

GDC Technology Ltd  
SX-3000  
SERVER INSTALLATION MANUAL

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## 1 Introduction

This document is a guide through the process of setting up the SX-3000 with the projector, storage bay, audio system, and automation devices used in cinema theatres.

**Note:** The currently supported software version for SX-3000 server is 9.0 or higher.

Note: In this manual there will be many instructions starting from the SMS screen. This is the main page of the SX-3000 software that features the status of the show playing, the transport, and the buttons to access certain menus of the software.



Figure 1 SMS Screen

## 2 Equipment List

This section describes the equipment shipped with the GDC SX-3000.

### The SX-3000 Packaging Includes:

1. SX-3000 Unit with proper projector face plate.
2. 2 x 10M RJ45 AES Audio Cable
3. 4 x 10M RJ45 GPIO Cables
4. 1 x Network Cable

<b>PSD-3000P</b> includes: <ol style="list-style-type: none"> <li>1. PSD-3000P Hard Drive Bay</li> <li>2. 3x 2.5" Hard Drives</li> <li>3. 3 x SATA Cables</li> <li>4. Mounting kit for projector</li> </ol>	<b>PSD-3000U</b> includes: <ol style="list-style-type: none"> <li>1. PSD-3000U Hard Drive Bay</li> <li>2. 3x 3.5" Hard Drives</li> <li>3. 3 x SATA Cables</li> <li>4. Hard drive door key</li> </ol>
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### 3 Installing the GDC SX-3000 Integrated Media Block (IMB) into the projector

**Note:** If the projector comes with the GDC IMB pre-installed, the instructions in Section 3 can be skipped.

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



Figure 2 GDC Integrated Media Block with High Frame Rate (IMB HFR)

### 3.1 Remove existing interface board/placeholders from projector.

Before installing the IMB, check the figures below to ensure proper placement.

#### 3.1.2 *Barco Projector Placement*

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 IMB.



Figure 3 IMB Placement on Barco projectors

#### 3.1.3 *Christie Projector Placement*

Figure 4 shows the location where the IMB should be installed on a Christie projector. Remove any existing interface boards or placeholder faceplates from this position before installing the IMB.



Figure 4 IMB Placement on Christie projectors

### 3.1.4 NEC Projector Placement

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



Figure 5 IMB Placement on NEC projectors

Please refer to the projector manuals for more details on preparing the projector for IMB installation.

## 3.2 Inserting the IMB into the projector

Please make sure the projector is powered off before installing the IMB on the projector.



Figure 6 Inserting the IMB into the projector

Insert the IMB as shown in Figure 6.

The IMB should slide into the projector on the rails provided by the IMB slot, and the IMB faceplate should be flush with the other existing faceplates once properly inserted.

## 3.2 Projector Network

Connect the provided Cat 5e LAN cable from the SX-3000 Ethernet 2 port to the projector's Ethernet port. Please see *Section 8* for IP network instructions after the SX-3000 is installed.



## 4 External Monitor, Keyboard and Mouse

Before the server can be operated through VNC from the projector, you will first need to connect an external monitor to the front VGA connection, and a keyboard and mouse to the USB connection of the SX-3000 unit.

**Note:** when using an external touch screen for the first time. An external keyboard and mouse is required before the touch screen is calibrated.

## 5 The PSD-3000P External Hard Drive Unit

Each PSD-3000 unit is shipped with the content hard drives separate packaging. The server's content storage hard disks are inserted into the external hard drive bay. The content storage hard disks must be inserted into the PSD-3000P and connected the SX-3000 before starting the server.

### 5.1 Inserting the individual RAID drives into the bay

Ensure that the server is powered off before connecting the external content storage drive. Only 3 of the 4 hard drive bays will be used in the PSD-3000P. The 4<sup>th</sup> drive bay can be used as a spare.

To insert the drives into the PSD-3000P:

- 1 Use the included keys to open the long main silver door covering the hard drive bays. Four hard drive bay doors will be exposed.
- 2 On each bay, unlock the triangle shaped lock to open the gray and black lid of each content storage drive. Then lift up the grey handle on the front of the drive bay.



Figure 7 Inserting the Drives into the PDS-3000M

- 3 Insert each drive into the separate bay of the unit. Figure 7
- Note:** Each hard drive can be inserted into any drive slot from 1-3. They do not need to be placed in any particular order.
- 4 Once the content storage drives has been inserted, close the grey handle by push in toward the HDD until it clicks. Then lock in the content storage drive.
- 5 Close and lock the door covering the hard drive bay.





Figure 8 Hard Drive bays 1-3 of the PSD-3000P

## 5.2 Connecting the PSD-3000P drive bay to the SX-3000

Note: On the bay PSD-3000P unit there are 4 hard drive bays and 4 SATA connectors. The unit only utilizes 3 of the 4 bays. The 4<sup>th</sup> bay and port is to be used as a back-up if needed. The Hard drive bay (Figure 6) corresponds with the SATA port (Figure 9) on the back of the unit.

To connect the PSD-3000P to the SX-3000, please use the following instructions.

1. Connect SATA ports 1, 2, and 3 on the back of the PSD-3000 to the eSATA ports on the SX-3000. There is no particular order these connections.



Figure 9 SATA ports of the PSD-3000P



Figure 10 eSATA ports of the SX-3000

2. Plug in the 5V power supply and connect to the back of the PSD-3000P.



Figure 11 PSD-3000M Power Supply plug and Power Switch

3. Power on the unit with the switch next to the power plug. (Figure 11). Then power on the projector with SX-3000 before moving on to the next steps.

**Important Note:** Always power on the PSD-3000P external hard drive bay before powering up the projector.

## 6 The PSD-3000U External Hard Drive Unit

The PSD -3000U hard drive unit features 3 bays. Each PSD-3000U unit is shipped with the content hard drives separate packaging. The server's content storage hard disks are inserted into the external hard drive bay. The content storage hard disks must be inserted into the PSD-3000U and connected the SX-3000 before starting the server.

### 6.2 Inserting the individual RAID drives into the bay

Ensure that the server is powered off before connecting the external content storage drive.



Figure 12 Inserting the Drives into the PDS-3000U

To insert the drives into the PSD-3000U in each individual bay:

- 6 Open the hard drive bay by pushing in the
- 7 Insert the hard drive in to the bay and push in.
- 8 Push close the handle until it clicks to lock in the drive.
- 9 Insert each drive into the separate bay of the unit. Figure 7

**Note:** Each hard drive can be inserted into any drive slot from 1-3. They do not need to be placed in any particular order.

- 10 Once the content storage drives has been inserted, and the door is closed in. You can lock the door by using the plastic key (Figure 8) to push the tab on the front of each door up. Exposing a red color (Figure 9)



Figure 13 Hard Drive Key



Figure 14 Door Lock

### 6.3 Connecting the PSD-3000U drive bay to the SX-3000

Note: On the bay PSD-3000U unit there are 3 hard drive bays and 3 SATA connectors. The Hard drive bay front number corresponds with the SATA port (Figure 15) on the back of the unit.

To connect the PSD-3000U to the SX-3000, please use the following instructions.

1. Connect SATA ports 1, 2, and 3 on the back of the PSD-3000U to the eSATA ports 1-3 on the SX-3000.



Figure 15 SATA ports of the PSD-3000U



Figure 16 eSATA ports of the SX-3000

2. Plug in the power supply and connect to the back of the PSD-3000M.



Figure 17 PSD-3000M Power Supply Plug



Figure 18 PSD-3000M Power Supply Plug

4. Power on the unit with the switch in the front left. (Figure 18). Then power on the projector with SX-3000 before moving on to the next steps.

**Important Note:** Always power on the PSD-3000U external hard drive bay before powering up the projector.

## 7 Operation with PSD-3000U/P

### 7.1 Importing the RAID Array

Once the PSD-3000U/P RAID set is connected to the SX-3000 IMB properly the RAID array will have to be imported in the system. This is done through the Admin panel of the software.

To import the RAID array from the PSD-3000U/P storage unit, please use the following steps:

1. From the Control Panel click on the **[Admin Panel]**
2. Click [Focus] at the far bottom right of the keyboard, then click the cursor in the "Password" text box to enter the password *configos*
3. Select **[Storage System Management]** (1)
4. Select **[Import RAID array]** (2)

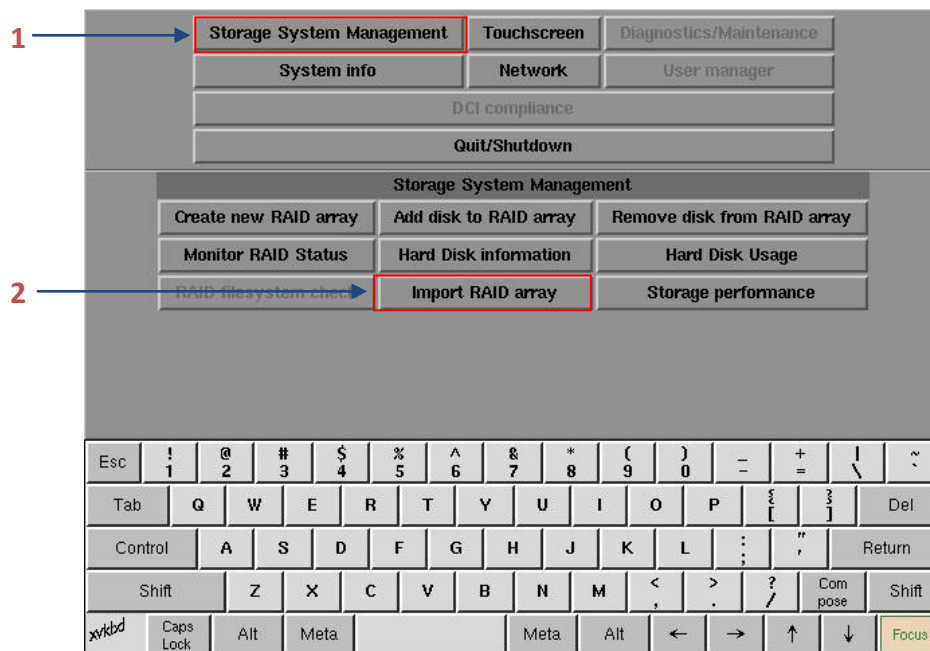


Figure 19 Storage System Management Screen

5. A pop-up window will appear to confirm importing the RAID, select [Yes]

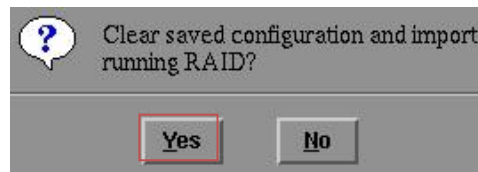


Figure 20 Import RAID Confirmation

6. Please **reboot the server** after selecting [Yes] for this to take effect.

## 7.2 Selecting the PSD-3000U/P as a Content source

After the RAID is imported, you will need to define the PSD-3000P/U as the content source.

