Spectrum™

MediaDeck 7000

Component Replacement Guide

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Documentation conventions

In Harmonic documents, special symbols and fonts to call your attention to important information.

⚠ **DANGER:** The Danger symbol indicates information that, if ignored, can cause physical harm to you.

◆ **CAUTION:** The Caution symbol indicates information that, if ignored, can adversely affect the performance of your Harmonic product, or that can make a procedure needlessly difficult.

📄 **NOTE:** The Note symbol indicates especially important information you need, or it may provide additional information that applies in only some carefully delineated circumstances.

⓵ **IMPORTANT:** The Important symbol indicates information that should stand out when you are reading product details and procedural information.

ⓘ **TIP:** The Tip symbol indicates parenthetical information that is not necessary for performing a given procedure, but which, if followed, makes the procedure easier, smoother, or more efficient.

In addition to these symbols, this guide may use the following text conventions:

Convention	Explanation
`Typed Command`	Indicates the text that you type in at the keyboard prompt.
<Ctrl>, <Ctrl>+<Shift>	A key or key sequence to press.
http://www.harmonicinc.com	The italics in blue text to indicate Cross-references, and hyperlinked cross-references in online documents.
Bold	Indicates a button to click, or a menu item to select.
`Screen Output`	The text that is displayed on a computer screen.
Emphasis	The italics text used for emphasis and document references.

Table of Contents

Chapter 1

Introduction

This guide provides information to help you replace components in your Spectrum device or system. Make sure that you read all safety warnings and instructions, and that you have received a replacement component from Harmonic before you begin any of the procedures in this guide.

MediaDeck 7000 component replacement

You may replace the following components in the MediaDeck 7000: bezel, drive, power supply, and I/O module.

📝 **NOTE:** The procedures for replacing a drive and I/O module differ according to whether your system is managed by SystemManager or Spectrum Management.

- *Bezel replacement*
- *Power supply unit replacement*
- *Drive replacement with SystemManager*
- *Drive replacement with Spectrum Management*
- *ChannelPort or MediaPort module replacement*
- *MediaPort or ChannelPort module replacement with Spectrum Management*

Bezel replacement

Over time, the bezel LEDs can wear out. Replacement bezels are available from Harmonic.

⚠️ **CAUTION:** The front panel is susceptible to electrostatic discharge (ESD) when the bezel is removed. Wear the appropriate ESD protection when you remove the bezel.

Removing the bezel

Align the bezel in front of the chassis so that the Harmonic logo appears on the top left corner.

1. Unlock the bezel by loosening the two captive thumb screws.
2. Pull the bezel straight away from the chassis.
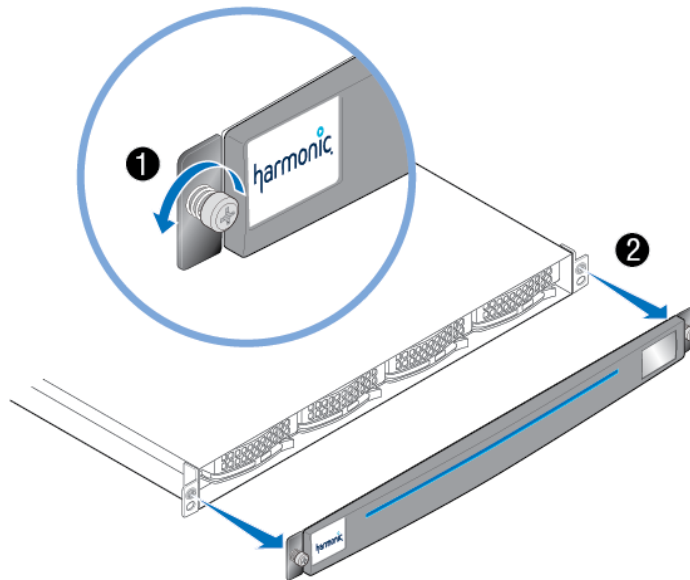
Installing the bezel

When securing the bezel to the chassis, be careful to not over-tighten the thumb screws.

1. Unpack the bezel.
2. Align the bezel in front of the chassis so that the front panel display appears in the top-right corner, and the metal corners of the bezel are level with the rack ears of the chassis.
3. Keeping the corners aligned, press the bezel straight onto the chassis. See the following figure.
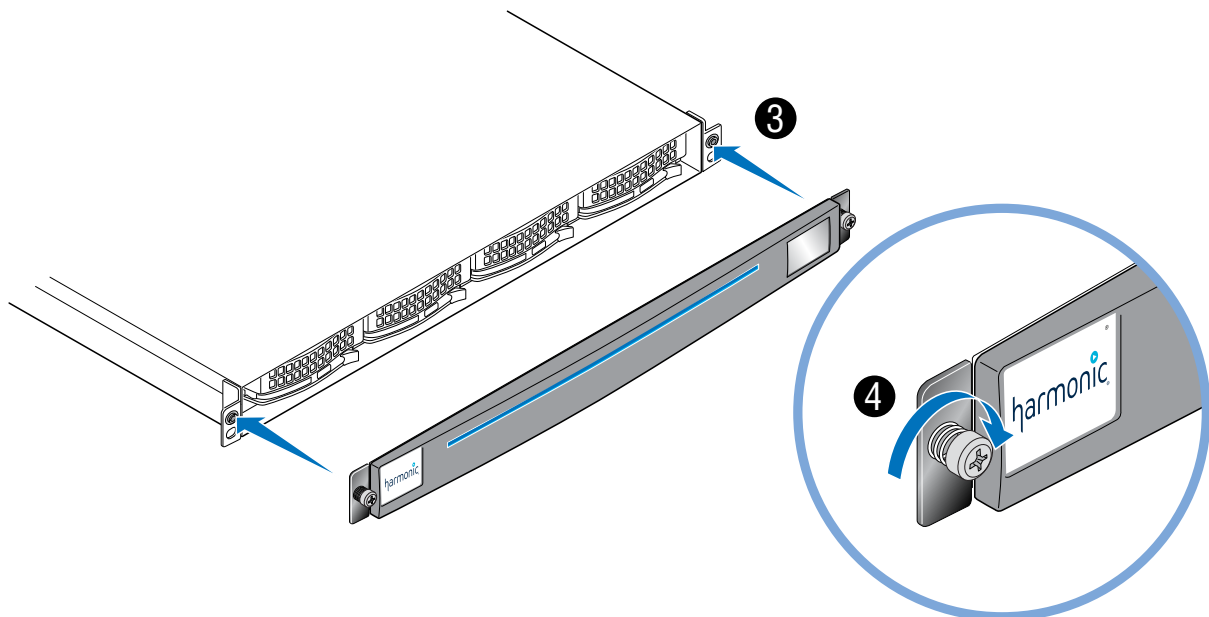
4. Hand-tighten the two captive thumb screws to secure the bezel in place.

> 📋 **NOTE:** Do not over-tighten the thumb screws.

Power supply unit replacement

The MediaDeck is equipped with two hot-swappable power supplies, each with an independent AC connector. If one supply fails, the load is transferred to the remaining supply without interruption to service. To take full advantage of the redundant supplies, Harmonic recommends that you use separate, isolated power sources for each AC input.

Replacing a power supply unit

Systems with a single power supply or systems with two power supplies operating in a non-redundant configuration must be powered off before beginning this procedure.

> ⚠ **DANGER:** Observe all conventional ESD precautions when handling Spectrum devices and components.

Before you begin
Unpack the replacement power supply and visually inspect for damage.

1. Disconnect the AC power cable.
2. Press the release lever to the right and pull the handle to remove the power supply.
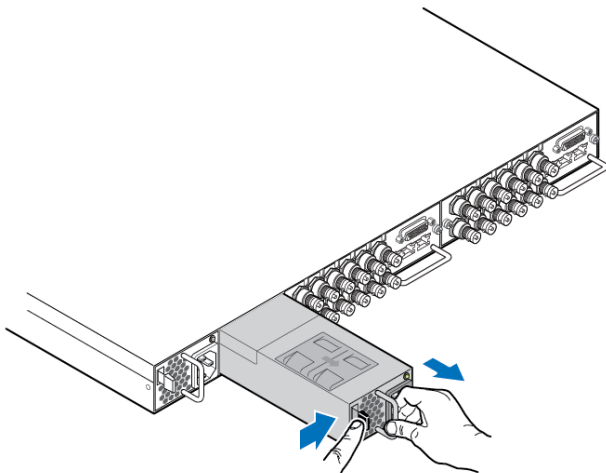
3. Using the handle, slide the replacement power supply into the empty chassis slot.

The release lever will click to indicate that the unit is locked in place.
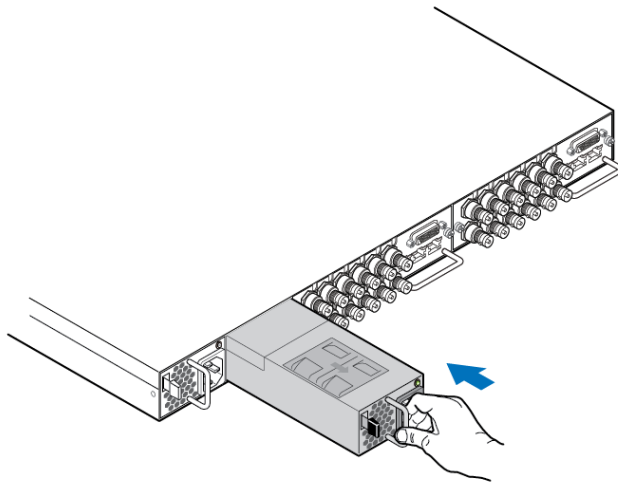
4. Connect the AC power cable.

Drive replacement with SystemManager

The MediaDeck contains high-performance SATA disk drives and SSD drives that can be hotswapped during operation.

📝 **NOTE:** This procedure applies to SystemManager version 6.3. If you are running a different version, some steps may vary. Refer to the *SystemManager Release Notes* for instructions on upgrading.

About replacement drives

Replacement disk drives must meet certain criteria. In the event of a drive failure, replacement drives are available from Harmonic.

⚠ **IMPORTANT:** Use ONLY Harmonic-supplied replacement disk drives. Disk drives from any other source will be excluded from coverage under the Harmonic product limited warranty and maintenance services programs. In addition, any errors or damages caused by the use of disk drives provided from any other source will cause the entire product to be excluded from coverage under the Harmonic product limited warranty and maintenance services programs.

📝 **NOTE:** Replacement drives should have the same or greater drive capacity as those they are replacing, and their form factor must match the other drives in the enclosure.

If you wish to install a Harmonic-supplied drive model that is not supported by your current version of Spectrum firmware, you may need to install a "DDC" configuration file to your video server, which enables you to install and use the new drive. For details, see "Installing a DDC file" in the *Harmonic SystemManager User Guide.*

Be sure that you have a replacement drive on hand before removing the failed drive. You may wish to have more than one replacement drive on hand in case the first is not responsive.

Failing a drive

Fail a drive that is experiencing a loss of data to remove it from a RAID set. This procedure is a prerequisite to replacing a drive and is performed on the **Drive Properties** page in SystemManager.

1. From the **Configuration** tab, click the **Disk Utilities** icon.
   The **Disk Utilities** page displays.
2. Click the icon for the Spectrum server that contains the drive you wish to fail.
   The **Disk utilities** page for that server appears.
3. Cick the **Disk Drive** icon (or hyperlink).
   The **Drive Properties** page displays.
4. At the bottom of the page, click **Fail Drive**.
   A confirmation dialog appears.
5. Click **OK**.
6. Navigate to the Spectrum server **Disk utilities** page to verify that the drive state is reported as **Dead, Failed**.

Verifying which drive to remove

When replacing a failed drive, it is critical that you identify which drive to remove by winking the drive in SystemManager and then noting the Activity and Status LEDs on the physical drive.

Before you begin
Remove the bezel.

