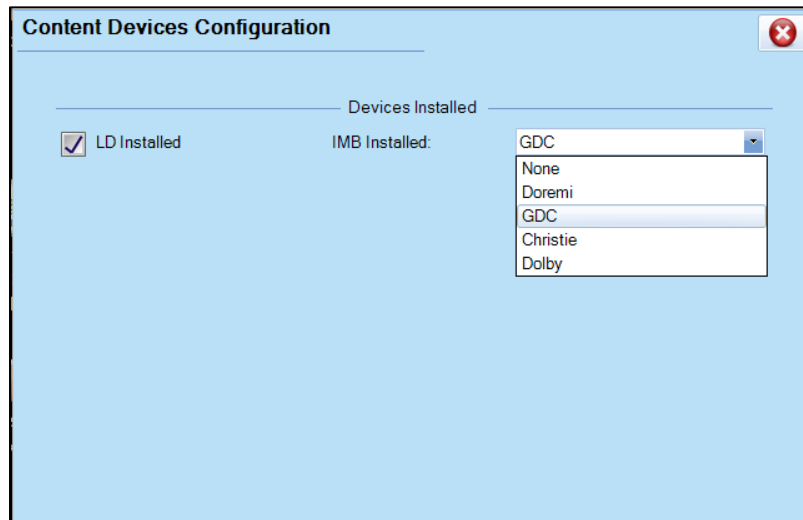


Figure 25: Content Devices Configuration

6. Clear the Service Door/Marriage Tamper on the SR-1000.

To use the SR-1000 for content playback, the INPUT for projector channel must be set to **[IMB-Generic]**.

7.5 3D settings for Series 2 projectors

The 3D macros for Series 2 projectors should be configured with the following settings for “3D Input Control”:

- 3D Sync Input Mode: Use ‘Line Interleave’ (first line=Left, second line=Right)
- L/R Display Reference: Not Used
- Frame Rate: 6:2
- L/R Display Sequence: Left (L1R1 L2R2)

The following shows 3D settings on a Christie projector as an example (refer to **Figure 26**).

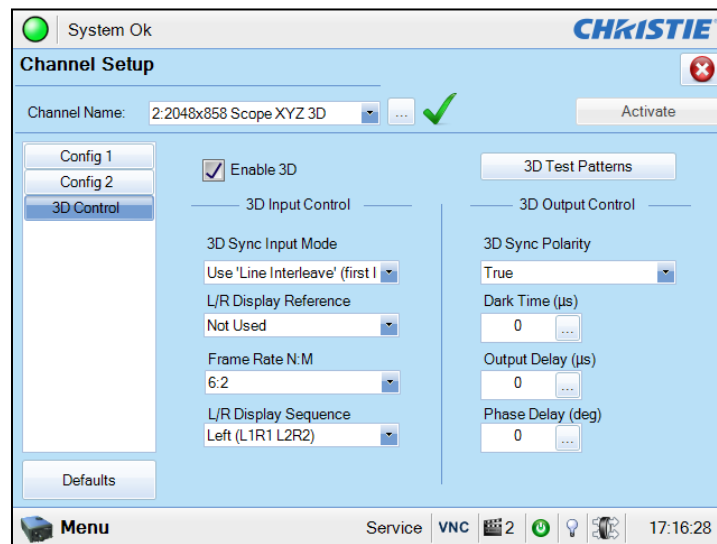


Figure 26: 3D macro settings for Christie Series 2 projectors

The settings for 3D output control (*'3D Sync Polarity'*, *'Dark Time'*, *'Output Delay'* and *'Phase Delay'*) should be customized according to the type of 3D system used (RealD, XpanD or Dolby3D).

8 TIME ZONE SETUP

The SR-1000 may or may not arrive with the local time zone set. The following steps show how to change the time zone on the server.

1. Under the **Configuration** tab in the menu, click the **System** sub-tab.
2. Go to **Configure TimeZone** section.
3. Select the Region/City in the dropdown menu of **TimeZone Select**.
4. Click **Save** to save the setting.

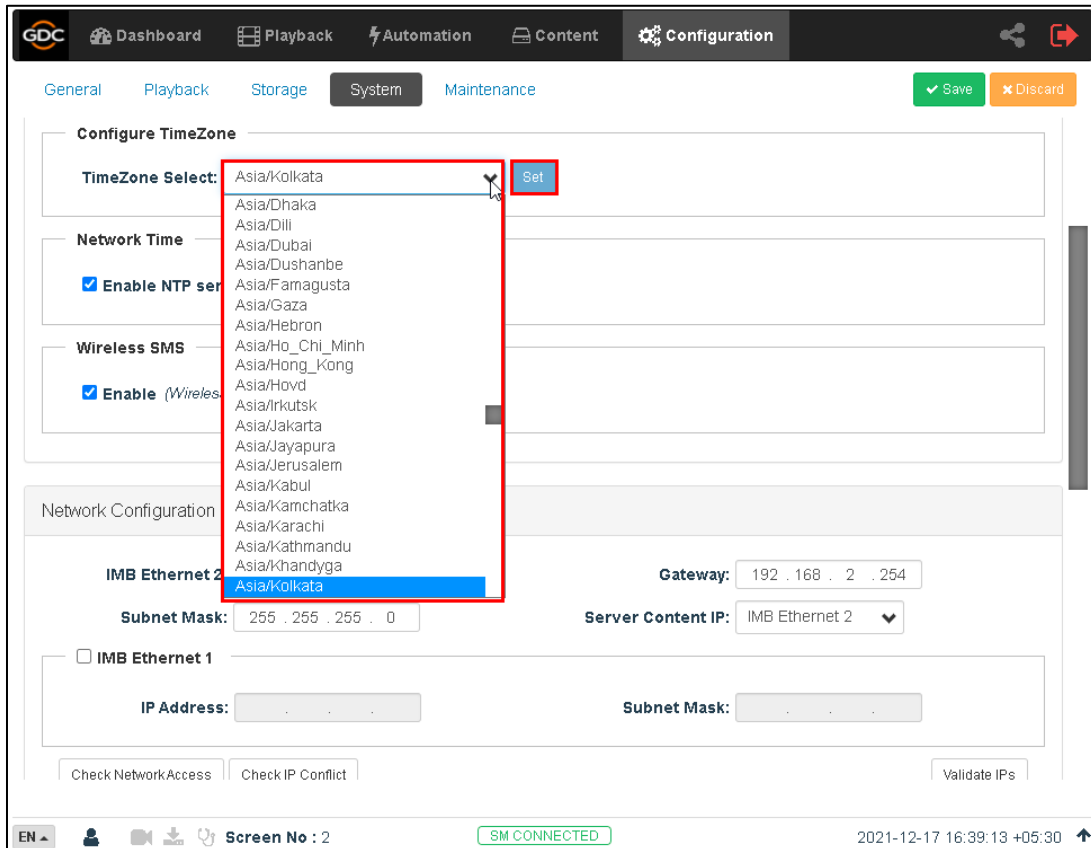


Figure 27: TimeZone setting

9 CONTENT INGEST MANAGEMENT SETUP

An ingest source must be configured before content can be transferred to the SR-1000. This section shows the configuration for content ingest from two different source types. The same steps can be used to set up content ingest sources using other sources.

9.1 Content Ingest from USB disk

The following steps describe the content ingestion from an external USB hard drive:

1. Under the **Content** tab in the menu, click the **Source** drop-down and select the **Ingest** option.
2. On the left column, select **USB Drive**.
3. Select the USB storage device and partition from the respective drop-downs.
4. Click **OK** to choose content to be ingested from the USB disk.