Using the steps below:

1. In the SMS window select the [Configuration] button, and enter the password for the configuration menu under the maintenance access.
2. Select the **IMB Storage** tab
3. Click on the option use [Use eSATA RAID (x3)]. The RAID will be re-mounted.

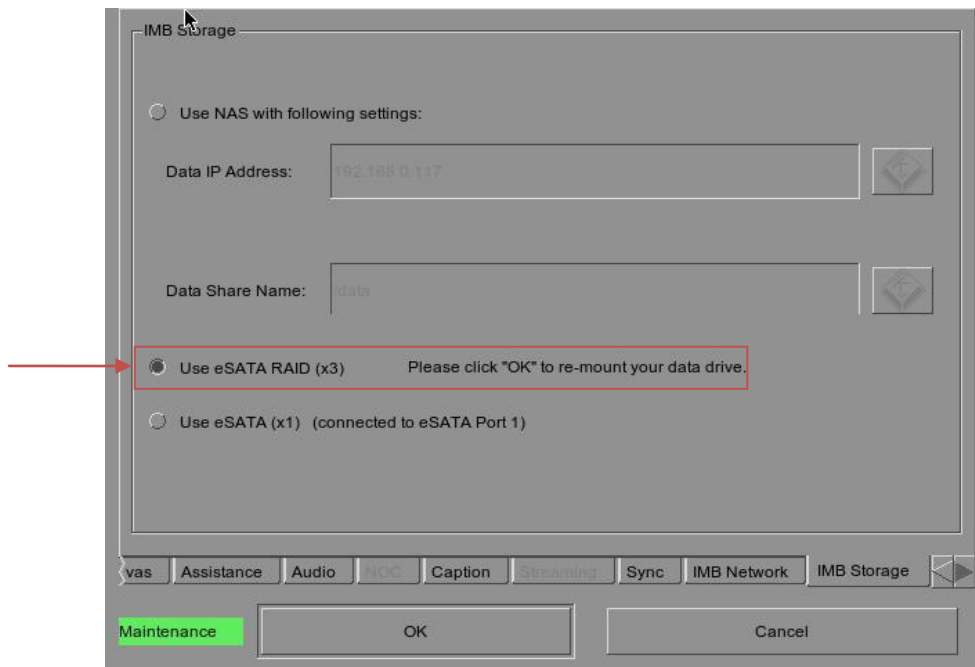


Figure 21 IMB Storage page

## 8 SX-3000 IP Setup

The IP address of the SOM and the IMB will need to be set for proper operation. The SOM and the IMB IP are to be on the same subnet.

### 8.1 IMB Network Setup

To edit the IP addresses of the Ethernet ports, use the following instructions:

- 1 Enter the SMS screen.
- 2 Click [Configuration] to access the Configuration page.
- 3 Select Maintenance access from the top drop down menu. Enter the number password and select [OK]
- 4 Select the **IMB Network** tab
- 5 Enter the Subnet Mask. As well as the desired IMB IP and SOM IP addresses.

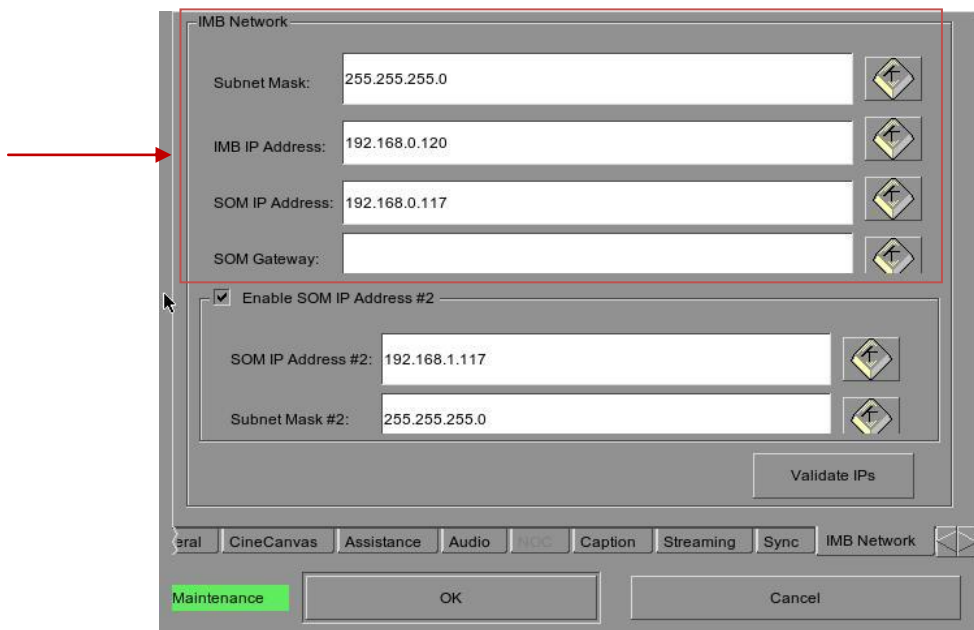


Figure 22 IMB Network settings screen

- 6 Once the settings have been entered, click on [Validate IPs].



- 7 If all of the IP addresses are valid, you will get the following pop-screen:

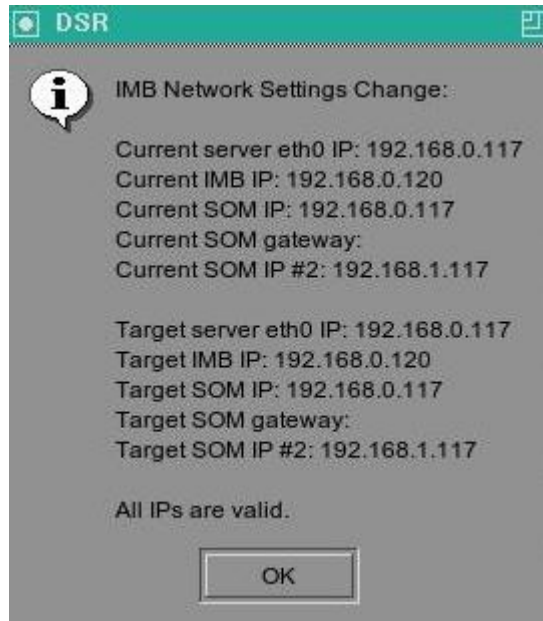


Figure 23 IPs are Valid Confirmation

- 8 Click [OK] to exit.

## 8.2 Projector Connection

The Ethernet 2 connection and the projector are to be on the same subnet. Since the SX-3000 is connected directly to the Projector, there is no need to set the IP address for the server to the projector. The option to set the IP for the projector will be inactive.

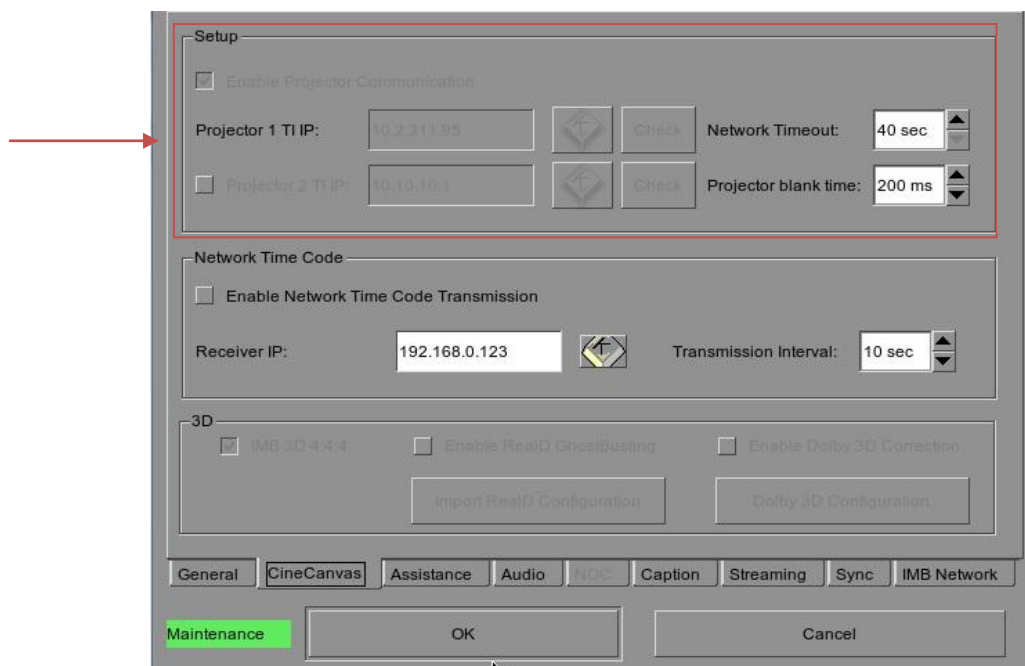


Figure 24 CineCanvas Page

## 8.3 IMB Marriage and Clearing Door Tampers from the SX-3000

Please use the following steps below to perform the marriage between the SX-3000 and to clear the door tampers on the SX-3000:

- 1 Enter the SMS screen.
- 2 Click [Configuration] to access the Configuration page.
- 3 Select Maintenance access from the top drop down menu. Enter the number password and select [OK]
- 4 Select the **General** tab
- 5 Click [IMB] to access the Configuration page.

