Ayre DX-5^{DSD}

Owner's Manual

Universal A/V Engine

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Ayre

Your Ayre DX-5^{DSD} offers a significant advance in both video and audio performance from all digital formats. The excitement and dimensionality of your favorite films are apparent from the first viewing. Music is reproduced with the warmth and immediacy of a live performance. The combination of superb resolution and a natural, relaxed quality will draw you back to your home theater and music system, time and time again.

This degree of performance has been implemented using the highest level of workmanship and materials. You can be assured that the Ayre DX-5^{DSD} will provide you a lifetime of enjoyment.

To our North American customers, please be sure to mail your warranty registration card and photocopy of your original sales receipt within 30 days in order to extend the warranty to five years.

Introduction

The Ayre DX-5^{DSD} is a unique universal audio/video engine that serves as the central source component for all of your digital media. It plays all currently available video optical disc formats (including Blu-ray and DVD-Video), providing reference-level picture quality for your home theater. The DX-5^{DSD} also plays all currently available audio optical disc formats (including CD, SACD, and DVD-Audio) with unsurpassed audio quality.

To provide the highest level of performance, the video and audio sections are totally separate. A bank of opto-isolators provides electrical isolation between the two sections of the player.

In addition, the DX-5^{DSD} also connects to your personal computer (using either Windows, Mac OS X, or Linux) via the ubiquitous USB port to create a true high-performance music server. As digital downloads continue to grow in popularity, this feature will become more valuable as time goes on.

The DX-5^{DSD} generates a fixed-frequency master audio clock and requests the data from the computer

at the correct time for jitter-free playback of your music. The DX-5^{DSD} also utilizes opto-isolators to provide total electrical isolation for the connections between your computer and music system. This minimizes the introduction of unwanted radio-frequency interference (RFI), generated by all computers.

Avoiding the use of wireless networks (e.g., Wi-Fi), by employing wired connections instead, will reduce RFI levels in your home and results in improved sound quality for any music system.

The Ayre DX-5^{DSD} A/V Engine serves as the central source component for most systems. It plays back virtually all digital formats, both video and audio, and it also provides a connection to provide the full advantages of computer-based audio playback. Thanks to its advanced technological features the DX-5^{DSD} will extract the full measure of performance from all digital video and audio formats, maximizing your enjoyment both now and into the future.

Quick Start

The Ayre DX-5^{DSD} is extremely flexible and versatile. However, many of the features are primarily of interest to the advanced user.

The information required to get started is contained in the following three chapters of this manual.

The remaining chapters cover additional information that may be read at your leisure.

Installation

The Ayre DX-5^{DSD} is a universal audio/video engine.
It may be connected to any video display with an
HDMI input, any audio system either with HDMI
or analog inputs, and any personal computer with a
USB output. It is easy to hook up and use. The
following guidelines will ensure that the installation
goes smoothly.

Location

*The infrared beam of the
remote control will also travel
through glass.*

A good location for your DX-5^{DSD} is at an easily
accessible height in an open-backed cabinet or on a
shelf. The receiver for the infrared remote control is
mounted behind the small lens to the left of the
display. A direct line of sight from the listening
position will ensure the maximum range.

Video Outputs

Your Ayre DX-5^{DSD} is equipped with an HDMI A/V
Output that supplies both high-resolution video
and multi-channel audio on the same cable.

Analog Audio Outputs
Left
Right
Digital Audio Output
DX-5 Universal A/V Engine
S.N.
Composite
Video Output
USB Audio Input
HDMI Audio Output
Ethernet
LAN
USB Host
HDMI A/V
Output
Volts
50/60 Hertz
60 W Max
Boulder, Colorado USA
AyreLink AyreLink
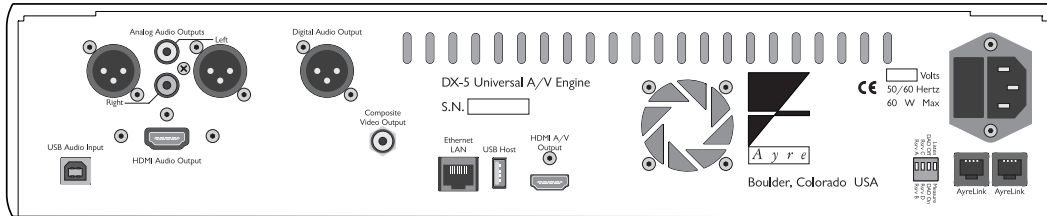
> While the HDMI A/V Output also includes the audio, the best performance for both video and audio is achieved by using separate connections for both the video and audio signals.