1. From the **Disk Utilities** page, click **Wink On**.
   The light bar on the front panel is activated.
2. Find the physical location of the drive and note the state of the LEDs for this drive.

   ◦ The top Activity LED should be off, indicating that the drive is not being actively used. If it is blinking, this is the wrong drive to remove.
   ◦ The bottom Status LED should be blinking (4 blinks per second).
3. If you identify the correct drive, continue with removing the drive.

   ⚠ **CAUTION:** Wait 30 seconds before unlatching the drive.

4. If you do not identify the correct drive, call Harmonic Technical Support and do not continue with this procedure.

Removing a drive

Drives may be replaced while the system is powered on. Make sure you have a replacement drive on hand before removing the failed drive.

⚠ **CAUTION:** Drive spin-down. Damage can occur to a drive if it is removed while still spinning. We recommend that you perform all steps in the following procedure. Before removing a drive from an enclosure, wait 30 seconds to ensure that the drive has stopped spinning.

📝 **NOTE:** It is critical that you identify the correct drive. Comparing the serial number on the disk drive to the serial number displayed in SystemManager is the best way to do this.

⚠ **DANGER:** Observe all conventional ESD precautions when handling Spectrum devices and components.

Before you begin

Unpack the replacement drive and visually inspect for any damage. If the part is damaged, do not continue with this procedure. Call Technical Support for assistance.

1. Press the red release button on the right side of the drive to release the handle.
   The handle springs open.
2. Grasp the handle and firmly pull the drive from the chassis.

3. Compare the serial number found on the top of the drive with the serial number found on the **Drive Properties** page.

   - If the serial numbers match, continue with installing the new drive.
   - If the serial numbers do not match, wait at least 15 seconds after removal, then reinsert the drive. Call Harmonic Technical Support immediately, and do not continue with this procedure.

Installing a drive

After installing the new drive, verify that the drive is reported as Alive and monitor the progress of the RAID rebuild.

📝 **NOTE:** When installing a drive, ensure that the adjacent drive is fully installed. Inserting a drive carrier and attempting to lock its handle next to a partially installed carrier can damage the partially installed carrier's shield spring and make it unusable.

📝 **NOTE:** To maintain proper system cooling, all externally accessible drive bays must be populated with a drive carrier.

1. Press the red release button on the right side of the replacement drive to release the handle.
   The handle springs open.

2. Push the drive into the chassis until the handle begins to close, and then press the handle until closed.

The handle clicks as it closes.

Within three minutes, the new drive should appear on the **Disk Utilities** page in SystemManager.

3. From the **Disk Utilities** page, verify that the drive is reported as **Alive** by the MediaCenter.

   - If it is reported as **Alive**, you may continue to the next step.
   - If the drive is not reported as **Alive** and another drive is available, bypass the first drive. Follow instructions in "Removing a failed drive", then repeat Step 1 through Step 3 using the second drive. If successful, continue to the next step. If unsuccessful, contact Technical Support for assistance.
   - If the drive is not reported as **Alive** and you do not have another drive available, contact Technical Support.

4. On the **RAID Utilities** page, monitor the status of the RAID set.
   The status should change from **Compromised** to **Rebuilding** immediately. If it does not, start the rebuild manually by clicking **Start Rebuild**.

5. Periodically monitor the rebuild until complete.
   Once complete, the RAID status changes to **Normal, Attached, Viable**.

What to do next

If you replaced a failed drive with a new drive from Harmonic, use the packaging materials (carton, cushion, and electrostatic sensitive bag) from the replacement disk drive to carefully repackage the failed

drive and return it promptly for analysis. Contact Technical Support for a Return Authorization Number (RA) before shipping the drive back to Harmonic.

Drive replacement with Spectrum Management

The MediaDeck contains high-performance SATA disk drives and SSD drives that can be hotswapped during operation.

About replacement drives

Replacement disk drives must meet certain criteria. In the event of a drive failure, replacement drives are available from Harmonic.

⚠️ **IMPORTANT:** Use ONLY Harmonic-supplied replacement disk drives. Disk drives from any other source will be excluded from coverage under the Harmonic product limited warranty and maintenance services programs. In addition, any errors or damages caused by the use of disk drives provided from any other source will cause the entire product to be excluded from coverage under the Harmonic product limited warranty and maintenance services programs.

📝 **NOTE:** Replacement drives should have the same or greater drive capacity as those they are replacing, and their form factor must match the other drives in the enclosure.

If you wish to install a Harmonic-supplied drive model that is not supported by your current version of Spectrum firmware, you may need to install a "DDC" configuration file to your video server, which enables you to install and use the new drive. For details, see "Installing a DDC file" in the *Harmonic SystemManager User Guide.*

Be sure that you have a replacement drive on hand before removing the failed drive. You may wish to have more than one replacement drive on hand in case the first is not responsive.

Failing a drive

Use the "fail" procedure to remove a drive from a RAID set, when the drive is experiencing a loss of data. This step is performed as a prerequisite to removing the drive from the chassis and then replacing it with a new drive, at which time the RAID set rebuild occurs automatically (provided that the new drive is formatted).

1. Click **Configure** > **Storage** > **Drives**.
2. Click the button that shows the serial number of the drive you wish to fail.
3. Scroll to the bottom of **Drive** configuration page, and then click **Fail Drive**.
4. When the **Confirmation** dialog appears, click **Yes**.
5. Find the physical location of the drive and verify that the status LED indicates the drive has been failed.

   Once it has been failed, the drive status will appears as **Dead**, and the drive may be safely removed.

   ⚠️ **CAUTION:** Wait 30 seconds before unlatching the drive.

Removing a drive

Drives may be replaced while the system is powered on. Make sure you have a replacement drive on hand before removing the failed drive.
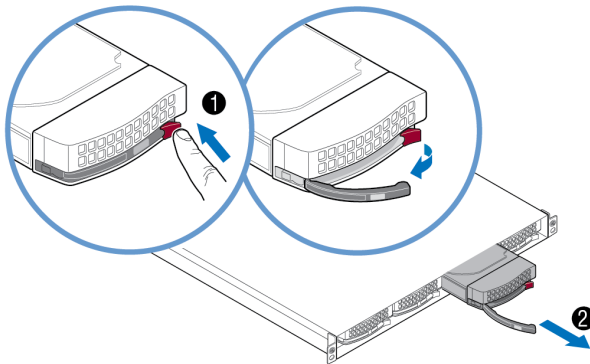
⚠️ **CAUTION:** Drive spin-down. Damage can occur to a drive if it is removed while still spinning. We recommend that you perform all steps in the following procedure. Before removing a drive from an enclosure, wait 30 seconds to ensure that the drive has stopped spinning.

📝 **NOTE:** It is critical that you identify the correct drive. Comparing the serial number on the disk drive to the serial number displayed in Spectrum Management is the best way to do this.

⚠️ **DANGER:** Observe all conventional ESD precautions when handling Spectrum devices and components.

Before you begin

Unpack the replacement drive and visually inspect for any damage. If it is damaged, call Technical Support for assistance and do not continue with this procedure.

1. Press the red release button on the right side of the drive to release the handle.
    The handle springs open.
2. Grasp the handle and firmly pull the drive from the chassis.

3. Compare the serial number found on the top of the drive with the serial number found on the **Drive Properties** page.

    - If the serial numbers match, continue with installing the new drive.
    - If the serial numbers do not match, wait at least 15 seconds after removal, then reinsert the drive. Call Harmonic Technical Support immediately, and do not continue with this procedure.
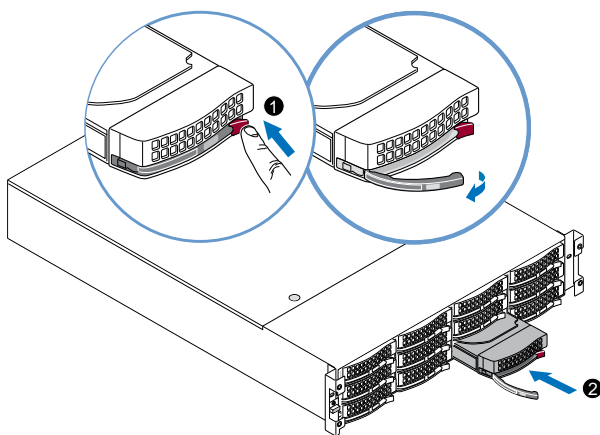
Installing a drive

After installing the new drive, verify that the drive is reported as Alive and monitor the progress of the RAID rebuild.

📝 **NOTE:** When installing a drive, ensure that the adjacent drive is fully installed. Inserting a drive carrier and attempting to lock its handle next to a partially installed carrier can damage the partially installed carrier's shield spring and make it unusable.

📝 **NOTE:** To maintain proper system cooling, all externally accessible drive bays must be populated with a drive carrier.

1. Press the red release button on the right side of the replacement drive to release the handle.
   The handle springs open.
2. Push the drive into the chassis until the handle begins to close, and then press the handle until closed.

The handle clicks as it closes.

Within three minutes, the new drive should appear on the **Drives** page in Spectrum Management.

3. Click the **Unfail Drive** button, and then verify that the drive status changes to **Alive**.
   If the drive is not reported as Alive, follow instructions in "Removing a drive" to fail the drive, remove it, and then replace it with another drive (if available). If successful, continue to the next step. If you do not have another drive available, contact Technical Support.
4. From **Configure** > **Storage** > **RAID set**, click **Start Rebuild** to rebuild the RAID set.
   The status should change from **Compromised** to **Rebuilding** immediately.
5. Periodically monitor the rebuild until complete.
   You must reload the **RAID set** properties page to check the state.

   Once complete, the state of the RAID set will change to **Normal/Viable**. The removed drive will display until you restart the MediaDeck.
6. To restart the MediaDeck, click **Monitor** > **Devices** > **MediaDeck** > **Restart**.

What to do next

If you replaced a failed drive with a new drive from Harmonic, use the packaging materials (carton, cushion, and electrostatic sensitive bag) from the replacement disk drive to carefully repackage the failed

drive and return it promptly for analysis. Contact Technical Support for a Return Authorization Number (RA) before shipping the drive back to Harmonic.

ChannelPort or MediaPort module replacement

Follow these procedures when replacing a ChannelPort or MediaPort module in the MediaDeck 7000.

📝 **NOTE:** The procedures in this section apply to SystemManager version 6.3. If you are running a different version of SystemManager, some steps may vary. Refer to the SystemManager Release Notes for instructions on upgrading.

⚠ **DANGER:** Observe all conventional ESD precautions when handling Spectrum devices and components.

Deactivating players

Deactivate a player when you do not want an automation system to be able to automatically enable the player for play and record.

📝 **NOTE:** In SystemManager, a MediaPort 7000 series appears as two separate MIP-7XXX or CPT-8XXX devices, and a Spectrum X appears as two separate MIP-9XXX devices.

1. Click the **Player Configuration** button in the left-hand column.
   The **Player Configuration** page appears.
2. Click the icon for the Spectrum server on which the players reside.
   The **Player List** page appears.
3. Check the box for each Player that you wish to deactivate.

   📝 **NOTE:** If replacing a Spectrum server or I/O module, be sure to select all active Players associated with the server or module.
4. Click **Deactivate Selected**.

Detaching an I/O module from players

Detach a device from players when you wish to replace a MediaPort, ChannelPort, or SDI I/O module.

1. From the **Configuration** tab, click the **Player Configuration** button in the left-hand column.
   The **Player Configuration** window displays.
2. Click the icon for the Spectrum server on which the players reside.
   The **Player List** page appears.
3. Find a player associated with the I/O module you wish to replace and click **Edit**.
   The **Edit Player** page appears.
4. In the **Track** section of the page, click **Attached Devices**.
   The **Attach Devices** page appears.
5. In the **Attach** column, de-select each device you wish to detach from the player.
6. Click **Done**.
   The system returns you to **Edit Player** page.
7. Repeat Steps 4-6 to detach devices from another track of the Player associated with the module you are replacing.