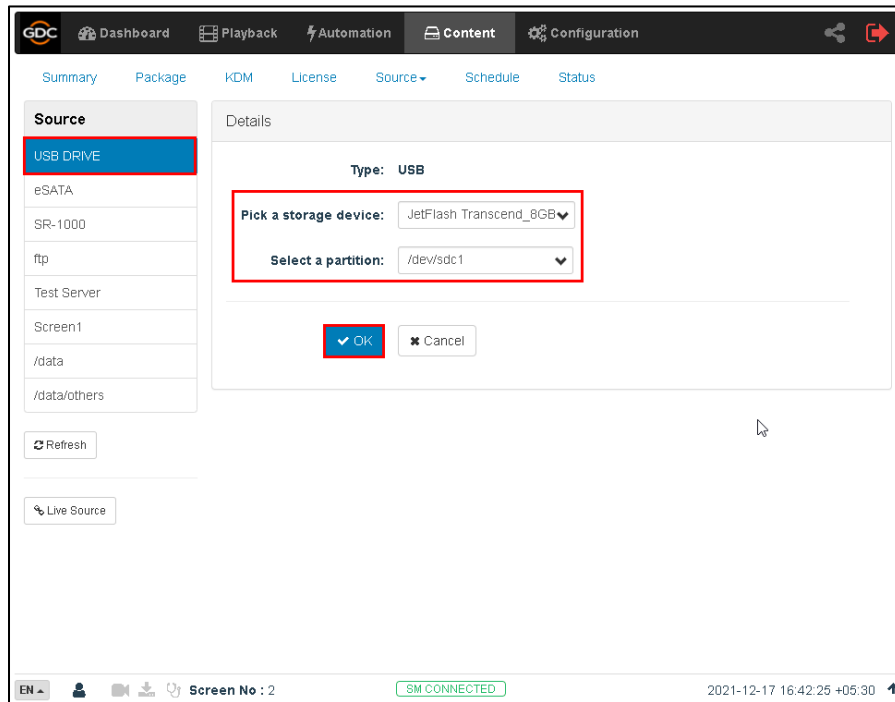


Figure 28: Content source setting

9.2 Content Ingest from FTP

Follow the steps below to setup content ingestion from an FTP server:

1. Under the **Content** tab in the menu, click the **Source** drop-down and select the **Manage** option.
2. On the left column, click **Create** button.
3. Select **FTP** as the source type. Enter the **FTP name**, in this case, we use “Test FTP”.
4. Enter the respective parameters for **IP Address**, **Port**, **Source Path**, **Username**, **Password**.
5. Click **Save** to save the setting.

The screenshot shows the GDC Content Source settings interface. The 'Source' tab is selected, displaying a list of sources on the left and a 'Details' form on the right. The 'Create' button is highlighted in red. The 'Details' form is also highlighted with a red box, showing fields for Type (FTP), Name (Test FTP), IP Address (192.168.1.103), Port (21), Source Path (/), Username, Password, and a checkbox for 'Show ingest content annotation text'. The 'Save' button is highlighted in red.

Figure 29: Content source settings

6. Click **Open** to connect to the FTP server and choose the content for ingest.

The screenshot shows the GDC Content Source settings interface, focusing on the 'Details' form. The 'Open' button is highlighted in red. The form fields are the same as in Figure 29, but the 'Save' button is replaced by 'Edit' and 'Delete' buttons.

Figure 30: Content source settings

10 AUDIO SETUP

The SR-1000 features AES digital audio signal via two RJ45 Outputs. For compatibility with most audio processors on the market, a standard RJ45 to DB25 connector is included in the packaging (please refer to **Figure 31**).



Figure 31: RJ45→DB25 Audio Connector

A-TOP (RJ45) (Female)	Channel	DB25 (25Pin) (Female)
Pin1	AES Out 1+	24
Pin2	AES Out 1-	12
Pin3	AES Out 2+	10
Pin4	AES Out 3+	21
Pin5	AES Out 3-	9
Pin6	AES Out 2-	23
Pin7	AES Out 4+	7
Pin8	AES Out 4-	20
A-BOT (RJ45) (Female)	Channel	DB25 (25Pin) (Female)
Pin1	AES Out 5+	18
Pin2	AES Out 5-	6
Pin3	AES Out 6+	4
Pin4	AES Out 7+	15
Pin5	AES Out 7-	3
Pin6	AES Out 6-	17
Pin7	AES Out 8+	1
Pin8	AES Out 8-	14

Figure 32: RJ45→DB25 pinout (For traditional audio connector)

A-TOP (RJ45) (Female)	Channel	DB25 (25Pin) (Male)
Pin1	AES Out 1+	14
Pin2	AES Out 1-	2
Pin3	AES Out 2+	3
Pin4	AES Out 3+	17
Pin5	AES Out 3-	5
Pin6	AES Out 2-	16
Pin7	AES Out 4+	6
Pin8	AES Out 4-	19

Figure 33: RJ45→DB25 pinout (For CP750/JSD80 audio connector)

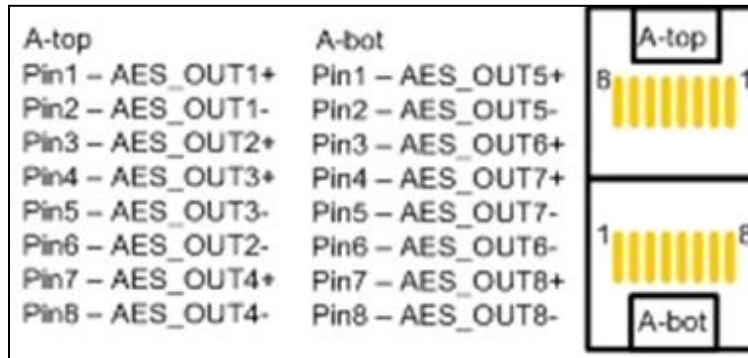


Figure 34: AES Audio RJ45 pinout

11 SUBTITLES

It is recommended to use subtitle overlay for subtitle display. To do so, please check **Subtitle Overlay Option** and mention the **Subtitle Delay** interval under the **Playback** sub-tab of the **Configuration** menu.

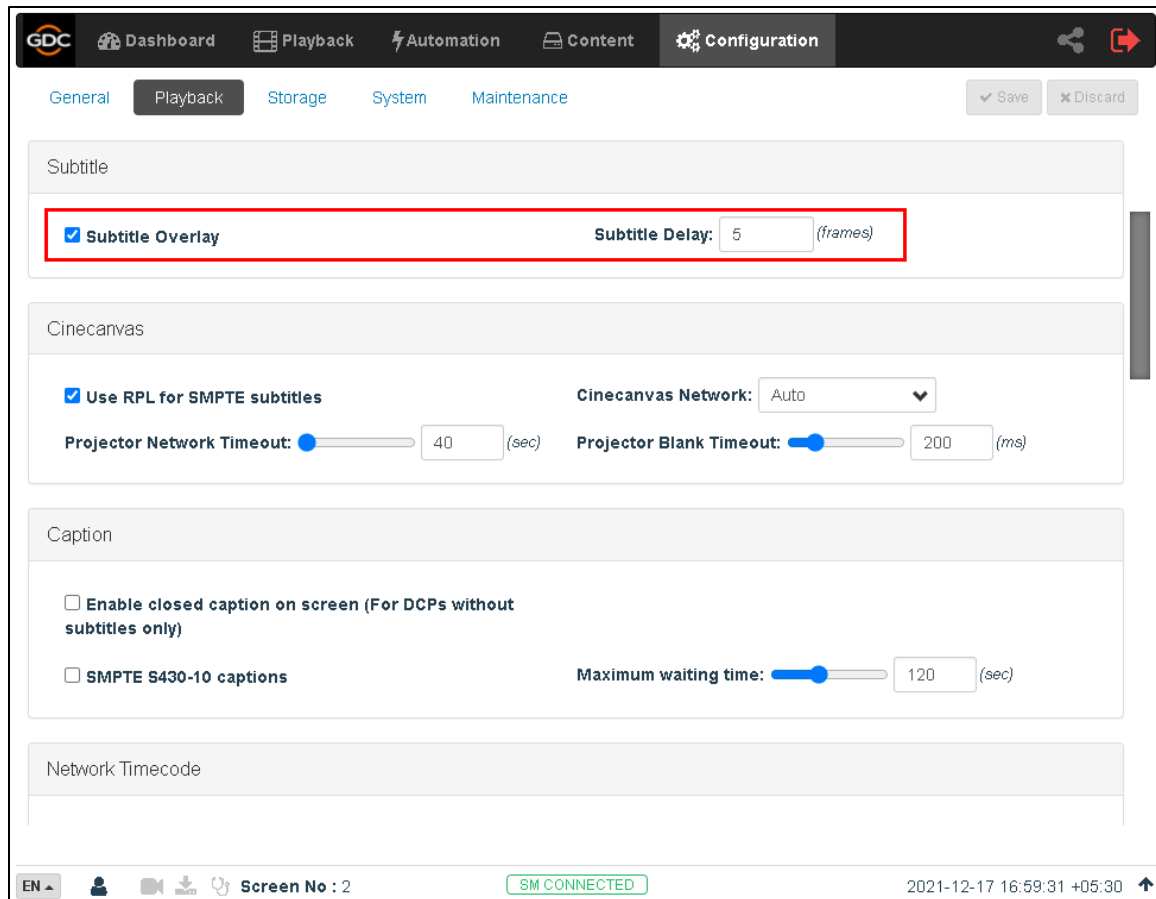


Figure 35: Subtitle settings

12 AUTOMATION SETUP

The SR-1000 is able to control external devices using its automation interface. This can be used to automate repetitive tasks for the cinema operator to prevent user error.