Video switchers and/or scalers may compromise the signal integrity unless executed at the absolute highest standards.

It is recommended to connect the HDMI A/V Output directly to your display device and connect one (or both) of the dedicated audio outputs to your audio system (multi-channel HDMI Audio Output or two-channel Analog Audio Output).

> There is also an analog Composite Video Output for troubleshooting purposes. It is not recommended to use the Composite Video Output as the normal connection, because it only provides a standard definition video signal.

Audio Outputs

The DX-5^{DSD} has multiple audio outputs to allow connection with a wide variety of music systems. However, one of two main outputs should be used whenever possible:

- Analog Audio Output – for two-channel playback.

- HDMI Audio Output – for multi-channel playback.

Isolation of Audio and Video

The audio section of the DX-5^{DSD} is completely
isolated from the video section via opto-isolators
that provide total galvanic isolation. This is unusual
and will require some extra effort to maintain this
isolation when also using other video sources.

For the best performance, all other video sources
should link to the audio system with an electrically
isolated connection to maintain isolation between
the video and audio systems. One simple and
effective method is to use the optical digital
output of other video sources. Coaxial digital
outputs can provide isolation if a transformer is in
the signal path. If you are unsure if your
equipment has built-in digital audio transformers,
external transformers are available. To isolate an
analog audio connection, the best solution is to
use high-quality transformers. Jensen
Transformers offers both digital and analog
isolation transformers.

Two-Channel Systems

For over 50 years, the vast majority of music has
been recorded in two-channel stereo, thus the
DX-5^{DSD} includes two ultra-high quality audio
digital-to-analog converters. The stereo Analog
Audio Outputs will play all sources at their absolute
highest quality, including all two-channel optical
discs as well as the USB input for computer audio.

In addition, the stereo Analog Audio Outputs will
play a two-channel mixdown of multi-channel
sources, including both movie soundtracks and
musical discs. This allows the Analog Audio

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Outputs to provide a rich and fulfilling sonic experience for movies as well as music. If you have a two-channel audio system, simply connect the Analog Audio Outputs to your preamplifier and you can enjoy all of your sources, both music and movies.

> Multi-channel SACDs may not be downmixed. However, they nearly always contain a separate two-channel playback area.

The Ayre DX-5^{DSD} offers both balanced and single-ended outputs. Balanced connections are made via three-pin XLR connectors, while single-ended connections are made via RCA connectors.

> When you have a choice, a balanced connection will offer slightly higher sound quality than a single-ended connection.

Multi-Channel Systems

The HDMI Audio Output must also supply a video signal for proper operation. It simply sends a gray screen at 720p for full compatibility.

Multi-channel audio is provided at full resolution via the HDMI connection. Please note that there are two HDMI connectors on the DX-5^{DSD}. One is labeled "HDMI Audio Output" and provides higher quality audio than the HDMI A/V Output that also supplies the video signal.

> The HDMI Audio Output transmits LPCM (or optionally, DSD in the case of SACDs). All compressed formats from Dolby and DTS are decompressed by the player before transmission.

Simply connect the HDMI Audio Output to your surround-sound processor to enjoy multi-channel

movie soundtracks and music sources. The Analog Audio Outputs may also be connected to your system at the same time as the HDMI Audio Output, either directly to the surround-sound processor or through a stereo preamplifier with a pass-through function.

Note that both the Analog Audio Outputs and the Digital Audio Output are disabled and the status LED glows orange when the HDMI Audio Output is connected to a selected (active) HDMI input on your surround-sound processor (SSP). The disabled outputs will be re-activated when the SSP input connected to the HDMI Audio Output is de-selected (de-activated).

The -DX-5^{DSD} also supports "Audio Rate Control" (ARC), which allows the master audio clock in your surround-sound processor to be the main clock in your audio system for the lowest jitter possible in a multi-channel system. (The Analog Audio Outputs provide the lowest possible jitter in a two-channel system.) The DX-5^{DSD} will lock onto this clock and adjust the rate of its playback to ensure perfect synchronization, and the status LED glows violet.