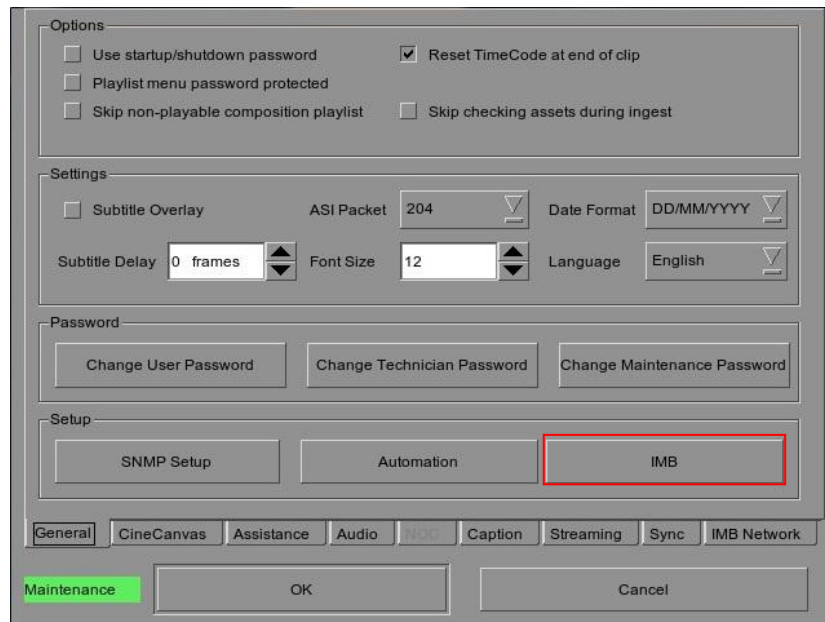


Figure 25 Configuration Menu - General Page

7. A dialogue box will appear to warn you that remote management will be disabled to continue. Click [Yes].

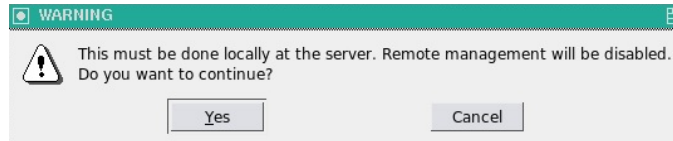


Figure 26 Remote Management Disable Warning

8. The following box will appear:

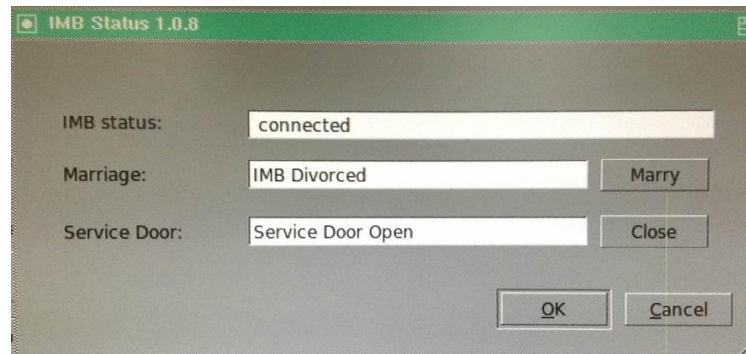


Figure 27 IMB Status

9. Click [Marry] to perform the marriage of the projector and IMB.
10. Click [Close] to clear the door tamper errors with the projector.
11. After the Marriage is performed and the tampers are clear, click [OK] to exit this screen.
12. After you select OK a dialogue box will appear asking if you would like to enable the remote connection. Click [Yes].

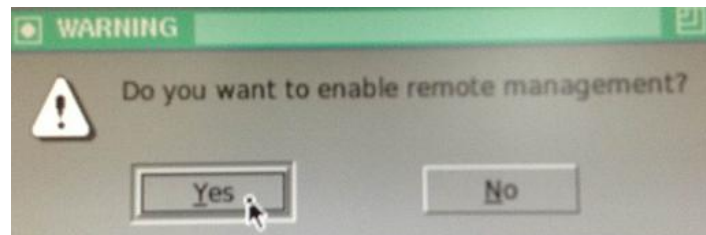


Figure 28 Enable Remote Management

## 9 Series 2 projector setup

To work with the GDC IMB, the projector must be set up according to the requirements of the projector manufacturer. It is required to use a VGA monitor and USB keyboard and mouse connected to the IMB in order to setup the connection between the IMB and the projector. Once the connection is complete the monitor, keyboard, and mouse can be removed and the SMS can be accessed via VNC from the TMS or projector.

### 9.1 Barco Series 2 Projector Setup

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

In order to use the IMB for content playback, the INPUT source of the projector macros must be set to IMB.

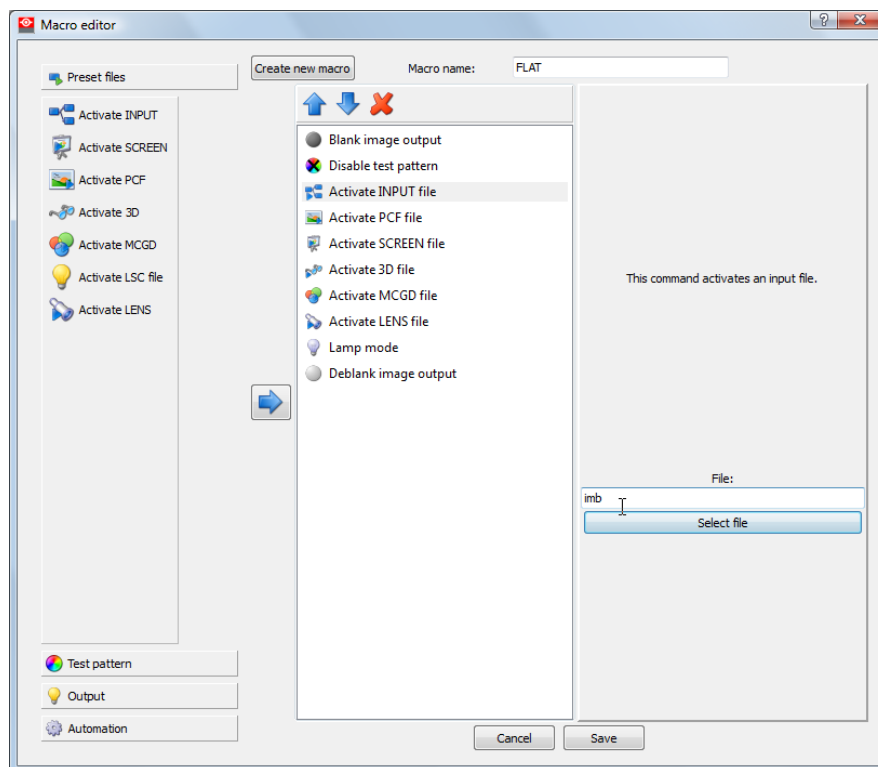


Figure 29 INPUT source settings on Barco Series 2 projector

## 9.2 NEC Series 2 Projector

In order to configure an NEC Series 2 projector to work with IMB, 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. (Shown below)

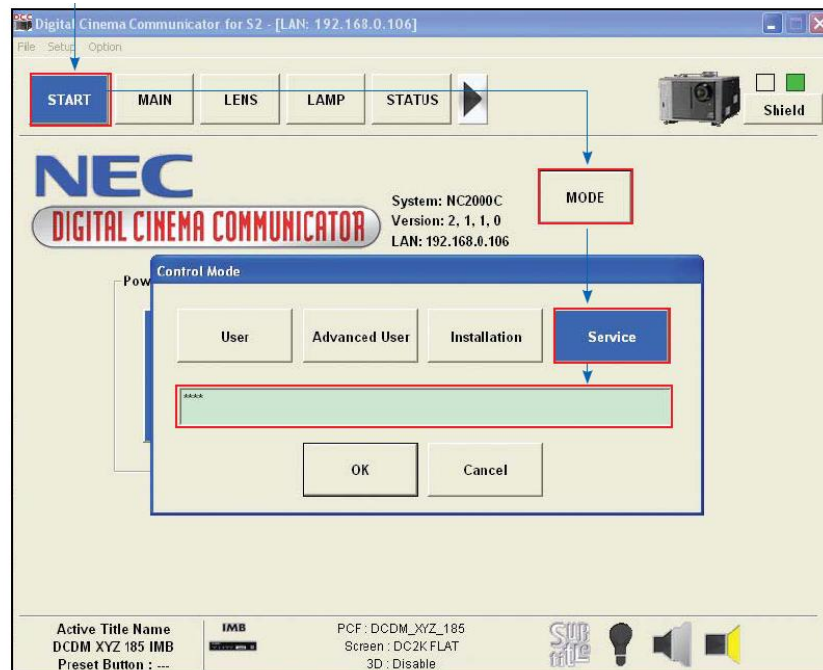


Figure 30 Service Mode on NEC Digital Cinema Communicator

4. Select [Setup] → [Option Slot] on the Digital Cinema Communicator and select IMB for Slot B in Option Slot Setting. (Shown on the next page)