12.1 Automation setup for server GPIO

The SR-1000 GPIO automation device settings can be configured using the steps below:

1. Under the **Automation** tab in the menu, click the **Device** sub-tab.
2. On the left column, click **IMBGPIO**.
3. Enter the device **Name**, **Input Min Pulse width**, **Output Pulse Width**.

The screenshot displays the SR-1000's web interface for configuring automation devices. The top navigation bar includes 'GDC', 'Dashboard', 'Playback', 'Automation' (selected), 'Content', and 'Configuration'. Below this, a sub-menu shows 'Trigger', 'Schedule', 'Cue', 'Input', 'Device' (selected), 'Options', and 'Import / Export'. On the left, a 'Device' list includes 'System', 'Timer', 'IMBGPIO' (highlighted with a red box), 'Christie', 'ICS-20', 'Network socket device', and 'XSP-1000'. The main area, titled 'Details', shows the configuration for the 'IMBGPIO' device. It includes a 'Type: IMBGPIO' label, an 'Enabled' checkbox (checked), a 'Name: IMBGPIO' field with a 'Rename' button, an 'Input Min Pulse Width (ms): 100' field, and an 'Output Pulse Width (ms): 200' field. At the bottom, a status bar shows 'EN', a user icon, 'Screen No : 2', a green 'SM CONNECTED' indicator, and the timestamp '2021-12-17 17:14:39 +05:30'.

Figure 36: Server GPIO settings

The output pulse width must be at least *100ms*. If a different output pulse width is required, the value can be entered in the 'Output Pulse Width' setting. Click the [Save] button to save any changes made.

12.2 Automation setup for projectors

The SR-1000 supports automation for Barco, Christie and NEC projectors. Follow the steps below to configure a projector device in the server automation interface.

1. Under the **Automation** tab in the menu, click the **Device** sub-tab.
2. On the left column, click **Create**.
3. Select **PROJECTOR** as the **device type**. Enter the **name** of the projector and click **OK**.
4. Enter the **IP address** of the projector device
5. Set the correct **model** of the projector. The **port** number will automatically change to the default automation port number for the model. If the projector is a **Series 2** projector, check the 'Series 2' checkbox.
6. Enter **Login** and **Password** for the projector, if required.
7. Click **Save** to save the settings.

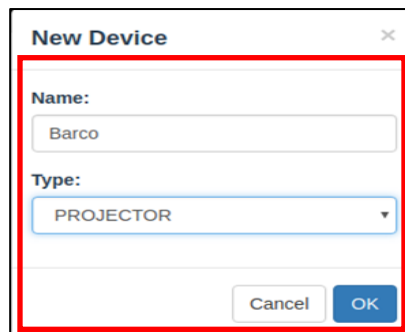
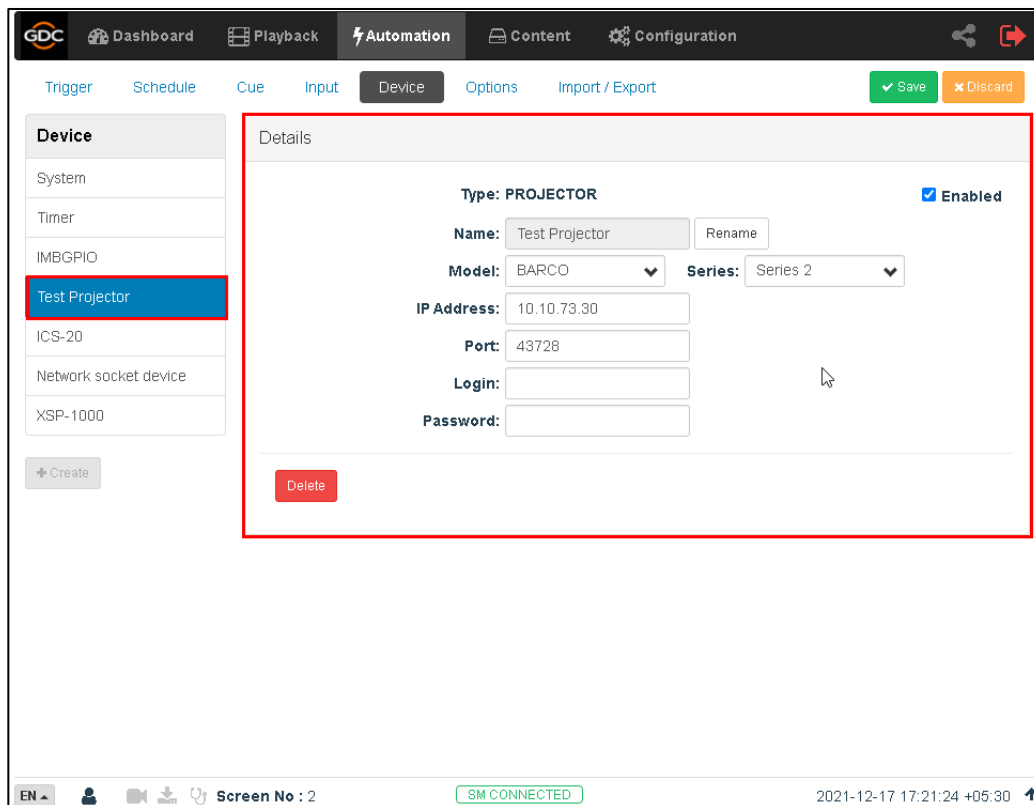
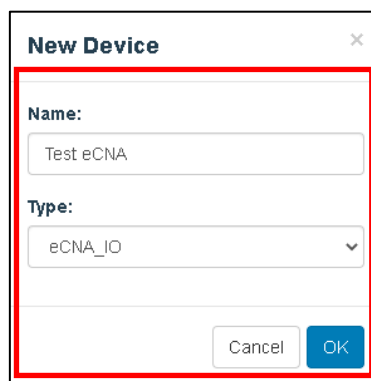



Figure 37: Projector setting

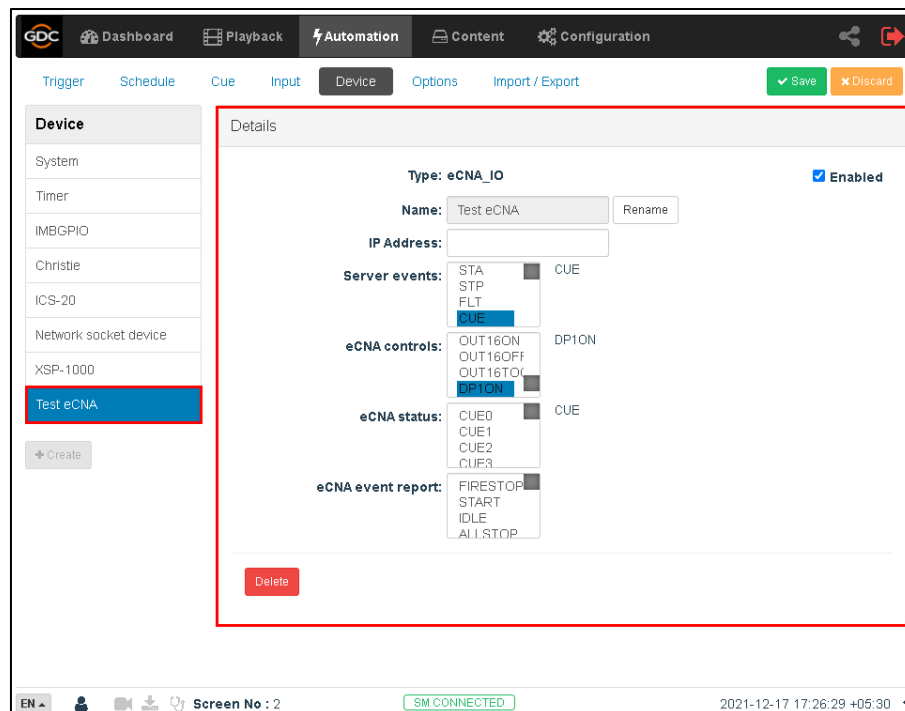
12.3 Automation setup for eCNA devices

The SR-1000 supports the eCNA-10 automation system. Follow the steps below to configure an eCNA device in the server automation interface.