AES/EBU Digital Audio Output

The Ayre DX-5^{DSD} also features a balanced AES/EBU (S/PDIF) digital audio output. This connection is limited to lower-quality compressed formats such as Dolby Digital and DTS. However, it can provide multi-channel audio to older equipment that lacks an HDMI input for audio. The HDMI Audio Output should be used whenever possible for multi-channel audio.

USB Input

The USB input allows the DX-5$^{\text{DSD}}$ to be connected to a personal computer for use as a state-of-the-art music server. The input uses the squarish USB "B" type connector designed for computer peripheral devices. The rectangular "A" type connector at the other end of the cable is designed to plug directly into the computer itself.

Music input at the USB Audio Input will not be output by either HDMI connector. Only the Analog Audio Outputs will deliver music sent to the USB Audio Input.

The USB 2.0 standard specifies a maximum cable length of 16 feet (5 meters). It is not recommended to use extenders or hubs with the DX-5$^{\text{DSD}}$. Fiber optic USB cables can be longer, but are relatively expensive.

AyreLink Ports

The AyreLink communication system provides a convenient way to control your audio system. There are two AyreLink ports on the rear panel of the DX-5$^{\text{DSD}}$. Each port has four contacts and contains both an input and an output. Both ports function identically and may be used interchangeably.

AyreLink connections are made with commonly available two-line telephone line cords using modular (RJ-11) connectors. (These are the cords that connect the telephone set to the wall in many

countries.) They are readily available in different lengths and various colors at most electronics stores.

⚠ **Be sure to use two-line telephone cords to make AyreLink connections. These can be identified by the four gold contacts on each connector. Single-line cords with only two gold contacts will not function in this application.**

The linked components may be joined in any convenient order.

The linked components should be connected in daisy-chain fashion, connecting each component to another until all of the linked components have been connected.

⚠ **When connecting the linked components to form a chain, be careful not to connect the two ends of the chain. Closing the chain to form a loop will cause the AyreLink system not to function.**

Ethernet LAN Connection

On the rear panel of the DX-5^{DSD} is an RJ-45 jack for an optional connection to the internet. This connection will allow for two functions:

• BD Live – Some newer Blu-ray titles include a feature called "BD Live". This allows an internet-connected player to access additional content such as commentaries and games.

- Firmware update – Periodically Ayre may offer updates to the firmware of the DX-5^{DSD} that will offer additional features. While there are several methods for updating the firmware, perhaps the easiest is to use an internet connection.

AC Power

The DX-5^{DSD} may be plugged directly into an unswitched wall outlet. Although proprietary RFI (radio-frequency interference) filtering is built into the universal A/V engine, in some situations an AC power-line filter (such as those offered by Ayre) may provide additional sonic benefits.

As virtually all computers use switch-mode power supplies that introduce unwanted RFI on the AC power line, it may be beneficial to use an AC power line filter for the computer and its accessories (e.g., display monitor), many of which also utilize switch-mode power supplies.

Break-In

Playing the unit for 100 to 500 hours will ensure full break-in.

Due to the manufacturing processes used for the printed circuit boards, wires, and capacitors, a break-in period is necessary for the player to reach its full performance potential.

Setup and

Configuration

Once you have connected the Ayre DX-5^{DSD} to your home theater system, you will need to configure it to ensure compatibility with your display. There is an extensive set of options as detailed in the chapter "On-Screen Setup Menu". To simplify the setup process, nearly all of the options have been pre-selected at the factory. However, a few settings may need to be changed to match your system.

Video Setup

SETUP
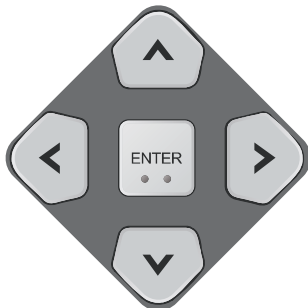
With the DX-5^{DSD} connected to your video display and powered on, press the "Setup" button on the remote control handset (just above the "Red" button). This will access the On-Screen Setup Menu. Use the "Up/Down" arrow buttons to navigate to the Video Setup menu item. Press the "Enter" button to select the menu items and then once again use the "Up/Down" arrow buttons to select the desired option.