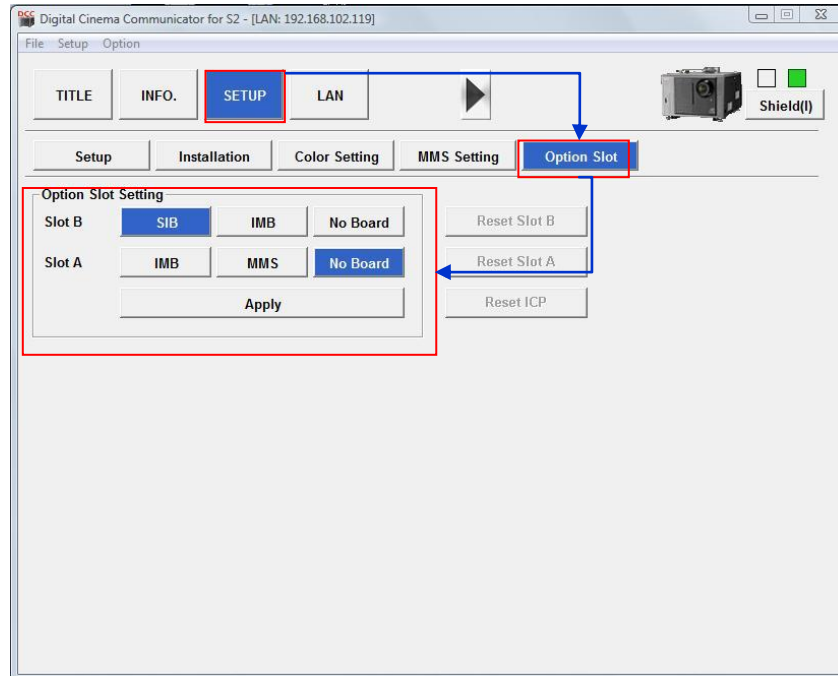


Figure 31 Option slot settings on NEC Digital Cinema Communicator

5. Select [Start] → [Power] → [On] to power on the projector.
6. Clear the Service Door/Marriage Tamper on the server (refer to Section 6.3 / Page 13).

In order to use the IMB for content playback, the INPUT source of the projector macros must be set to IMB.



## 9.3 Christie Series 2 Projector

When the IMB is installed into a Christie Series 2 projector, the following steps must be taken in order for GDC server to playback with the Christie Series 2 projector:

1. Clear the projector's marriage tamper:
  - a. Log in to the "Marriage" account on the projector TPC. Select Menu→Service Setup→Marriage to start the Marriage wizard (see Figure 24). Click the [Next] button to proceed to the Marriage Checklist window.

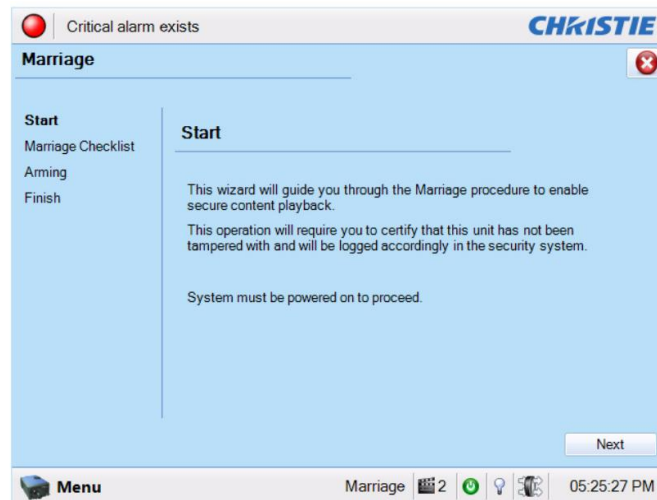


Figure 32 Projector marriage wizard on Christie projector TPC

- b. Read and perform the actions listed in the Marriage Checklist. In the Marriage Checklist window (see Figure 25), the system checks that all tamper switches are secure and lists items that you must check to ensure the projector is secure before proceeding. Click the [Next] button to proceed to the Arming window.



Figure 33 Marriage checklist

- c. Arm the marriage. In the Arming window, click the Arm Marriage button (refer to Figure 34). A 30 second count-down timer begins. The LED in the Marriage button on the PI Board will flash green during this count-down. You **MUST** press the Marriage button on the PI Board within this 30 second window in order for the marriage to take effect. When the Marriage button is pressed, the LED button will change to a solid green to indicate a successful marriage.

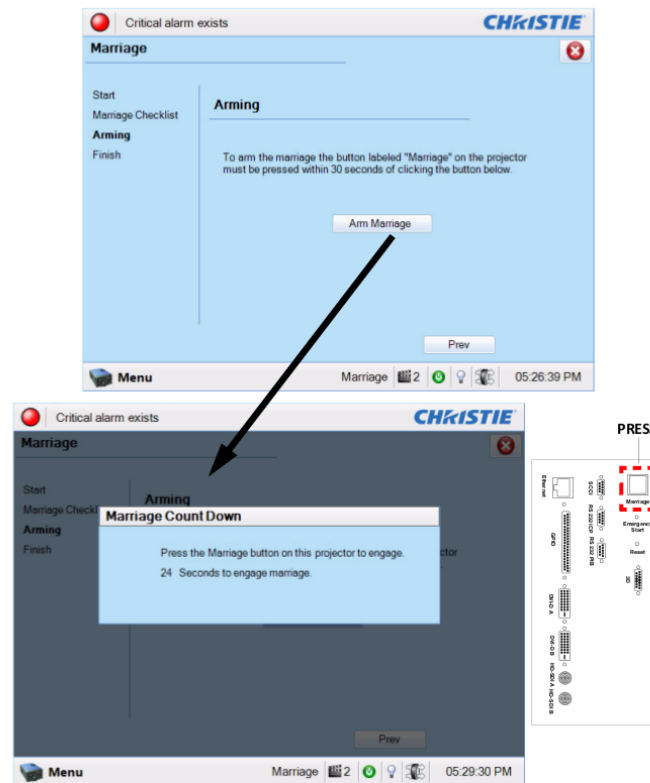


Figure 34 Arm Marriage and Marriage countdown

- d. The Finish window states the success of the marriage. Click the Finish button to return to the Main panel.
2. Clear the Service Door/Marriage Tamper on the server (refer to Section 6.3 / Page 13). All 3D IMB channels on the Christie Series 2 projector should use the 'IMB' input and '4:4:4 (RGB)' input data format (see Figure 35).

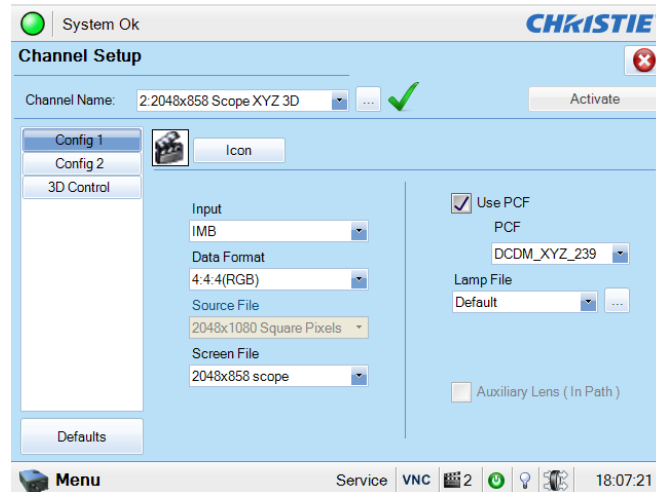


Figure 35 Projector input settings for Christie projectors

### 9.3.2 3D settings for Christie Series 2 projectors

The 3D macros for Christie 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)

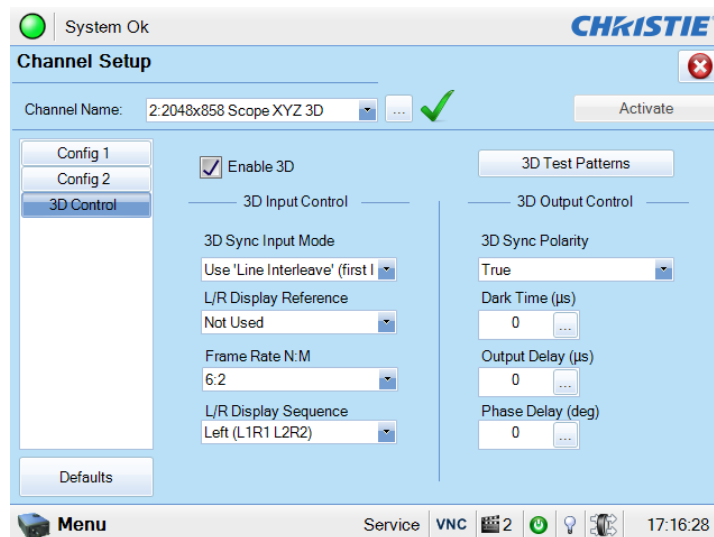


Figure 36 3D macro settings for Christie projectors

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).

If this particular model of the Christie projector is capable of HFR 3D, It is required to setup different 3D setting for different frame rates. This will ensure all channels have a corresponding 3D macro for each refresh rate. For example, 6:2 for 24fpeps, 4:2 for 48fpeps, and 2:2 for 60fpeps.

## 9.4 IMB 3D macro settings changes

Server software version 9.0 makes changes to the IMB 3D output format. The following projector macro changes are required to support these changes.

**Note:** These are required changes on the projector. IMB 3D output will not function properly unless these changes are made.

The SX-3000 with the Software version 9.0 will always enable the “IMB 3D output in ‘4:4:4’” format.