1. Under the **Automation** tab in the menu, click the **Device** sub-tab.
2. On the left column, click **create**.
3. Select **eCNA_IO** as the **device type**. Enter the **name** of the eCNA device and click **OK**.
4. Enter the **IP address** of the eCNA device.
5. The eCNA device has many cues available for automation. These cues can be enabled or disabled by selecting them after clicking the buttons in **Server events**, **eCNA controls**, **eCNA status**, and **eCNA event report**. All cues are disabled by default.
6. Click **Save** to save the settings.



A dialog box titled "New Device" with a close button (X) in the top right corner. It contains two input fields: "Name:" with the text "Test eCNA" and "Type:" with a dropdown menu showing "eCNA_IO". At the bottom are "Cancel" and "OK" buttons. A red rectangle highlights the entire dialog box.



A screenshot of the "Automation" tab in the software interface, specifically the "Device" sub-tab. On the left is a sidebar with a list of devices: System, Timer, IMBGPIO, Christie, ICS-20, Network socket device, XSP-1000, and "Test eCNA" (highlighted with a red box). Below the list is a "Create" button. The main area shows the "Details" for the "Test eCNA" device. It includes a "Name:" field with "Test eCNA" and a "Rename" button. Below is an "IP Address:" field. The "Type:" is set to "eCNA_IO" and is checked as "Enabled". There are four sections of controls, each with a list of cues and checkboxes: "Server events" (STA, STP, FLT, CUE), "eCNA controls" (OUT16ON, OUT16OFF, OUT16TO, DP1ON), "eCNA status" (CUE0, CUE1, CUE2, CUE3), and "eCNA event report" (FIRESTOP, START, IDLE, ALLSTOP). A "Delete" button is at the bottom left of the details area. At the bottom of the screen, there is a status bar showing "EN", a user icon, "Screen No : 2", "SM CONNECTED", and a timestamp "2021-12-17 17:26:29 +05:30".

Figure 38: eCNA device setting

12.4 Automation setup for JNIOR devices

The SR-1000 supports the JNIOR Ethernet I/O controller device. Follow the steps below to configure a JNIOR device in the server automation interface.

1. Under the **Automation** tab in the menu, click the **Device** sub-tab.
2. On the left column, click **create**.
3. Select **JNIOR_IO** as the **device type**. Enter the **name** of the JNIOR device, and click **OK**.
4. Enter the **IP address** of the JNIOR device.
5. The settings for Port, Login and Password are set to the default values for JUNIOR device if left empty.
6. Click **Save** to save the settings.

Figure 39: JNIOR device setting

12.5 Automation setup for Christie ACT devices

The SR-1000 supports the Christie ACT automation device. Follow the steps below to configure a Christie ACT device in the server automation interface.

1. Under the **Automation** tab in the menu, click the **Device** sub-tab.
2. On the left column, click **Create**.
3. Select **ChristieACT** as the **device type**. Enter the **name** of the ChristieACT device and click **OK**.
4. Enter the **IP address** of the ChristieACT device.
5. The default setting for **Port** is displayed on the settings for the ChristieACT device. Change this value if required.
6. **Default control cues** will be set up for a new ChristieACT automation device. Control cues can be added or removed by clicking the **+** or **-** buttons.
7. Click **Save** to save the settings.

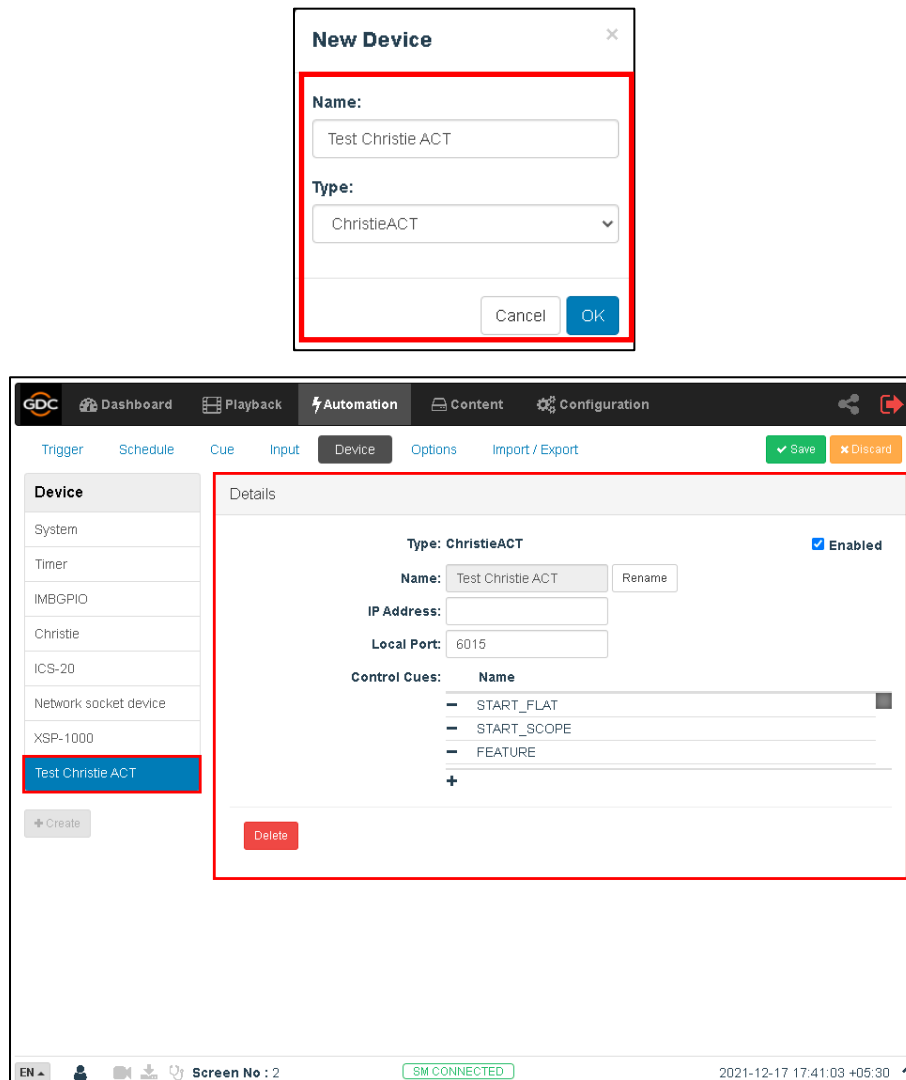
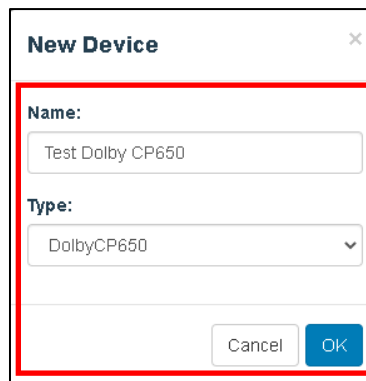


Figure 40: Christie device setting

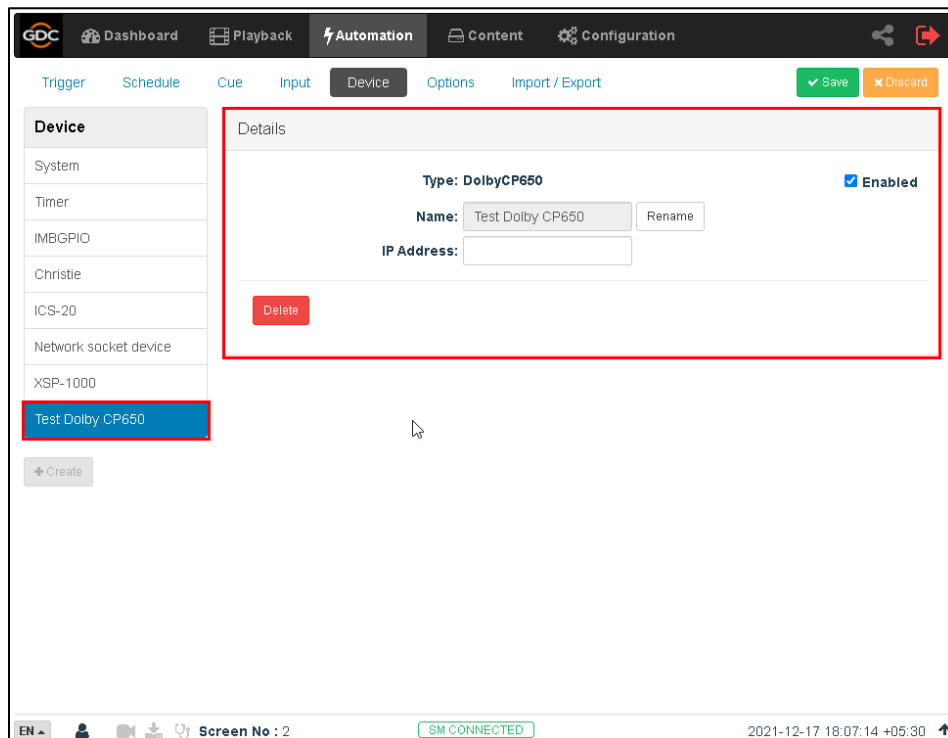
12.6 Automation setup for Dolby devices

The SR-1000 supports automation for the Dolby sound processors. Follow the steps below to configure a Dolby device in the server automation interface. For this example, the device refers to the Dolby CP650 Sound Processor.