8. Repeat this process to detach devices from another Player associated with the module you are replacing.

Changing the MediaDeck wink state

In a system with more than one MediaDeck, the wink function can help you identify the MediaDeck that needs to be serviced.

On the MediaDeck 7000, the wink function activates the light bar on the front panel and the status LED on the back of the processor module.

1. From SystemManager, click the **Configuration** tab to display the **Configuration** page and **System Diagram**.
2. Click the icon for the component you wish to wink.
    The **Properties** page appears.
3. From the **General Information** section of the page, view the **Wink State**.

    *   If currently **Off**, click **Wink On**.
    *   If currently **On**, click **Wink Off**.

Winking a MediaPort or ChannelPort module

In a MediaDeck 7000, identify the physical module by changing the wink state in SystemManager. The wink state triggers the status LED on the back of the module.

1. From SystemManager, click the **Configuration** tab to display the **Configuration** page and **System Diagram**.
2. Click the icon for the component you wish to wink.
    The **Properties** page appears.
3. From the **General Information** section of the page, view the **Wink State**.

    *   If currently **Off**, click **Wink On**.
    *   If currently **On**, click **Wink Off**.

Removing a module from the chassis

Remove the module from the chassis using a cross-head screwdriver.

1. Disconnect any cables from the module.
2. Using a screwdriver, loosen the two screws on the rear panel of the module as shown.
    The screws are captive and will not come out completely.

3. Using both hands to grip the screws, gently pull out the module from the chassis, as shown in the following figure.
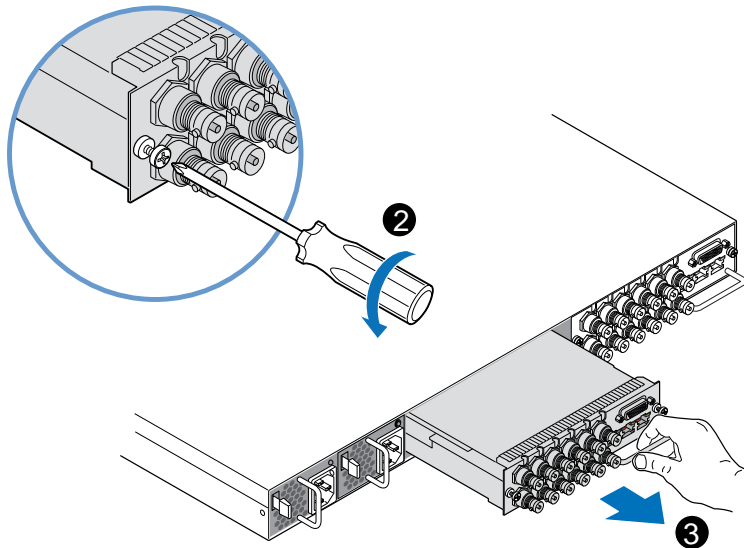
Deleting an I/O module from SystemManager

Once you have removed the module from the chassis, delete the corresponding I/O module from SystemManager.

1. Click the **Diagnostics** tab to display the **Diagnostics** page.
2. From the **Device Maintenance** section in the left-hand column, click the **Remove Device** icon to display the **Remove Device** page.
3. Scroll to the **I/O Modules** section of the page and locate the module you wish to remove.
4. From the **Select** column, check the box for the I/O module you wish to remove, and then click **Remove**.
   A confirmation message appears.
5. Click **OK**.
   After a brief pause, a message appears indicating that the device has been removed (it has also been removed from the **System Diagram**).
6. Click **OK** to return to the **Remove Device** page.

Installing the replacement module

Secure the module to the chassis using a cross-head screwdriver.

1. Unpack the module.
2. Grasp the module handle and push firmly into the slot. Ensure the module is fully inserted by pressing on the connectors with the palm of your hand.
3. Tighten the two lock screws on the rear panel of the module to secure it to the chassis.
4. From the **Configuration** tab of SystemManager, view the **System Diagram** page and verify that the new module appears.

5. Connect any necessary cables to the module.
   Refer to the *Spectrum System Installation Guide* for instructions.

Attaching an I/O module to existing players

Use the Attach Devices feature in SystemManager to attach a replacement MediaPort, ChannelPort, or SDI I/O module to existing players.

1. From the **Configuration** tab, click the **Player Configuration** icon in the left-hand column.
   The **Player Configuration** page appears.
2. Click the icon for the Spectrum server on which the players reside.
   The **Player List** page appears.
3. Click the **Edit** link for any player that will use the new module.
4. Within the **Track** section, click the **Attach Devices** button.
   The **Attach Devices** page appears.
5. In the **Attach** column, click the check box for the device that you wish to connect.
6. Click **Done**.

   The **Edit Player** page appears. The ID of the new module will appear (in the following format: MIP-7XXX-NNNNN, CPT-8XXX-NNNNN, or MIP-9XXX-NNNNN) next to the attached tracks.

   > **TIP:** For help with modifying settings on either the **Edit Player** page or the **Attach Devices** page, refer to "Creating a player" in the *Harmonic SystemManager User Guide*.

7. Click **Done** to return to the **Player List** page.
8. Repeat this procedure for each player that will use the new module.

Activating players

You may activate Players from the **Player List** page or from the **Edit Player** page.

> **NOTE:** Only one player can be enabled per Playout Channel at a time. If a Player cannot be enabled, an error message appears that details the reasons.

1. From the **Configuration** tab, click the **Player Configuration** button in the left-hand column.
   The **Player Configuration** page displays.
2. From the **Player Configuration** page, click the icon for the Spectrum server on which the players reside.
   The **Player List** window appears, showing a list of players that reside on the selected device and their status.
3. To activate a player from the **Player List** page, check the player(s) you wish to activate, and then select one of the following:

Option	Description
Activate as disabled	Sends the player definition to the Spectrum device. This may be useful if you are using an automation system to automatically enable different players at different times.
Enable	Activates and enables the selected player(s).

4. To activate a player from the **Edit Player** page, do the following:

a. For the player you wish to activate, click **Edit**.
   The **Edit Player** page appears.
b. To activate the player as disabled, select **Activate as disabled**.
c. To activate and enable the player, select **Activate and Enable**.

Verifying functionality

Harmonic recommends that you verify functionality of the replacement equipment in your Spectrum system before using it on air.

MediaPort or ChannelPort module replacement with Spectrum Management

Follow these procedures when replacing a ChannelPort or MediaPort module in the MediaDeck 7000.

⚠ **DANGER:** Observe all conventional ESD precautions when handling Spectrum devices and components.

Recording player and channel settings

Record all player and channel settings for the module you are replacing before removing it from the chassis.

⚠ **IMPORTANT:** At this time, when replacing a MediaPort or ChannelPort module, there is no way to preserve players created with Spectrum Management. Any players attached to the original device must be re-configured separately on the replacement component.

1. From **Configure** > **Channels**, deactivate each player attached to the MediaDeck, and then record the player settings.
2. From the **Channels** page, record all channel settings, including **EAS**, **MCS**, **Graphics**, and Polaris Play: Playlist Control settings, for each module you are replacing.
3. From **Configure** > **Services** > **GPIO**, click the tab for the module to be replaced and then record all GPIO settings.

Deactivating players

Deactivate each player attached to the module you wish to replace and then record all player settings so that you can reconfigure players on the replacement module.

1. From **Configure** > **Channels**, click **Deactivate** for each player attached to the module you wish to replace.
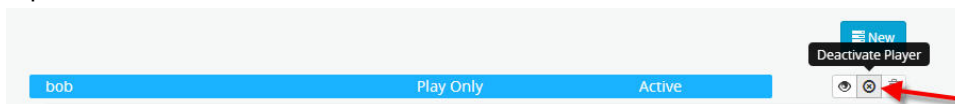
2. For each player that you deactivated, click **Edit Player** to view and record all player settings.

Winking the MediaDeck

If you are using more than one MediaDeck, use the Wink function to identify the MediaDeck that contains the module to be replaced.

When the wink state is on, the light bar on the front panel of the MediaDeck, and the status LED on the back of the processor module will be activated.

1. Click **Monitor** > **Devices** > **MediaDeck**.
2. At the bottom of the page, click the **Wink On** button.

Winking the module

When the MediaPort or ChannelPort wink state is on, the status LED on the rear panel of the module will be activated.

1. Click **Monitor** > **Devices** > **MediaDeck**.
2. Click the **Wink On** button at the bottom of the page.

Removing a module from the chassis

Remove the module from the chassis using a cross-head screwdriver.

1. Disconnect any cables from the module.
2. Using a screwdriver, loosen the two screws on the rear panel of the module as shown.
   The screws are captive and will not come out completely.
3. Using both hands to grip the screws, gently pull out the module from the chassis, as shown in the following figure.
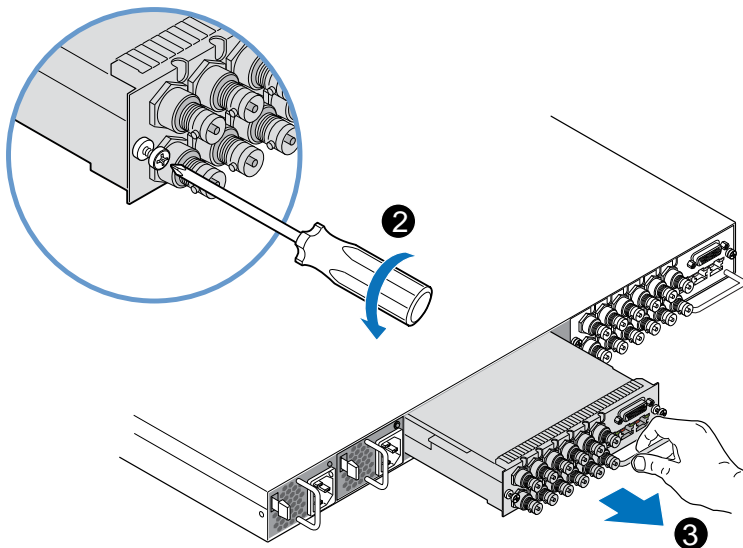
Installing the replacement module

Confirm that the new module appears in Spectrum Management after installing it.

1. Unpack the module.
2. Grasp the module handle and push firmly into the slot. Ensure the module is fully inserted by pressing on the connectors with the palm of your hand.
3. Tighten the two lock screws on the rear panel of the module to secure it to the chassis.
4. Verify that the new module appears in Spectrum Management.
5. Connect any necessary cables to the module.
   Refer to the *Spectrum Spectrum System Installation Guide* for instructions.

What to do next

Use the record of your player and channel settings for the original module to configure players, channel properties, and GPIO settings on the replacement module. For help configuring settings, refer to the following pages in the Help system:

* "Creating a player"
* "Configuring a channel"
* "Configuring GPIO triggers"

Activating players

Activate players from the Channels page.

* From **Configure** > **Channels**, click **Activate** for each player attached to the module.
  The player status change to "Active", and the active player will be moved to the top of the player list.

MediaDeck 7000 chassis replacement

The procedure for replacing the chassis differs according to whether your system is managed by SystemManager or Spectrum Management.

- *Chassis replacement with SystemManager*
- *Chassis replacement with Spectrum Management*

Chassis replacement with SystemManager

If your system is running Spectrum 7.5 or later, contact Technical Support for assistance with replacing a MediaDeck.

⚠ **DANGER:** Observe all conventional ESD precautions when handling Spectrum devices and components.

Recording your MediaDeck settings

It is important that you record all settings on the original MediaDeck before removing it.

The SystemManager uses IP addresses to uniquely identify the MediaDeck. If a MediaDeck is replaced (for example, because of unit failure), allow the new MediaDeck to assume different IP addresses from the replaced unit, if possible. This allows the SystemManager to simultaneously display both units, and allows you to move Players from the original unit to the new one, using the Move Player function.