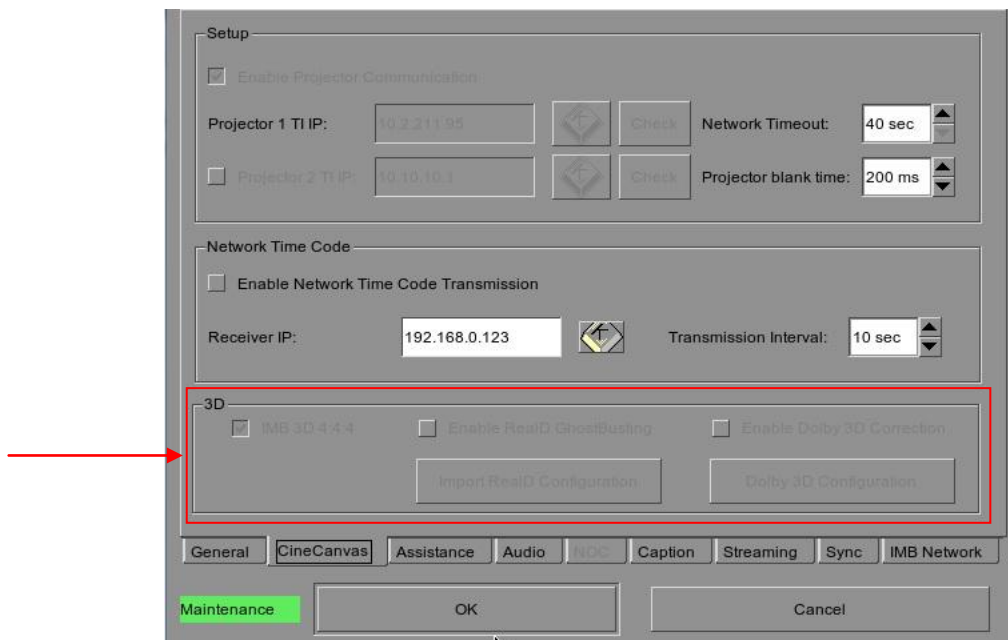


Figure 37 IMB 3D 4:4:4 configuration on SX-3000 server

### 9.4.2 NEC Series 2 projectors

If the ‘IMB 3D 4:4:4’ option is checked in SMS configuration, all IMB 3D macros should be changed to use ‘4:4:4’ input.

### 9.4.3 Barco Series 2 projectors

If the ‘IMB 3D 4:4:4’ option is checked in SMS configuration, all IMB 3D macros should use the input file named ‘Mediablock.input’.

### 9.4.4 Christie Series 2 projectors

The ‘IMB 3D 4:4:4’ option in SMS configuration **must** be checked. No additional configuration is required for the projector.

## 10 Time Zone Setup

The SX-3000 server 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. From the SMS screen, click on the [Control Panel] button to access the control panel.
2. From the Control Panel, click [Admin Panel] to access the Admin Panel.
3. Click [Focus] at the far bottom right of the keyboard, then click the cursor in the "Password" text box to enter the password.
4. Click [Diagnostics/Maintenance] → [Configure Time Zone] to access the Time zone Selection Page.



Figure 38 Time Zone – Geographic Area Configuration

5. Click [Focus] and tap the section above the keypad to bring the pointer into focus.
6. Use [↑] and [↓] to highlight the desired Country.
7. Click [Tab] until the [OK]



Figure 39 Time Zone Country/Region Configuration

8. Repeat Steps 5-7 to select the City/Region.

## 11 Content Ingest Management Setup

Content ingest management must be set up before the server is able to ingest content. This section will show the setup for content ingest from two different sources. The same steps can be used to set up content ingest sources using other methods.

### 11.1 Configuring a content ingest source

In order for the SX-3000 to ingest content the ingest source must be configured. The following sections describe the various types of ingest sources that are used with the SX-3000.

#### 11.1.2 Content ingest from USB disk

The following steps describe the setup of a source for ingesting content from an external USB hard drive:

1. From the SMS, click on the [Control Panel] menu.
2. Click [Manage Content] to access the Content Management Page.
3. Click the [Source] tab, followed by the [Add] button. This opens up the Source Setup Page.
4. Enter the name of the source in the "Source Name..." text box. In this example, we will be setting up a USB source and naming it "USB". Select "USB 2.0" as the Source Type.

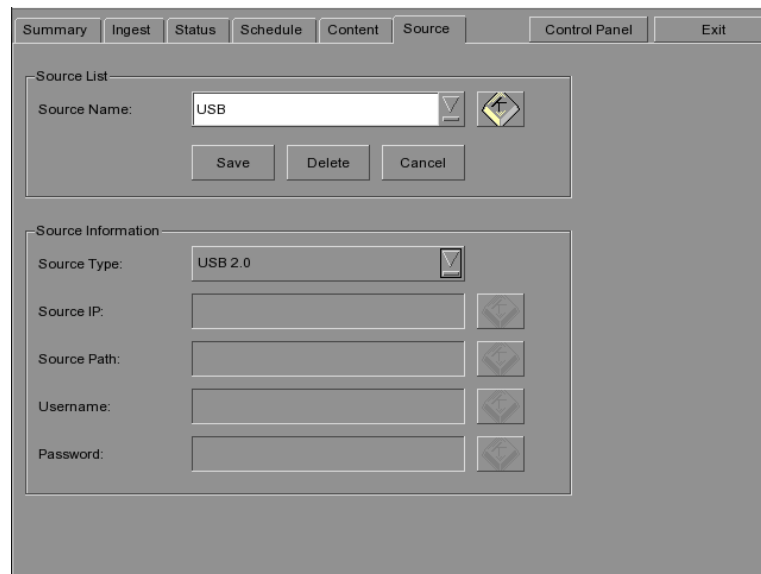


Figure 40 USB ingest source setup

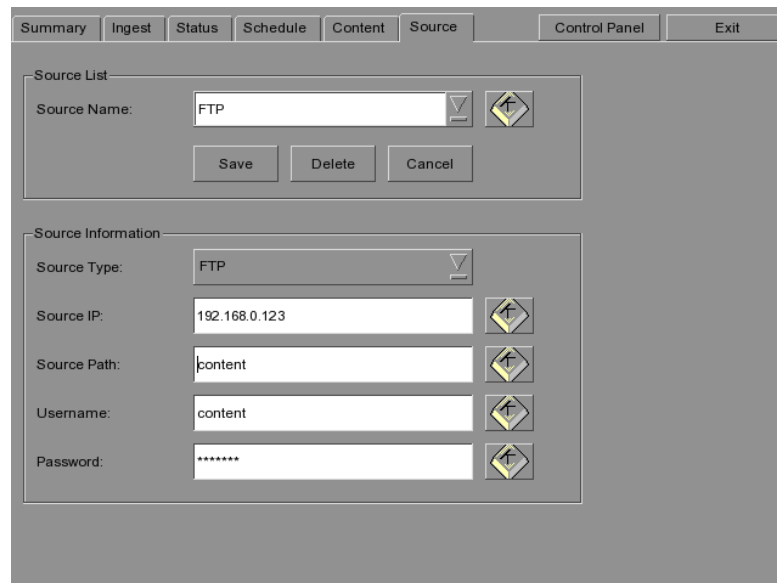
5. Click [Save] to save the settings for the USB content ingest source.



### 11.1.3 Content ingest from FTP

The following steps describe the setup of content ingest source for ingesting content from an FTP server:

1. Select the [Source] tab, followed by the [Add] button.
2. Enter the local description for the FTP server in the “Source Name...” text box. In this case, we will use the source name “FTP”. Select “FTP” as the Source Type.




The screenshot shows a software window with multiple tabs: Summary, Ingest, Status, Schedule, Content, Source, Control Panel, and Exit. The 'Source' tab is selected. Within this tab, there are two main sections. The 'Source List' section contains a 'Source Name' text box with 'FTP' entered, and 'Save', 'Delete', and 'Cancel' buttons. The 'Source Information' section contains a 'Source Type' dropdown menu set to 'FTP', and four text boxes for 'Source IP' (192.168.0.123), 'Source Path' (content), 'Username' (content), and 'Password' (masked with asterisks). Each of these four text boxes has a small icon to its right.

Figure 41 FTP ingest source setup

3. Enter the respective parameters for Source IP, Source Path, Username, and Password.
4. Click [Save] to save the settings for the FTP content ingest source.

## 11.2 Selecting an ingest source

To select an ingest source, click  next to the “Source to ingest from:” label on the “Ingest” tab. Choose the required ingest source from the drop down menu.

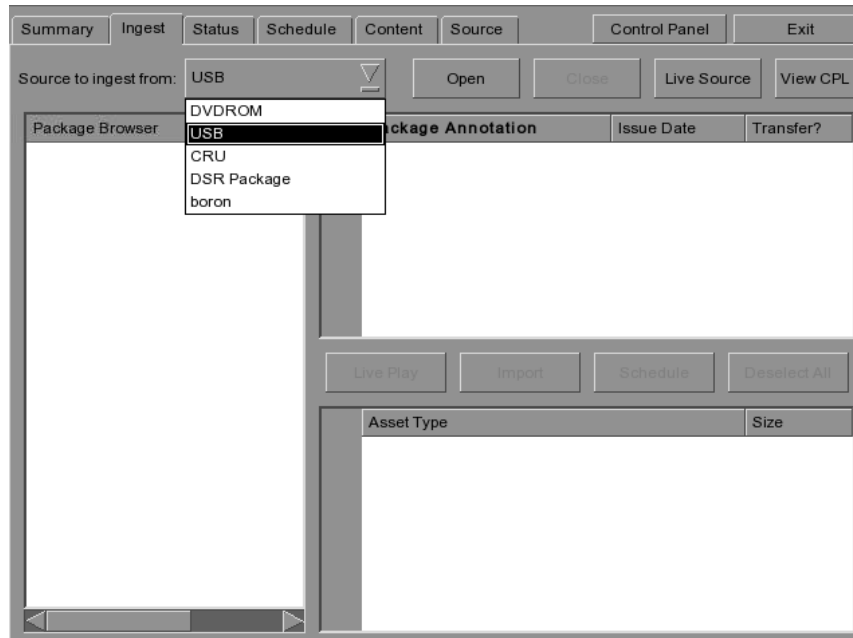


Figure 42 Ingest from USB source

## 12 Audio Setup

The SX-3000 features AES digital audio signal via 2 RJ45 Outputs. For compatibility with most audio processors on the market, a standard RJ45 to DB25 connector is included in the packaging.