1. Under the **Automation** tab in the menu, click the **Device** sub-tab.
2. On the left column, click **create**.
3. Select **DolbyCP650** as the **device type**. Enter the **name** of the Dolby CP650 device and click **OK**.
4. Enter the **IP address** of the Dolby CP650 device.
5. Click **Save** to save the settings.



A dialog box titled "New Device" with a close button (X) in the top right corner. It contains two input fields: "Name:" with the text "Test Dolby CP650" and "Type:" with a dropdown menu showing "DolbyCP650". At the bottom right are "Cancel" and "OK" buttons. A red rectangular box highlights the entire dialog content area.



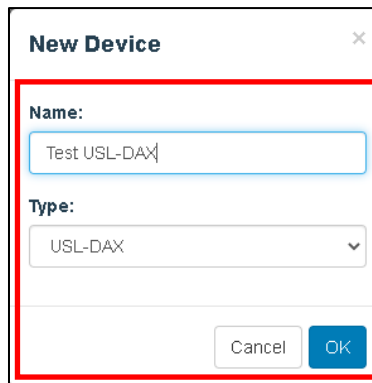
A screenshot of the GDC Automation interface. The top navigation bar includes "Dashboard", "Playback", "Automation" (selected), "Content", and "Configuration". Below this is a sub-menu with "Trigger", "Schedule", "Cue", "Input", "Device" (selected), "Options", and "Import / Export". On the right of the sub-menu are "Save" and "Discard" buttons. On the left is a "Device" sidebar with a list of device types: System, Timer, IMBGPIO, Christie, ICS-20, Network socket device, XSP-1000, and "Test Dolby CP650" (highlighted with a red box). Below the list is a "+ Create" button. The main area shows the "Details" for the selected device. It includes "Type: DolbyCP650" with an "Enabled" checkbox checked, "Name: Test Dolby CP650" with a "Rename" button, and an "IP Address:" input field. A red "Delete" button is at the bottom left of the details section. A red rectangular box highlights the details section. At the bottom of the interface, there is a status bar with "EN", a user icon, "Screen No : 2", "SM CONNECTED", and a timestamp "2021-12-17 18:07:14 +05:30".

Figure 41: Dolby device setting

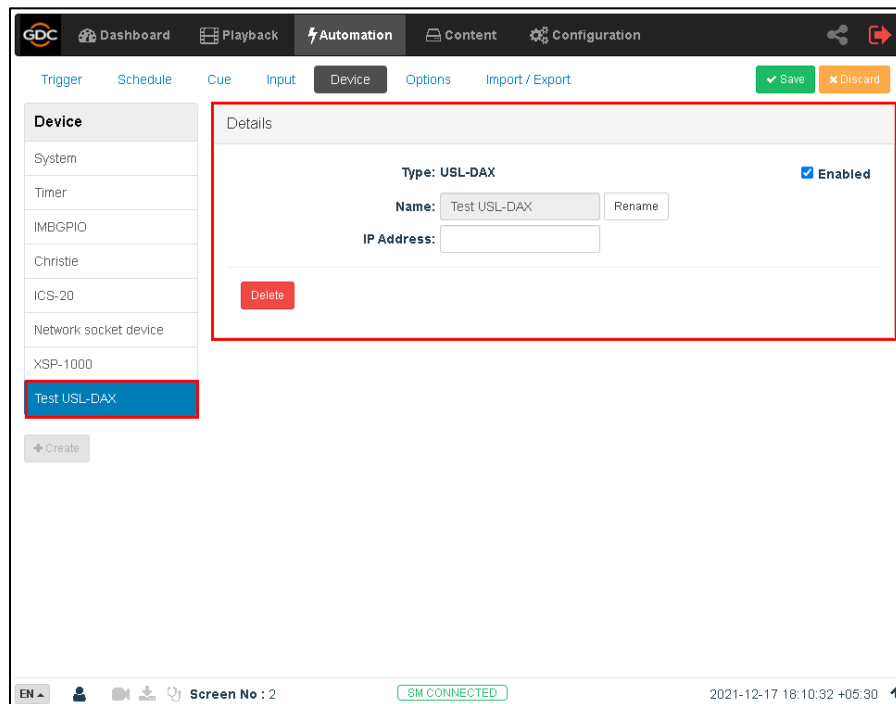
12.7 Automation setup for USL DAX devices

The SR-1000 supports automation for USL DAX sound processor. Follow the steps below to configure a USL DAX device in the server automation interface.

1. Under the **Automation** tab in the menu, click the **Device** sub-tab.
2. On the left column, click **create**.
3. Select **USL-DAX** as the **device type**. Enter the **name** of the USL DAX device, and click **OK**.
4. Enter the **IP address** of the USL DAX device.
5. Click **Save** to save the settings.



A dialog box titled "New Device" with a close button (X) in the top right corner. It contains two input fields: "Name:" with the text "Test USL-DAX" and "Type:" with a dropdown menu showing "USL-DAX". At the bottom are "Cancel" and "OK" buttons. The entire dialog box is outlined with a red border.



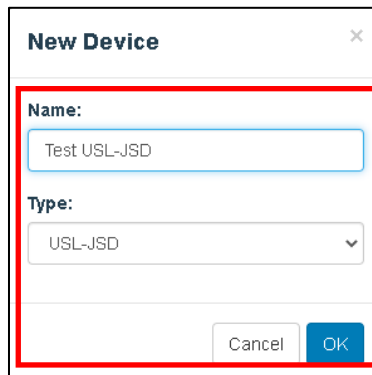
The main interface of the SR-1000 system. The top navigation bar includes "Dashboard", "Playback", "Automation" (selected), "Content", and "Configuration". Below this is a sub-navigation bar with "Trigger", "Schedule", "Cue", "Input", "Device" (selected), "Options", and "Import / Export". On the left is a "Device" sidebar with a list of devices: "System", "Timer", "IMBGPIO", "Christie", "ICS-20", "Network socket device", "XSP-1000", and "Test USL-DAX" (highlighted with a red border). The main area shows the "Details" for the selected device. It displays "Type: USL-DAX" and "Name: Test USL-DAX" with a "Rename" button. Below this is an "IP Address:" field. A "Delete" button is at the bottom left. A "Save" button is at the top right. The bottom status bar shows "EN", a user icon, "Screen No : 2", "SM CONNECTED", and the date/time "2021-12-17 18:10:32 +05:30".

Figure 42: USL DAX device setting

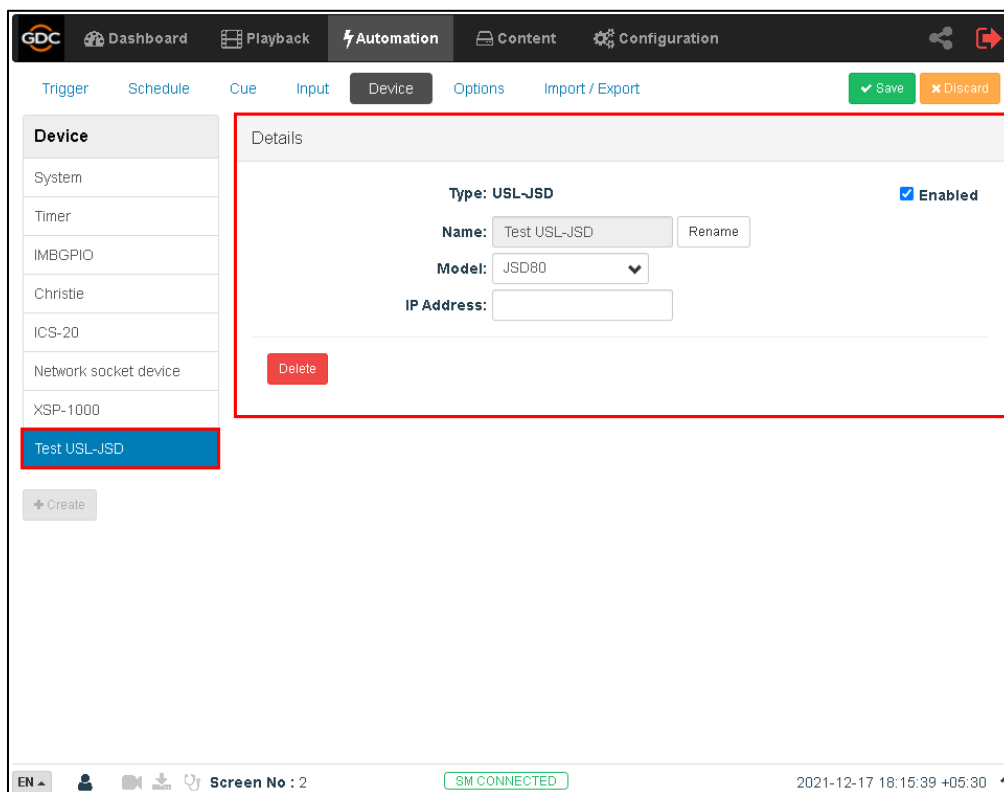
12.8 Automation setup for USL JSD devices