⚠ **IMPORTANT:** If you need to replace a Spectrum video server that is configured for Polaris Play: Playlist Control, contact Harmonic Technical Support for assistance with saving all necessary settings so they can be moved to the replacement video server. Failure to save settings such as Playout Channel configuration, playlists, and schedules, as directed by Technical Support, before replacing a Spectrum video server could result in the loss of those settings.

Record the following settings:

- ○ **Host Name**: View the **Spectrum Server Properties** page to identify the **Host Name**.
- ○ **Network Settings**: From the **Network Settings** page, record all network settings for your Spectrum video server, including any Additional Routes and Ethernet Failover settings. Refer to "Configuring network settings" in the *Harmonic SystemManager User Guide* for information on viewing your network settings.

- ◦ **Low Priority Bandwidth Settings**: Refer to "Changing network/file system performance settings" in the *Harmonic SystemManager User Guide* for information on viewing the Low Priority Bandwidth Limits on the **Network/Filesystem Performance Settings** page.
- ◦ **Harmonic MediaGrid** Accounts: Refer to "Connecting to Harmonic MediaGrid from the Spectrum video server" in the *Harmonic SystemManager User Guide* for information on viewing your Harmonic MediaGrid Accounts.
- ◦ **Access Control Settings**: Refer to "Configuring Access Control settings for video servers" in the *Harmonic SystemManager User Guide* for information on viewing your Access Control Settings.
- ◦ **Audio Profile Groups**: Refer to "Creating an audio profile group" in the *Harmonic SystemManager User Guide* for information on viewing your **Audio Profile Groups List**.
- ◦ **Configure DDC File**: If you have installed a DDC configuration file, you will need to reinstall the same file when configuring settings on the replacement MediaDeck. Refer to "Installing a DDC file" in the *Harmonic SystemManager User Guide* for information on viewing your DDC file configuration.

Stopping the File System

Before powering down a Spectrum server, stop the File System to avoid losing a small amount of disk space.

You may also stop the File System before performing maintenance on it, such as for example, such as delete the File System or to removing a RAID set.

1. From the **Configuration** tab, click the **Disk Utilities** icon in the left-hand column.
2. Click the icon for your Spectrum server.
   The **Disk Utlities** page for that video server appears.
3. At the top of the **Logical View** column, click the link to the file system.
   The **Filesystem Utilities** page appears. If the File System is started, the **Stop FS** button displays. If the File System is stopped, the **Start FS** button displays.
4. Click **Stop FS**.
5. On the **Disk Utilities** page, verify that the File System status changes to **Stopped**.

What to do next
The Spectrum server can now be powered down.

Powering down a Spectrum video server

Safely power down a Spectrum video server using SystemManager.

📝 **NOTE:** In certain situations, powering down one MediaDirector in an EFS configuration may cause video disruption to channels on other MediaDirector notes in the system.

1. Click the **Configuration** tab to display the **Configuration** page and **System Diagram**.
2. Click a Spectrum video server icon to display the **Physical Configuration** page for the selected video server.
3. Click the video server's picture to display the **Properties** page.
4. Scroll to the bottom of the **General Properties** section and click **Shutdown Spectrum Server**.
   A confirmation dialog appears.
5. Click **OK**.

6. Verify that the video server's status changes to **Not Responding**.

Replacing the chassis

For complete racking instructions, refer to the *Spectrum System Installation Guide*.

Before you begin

📝 **NOTE:** Ensure that the original MediaDeck is completely powered down.

1. Rack mount the new MediaDeck according to the instructions in the *Spectrum System Installation Guide*.
2. Remove power from the original MediaDeck by disconnecting each of the attached AC cords from their power sources.
3. Remove the bezel from the original MediaDeck.
4. Remove the drives from the original MediaDeck and install each drive in the same order (with the same corresponding drive bay) into the new MediaDeck. For instructions on removing and installing drives, refer to "Drive replacement with SystemManager" in this guide.
5. Install the bezel onto the new MediaDeck. For instructions, refer to "Bezel replacement" in this guide.
6. Remove the MediaPort module(s) from the original MediaDeck and install them in the new MediaDeck. Refer to "MediaPort or ChannelPort module replacement" for instructions.
7. Using a Gigabit Ethernet cable, connect the Ethernet ports on each MediaDeck to the switch you use to connect to the SystemManager. For detailed instructions, refer to "Connecting your Gigabit Ethernet Network" in the *Spectrum System Installation Guide*.
8. Attach any remaining cables to the new MediaDeck according to the instructions in the *Spectrum System Installation Guide*.
9. Power up the MediaDeck by plugging in both power cables.
10. On the **System Diagram** page in SystemManager, verify that the new MediaDeck appears as **Connected**.

    📝 **NOTE:** If you are using a DHCP server, the DHCP server will assign new IP addresses to the public Ethernet interfaces on the MediaDeck. You can use SystemManager to configure the MediaDeck to use either DHCP or static IP addresses. Once you have removed the original MediaDeck, you can configure the replacement MediaDeck to use the same IP addresses. If you do not have a DHCP server, contact Harmonic Technical Support for assistance.

11. In SystemManager, view and clear any alarms that were created after the new MediaDeck was connected.
12. Determine the firmware version running on the replacement MediaDeck.

    📝 **NOTE:** All devices in a Spectrum system should be running the same firmware version.

13. If necessary, upgrade firmware on the replacement MediaDeck to match that of the rest of your system, and then reboot the MediaDeck.

    ⚠ **IMPORTANT:** Do not deactivate any players on the original MediaDeck at this point.

14. Check the status LEDs on the front panel to ensure that the system is operating normally.

Starting the file system

Use this procedure to start an existing File System that has been previously initialized. The procedure is typically used after performing maintenance on the File System, or when starting a File System in configurations with more than one MediaDirector.

⚠️ **IMPORTANT:** After replacing a Spectrum server, the File System **Status** field might show **Started** or **Not Started** (depending on the software version). Even if the status shows **Started**, you must stop the File System and then start it again to ensure that the correct settings take effect.

1. From the **Configuration** tab, click the **Disk Utilities** icon in the lefthand column.
   The **Spectrum - Disk Utilities** page displays all video servers on the network and the status of their File Systems.
2. Click on the name of the Spectrum server with the File System you wish to start.
   The **Disk Utilities** page for the Spectrum server appears. There are two columns displayed, the **Physical View** and **Logical View**.
3. At the top of the **Logical View** column, click the link to the File System name.
   The **Filesystem Utilities** page displays.
4. If you are replacing a Spectrum server and the file system **Status** shows **Started**, click **Stop FS**.
   The button changes to **Start FS**.
5. Click **Start FS**.

   ⚠️ **CAUTION:** Do not click "Initialize FS". This will wipe out the entire File System.

   The **Start Filesystem** page appears.
6. Ensure that the first option, **Use NVRAM Journaling for this filesystem**, is checked.

   📝 **NOTE:** In most cases, you should not need to change the options from the default selections.
7. Click the **Start** button.

   The **Filesystem utilities** page appears, where the **Mode** field should indicate **Read/Write**, the **Sharing with other MediaDirectors** field should indicate **On** (if it does not, the MediaDirector needs to be rebooted), and the **Mountpoint** field should indicate /fs0.

   For a MediaDirector in EFS configuration only: the Expansion Ethernet LED on the front panel should indicate that the EFS is working.
8. From the **Configuration** tab, click the **Disk Utilities** icon and verify that the MediaDeck is shown as **Started** and **Shared**.

What to do next

📝 **NOTE:** If replacing a MediaDirector: It is recommended that every MediaDirector sharing a File System (EFS) be rebooted after one MediaDirector has been replaced. This ensures that they are all in sync.

Moving players from one Spectrum server to another

This feature is useful when a MediaPort is "moved" between Spectrum servers, and when Spectrum servers need to be serviced. Players may be moved from Spectrum servers that are not responding.

📝 **NOTE:** In this context, "moved" means physically removing a MediaPort or Spectrum X from the source Spectrum server's 1394 bus by disconnecting its IEEE 1394 cable, and then reconnecting its IEEE 1394 cable to the destination Spectrum server.

1. From the **Configuration** tab in SystemManager, click the **Player Configuration** icon on the left-hand column.
   If you have replaced a Spectrum server, the page should show 0 players configured for that server.
2. Select the destination Spectrum server.
   The **Player List** page appears.
3. On the **Player List** page, under **Move Players from another media server**, use the dropdown box to select the host of the original Spectrum server, which has the players you wish to move.
4. Click **Select Players**.
   The **Select Players** page appears, showing a list of those players that reside on the Spectrum server you chose.
5. Select the players that you wish to move by clicking the appropriate check boxes. Optionally, click **Select all Players**.
6. Click **Move** to perform the move function between Spectrum servers.
   The selected players will disappear from the list.
7. Click **Done** to complete the move.
8. Harmonic recommends you verify that the players are usable by recording or playing material using those players on their new Spectrum server.

Removing a MediaDeck from SystemManager

Remove a device that is no longer part of your Spectrum system.

1. From the **Diagnostics** tab, click the **Remove Device** icon in the left-hand column.
   The **Remove Device** page appears.
2. If the device you are remoivng is not responsive, find the device in the **Not Responding Devices** section, select it, and then click **Remove Not Responding Devices**.
   The device is removed (it has also been removed from the **System Diagram**), and this completes the procedure.
3. If you are removing a device that is responsive, follow these steps:

   a. Click **Stop Monitoring**.
      Once the "Current state of Device Monitoring" changes to **Not monitoring**, continue to the next step.

> 📝 **NOTE:** This may take a few minutes depending on the number of devices in your system.

   b. Select one or more devices from one of the sections on the page.

   c. Click **Remove** at the bottom of the section.

   d. Click **OK** to confirm.
   After a brief pause, a message appears indicating that the device has been removed (it has also been removed from the System Diagram).

   e. Click **Start Monitoring** to resume device monitoring, and then ensure that the "Current state of Device Monitoring" field changes to **monitoring**.

> 📝 **NOTE:** Device status may show **Not Responding** for a brief interval after monitoring has been turned back on.

Configuring the MediaDeck

After replacing a Spectrum video server chassis or boot drive, you must configure the server settings. Refer to your record of the original settings in order to complete this procedure.

1. Configure network settings. Refer to "Configuring network settings" in the *Harmonic SystemManager User Guide* for information on configuring network settings including additional routes and Ethernet Failover settings.

2. Configure your Harmonic MediaGrid accounts. Refer to "Connecting to a Harmonic MediaGrid from the Spectrum video server" in the *Harmonic SystemManager User Guide* for information on configuring your Harmonic MediaGrid Accounts.

3. Configure your Access Control settings. Refer to "Configuring Access Control settings for video servers" in the *Harmonic SystemManager User Guide*.

4. If you had previously modified the Low Priority Bandwidth Settings, then configure these settings to match your original settings. Refer to "Changing Network/File System Performance settings" in the *Harmonic SystemManager User Guide* for information on configuring Low Priority Bandwidth Limits.

5. If you had modified the contents of the `filetypes.conf` file, configure these settings to match your original settings. For information on editing the `filetypes.conf` file, refer to "Editing the Filetypes.conf File" in the *Harmonic SystemManager User Guide*.

6. If you had previously configured audio profile groups, configure new audio profile groups to match your original settings. For instructions, refer to "Creating an audio profile group" in the *Harmonic SystemManager User Guide*.

7. If you had previously installed a DDC configuration file, install the same DDC file. Refer to "Installing a DDC file" in the *Harmonic SystemManager User Guide* for instructions.

8. Reboot the MediaDeck according to the instructions in "Rebooting the Spectrum video server" in the *Harmonic SystemManager User Guide*. Once the MediaDeck has rebooted, verify that all changes are correct.

Verifying functionality

Harmonic recommends that you verify functionality of the replacement equipment in your Spectrum system before using it on air.

Chassis replacement with Spectrum Management

Please contact Harmonic Technical Support when replacing a MediaDeck chassis.