Figure 43 RJ45 → DB25 Audio Connector

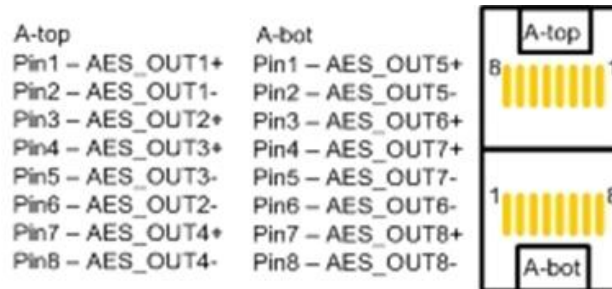


Figure 44 AES Audio RJ45 Pinout

### 12.2 Digital-to-Analog Converters

Not every case will require a Digital-to-Analog Converter (DAC) as some sound processors are able to receive digital input. In the case that a DAC is required the first thing that should be done is to connect the server to the DAC. This device converts the digital audio signal to an analog audio signal. The DAC is then connected to a sound processor that processes the analog audio signal and outputs it to the amplifier, and subsequently the cinema's speakers.

## 13 Subtitles

It is recommended to generate subtitles from the Cinecanvas rather than the server. To do so, please ensure that the **Subtitle Overlay Option** under the **General** tab of the **Configuration** menu remains unchecked. Pictured below in Figure 45.

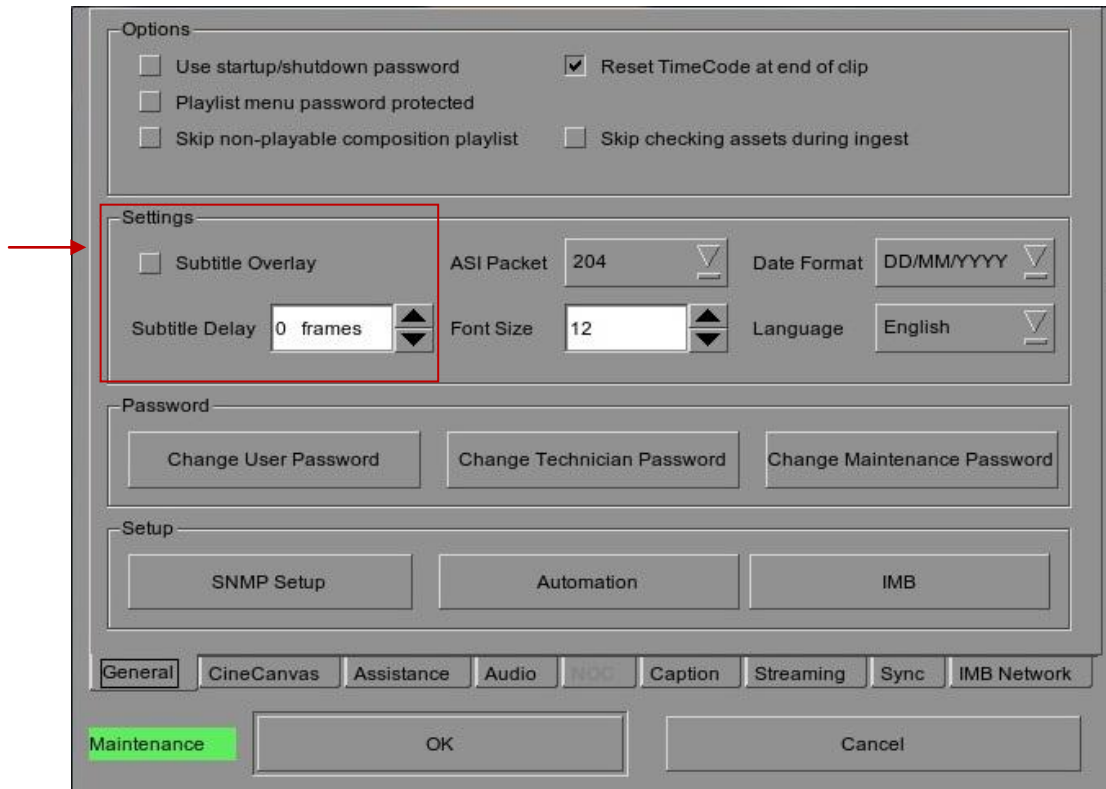


Figure 45 Subtitle Overlay Settings

## 14 Automation Setup

The SX-3000 server 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.

### 14.1 General automation setup

The following steps describe the general setup of an automation device on the SX-3000 server.

1. Click the power button once to access the Control Panel.
2. Click the following buttons to access the Automation interface  
[SMS]→[Configuration]→[Maintenance Access]→  
(enter password)→[General]→[Automation]



Figure 46 Automation interface

Automation event labels and actions can be set up from this interface:

- **Event Labels** are how automation actions can be accessed, for example, they can be triggered as automation cues from an playlist
- The **Actions** configured with an event label will be executed when an event label is triggered.

## 14.2 Adding event labels and actions

The following steps describe how to add an event label to the automation interface. This automation label is used to trigger the associated automation actions during playback.

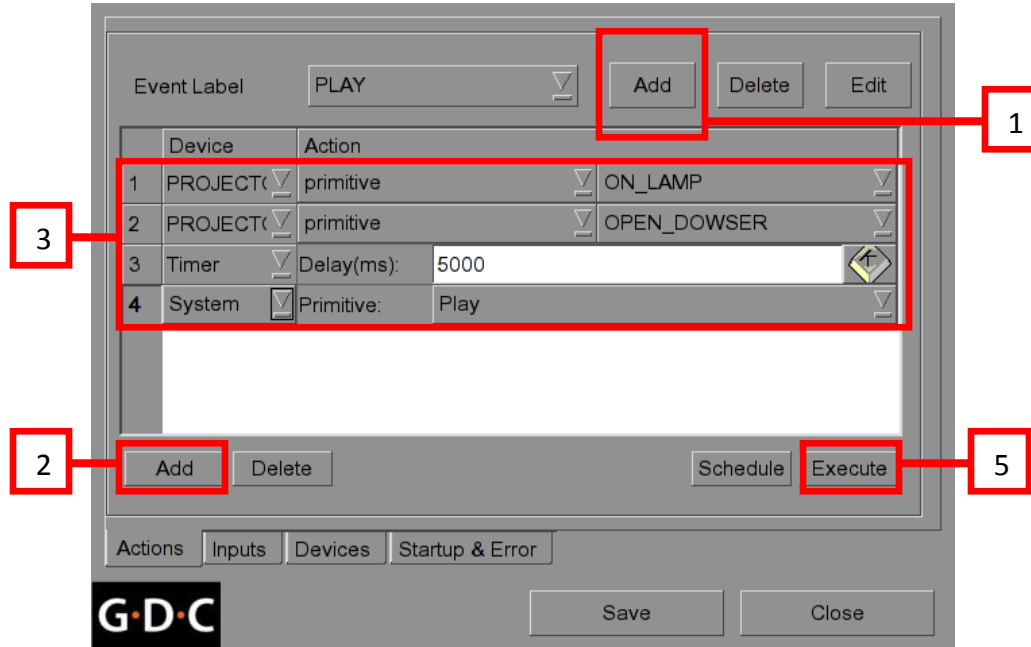


Figure 47 Automation Actions interface

1. Click the [Add] button next to the 'Event Label' menu to add a new event label. Enter the name of the event label.
2. Click the [Add] button below the table to add a new action associated with this event label.
3. A new action is added to the table. The 'Device' and 'Action' settings of this new action can be changed. Notice that when the 'Device' setting is changed, the possible 'Action' settings for that device are displayed. Refer to the following sections on adding automation devices.
4. Repeat steps 2 and 3 to add more actions to this event label. Use the [Delete] button below the table to remove the last action added to the list.
5. You can test the event label and the list of actions associated with the event label by clicking the [Execute] button.



## 14.3 Automation Scheduling

Automation event labels can be scheduled to be executed at a pre-arranged date and time, or repeated daily at a pre-arranged time. To access the automation schedule select the [Schedule] button on the [Actions] tab on the automation interface. This will bring you the automation schedule configuration screen.

The screenshot shows the 'Automation Schedules' configuration window. It contains a table with the following data:

	Date and Time	Repeat	Label
1	08/11/2010 14:00:00	none	PLAY
2	16:00:00	daily	STOP

Below the table are 'Add' and 'Delete' buttons. At the bottom of the window are 'Cancel' and 'Accept Changes' buttons. The G•D•C logo is in the bottom left corner.

Figure 48 Schedule automation events

To add a scheduled automation event,

1. Select the [Add] button.
2. Set the date and time of the automation event, the repeat interval, and the event label to be executed.
3. Click [Accept Changes] to save created schedules.

## 14.4 Automation setup for server GPIO

The SX-3000 GPIO automation device settings can be configured from the [Devices] tab after selecting the 'GPIO' device name.

Figure 49 GPIO automation device settings

If the output pulse width is left blank, the default value of **50ms** will be used. 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.

## 14.5 Automation setup for projectors

The SX-3000 server supports automation for Barco, Christie and NEC projectors. Follow the steps below to configure a projector device in the server automation interface.

1. Click the [Add] button on the [Devices] tab and enter the name of the device. In this case, it is "PROJECTOR". Set the device type to "PROJECTOR" (see Figure 42).
2. Click [OK] and set up the device parameters for the projector device.
3. Enter the IP address of the projector device (see Figure 43).
4. 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.
5. Enter the 'Login' and 'Password' for the projector if required.
6. Click the [Save] button to save configured settings.