ENTER

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Setup Menu

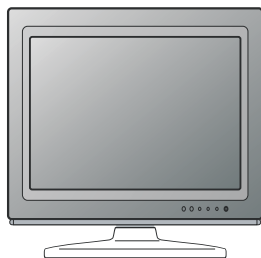|	
Playback Setup	**Picture Adjustment**
Video Setup	Primary Output · HDMI
Audio Format Setup	TV Aspect Ratio · 16:9 Wide / Auto
Audio Processing	TV System · Multi-system
Device Setup	Output Resolution · 1080p
Network Setup	1080p24 Output · On
Exit	DVD 24p Conversion · Off

Adjust picture control parameters

SETUP   Exit
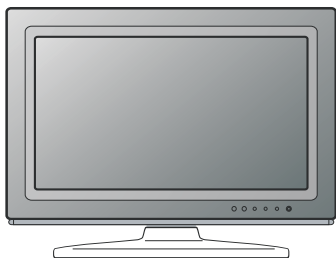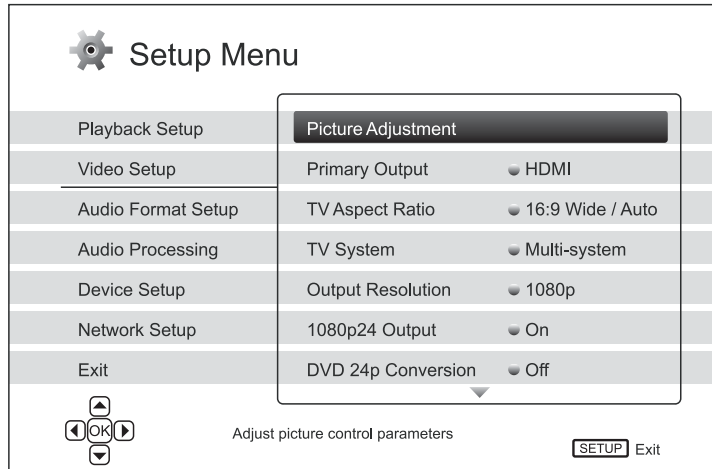
16:9 Display

4:3 Display

TV Aspect Ratio

The Ayre DX-5^{DSD} comes from the factory pre-configured for proper operation with a "widescreen" (16:9). This will work for the vast majority of systems. However if you have an older "standard" (4:3) display, you will need to change the menu item **TV Aspect Ratio**.

Use the "Up/Down" arrow buttons to select the proper menu item and then press "Enter". Use the "Up/Down" arrow buttons to select **4:3 Letterbox** and then press "Enter". If you have inadvertently changed the setting, the correct selection for a "widescreen" display is **16:9 Wide/Auto**.

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TV System

Around the world, there are two main video standards in use, NTSC (North America and Japan) and PAL (Europe, Asia, South America, and Africa). The Ayre DX-5^{DSD} can work perfectly well with either system. From the factory the unit is set up to play both types of discs (NTSC and PAL) in their native format.

If your display accommodates both standards, you need not change this setting. Similarly, if you only play discs purchased from the same area as your display, this setting will work well.

However, if you have purchased discs from other parts of the world and your display only supports one video standard, then you will need to change the TV System setting to match your display.

Scroll down to the menu item TV System and press "Enter". Select the video standard (PAL/NTSC) to match your display. The options are:

- Multi-system (default) – No system conversion is performed. The output video system is the same as that encoded on the disc. Requires a display that supports both NTSC and PAL systems.

- NTSC – When playing NTSC-encoded discs, no system conversion is performed. PAL-encoded content is converted to NTSC output.

- PAL – When playing PAL-encoded discs, no system conversion is performed. NTSC encoded content is converted to PAL output.

Output Resolution

Not only does the Ayre DX-5^{DSD} Digital A/V Engine play high-definition Blu-ray discs, but it also has a world-class scaling engine that up-converts standard definition video stored on DVD discs. The sophisticated video processor ensures that the video will have the best possible color, detail, and motion.

The player offers several video output resolutions. To achieve the best visual result, it is important to select the output resolution that best matches your display device. The rule of thumb when selecting an output resolution is to match the "native resolution" of your display.

The default setting from the factory is Auto. This selection allows the display to communicate with the player in order to establish the best resolution. If there is difficulty with this setting, or if you wish to select the resolution manually, use the "Up/Down" arrow buttons to select Output Resolution and then press "Enter".

For the latest generation of 1080p, "Full HD" or "True HD" displays, the best output resolution will be 1080p. (A few early model 1080p displays do not accept 1080p signal. For these displays the best output resolution to use is 1080i.) For all other digital televisions this will likely be 720p. For CRT tube or rear projection televisions this will likely be 1080i. These are general recommendations that work for most users, but there can be exceptions. Consult the owner's manual for your display.