⚠️ **DANGER:** Observe all conventional ESD precautions when handling Spectrum devices and components.

Recording your MediaDeck settings

Record all server settings before removing the original MediaDeck.

🛈 **IMPORTANT:** At this time, when replacing a MediaDeck, there is no way to preserve players created with Spectrum Management. Any players on the original MediaDeck must be reconfigured separately on the replacement MediaDeck. Make sure to record all player and MediaDeck settings described in this section.

🛈 **IMPORTANT:** If you need to replace a Spectrum video server that is configured for Polaris Play: Playlist Control, contact Harmonic Technical Support for assistance with saving all necessary settings so they can be moved to the replacement video server. Failure to save settings such as Playout Channel configuration, playlists, and schedules, as directed by Technical Support, before replacing a Spectrum video server could result in the loss of those settings.

1. From **Configure** > **Network Settings** > **IP settings**, record all IP settings, including any Additional Routes and Ethernet Failover settings.
2. From **Configure** > **Network Settings** > **Access Control Settings**, record all Access Control settings.
3. From **Configure** > **Channels**, deactivate each player, and then click **Edit Player** and record all player settings.
4. From **Configure** > **Channels**, record all applicable channel settings:

   ◦ EAS
   ◦ MCS
   ◦ Graphics
   ◦ Polaris Play: Playlist Control
5. Click **Monitor** and record the name of the MediaDeck.
6. From **Configure** > **Services** > **Audio Profile Groups**, for each audio profile group, click **Export** to export audio profile group settings into an XML file.
   This file will be imported into the replacement MediaDeck.
7. From **Configure** > **Services** > **GPIO**, record all GPIO trigger configurations.
8. From **Configure** > **Services** > **Media Fetch**, record all Media Fetch settings.
9. From **Configure** > **Services** > **Watch Folder**, record all Watch Folder settings.
10. From **Configure** > **Services** > **FileTypes.conf**, save the `FileTypes.conf` file.

11. From **Configure** > **Services** > **MediaDeck Settings**, record additional settings that affect all channels in the MediaDeck.

Stopping the file system

This procedure stops the file system. Follow this procedure before powering down the video server. You may also use this procedure when you want to perform maintenance on the file system, for example, to delete it or to remove a RAID set.

📄 **NOTE:** If this procedure is not performed, a small amount of disk space will be lost each time the video server is powered down improperly.

1. Click **Configure** > **Storage** > **File System**.
2. Click **Stop File System**.
3. A confirmation message appears. Click **Yes**. The file system status will change to "stopped."

Replacing the chassis

For complete racking instructions, refer to the *Spectrum System Installation Guide*.

1. Rack mount the new MediaDeck according to the instructions in the *Spectrum System Installation Guide*.
2. Power down the original MediaDeck.
3. Remove power from the MediaDeck by disconnecting each of the AC cords from their power sources.
4. Remove the bezel from the original MediaDeck.
   For instructions, refer to "Bezel replacement" in this guide.
5. Remove the drives from the original MediaDeck and install each drive in the same order (with the same corresponding drive bay) into the new MediaDeck.
   For instructions, refer to "Drive replacement" in this guide.
6. Install the bezel from the original MediaDeck onto the new MediaDeck.
7. Remove the MediaPort module(s) from the original MediaDeck and install them in the new MediaDeck.
   Refer to "MediaPort or ChannelPort module replacement" for instructions.
8. Attach any cables to the new MediaDeck according to the instructions in the *Spectrum System Installation Guide*.
9. Power up the MediaDeck by plugging in both power cables.

Configuring the MediaDeck

Refer to your record of the original server settings when completing this procedure.

ℹ️ **TIP:** For help with configuring the MediaDeck, click the **Help** button to view the Spectrum Management Help system.

1. Open Spectrum Management for the replacement MediaDeck by doing the following:

   a. Make sure you have connected a client computer to your Ethernet network as described in "Connecting to your Gigabit Ethernet network" in the *Spectrum System Installation Guide*.

b. Using the port status display on the front panel of the MediaDeck, identify the IP address of a MediaPort or ChannelPort module installed in your MediaDeck.
See "Reading the Port Status Display" in the *Spectrum System Installation Guide* for details.

c. Open a web browser on your client computer, and then type the MediaDeck 7000 IP address in the address bar to open the management application.

2. Click **Monitor** > **Devices** > **MediaDeck** and verify that the Ethernet Interfaces show "Connected".
If you are using a DHCP server, the DHCP server will assign new IP addresses to the public Ethernet interfaces on the MediaDeck. You can configure the MediaDeck to use either DHCP or static IP addresses. Once you have removed the original MediaDeck, you can configure the replacement MediaDeck to use the same IP addresses.

3. Since the new MediaDeck has just been connected, there will probably be error alarms in the system. From the main menu, click **Notifications** to open the **Notifications** page, where you can view and clear any alarms.

4. Now that the new MediaDeck is connected and the alarms are cleared, make sure that all MediaPort and ChannelPort devices in your system are running the same version of firmware:

a. Click **Maintain** > **Update Firmware**, and then check the **Current Firmware** column.

b. If necessary, follow the instructions in the "Updating Firmware" topic of the Help system to update your MediaDeck, ChannelPort, and ChannelPort module firmware. After updating, reboot the replacement MediaDeck.

c. Once you have verified that all devices in your system are running the same version of firmware, continue to the next step.

5. Check the status of the file system on the new MediaDeck by clicking **Configure** > **Storage** > **File System**.
Depending on the version of software, the **Status** field may appear as **Started** or **Not Started**. Even if the file system is **Started**, you must stop the file system and then start it again to ensure that the correct settings take effect.

6. If the Status field shows Started, click the **Stop File System** button to stop the file system. Once the file system is stopped, click the **Start File System** button to start the file system. If the Status field shows Not started, click the **Start File System** button to start the file system.
The **File System Start Options** dialog box appears, and provides the following options:

◦ **Read-only file system**: if selected, the file system will be read-only. If empty, the file system will be read-write.

◦ **Use previous start options**: select to use the previous file system start options.

◦ **Do not save these options for next startup**: select to clear the file system start options the next time the file system is started.

7. Click **Start**.
The file system status will change to "started."

8. Once the replacement server is up and running, make sure to configure each of the settings using the information you recorded earlier:

a. Configure network settings. Refer to "Configuring Network Settings" in the Help system.

b. Configure GPIO triggers. Refer to "Configuring GPIO" in the Help system.

c. Configure player settings. Refer to "Creating a Player" in the Help system.

d. Configure channel settings: Refer to "Configuring a Channel" in the Help system.

e. Configure the MediaDeck name. Refer to "Renaming the MediaDeck 7000" in the Help system.

f. Import Audio Profile Groups from the original MediaDeck. Refer to "Importing an Audio Profile Group" in the Help system.

g. Configure Watch folders. Refer to "Configuring a Watch Folder" in the Help system.

      h.   Configure FileTypes.conf. If you had modified the contents of the filetypes.conf file for the original MediaDeck, configure the new MediaDeck to match. Refer to "Configuring FileTypes.conf" in the Help system.

      i.   Configure Media Fetch. Refer to "Configuring Media Fetch" in the Help system.

9. Restart the new MediaDeck by clicking **Monitor** > **Devices** > **MeidaDeck** > **Restart**.
The complete restart process takes approximately three minutes.

10. Once the MediaDeck has restarted, verify that all server settings are correct.

Verifying functionality

Harmonic recommends that you verify functionality of the replacement equipment in your Spectrum system before using it on air.

Harmonic Technical Assistance Center contact information

A list of phone numbers, e-mail addresses, and important links for the Harmonic Technical Assistance Center (TAC).

Table A-1: Technical Assistance Center phone numbers and email addresses

Region	Telephone Technical Support	Email
Americas	888.673.4896 (888.MPEG.TWO)408.490.6477	support@harmonicinc.com
Europe, the Middle East and Africa (EMEA)	+44.1252.555.450	emeasupport@harmonicinc.com
India	+91.120.498.3199	apacsupport@harmonicinc.com
Russia	+7.495.926.4608	rusupport@harmonicinc.com
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Asia Pacific (APAC) – Other Territories	+852.3184.0045 +65.6542.0050	apacsupport@harmonicinc.com

Report an issue online

http://www.harmonicinc.com/webform/report-issue-online

Harmonic support website

http://www.harmonicinc.com/content/technical-support

Software download location for Cable Edge products

ftp://ftp.harmonicinc.com

Contact Harmonic Technical Publications

techdocs@harmonicinc.com

- Harmonic corporate contact information

Harmonic corporate contact information

Phone numbers and addresses for the corporate office.

Harmonic corporate address

4300 North First Street
San Jose, CA 95134
U.S.A.

Harmonic corporate telephone numbers

Tel. 1.800.788.1330 (from the U.S. and Canada)
Tel. +1.408.542.2500 (outside the U.S. and Canada)
Fax.+1.408.542.2511

Appendix B

Safety and regulatory compliance information

Legal disclaimer: Information in this document is provided in connection with Harmonic products. Unless otherwise agreed in writing Harmonic products are not designed nor intended for any application in which the failure of the product could cause personal injury or death.

📝 **NOTE:** The information in this appendix may apply to purchased products only.

- *Important safety instructions*
- *Safety symbols & translated safety, warning & caution instructions (English)*
- *Symboles de sécurité et traduits de sécurité, d'avertissement et Attention Instructions (français)*
- *Sicherheit Symbole und übersetzt Sicherheit, Achtung & Vorsicht Anleitung (Deutsch)*
- *Site preparation instructions*
- *Product end-of-life disassembly instructions*
- *Safety rules (English)*
- *Règles de sécurité*
- *EU manufacturer's Declaration of Conformity*
- *Electromagnetic compatibility notices – Class A*
- *Product regulatory compliance markings*
- *Product environmental compliance*
- *Compliance with additional country specific environmental, safety and EMC standards:*

Important safety instructions

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions are found throughout the guide where they apply, but may not appear here. Please read and follow the important safety information, noting especially those instructions related to risk of fire, electric shock or injury to persons. You must adhere to the guidelines in this document to ensure and maintain compliance with existing product certifications and approvals. In this document, we use "product," "equipment," and "unit" interchangeably.

This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if it is not installed and used in accordance with the instructions in this manual. Operation of this equipment in a residential area is likely to cause harmful interference If this occurs, the user will be required to correct the interference at his or her own expense.

In event of conflict between the information in this document and information provided with the product or on our website for a particular product, this product documentation takes precedence.

- *Safety symbols (English)*
- *Symboles de sécurité (français)*
- *Sicherheit symbole (Deutsch)*

Safety symbols & translated safety, warning & caution instructions (English)

To avoid personal injury or property damage, before you begin installing or replacing the product, read, observe, and adhere to all the following safety instructions and information. Harmonic products and/or product packaging may be marked with the safety symbols used throughout this document, when it is necessary to alert operators, users, and service providers to pertinent safety instructions in the manuals.

Mark	Notes
Warning	**Installing or replacing the product unit warning** • Only trained and qualified service personnel should be allowed to install, replace, or service this unit (refer AS/NZS 3260 Clause 1.2.14.3 Service Personnel). • Read the installation instructions before connecting the system to the power source. • When installing or replacing the unit, always make the ground connection first and disconnect it last. • Installation of the unit must comply with local and national electrical codes. • This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of special tool, lock and key or other means of security. • Use only specified replacement parts. • Do not use this unit in or near water. Disconnect all AC power before installing any options or servicing the unit unless instructed to do so by this manual.
Warning	**Rack mount warning** To prevent bodily injury when mounting or servicing this unit in a rack, special precautions must be taken to ensure your safety and stability of system: • Conform to local occupational health and safety requirements when moving and lifting the equipment. • Ensure that mounting of the unit by mechanical loading tools should not induce hazardous conditions. • To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed on it.