The SR-1000 supports automation for USL JSD-80 and JSD-100 sound processor. Follow the steps below to configure a USL JSD device in the server automation interface.

1. Under the **Automation** tab in the menu, click the **Device** sub-tab.
2. On the left column, click **create**.
3. Select **USL-JSD** as the **device type**. Enter the **name** of the USL JSD device, and click **OK**.
4. Enter the **IP address** of the USL JSD device.
5. Select the correct model (JSD-80 or JSD-100) of the device the server is connected to.
6. Click **Save** to save the settings.



A dialog box titled "New Device" with a close button (X) in the top right corner. It contains two input fields: "Name:" with the text "Test USL-JSD" and "Type:" with a dropdown menu showing "USL-JSD". At the bottom right are "Cancel" and "OK" buttons. A red rectangular box highlights the "Name:" and "Type:" fields.



The main interface of the SR-1000 server automation system. The top navigation bar includes "GDC", "Dashboard", "Playback", "Automation" (selected), "Content", and "Configuration". Below this is a sub-menu with "Trigger", "Schedule", "Cue", "Input", "Device" (selected), "Options", and "Import / Export". On the right of the sub-menu are "Save" and "Discard" buttons. On the left is a "Device" list with items: "System", "Timer", "IMBGPIO", "Christie", "ICS-20", "Network socket device", "XSP-1000", and "Test USL-JSD" (highlighted in blue). Below the list is a "+ Create" button. The main area is titled "Details" and contains the following fields: "Type: USL-JSD" with a blue "Enabled" checkbox, "Name: Test USL-JSD" with a "Rename" button, "Model: JSD80" with a dropdown arrow, and "IP Address:" with an empty text box. A red "Delete" button is at the bottom left of the details area. A red rectangular box highlights the "Details" section. At the bottom of the interface is a status bar with "EN", a user icon, "Screen No : 2", a green "SM CONNECTED" status indicator, and a timestamp "2021-12-17 18:15:39 +05:30".

Figure 43: USL JSD device setting

13 COMPONENT ENGINEERING TA-10 SETUP

The Component Engineering TA-10 can be used for theater automation with the SR-1000. It requires that the TA-10 be wired in a particular configuration. A wiring diagram can be seen in **Figure 44**.

The TA-10 is connected to the SR-1000 using the server's GPIO input/output port. Configure event labels with the GPIO device to trigger the TA-10.

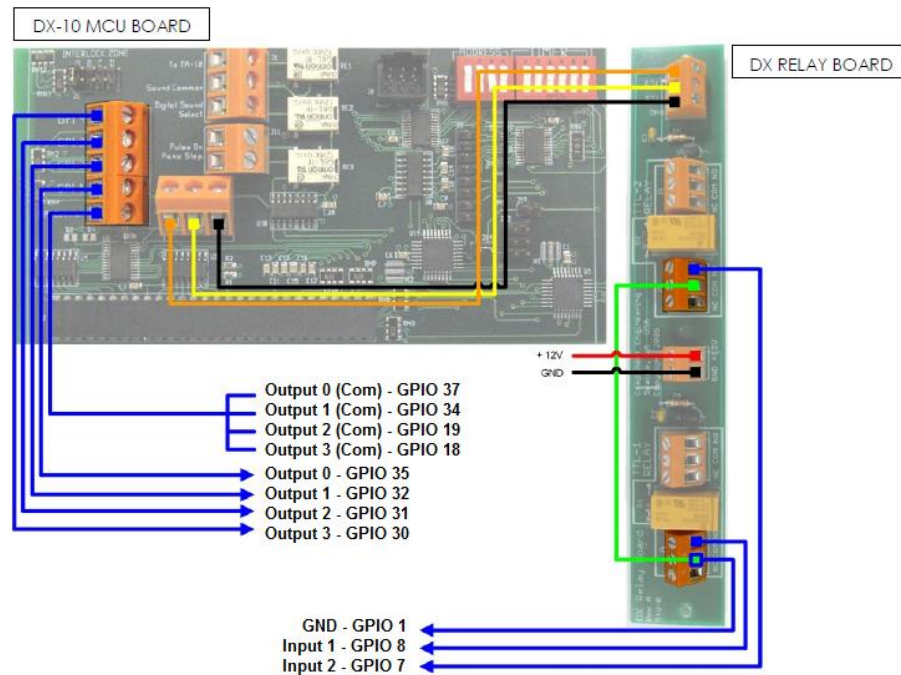


Figure 44: Component Engineering TA-10 wiring diagram

14 TESTING PROCEDURES FOR QC AFTER INSTALLATION

After the installation has been completed, it is necessary to test the following to ensure that the SR-1000 has been properly installed:

1. Test the video playback capabilities of the SR-1000.
2. Test the audio playback capabilities of the SR-1000 and verify that all the channels are working. Also check for any static noises.
3. Test the server's ability to activate automation cues using test cues for lights, curtains, sound and fire alarm.
4. Test the remote access capabilities of the server, including: Theater Management System (TMS) access and network connectivity.

15 SR-1000 INPUT AND OUTPUT

15.1 AES Audio and GPIO Pinout

AES Audio

GPIO

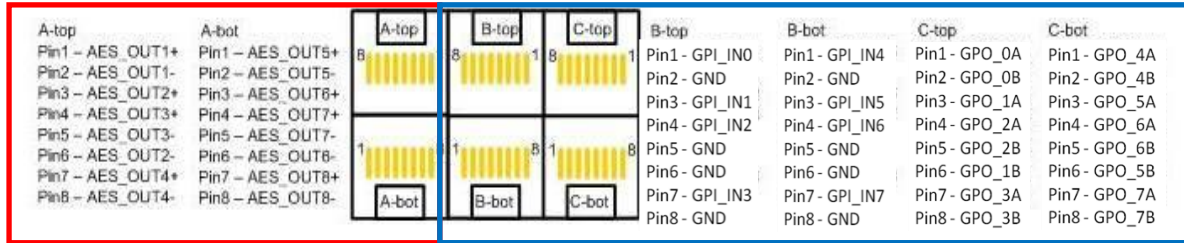


Figure 45: AES audio and GPIO pinout

15.2 Audio AES 17-24 Pinout (for SR-1000 Extreme -24)

Figure 46 describes the pinout for the **Audio AES 17-24** connector on the SR-1000 Extreme -24.

Audio AES 17-24

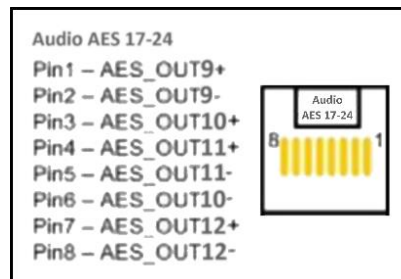


Figure 46: AUX AES Pinout

15.3 GPIO Power Details

GPIO Input Details

Vin High min level is 3.5 Volts

Vin Low max level is 1.5 Volts

Iin min -20 uA

Iin max +20 uA

(Essentially no current flows; this is a voltage sensing device)

The GPI inputs have a 5.62K Ohm resistor pull-up to an isolated 5 Volts. Shorting the pins would send an input high ("dry contact")

GPIO Output Details

Outputs use a solid-state relay

Max voltage across relay contacts GPO_nA and GPO_nB = 200 Volts

Relay ON-resistance: Min = 6 / Typ = 10 / Max = 15 ohms

Relay Current limit: Min = 300 / Typ = 360 / Max = 460 mA

Relay output power dissipation (continuous) = 600 mW

15.4 Audio Output from the SR-1000

The SR-1000 features 16-channel AES3 digital audio signal via 2x RJ45 Outputs (**A-top and A-bot**) or 24-channel AES3 digital audio signal via 2x RJ45 Outputs (**A-top and A-bot**) and an additional RJ45 Output (**Audio AES 17-24**) depending on the SR-1000 configuration chosen.