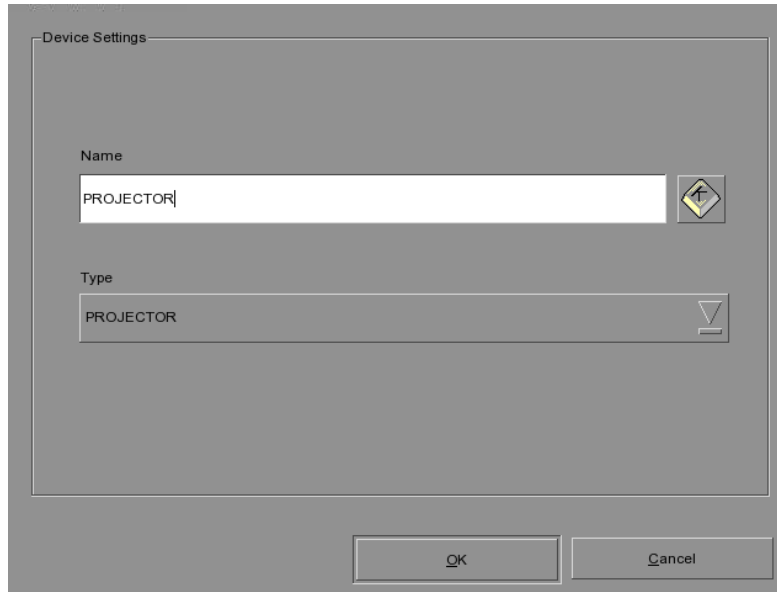


Figure 50 Projector automation device setup

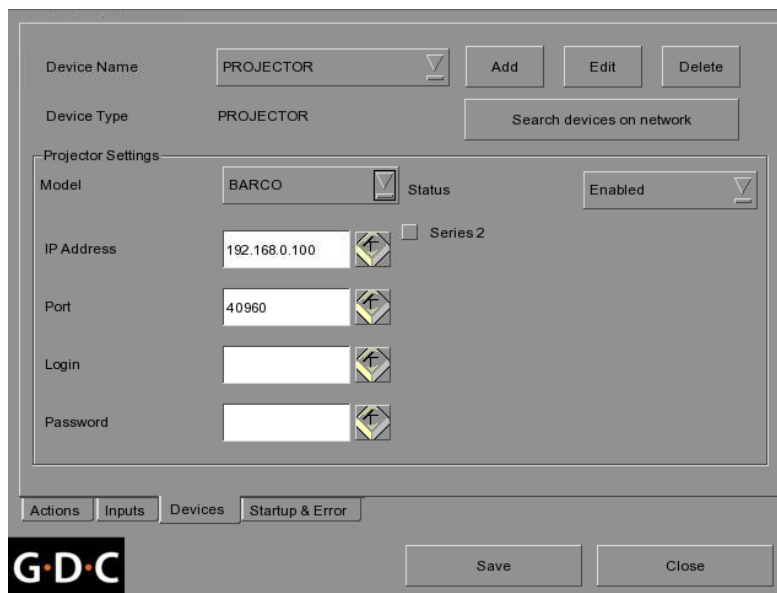


Figure 51 Automation settings for projector device

## 14.6 Automation setup for eCNA devices

The SX-3000 server supports the eCNA-10 automation system. Follow the steps below to configure an eCNA device in the server automation interface.

7. Click the [Add] button on the [Devices] tab and enter the name of the device. In this case, it is “eCNA”. Set the device type to “eCNA\_IO”.

Figure 52 eCNA automation device setup

8. Click [OK] and set up the device parameters for the eCNA device.
9. Enter the IP address of the eCNA device (see Figure 52).
10. The eCNA device has many cues available for automation. These cues can be enabled or disabled by selecting them after clicking the [Server events], [eCNA controls], and [eCNA status] buttons. All cues are disabled by default.
11. Click the [Save] button to save configured settings.

Figure 53 Automation settings for eCNA device

## 14.7 Automation setup for JNIOR devices

The SX-3000 server supports the JNIOR Model 310 automation device. Follow the steps below to configure a JNIOR device in the server automation interface.

1. Click the [Add] button on the [Devices] tab and enter the name of the device. In this case, it is "JNIOR". Set the device type to "JNIOR\_IO".
2. Click [OK] and set up the device parameters for the JNIOR device.
3. Enter the IP address of the JNIOR device (see Figure 57).
4. The settings for 'Port', 'Login' and 'Password' are set to the default values for JNIOR devices if left empty.
5. Click the [Save] button to save configured settings.

Figure 56 JNIOR automation device setup

Figure 57 Automation settings for JNIOR device

## 14.8 Automation setup for Christie ACT devices

The SX-3000 server supports Christie ACT automation device. Follow the steps below to configure a Christie ACT device in the server automation interface.

1. Click the [Add] button on the [Devices] tab and enter the name of the device. In this case, it is "ChristieACT". Set the device type to "ChristieACT".
2. Click [OK] and set up the device parameters for the Christie ACT device.
3. Enter the IP address of the Christie ACT device.
4. The default setting for the 'Port' is displayed on the settings for the Christie ACT device. Change this value if required.
5. Default control cues will be set up for a new Christie ACT automation device. Control cues can be added or removed by clicking on the [+] and [-] buttons.
6. Click the [Save] button to save configured settings.

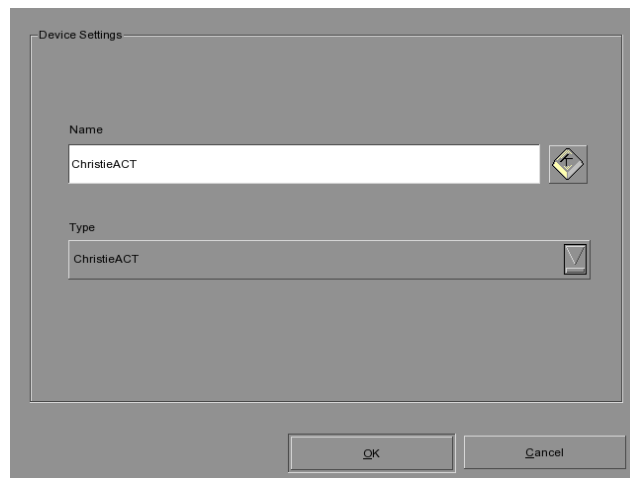


Figure 58 Christie ACT automation device setup

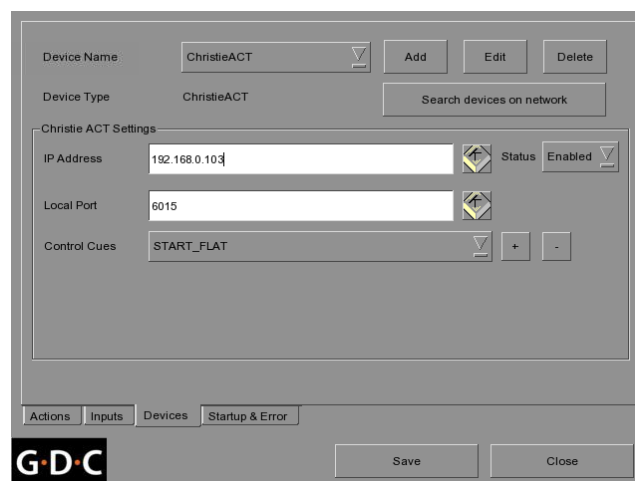


Figure 59 Automation settings for Christie ACT device

## 14.9 Automation setup for Dolby devices

The SX-3000 server supports automation for the Dolby sound processors. Follow the steps below to configure a Dolby device in the server automation interface.

1. Click the [Add] button on the [Devices] tab and enter the name of the device. In this case, it is “CP650”. Set the device type to “DolbyCP650”.
2. Click [OK] and set up the device parameters for the Dolby CP650 device.
3. Enter the IP address of the Dolby CP650 device (see Figure 61).
4. Default Control cues are set up for a new Dolby CP650 automation device. Control cues can be added or removed using the [+] and [-] buttons.
5. Click the [Save] button to save configured settings.

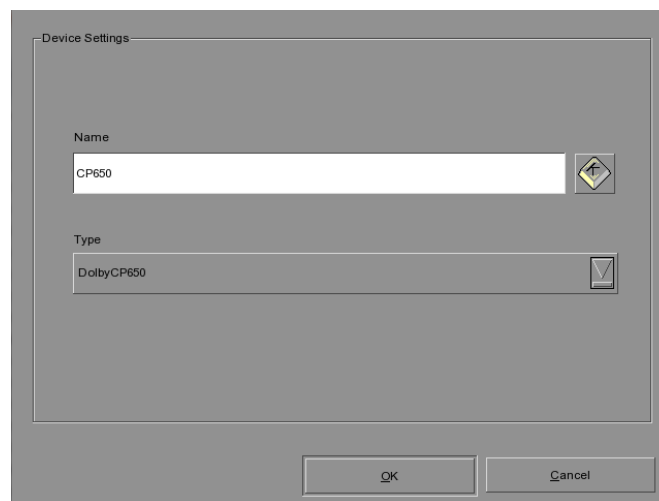


Figure 60 Dolby CP650 automation device setup

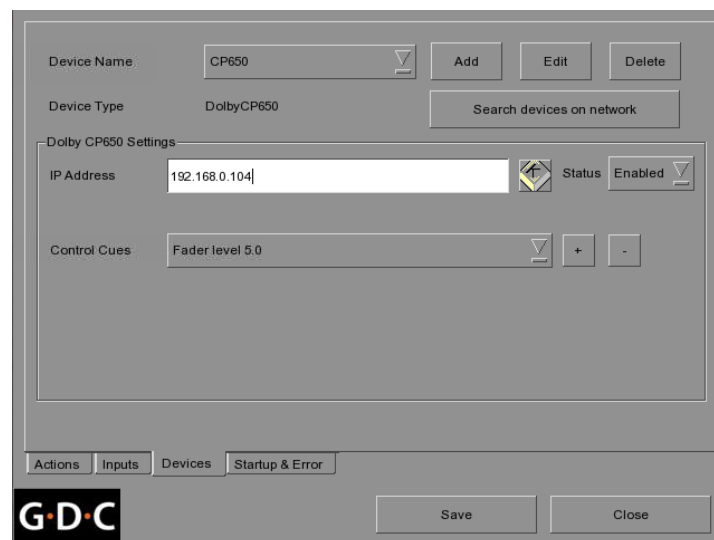


Figure 61 Automation settings for Dolby CP650 device



## 14.10 Automation setup for USL DAX devices

The SX-3000 server supports automation for USL DAX sound processor. Follow the steps below to configure a USL DAX device in the server automation interface.