Mark	Notes
Warning	**Chassis warning** • Before connecting or disconnecting ground or power wires to the chassis, ensure that power is removed from the DC circuit. • To prevent personal injury or damage to the chassis, lift the unit only by using handles that are an integral part of the chassis, or by holding the chassis underneath its lower edge. • Any instructions in this guide that require opening the chassis or removing a board should be performed by qualified service personnel only. • Slots and openings in the chassis are provided for ventilation. Do not block them. Leave the back of the frame clear for air exhaust cooling and to allow room for cabling - a minimum of 6 inches (15.24 cm) of clearance is recommended.
Warning	**Electric shock warning** • This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit. • Before working on a chassis or working near power supplies, unplug the power cord on AC units. • Do not work on the system or connect or disconnect cables during periods of lightning activity. • This unit is grounded through the power cord grounding conductor. To avoid electric shock, plug the power cord into a properly wired receptacle before connecting the product input or outputs. • Route power cords and other cables so that they are not likely to be damaged. Disconnect power input to unit before cleaning. Do not use liquid or aerosol cleaners; use only a damp cloth to clean chassis. • Dangerous voltages exist at several points in this product. To avoid personal injury, do not touch exposed connections and components while power is on. Do not insert anything into either of the system's two power supply cavities with power connected • Never install an AC power module and a DC power module in the same chassis. • Do not wear hand jewelry or watch when troubleshooting high current circuits, such as the power supplies. • To avoid fire hazard, use only the specified correct type voltage and current ratings as referenced in the appropriate parts list for this unit. Always refer fuse replacement to qualified service personnel. • This unit relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors). • To avoid electrocution ensure that the rack has been correctly grounded before switching on the unit. When removing the unit remove the grounding connection only after the unit is switched off and unplugged.

Mark	Notes
Caution	**Electrostatic Discharge (ESD) caution** • Follow static precaution at all times when handling this unit. • Always wear an ESD-preventive wrist or ankle strap when handling electronic components. Connect one end of the strap to an ESD jack or an unpainted metal component on the system • Handle cards by the faceplates and edges only; avoid touching the printed circuit board and connector pins. • Place any removed component on an antistatic surface or in a static shielding bag. • Avoid contact between the cards and clothing. • Periodically check the resistance value of the antistatic strap. Recommended value is between 1 and 10 mega-ohms (Mohms).
Warning	**Laser radiation warning** Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Never operate a unit with a broken fibre or with a separated fiber connector.
Warning	**Lithium battery handling safety instructions** • CALIFORNIA PERCHLORATE ADVISORY: Some lithium batteries may contain perchlorate material. The following advisory is provided: "Perchlorate Material - special handling may apply, see: *http://www.dtsc.ca.gov/ hazardouswaste/perchlorate/* for information."
Caution	• Risk of explosion if battery is replaced incorrectly or with an incorrect type • Dispose of used batteries according to the manufacturer's instructions • There are no user-serviceable batteries inside Harmonic products. Refer to Harmonic qualified personnel only to service the replaceable batteries

Symboles de sécurité et traduits de sécurité, d'avertissement et Attention Instructions (français)

Pour éviter des blessures ou des dommages matériels, avant de commencer l'installation ou le remplacement du produit, lire, observer, et de respecter toutes les instructions et informations de sécurité suivantes. Produits harmoniques et / ou l'emballage du produit peuvent être marqués avec les symboles

de sécurité utilisés dans le présent document, lorsque cela est nécessaire pour alerter les opérateurs, les utilisateurs et les fournisseurs de services de consignes de sécurité pertinentes dans les manuels.

Mark	Notes
Avertissement	**Installation ou remplacement de l'unité de produit avertissement** • Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés. (voir AS / NZS 3260 article 1.2.14.3 du personnel de service). • Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation. • Lors de l'installation ou le remplacement de l'appareil, la mise à la terre doit toujours être connectée en premier et déconnectée en dernier. • L'équipement doit être installé conformément aux normes électriques nationales et locales. • Cet appareil est à installer dans des zones d'accès réservé. Ces dernières sont des zones auxquelles seul le personnel de service peut accéder en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité. • Utilisez uniquement des pièces de rechange spécifiées. • Ne pas utiliser ce produit dans l'eau ni à proximité de l'eau. Débrancher toutes les prises d'alimentation secteur avant d'installer des options ou d'effectuer l'entretien de l'unité, à moins d'instructions contraires dans le présent manuel.
Avertissement	**Rack monture avertissement** Pour éviter les blessures corporelles lors du montage ou l'entretien de cet appareil dans un rack, des précautions particulières doivent être prises pour assurer votre sécurité et la stabilité du système: • Conformez-vous aux exigences de médecine du travail et de sécurité lorsque vous déplacez et soulevez le matériel. • Assurez-vous que le montage de l'appareil par des outils de chargement mécaniques ne doit pas induire des conditions dangereuses. • Pour éviter tout risque d'électrocution, le rack et chaque élément de l'équipement installé dans le rack doivent être correctement reliés à la terre.
Avertissement	**Châssis avertissement** • Avant de connecter ou de déconnecter les câbles d'alimentation (pôles et terre) du châssis, vérifiez que le circuit de courant continu est hors tension. • Pour éviter toute blessure ou des dommages au châssis, soulevez l'unité uniquement par les poignées du châssis lui-même ou en portant celui-ci par le bord inférieur. • Toutes les opérations du présent guide nécessitant l'ouverture du châssis ou le retrait d'une carte doivent être uniquement effectuées par du personnel d'entretien qualifié. • Le châssis est muni de fentes et d'ouvertures d'aération. Ne pas les bloquer. Dégager l'arrière du cadre pour permettre le refroidissement de l'évacuation d'air et laisser de la place au câblage; un dégagement d'au moins 15.24 cm (6 po) est recommandé.

Mark	Notes
 Avertissement	**Choc électrique avertissement** • Il est possible que cette unité soit munie de plusieurs cordons d'alimentation. Pour éviter les risques d'électrocution, débrancher les deux cordons d'alimentation avant de réparer l'unité. • Avant de travailler sur un châssis ou à proximité d'une alimentation électrique, débrancher le cordon d'alimentation des unités en courant alternatif. • Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage. • Ce unité est mis à la terre par le conducteur de protection intégré au cordon d'alimentation. Pour éviter les chocs électriques, brancher le cordon d'alimentation dans une prise correctement cable avant de raccorder les entrées ou sorties du unité. • Installer les cordons d'alimentation et autres cables de sorte qu'ils ne risquent pas d'être endommagés. Couper l'alimentation avant nettoyage. Ne pas utilizer de nettoyant liquide ou en aérosol; utiliser seulement un linge humide. • Des courants électriques dangereux circulent dans cet appareil. Afin d'éviter les lessures, ne pas toucher les connexions et composants exposés lorsque l'appareil est sous tension. Ne rien insérer dans l'une ou l'autre des cavités des prises de courant du système lorsque l'appareil est sous tension. • N'installez jamais un module d'alimentation AC et un module d'alimentation DC dans le même châssis. • Ne pas porter de bijoux aux mains ni de montre durant le dépannage des circuits à haute tension, comme les transformateurs. • Pour prévenir les risques d'incendie, n'utiliser que le type, la tension et le courant nominal spécifiés dans la nomenclature des pièces de ce unité. Toujours confier le remplacement des fusibles à du personnel d'entretien qualifié. • Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifier qu'un fusible ou qu'un disjoncteur de 120 V alt., 15 A U.S. maximum (240 V alt., 10 A international) est utilisé sur les conducteurs de phase (conducteurs de charge). • Pour éviter l'électrocution, assurez-vous que le rack a bien été mis à la terre avant de mettre l'unité en marche. Lors du retrait de l'unité, retirer le raccordement de terre seulement après avoir mis l'unité à l'arrêt et l'avoir débranchée.

Mark	Notes
Attention	**Les décharges électrostatiques (ESD) attention** • Respecter systématiquement les precautions relatives aux charges électrostatiques durant la manipulation de cet unité. • Portez toujours un poignet ou la cheville bracelet antistatique préventive lors de la manipulation des composants électroniques. Branchez une extrémité de la sangle à une prise ESD ou d'un composant métallique non peinte sur le système. • Manipulez les cartes en les faces avant et les bords seulement; éviter de toucher la carte de circuit imprimé et les broches du connecteur. • Placer un composant retiré sur une surface antistatique ou dans un sac de protection statique. • Éviter tout contact entre les cartes et les vêtements. • Vérifier périodiquement la valeur de résistance de la sangle antistatique. Valeur recommandée est comprise entre 1 et 10 méga-ohms (Mohms).
Avertissement	**Rayonnement laser attention** Rayonnement laser invisible peut être émis à partir de fibres ou les connecteurs débranchés. Ne pas regarder en faisceaux ou regarder directement avec des instruments optiques. Ne jamais faire fonctionner une unité en cas de bris d'une fibre ou de séparation d'un connecteur de fibre.
Avertissement	**Batterie au lithium manipulation instructions de sécurité** • Perchlorate pour la Californie Consultatif: Certaines batteries au lithium, peuvent contenir du perchlorate. le texte qui suit consultatif est prévu: "Présence de perchlorate - une manipulation spéciale peut s'appliquer, voir: *http://www.dtsc.ca.gov/hazardouswaste/perchlorate/* for information."
Attention	• Il y a danger d'explosion si la batterie est remplacée de manière incorrecte ou par une batterie de type incorrect. • Mettre au rebut les batteries usagees conformement aux instructions du fabricant. • Les batteries des produits Harmonic ne peuvent pas être réparées ni entretenues par l'utilisateur. Ne confier l'entretien des batteries remplaçables qu'à du personnel compétent de Harmonic.

Sicherheit Symbole und übersetzt Sicherheit, Achtung & Vorsicht Anleitung (Deutsch)

Um Verletzungen oder Sachschäden zu vermeiden, bevor Sie mit der Installation oder Austausch des Produkts zu beginnen, zu lesen, zu beobachten, und sich an all den folgenden Sicherheitshinweise und

Informationen. Harmonic Produkte und / oder Produktverpackungen können mit den Sicherheitssymbole in diesem Dokument verwendet werden, markiert, wenn es notwendig ist für die Betreiber, Anwender und Dienstleister, um relevante Sicherheitsanweisungen in den Handbüchern zu alarmieren.

Mark	Notes
Warnung	**Installation oder den Austausch des Produkts Einheit Warnung** • Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet warden (siehe AS / NZS 3260 Clause 1.2.14.3 Servicepersonal) • Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen. • Der Erdanschluß muß bei der Installation der Einheit immer zuerst hergestellt und zuletzt abgetrennt werden. • Die Installation der Geräte muss den Sicherheitsstandards entsprechen. • Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Ein Bereich mit beschränktem Zutritt ist ein Bereich, zu dem nur Wartungspersonal mit einem Spezialwerkzeugs, Schloß und Schlüssel oder anderer Sicherheitsvorkehrungen Zugang. • Verwenden Sie nur die angegebenen Ersatzteile • Das Gerät in oder in der Nähe von Wasser verwenden. Trennen Sie vor der Installation von Optionen oder Wartung des Gerätes, es sei denn, dies wurde von diesem Handbuch alle Netz.
Warnung	**Rack-Montage-Warnung** Zur Vermeidung von Körperverletzung beim Anbringen oder Warten dieser Einheit in einem Gestell müssen Sie besondere Vorkehrungen treffen, um sicherzustellen, daß das System stabil bleibt: • Entsprechen den lokalen Arbeitsschutzanforderungen beim Bewegen und Heben der Ausrüstung. • Stellen Sie sicher, dass die Montage des Gerätes durch mechanische Belastung Werkzeuge sollten nicht gefährlichen Bedingungen zu induzieren. • Um das Risiko von möglichen elektrischen Schlag zu vermeiden, muss mit einer angemessenen Erdung für Rack und jedes Gerät installiert ist implementiert werden.