Channels 1 to 8 are available on the **A-top** connector and carry the processed 6- or 8-channel main audio tracks for 5.1 and 7.1 DCPs respectively, assuming that DCPs follow the 16-channels ISDCF recommended channel order. Channels 9 to 16 are used for Hi/Vi-N, Booth Monitor, LTC (4D systems), D-Box Motion Data signal, etc. (refer to '[SR-1000 User Manual](#)' for more details).

For DTS-X™/ IAB playback; Channels 9 to 16 carry the processed audio for the additional surround channels with the SR-1000 Extreme configuration. With the SR-1000 Extreme -24 configuration, Channels 17 to 24 are available on the **Audio AES 17-24** connector and carry the additional surround channels for upto 24-channels of DTS-X™/IAB playback.

Note: Since the SR-1000 Extreme -24 provides up to 16-channels of audio processing; when utilizing more than 16-channels, an external audio processor capable of processing 24-channels needs to be used.

Additionally, if audio processing feature is not available on the SR-1000 or it is disabled; the Channels 1 to 8 and Channels 9 to 16 will carry unprocessed audio and an external audio processor capable of processing 16-channels needs to be used.

15.5 Audio Input to the SR-1000

15.5.1 HDMI Input

SR-1000 allows direct input of 7.1 channel PCM audio via **HDMI IN** port on the IMB. The HDMI output of the source needs to be set to **LPCM** audio format.

15.6 Examples of a complete Audio input/output solution (for 5.1/7.1 Audio formats)

15.6.1 Audio input/output solution using AIB-2000 (suitable for connection to analog Amplifiers/Crossovers)

The **AIB-2000** has inputs for Microphone, Non-Sync and 7.1 channel analog input which can be routed directly to the analog outputs of the device, as shown in **Figure 47**.

AES3 digital audio outputs (Channels 1 to 8) from the SR-1000 are fed to the digital inputs on the AIB-2000 and converted to analog outputs which can be interfaced with analog audio equipment.

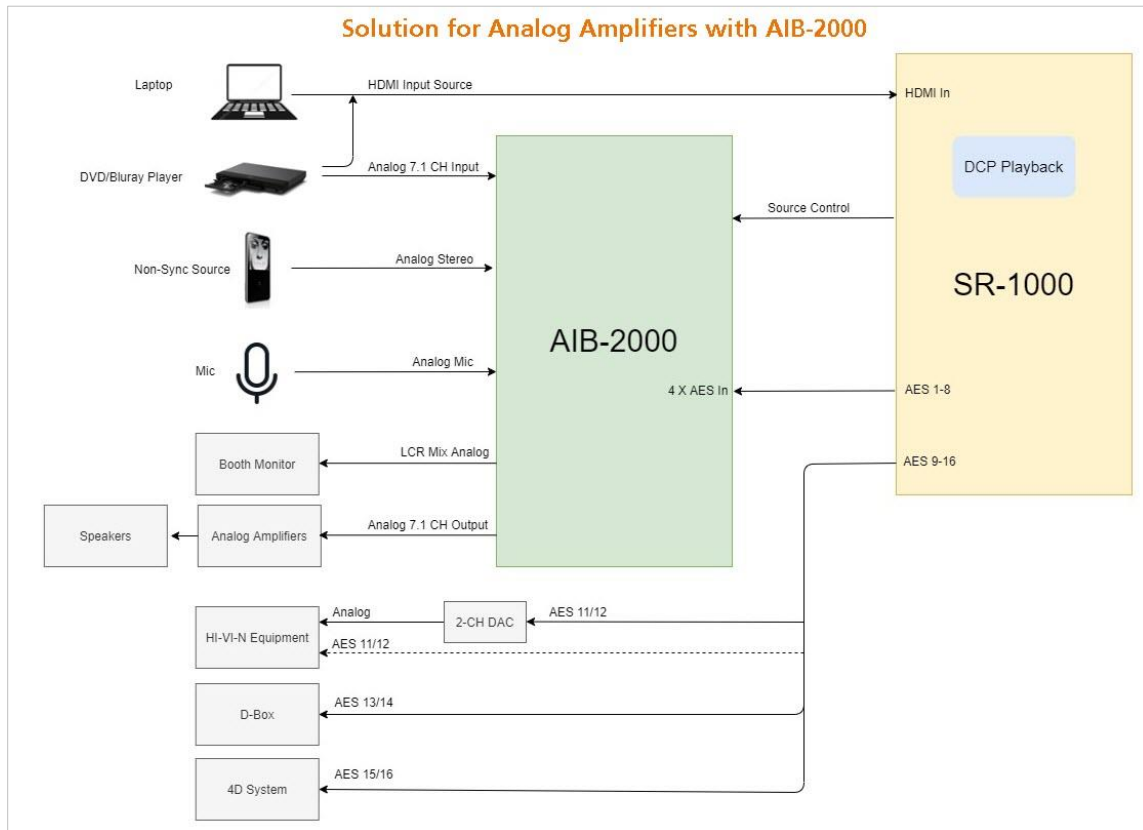


Figure 47: I/O Solution for Analog Amplifier

Note: The SR-1000 Automation should be used to switch between the analog sources and the 8-channel AES3 output from the SR-1000 to the AIB-2000 to ensure that the correct source is routed to the sound system.

15.6.1.1 Connections Requirements

Sr. No.	Device Type	Description
1	Connection to analog Amplifier*	Connect the 8-channel Analog unbal. output of the AIB-2000 to the inputs of analog Amplifiers/Crossovers using appropriate line level audio cables and connectors.
2	Connection to Hi/Vi-N devices	<p>AES output pair 11 and 12 on the SR-1000 carries the Hi and Vi-N channels respectively (assuming DCP's follow the 16-channels ISDCF recommended channel order).</p> <p>The AES pair 11/12 is available on the RJ45 Connector labeled A-bot on the IMB and can be connected to the Hi/Vi-N device either directly or via a 2 channel D/A converter depending on whether the Hi/Vi-N device accepts AES3 or analog inputs.</p> <p>Appropriate cable and connectors should be chosen, keeping in mind the connectors used on the Hi/Vi-N device and 2-channel D/A converter (if used).</p>
3	Connection to 4D systems	<p>AES output pair 15 and 16 on the SR-1000 carries the LTC signal used to sync 4D systems like ScreenX, 4DX and MX4D to the SR-1000.</p> <p>Note: The 'Enable LTC Output on Channel 15/16' option must be checked.</p> <p>The AES pair 15/16 is available on the RJ45 Connector labeled A-bot on the IMB and can be connected to the LTC input on the 4D System.</p> <p>Appropriate cable and connectors should be chosen keeping in mind the connector used on the 4D system.</p>
4	Connection to D-Box	<p>AES output 13 on the SR-1000 carries the Motion Data signal used by D-Box (assuming DCPs follow the 16-channels ISDCF recommended channel order).</p> <p>The AES pair 13/14 is available on the RJ45 Connector labeled A-bot on the IMB and can be connected to the D-Box system. Appropriate cable and connectors should be chosen keeping in mind the connector used on the D-Box system.</p>

5	Connecting a Microphone*	<p>A Microphone can be connected to the MIC. IN on the front panel of the AIB-2000 using a Male XLR Connector.</p> <p>If the microphone requires Phantom power, then press the +48V button.</p>
6	Connecting a Non-Sync source*	<p>A Non-sync source can be connected to the NON-SYNC IN on the front panel of the AIB-2000 using Male XLR connectors or to the NonSync IN on the back panel using Male stereo RCA Connectors.</p> <p>NON-SYNC front/back button switches NonSync input between front XLR and rear RCA Connectors.</p>
7	Connecting an HDMI source	<p>An HDMI source can be connected to the HDMI IN on the faceplate of the SR-1000, using an HDMI cable.</p>
8	Connecting a Booth Monitor*	<p>A Booth monitor can be connected to the LCR mon output on the back panel of the AIB-2000 using an RCA Connector.</p> <p>Please note that the LCR mon output provides a L+C+R summation of the AES3 outputs from the SR-1000.</p>

* Refer to the '[AIB-2000 Manual](#)' for more details.