1. Click the [Add] button on the [Devices] tab and enter the name of the device. In this case, it is “DAX”. Set the device type to “USL-DAX” (see Figure 62).
2. Click [OK] and set up the device parameters for the USL DAX device.
3. Enter the IP address of the USL DAX device (see Figure 63).
4. Click the [Save] button to save configured settings.

The dialog box is titled "Device Settings". It contains two main input fields: "Name" and "Type". The "Name" field has the text "DAX" entered. The "Type" field has a dropdown menu showing "USL-DAX". To the right of the "Name" field is a small icon with a yellow arrow pointing up and a green arrow pointing down. Below the input fields are two buttons: "OK" and "Cancel".

Figure 62 USL DAX automation device setup

The screenshot shows a larger window with multiple sections. At the top, there's a "Device Name" field with "DAX" and a dropdown arrow, followed by "Add", "Edit", and "Delete" buttons. Below that is a "Device Type" field with "USL-DAX" and a "Search devices on network" button. The main section is titled "USL DAX Settings" and contains an "IP Address" field with "192.168.0.105" and a dropdown arrow, followed by a "Status" field with "Enabled" and a dropdown arrow. At the bottom, there are tabs for "Actions", "Inputs", "Devices", and "Startup & Error". Below the tabs are "Save" and "Close" buttons. The GDC logo is in the bottom left corner.

Figure 63 Automation settings for USL DAX device

## 14.11 Automation setup for USL JSD devices

The SX-3000 server 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. Click the [Add] button on the [Devices] tab and enter the name of the device. In this case, it is “JSD”. Set the device type to “USL-JSD” (see Figure 64).
2. Click [OK] and set up the device parameters for the USL JSD device.
3. Enter the IP address of the USL JSD device (see Figure 65).
4. Select the correct model (JSD-80 or JSD-100) of the device the server is connected to.
5. Click the [Save] button to save configured settings.

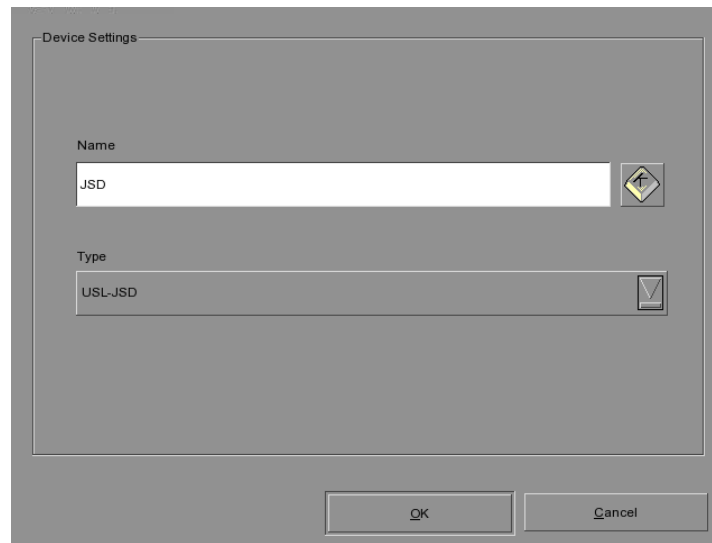


Figure 64 USL JSD automation device setup

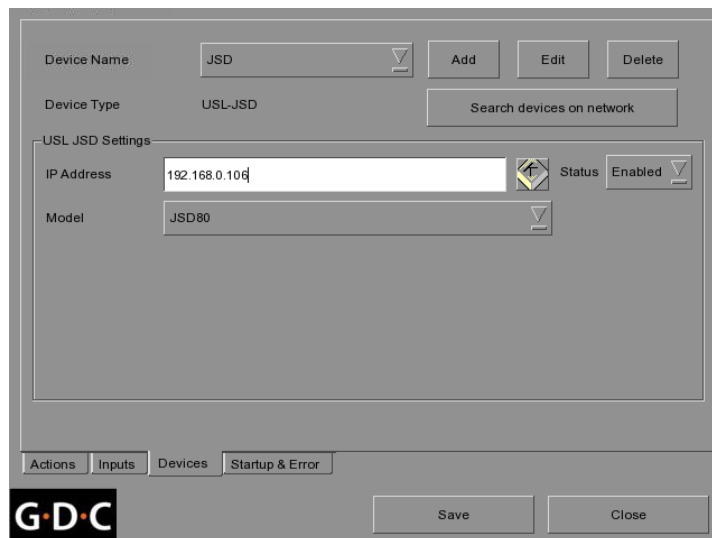


Figure 65 Automation settings for USL JSD device

## 15 Component Engineering TA-10 Setup

The Component Engineering TA-10 can be used for theater automation with the SX-300. It requires that the TA-10 be wired in a particular configuration. A wiring diagram can be seen in Figure 66.

The TA-10 is connected to the SX-3000 server using the server's GPIO input/output port. Configure event labels with the GPIO device to trigger the TA-10.

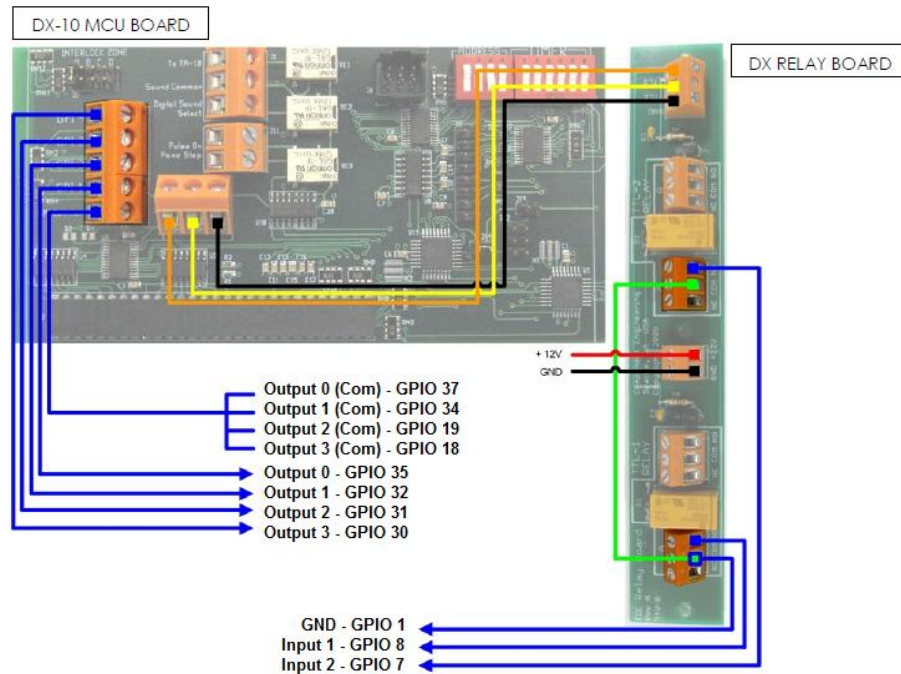


Figure 66 Component Engineering TA-10 wiring diagram

## 16 Testing Procedures for QC after Installation

After the installation has been completed, it is necessary to test the following to ensure that the SX-3000 has been properly installed:

1. Test the video playback capabilities of the server using the following file formats: MPEG2, JPEG2000, Scope, Flat, 3D.
2. Test the audio playback capabilities of the server 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, network connectivity and VNC.

## 17 Appendix

### 17.1 AES Audio and GPIO Pinout

#### AES Audio

A-top	A-bot				B-top	B-bot				C-top	C-bot	
Pin1 - AES_OUT1+	Pin1 - AES_OUT5+				Pin1 - GPI_IN0	Pin1 - GPI_IN4				Pin1 - GPO_0A	Pin1 - GPO_4A	
Pin2 - AES_OUT1-	Pin2 - AES_OUT5-				Pin2 - GND	Pin2 - GND				Pin2 - GPO_0B	Pin2 - GPO_4B	
Pin3 - AES_OUT2+	Pin3 - AES_OUT6+				Pin3 - GPI_IN1	Pin3 - GPI_IN5				Pin3 - GPO_1A	Pin3 - GPO_5A	
Pin4 - AES_OUT3+	Pin4 - AES_OUT7+				Pin4 - GPI_IN2	Pin4 - GPI_IN6				Pin4 - GPO_2A	Pin4 - GPO_6A	
Pin5 - AES_OUT3-	Pin5 - AES_OUT7-				Pin5 - GND	Pin5 - GND				Pin5 - GPO_2B	Pin5 - GPO_6B	
Pin6 - AES_OUT2-	Pin6 - AES_OUT8-				Pin6 - GND	Pin6 - GND				Pin6 - GPO_1B	Pin6 - GPO_5B	
Pin7 - AES_OUT4+	Pin7 - AES_OUT8+				Pin7 - GPI_IN3	Pin7 - GPI_IN7				Pin7 - GPO_3A	Pin7 - GPO_7A	
Pin8 - AES_OUT4-	Pin8 - AES_OUT8-				Pin8 - GND	Pin8 - GND				Pin8 - GPO_3B	Pin8 - GPO_7B	

### 17.2 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

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