Mark	Notes
Warnung	**Chassis Warnung** • Gleichstrom-Unterbrechung Bevor Sie Erdungs- oder Stromkabel an das Chassis anschließen oder von ihm abtrennen, ist sicherzustellen, daß der Gleichstrom-Stromkreis unterbrochen ist. • Um Verletzungen und Beschädigung des Chassis zu vermeiden, sollten Sie das Chassis nicht an den Henkeln auf den Elementen (wie z.B. Stromanschlüsse, Kühlungen oder Karten) heben oder kippen; oder indem Sie es unterhalb der Unterkante packen. • Alle Hinweise in diesem Handbuch, die das Öffnen benötigen Sie das Gehäuse oder das Entfernen eines Board sollte nur von qualifiziertem Fachpersonal durchgeführt werden. • Für Schlitze und Öffnungen im Chassis vorgesehen. Blockieren Sie sie nicht. Lassen Sie die Rückseite des Rahmens frei für Abluftkühlung und um Platz für die Verkabelung ermöglichen - ein Minimum von 6 Zoll (15,24 cm) Abstand wird empfohlen

Mark	Notes
Warnung	**Elektroschock-Warnung** • Diese Einheit hat möglicherweise mehr als ein Netzkabel. Zur Verringerung der Stromschlaggefahr trennen Sie beide Netzgerätekabel ab, bevor Sie die Einheit warten. • Vor der Arbeit an einem Chassis für Arbeiten in der Nähe Stromversorgung, ziehen Sie das Netzkabel mit Netzeinheiten. • Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert. • Dieses Gerät ist über das Netzkabel Erdungsleiter geerdet. Um einen Stromschlag zu vermeiden, stecken Sie das Netzkabel in eine Steckdose richtig verdrahtet, bevor Sie das Produkt Eingang oder Ausgänge. • Verlegen Sie Netzkabel und andere Kabel, so dass sie wahrscheinlich nicht beschädigt werden. Trennen Eingangsleistung Einheit vor der Reinigung. Verwenden Sie keine flüssigen oder Aerosolreiniger; nur mit einem feuchten Tuch zu reinigen Chassis. • Gefährliche Spannungen vorhanden sind an mehreren Stellen in diesem Produkt. Um Verletzungen zu vermeiden, berühren Sie nicht freiliegenden Anschlüsse und Komponenten während schaltet ist. Sie keine Gegenstände in einem der beiden Stromversorgungs Hohlräume des Systems mit Strom verbunden einführen. • Ein Wechselstromsmodul und ein Gleichstrommodul dürfen niemals in demselben Chassis installiert werden. • Tragen Sie keine Hand Schmuck oder schauen Sie bei der Fehlersuche hohen Stromkreise, wie beispielsweise die Stromversorgung. • Um die Brandgefahr zu vermeiden, verwenden Sie nur den genannten richtige Art von Spannung und Strom Ratings als in der entsprechenden Stückliste für diese Einheit verwiesen. Beziehen sich immer auf Austausch der Sicherung von qualifiziertem Fachpersonal. • Dieses Produkt ist darauf angewiesen, daß im Gebäude ein Kurzschluß- bzw. Überstromschutz installiert ist. Stellen Sie sicher, daß eine Sicherung oder ein Unterbrecher von nicht mehr als 240 V Wechselstrom, 10 A (bzw. in den USA 120 V Wechselstrom, 15 A) an den Phasenleitern (allen stromführenden Leitern) verwendet wird. • Um einen Stromschlag zu vermeiden, sicherzustellen, dass die Zahnstange wurde korrekt vor dem Einschalten des Gerätes geerdet. Beim Entfernen der Einheit entfernen Sie die Masseverbindung nur, nachdem das Gerät ausgeschaltet und der Netzstecker gezogen.

Mark	Notes
⚠️ Vorsich	**Elektrostatische Entladung (ESD) Vorsicht** • Folgen Sie statische vorsorglich zu jeder Zeit beim Umgang mit diesem Gerät. • Tragen Sie immer einen ESD-präventive Handgelenk oder Knöchel-Riemen beim Umgang mit elektronischen Komponenten. Schließen Sie ein Ende des Bandes an einem ESD-Buchse oder ein unlackiertes Metallteil auf dem System. • Hand Karten nur durch die Faceplates und Kanten; Berühren Sie die bedruckte Leiterplatte und Steckerstifte. • Legen Sie alle entfernten Komponenten auf eine antistatische Oberfläche oder in einem Statik-Beutel. • Kontakt zwischen den Karten und Kleidung vermeiden. • Den Widerstandswert der gegen statische Gurt in regelmäßigen Abständen überprüfen. Empfohlener Wert ist zwischen 1 und 10 Mega-Ohm (MOhm).
☢️ Warnung	**Laserstrahlungen Warnung.** Unsichtbare Laserstrahlung kann von getrennten Fasern oder Stecker emittiert werden. Nicht in die Strahlen blicken oder direkt mit optischen Instrumenten. Niemals ein Gerät mit einem gebrochenen Faser oder mit einem Glasfaseranschluss getrennt.
⚡ Warnung	**Lithium-Batterie Handhabung Sicherheitshinweise** • CALIFORNIA PERCHLORATE ADVISORY: Einige Lithium-Batterien kann Perchlorat enthalten. Die folgende Beratungs gesetzt: "Perchlorat - Sonderbehandlung kann erforderlich sein, finden Sie unter: *http://www.dtsc.ca.gov/hazardouswaste/perchlorate/* for information."
⚠️ Vorsich	• Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr • Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers. • Es gibt keine zu wartenden Akkus im Harmonic Produkte. Siehe Harmonic qualifiziertes Personal, um die austauschbare Batterien Service

Site preparation instructions

Make the equipment site ready for installation and use.

📝 **NOTE:** Only trained and qualified service personnel (as defined in IEC 60950 and AS/NZS 3260) should install, replace, or service the equipment. Install the system in accordance with the U.S. National Electric Code if you are in the United States.

1. Preparing & choosing a site for installation

   ◦ To ensure normal system operation, plan your site configuration and prepare the site before installation.
   ◦ Install the unit in a restricted access area.
   ◦ Choose a site with a dry, clean, well-ventilated and air-conditioned area.
   ◦ Choose a site that maintains an ambient temperature of 32 to 104oF (0 to 40oC)

2. Creating a safe environment

   ◦ Connect AC-powered systems to grounded power outlets or as per local regulations.
   ◦ Do not move or ship equipment unless it is correctly packed in its original wrapping and shipping containers.
   ◦ Only allow Harmonic trained personnel to undertake equipment service and maintenance. Do not permit unqualified personnel to operate the unit.
   ◦ Wear ear protection when working near an NSG Pro platform for a longer period of time.

3. Rack mounting the unit

   ◦ Install the system in an open rack whenever possible. If installation in an enclosed rack is unavoidable, ensure that the rack has adequate ventilation.
   ◦ Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips). This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
   ◦ When mounting this unit in the partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
   ◦ If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
   ◦ The rack must be anchored to an immovable support to prevent it from tipping when the unit is mounted on it. The rack must be installed according to the rack manufacturer's instructions.
   ◦ Disconnect all power and external cables before lifting the unit. Depending on the weight of the unit, more than one person might be required to lift it.

4. Power considerations

Option	Description
AC power	◦ Adding to the system a UPS (Uninterrupted Power Supply) and an AVR (Automated Voltage Regulator) is highly recommended. ◦ Installing the main power supply by a qualified electrician, according to power authority regulations. Make sure all powering are wired with an earth leakage, according to local regulations.

Option	Description
	◦ It is recommended to install the encoder within 1.5m (approximately 5 feet) from an easily accessible grounded AC outlet. ◦ When the encoder is rack-mounted, ensure that the rack is correctly grounded.
DC power	◦ Ensure a suitable overcurrent device is in-line between the equipment and the power source. ◦ Connect DC-input power supplies only to a DC power source that complies with the safety extra-low voltage (SELV) requirements in the UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, AS/NZS 60950-1, EN/IEC 60825-1, 21 CFR 1040, EN 60950-1, and IEC 60950-1 standards. ◦ Ensure that power is removed from the DC circuit before installing or removing power supplies

5. Handling Fiber Channel cables

   ◦ Always read and comply with the handling instructions on the shipping container.
   ◦ Follow all ESD precautions and approved fiber cleaning procedures.
   ◦ The fiber is made of a very pure, expensive glass and should be treated with great care. Handle fibers only in areas that are very clean and do not contain sharp objects.
   ◦ Wear finger cots or gloves as dirt and oils can damage the fiber and contaminate connectors.
   ◦ Do not allow kinks or knots to develop in the fiber. If tangles occur, carefully work out the tangles avoiding pulling or bending the fibre beyond its bend radius.
   ◦ Always use the correct tools for stripping and cleaving the fiber. It will save time and reduce breakage caused by scratches.
   ◦ If you must secure a bundle of fiber cables together, avoid plastic and metal tie wraps; secure with Velcro instead.

6. Disposing of the unit

   ◦ Dispose of the unit and its components (including batteries) as specified by all national laws and regulations.

Product end-of-life disassembly instructions

For disassembly instructions, please call the technical support in order to remove components requiring selective treatment, as defined by the EU WEEE Directive (2012/19/EU). See *Harmonic Technical Assistance Center contact information* .

1. Disassemble equipment at a dedicated area only, gather the needed tools for disassembly.
2. Remove covers, housing, etc.
3. Remove and separate sub-assemblies (i.e. cables, metals, displays, fans, etc.).

4. Separate hazardous materials from the remainder of the material.

   a. Sort hazardous materials into their different types (i.e., batteries, hazardous liquids, hazardous solids, fiberglass, etc.).
   b. Proceed with hazardous waste management processes only.

5. Identify re-usable materials/sub-assemblies and separate these from the rest of the material.

6. Identify and separate recyclable materials as per below examples:

   a. Scrap material to be sent to smelter(s).
   b. E-waste such as displays, CPU's, cables and wires, hard drives, keyboards, etc.
   c. Metals such as steel, brass, and aluminum.
   d. Plastics such as fan casings, housings, covers, etc.
   e. Fiber optics and plastic tubing not containing electrical or data wiring.

Safety rules (English)

Recycler personnel are to wear personal protective equipment including proper eye protection, proper hand protection, and proper breathing protection if needed.

Recycler personnel shall be experienced with using the proper tools required for disassembling equipment. Untrained personnel shall not disassemble Harmonic products. Unfamiliarity with tools can cause damage and injury.

Règles de sécurité

Le personnel du recycleur doit porter de l'équipement de protection individuelle, y compris des lunettes, des gants et un masque de protection appropriés au besoin.

Le personnel du recycleur doit avoir de l'expérience des outils de démontage de l'appareil. Les produits Harmonic ne doivent pas être démontés par du personnel non qualifié. Une mauvaise connaissance des outils peut causer des dommages et des blessures.

EU manufacturer's Declaration of Conformity

This equipment is in compliance with the essential requirements and other provisions of Directives 73/23/EEC and 89/336/EEC as amended by Directive 93/68/EEC.

> 📝 **NOTE:** For specifics, about which standards have been applied, refer to the Declaration of Conformity of the product on Harmonic website at *Product Regulatory Compliance* or contact Harmonic Compliance Team at *regulatory.compliance@harmonicinc.com*

Electromagnetic compatibility notices – Class A

1. FCC verification statement (USA)

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.

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 users will be required to correct the interference at their own expense.

Connections between the Harmonic equipment and other equipment must be made in a manner that is consistent with maintaining compliance with FCC radio frequency emission limits. Modifications to this equipment not expressly approved by Harmonic may void the authority granted to the user by the FCC to operate this equipment and you may be required to correct any interference to radio or television communications at your own expense.

2. ICES–003 statement (Canada)

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

French: Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

3. CE Declaration of Conformity (European Union)

This product has been tested in accordance too, and complies with the Low Voltage Directive (2014/30/EU) and EMC Directive (2014/35/EU). The product has been marked with the CE Mark to illustrate its compliance.