IMPORTANT: Please check and set the levels of the analog input sources to the AIB-2000 appropriately, to avoid any damage to the auditorium speakers.

15.6.2 Audio input/output solution using AIB-2000 (suitable for connection to digital Amplifiers)

It is assumed that the digital Amplifiers have both AES3 digital inputs and analog inputs with automated switching between digital inputs and analog inputs; the AES3 digital output from the SR-1000 may be fed directly to the amplifier's digital inputs and only the analog sources may be routed via the AIB-2000 to the analog inputs of the Amplifiers.

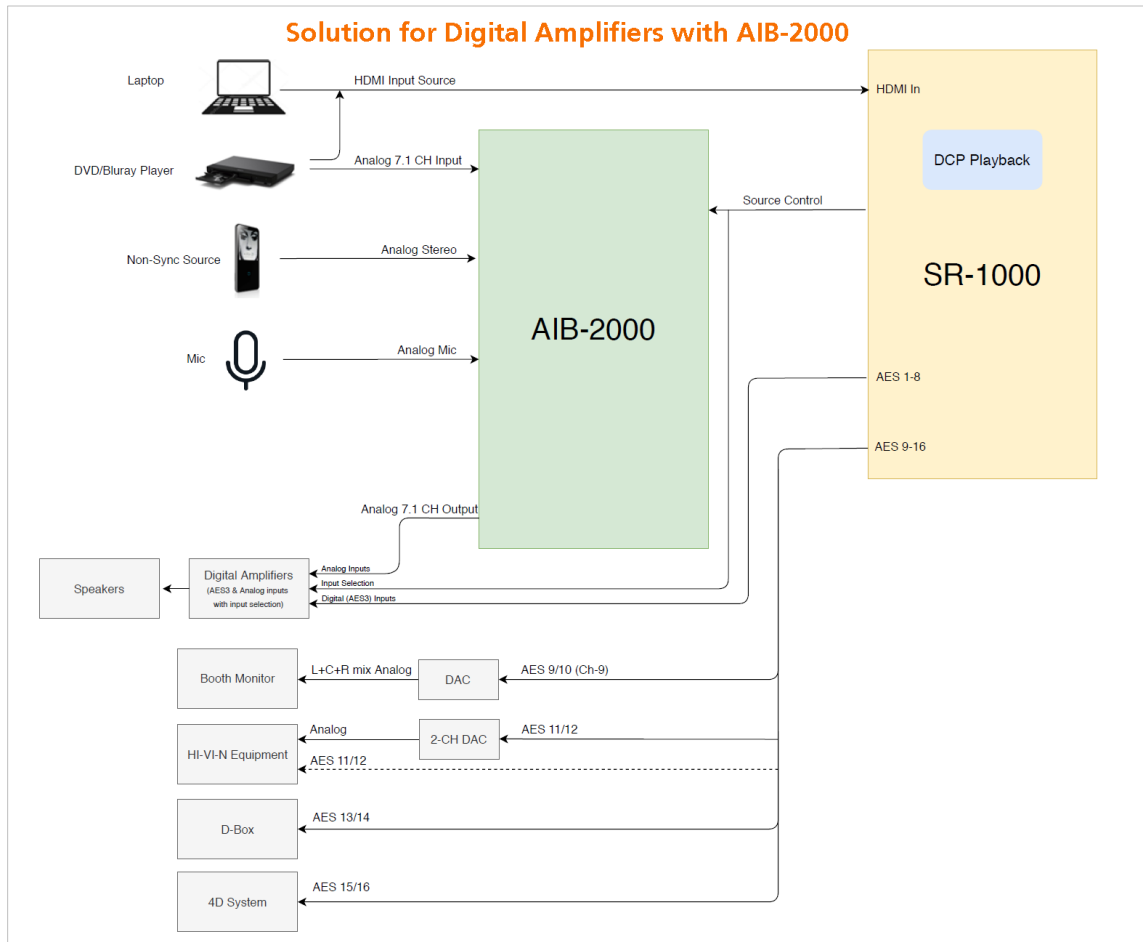


Figure 48: I/O Solution for Digital Amplifier

Note: The SR-1000 Automation should be used to switch between the analog sources to the AIB-2000 as well as between the analog and digital AES3 inputs on the digital Amplifiers to ensure that the correct source is routed to the sound system.

15.6.2.1 Connection Requirements

Sr. No.	Device Type	Description
1	Connection to Digital Amplifiers*	Connect the 8-channel Digital AES3 outputs (1-8) of the SR-1000 available on the A-top connector of the IMB directly to the Digital Amplifiers or Crossovers using good quality shielded CAT6 cable(s).
2	Connection to Hi/Vi-N Devices	<p>The AES pair 11/12 is available on the RJ45 Connector labeled A-bot on the IMB and can be connected to the Hi/Vi-N device either directly or via a 2 channel D/A Converter depending on whether the Hi/Vi-N device accepts digital (AES3) or analog inputs.</p> <p>Appropriate cable and connectors should be chosen, keeping in mind the connectors used on the Hi/Vi-N device and 2-channel D/A converter (if used).</p>
3	Connection to 4D systems	<p>AES output pair 15 and 16 on the SR-1000 carries the LTC signal used to sync 4D systems like ScreenX, 4DX and MX4D to the SR-1000.</p> <p>Note: The 'Enable LTC Output on Channel 15/16' option must be checked.</p> <p>The AES pair 15/16 is available on the RJ45 Connector labeled A-bot on the IMB and can be connected to the LTC input on the 4D System.</p> <p>Appropriate cable and connectors should be chosen keeping in mind the connector used on the 4D system.</p>
4	Connection to D-Box	<p>AES output 13 on the SR-1000 carries the Motion Data signal used by D-Box (assuming DCPs follow the 16-channels ISDCF recommended channel order).</p> <p>The AES pair 13/14 is available on the RJ45 Connector labeled A-bot on the IMB and can be connected to the D-Box system.</p> <p>Appropriate cable and connectors should be chosen keeping in mind the connector used on the D-Box system.</p>

5	Connecting a Microphone*	<p>A Microphone can be connected to the MIC. IN on the front panel of the AIB-2000 using a Male XLR Connector.</p> <p>If the microphone requires Phantom power, then press the +48V button.</p>
6	Connecting a Non-Sync source*	<p>A Non-sync source can be connected to the NON-SYNC IN on the front panel of the AIB-2000 using Male XLR connectors or to the NonSync IN on the back panel using Male stereo RCA Connectors.</p> <p>NON-SYNC front/back button switches Non-Sync input between front XLR and rear RCA Connectors.</p>
7	Connecting an HDMI source	<p>An HDMI source can be connected to the HDMI IN on the faceplate of the SR-1000, using an HDMI cable.</p>
8	Connecting a Booth Monitor*	<p>AES pair 9/10 on the SR-1000 carries a mix of L+C+R which can be used as a monitor output.</p> <p>The AES pair 9/10 is available on the RJ45 Connector labeled A-bot on the IMB and can be connected to the Booth monitor via a D/A Converter.</p>

* Refer to the '[AIB-2000 User Manual](#)' for more details.

IMPORTANT: Please check and set the levels of the analog input sources to the AIB-2000 appropriately, to avoid any damage to the auditorium speakers.

15.7 Technical Specifications of AIB-2000



Front Panel



Back Panel

Figure 49: AIB-2000 – Front and Back Panels

Frequency range	20 Hz - 20,000 Hz
Microphone input	XLR female
Microphone switch	Microphone in on/off
Microphone input HPF	100 Hz 12 dB/oct switchable
Microphone input phantom supply	+48 V switchable
Microphone input maximum gain	+60 dB
Non-Sync input	2 x XLR female (front) 2 x RCA (rear) switchable
Analog unbalanced 7.1 input	8 x RCA
Analog H/I output	1 x RCA
Analog V/I output	1 x RCA
Monitoring output L+C+R summed	1 x RCA
Analog balanced output	8 x 3-pin Phoenix
AES3 input	1 x RJ-45
Ethernet input	1 x RJ-45
Input selector	Non-Sync / 7.1 Analog / AES3
Mains plug	C14
Mains nominal voltage	90 V- 265 V / 50-60 Hz
Maximum power consumption	10 W
Rack height	1U
Dimensions (WxHxD)	483 x 44 x 158 mm
Shipping Dimensions (WxHxD)	550 x 70 x 255 mm
Net weight	2.1 kg
Shipping weight	3.2 kg

Website



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