4. VCCI Class A warning (Japan)

この装置は、情報処理装置等電波障害白主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

English translation of the notice above: This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) from Information Technology Equipment. If this equipment is used in a domestic environment, it may cause radio interference. When such trouble occurs, the user may be required to take corrective actions.

5. BSMI EMC notice (Taiwan)

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策

English translation of the notice above: This is a Class A Information Product, when used in residential environment, it may cause radio frequency interference, under such circumstances, the user may be requested to take appropriate counter measures.

6. Class A warning (Korea)

주의   A급 기기 이 기기는 업무용으로 전자파 적합 등록을 한 기기이
오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 만약
잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

English translation of the notice above: This is a Class A device and is registered for EMC requirements for industrial use. The seller or buyer should be aware of this. If this was sold or purchased by mistake, it should be replaced with a residential-use type.

7. Class A statement (China)

中华人民共和国 "A类" 警告声明

声 明
此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，
可能需要用户对其干扰采取切实可行的措施。

English translation of the notice above: When labeled with the CCC marking, the product meets the applicable safety and EMC requirements for China. This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

8. Class A warning – CISPR 22 (AS/NZS)

Warning (English) This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Attention (French) Il s'agit d'un produit de classe A. Dans un environnement local, ce produit peut entraîner des perturbations radioélectriques, auquel cas l'utilisateur devra éventuellement prendre des mesures adéquates.

Product regulatory compliance markings

Table B-1: Regulatory compliance markings

Country/ region	Testing standard/ specification	Certification type	Regulatory mark name	Product marks
USA/ Canada	EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011; CAN/CSA C22.2 No. 60950-1-07 +A1:2011/UL 60950-1:2011	Safety	NRTL (National Recognized Test Laboratory)	
USA/ Canada	FCC CFR 47 Part 15, Class A ICES-003: Issue 5, 2012; Class A	EMC	FCC Class A 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.
European Union	RoHS: EN 50581:2012; EN55022:2010/ CISPR 22:2008; EN55024:2010/ CISPR 24:2010; EN61000-3-2: 2006 +A1:2009 +A2:2009; EN61000-3-3: 2008; Class A	Safety and EMC	CE / Low Voltage Directive	
Germany	EN 60950-1; EN60825-1 (for laser)	Safety	GS	

Country/ region	Testing standard/ specification	Certification type	Regulatory mark name	Product marks
Mexico	NOM-019-SCFI-1998	Safety	NOM	
Taiwan	CNS 14336-1:2010 CNS 13438:2006; Class A	Safety and EMC	BSMI Certification (RPC) Number & Class A Warning	
Japan	VCCI V-3/2013.04; CISPR 22:2008, Class A	EMC	VCCI	
Australia and New Zealand	AS/NZS CISPR22:2009 +A1:2010; Class A	Safety	C-Tick	NXXXXX
Korea	KN22 Class A and KN 24	EMC	KC	
China	GB4943.1-2011 GB9254-2008 GB17625.1-2012	Safety and EMC	CCC	
India	IS 13252 (Part 1): 2010	Safety	BIS Compulsory Registration	"Self Declaration - Conforming to IS 13252 (Part 1):2010, R-XXXXXXXX"

Product environmental compliance

Harmonic manufactures high quality and innovative IT and telecommunications equipment, video delivery infrastructure solutions and services for its customers worldwide. Harmonic is committed to providing our

customers with safe and environmentally friendly products that are compliant with all relevant regulations, customer specifications, and environmental legislation, including the directives described below.

EU RoHS

In July 2006, the European Union's (EU) Directive (2002/95/EC) on the Restriction of the use of certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment (EEE) went into effect, and in July, 2011, the European Union's RoHS Recast Directive (2011/65/EU) also known as RoHS II entered into force.

Harmonic understands the environmental risks associated with the substances covered by the RoHS Directive and has committed to eliminating or reducing the use of these, as well as other environmentally sensitive substances in our products. Harmonic also continues to comply with the requirements under RoHS II.

For more information, please visit EU RoHS directive page at official EU website.

http://ec.europa.eu/environment/waste/rohs_eee/legis_en.htm

Restricted substance statement

Harmonic products contain less than the permitted limits for the six restricted substances except where exemptions published in the RoHS2 Directive are applicable. This statement is based on vendor-supplied analysis or material certifications, and/or lab test results of the component raw materials used in the manufacture of Harmonic products.

Table B-2: Restricted substances

Restricted substance	Permitted limit
Cadmium (Cd)	< 0.01% [1]
Lead (Pb)	< 0.1%
Chromium (VI) (Cr (VI))	< 0.1%
Mercury (Hg)	< 0.1%
Polybrominated biphenyls (PBBs)	< 0.1%
Polybrominated diphenyl ether (PBDE)	< 0.1%

EU REACH

REACH (Registration, Evaluation, Authorization and restriction of Chemicals) (EC 1907/2006) is a European Union's regulation on chemicals and their safe use which came into force in June, 2007.

Harmonic supports the basic aim of REACH in improving the protection of human health and environment through the better and earlier identification of intrinsic properties of chemical substances. Harmonic products are considered "articles" under REACH; therefore, we are required to provide recipients of our products with information on Substance of Very High Concern (SVHC) present in concentration above 0.1% (w/w).

Substances in our products are not intended to be released under normal or reasonably foreseeable conditions of use; therefore, the registration requirement in REACH Article 7(1) does not apply to our products.

....
[1] *Homogeneous material definition as per the EU Directive.*

For more information, please visit REACH regulation page at official EU website.

http://ec.europa.eu/environment/chemicals/reach/reach_en.htm

China RoHS

China's regulation on restriction of the use of certain hazardous substances commonly (China RoHS), is applicable to all Electronic and Information Products (EIPs) and parts sold in China after March 01, 2007. China RoHS regulation restricts the use of the same six substances as the European Union's ROHS, but has requirements for product labeling and regulated substance information disclosure.

Harmonic complies with China RoHS Phase I for labeling and information disclosure requirements and continues to monitor new developments in China RoHS Phase II towards substance restriction and certification program.

For more information, please visit China RoHS regulation page at official US export website.

http://www.export.gov/china/doingbizinchina/

China RoHS Disclosure report

Below table shows the presence of hazardous substances, or elements in Harmonic products, if the part is present.

该表显示哈雷公司产品中可能含有的有毒有害物质元配件的信息，除了来源于元配件供应商的物料成分资料，亦来自其它相关的机构与资料。哈雷产品不一定使用这些元配件。

This table shows those components where hazardous substances may be found in Harmonic products based on, among other things, material content information provided by third party suppliers. These components may or may not be part of the product.

除非特殊注明，哈雷公司产品的环保使用期限 均为 20 年。该环保使用期限的有效条件为：必须遵循该产品使用手 册的规定，对该产品进行使用或存储。

The Environmental Protective Use Period (EPUP) for Harmonic products is 20 years unless displayed otherwise on the product. The EPUP period is valid only when the products are operated or stored as per the conditions specified in the product manual.

部件名称 (Part name)	有毒有害物质或元素 (Hazardous substance)					
	铅 (PB)	汞 (Hg)	镉 (Cd)	六价铬 (CrVI)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷线路板 (Printed circuit assemblies)	X	O	O	O	O	O
机械组件 (Mechanical subassemblies)	X	O	O	O	O	O
光学组件 (Optical subassemblies)	X	O	O	O	O	O
电源 (Power supplies)	X	O	O	O	O	O

部件名称 (Part name)	有毒有害物质或元素 (Hazardous substance)					
	铅 (PB)	汞 (Hg)	镉 (Cd)	六价铬 (CrVI)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
缆线 / 线束 (Cables, harnesses)	X	O	O	O	O	O
屏幕 / 显示器 (Screens, monitors)	X	O	O	O	O	O
金属零件 (Metal parts)	X	O	O	O	O	O
塑料/ 发泡材料 (Plastics, foams)	O	O	O	O	O	O
电池 (Batteries)	O	O	O	O	O	O

O: 表示在该部件的所有均质材料中，此类有毒有害物质的含量均小于SJ/T11363-2006标准所规定的限量。

O: Indicates the content of the toxic and hazardous substances at the homogeneous material level of the parts is below the limit defined in SJ/T11363 2006 standard.

X: 表示至少在该部件的某一均质材料中，此类有毒有害物质的含量超出SJ/T11363-2006标准规定的限量。

X: Indicates that the content of the toxic and hazardous substances in at least one of the homogeneous materials of the parts is above the limit defined in SJ/T11363 2006 standard.

Other RoHS and REACH type regulations

Harmonic will comply with RoHS and REACH type regulations evolving in other countries, if they become relevant to our products or in markets where we sell our products.

Waste Electrical and Electronic Equipment (WEEE)

European Parliament and the Council of the European Union's WEEE Directive (2002/96/EC) came into force on August, 2005 and, were more recently amended in July, 2012. This directive encourages the reuse, recycling, and recovery of WEEE and to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, especially those dealing with WEEE. Harmonic ensures that all requirements for registration, reporting, design and data tracking are complied with to meet the objectives of the WEEE directive.

For more information, please visit WEEE directive page at official EU website: *http://ec.europa.eu/environment/waste/weee/legis_en.htm*

Battery directive

In September 2006, the European Union's Directive 2006/66/EC (Battery Directive) came into force with an aim to prohibit the sale of batteries and accumulators containing hazardous substances and to set rules and promote collection, treatment, recycling and disposal of waste batteries and accumulators. This directive applies to spent batteries collected together with WEEE and requires their removal and separate collection. Once removed from WEEE, spent batteries are governed by the Battery Directive. Harmonic

uses lithium batteries in its products and our responsibility under the Battery Directive is taken care of under our WEEE Take-Back program.

For more information, please visit Batteries and Accumulators directive page at official EU website.

http://ec.europa.eu/environment/waste/batteries/

Harmonic is committed to manufacturing environmentally safe products for the community, and will make reasonable efforts and required adjustments to its practices, if necessary, to comply with various environmental directives and industry initiatives on the elimination of hazardous substances, labeling, marking, certification and registration as required in markets where we sell our products.

Download Harmonic Environmental Compliance Statement at the following location:

http://www.harmonicinc.com/content/green-policy

WEEE Take-Back Request Program

In order to assist EU member states to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally, Harmonic strives to recycle in compliance with the WEEE Directive any of its products that cannot be re-used.

Harmonic's customers should:

- Not discard equipment in household or office garbage
- Arrange proper recycling of unneeded equipment. For the take-back of Harmonic equipment, customers must:
  - Collect the information required to complete Harmonic's WEEE Take-Back Request form
  - Complete and submit the online WEEE Take-Back Request form. Please note that forms must be fully completed in order to prevent process delays
  - Receive instant online confirmation indicating the reference number
  - Receive the End of Life (EOL) asset return authorization number and instruction for EOL asset return
- Not ship EOL product to Harmonic without a Harmonic-provided EOL asset return authorization number

The crossed-out wheeled bin symbol on a Harmonic-branded commercial product indicates that the product should not be disposed of along with municipal waste, but invites our customers to return the product to us under Harmonic's WEEE Take-Back program for product disposal.

Harmonic will pay for the cost of shipping and will provide a Certificate of Recycling or a Certificate of Destruction upon request. For more information on collection, reuse and recycling or to initiate the WEEE take-back process, please complete the form at *http://www.harmonicinc.com/webform/weee-takeback-request* or contact *Harmonic Technical Assistance Center (TAC)* or email RMA team at *rma.emea@harmonicinc.com*.

Compliance with additional country specific environmental, safety and EMC standards:

In addition to above listed standards and compliance regulations, Harmonic products may also be compliant with other country specific environmental, safety and EMC requirements. Please contact Harmonic Compliance Team at *regulatory.compliance@harmonicinc.com* or your local sales representative for more information about compliance with particular country or standard.