The DX-5^{DSD} also supports a special "Source Direct" output resolution. This resolution is only recommended for use with high-performance external video processors. In "Source Direct" mode, the player works as a "transport". It decodes video from the discs and then sends the raw video signal in its native resolution and format, without extra processing, to the external video processor.

Beyond the Initial Setup

If your system requires a special setup configuration, additional advanced details are given in various chapters, including "On-Screen Setup Menu" and "Optimization and Customization". The DX-5^{DSD} offers many specific features that may increase the ease of operation in your audio/video system.

Configuring the Computer

You will also need to set up your personal computer to act as a music server, using the USB Audio Input on the DX-5^{DSD}. There are a variety of software music players that are well suited for the job.

No matter what operating system (OS) your computer uses — Apple, Windows, or Linux — you'll need to set up your computer to perform several different tasks:

- Transferring music to your computer's hard drive, either by converting the files from your CD collection, commonly called "ripping", or

by purchasing files that are downloaded via the internet.

- Labeling the files you have transferred with the names of the song, artist, album, et cetera, commonly called "tagging". (Downloaded files will normally already have the "tags" included.)

- Using a music player program to organize your music collection and play it back.

- Optionally record music selections back onto CDs for playback in your car or other places, commonly called "burning".

- Optionally transfer part of your music collection to a portable music player.

A few programs can perform all of these functions, for example iTunes (Apple and Windows), J.River Media Center (Windows), and Windows Media Player (Windows). Some users will prefer to use a combination of other specialized programs to perform these functions.

An introductory guide to setting up your computer is available at the Ayre website at:

www.ayre.com/usb.htm

Please note that the DX-5^{DSD} can play DSD-encoded files that have been downloaded to your computer via the "DSD over PCM" format (DoP). However this requires that your music player software application also supports DoP. Again, more information is available at the Ayre website noted above.

Operation

The Ayre DX-5^{DSD} may be controlled using either the front panel buttons or the remote control handset. Basic functions are available at both locations. Additional functions are available only at the remote control handset.

This chapter is divided into three sections:

- Basic Functions

- USB Computer Audio

- Media File Playback

There are also many other sophisticated functions available for the advanced user. These are described in a separate chapter, "Advanced Features" (page 39).

Power: Toggle power — POWER

Source: Select media source — SOURCE
Open: Open/close disc tray — OPEN

On/Off: Discrete power — ON / OFF
P/N: PAL or NTSC video — P/N
Dimmer: Dim display — DIMMER

Pure Audio: Toggle video — PURE AUDIO
Volume +/-: Adjust volume — VOL − +
Mute: Mute audio — MUTE

Home: Home for source selection — HOME

Numbers: Enter numeric values — 1 2 3 4 5 6 7 8 9

Page Up/Down: Scroll menu pages — PAGE

Clear: Clear input — CLEAR

Go To: Play from a specific location — GOTO
Display: Show on-screen menu — DISPLAY

Top Menu: BD or DVD menu — TOP MENU

Pop-Up Menu: BD or DVD menu — POP-UP MENU

Arrows/Enter: Navigate menu — ENTER

Setup: Player setup menu — SETUP

Return: Return to previous menu — RETURN

Color Buttons: Function varies — RED GREEN BLUE YELLOW

Play: Start playback
Stop: Stop playback
Rev: Fast reverse
Prev: Skip to previous — PREV
Pause: Pause playback
Fwd: Fast forward — FWD
Next: Skip to next — NEXT

Subtitle: Subtitle language — SUBTITLE
Audio: Select audio channel — AUDIO
Angle: Change camera angle — ANGLE
Zoom: Picture size/aspect ratio — ZOOM

SAP: Secondary Audio Program — SAP
A-B Replay: Repeat play — AB REPLAY
Repeat: Repeat play — REPEAT
PIP: Show picture-in-picture — PIP

Resolution: Video resolution — RESOLUTION
Light: Remote handset backlight — LIGHT

A y r e

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Indicates the current disc type

Displayed time applies to chapter/track

Displayed time is remaining time

Scene contains multiple angles

Displayed time applies to title/group

Displayed time is total time

Playback status

Ethernet connected

HDMI active

Reserved

BD DVD-A TT/GRP CH/TRK TOTAL RMN ▷ ⅠⅠ ↺ ALL ⤳ A⌒B 🎬 HƊMⅠ ⊹ 📶
HD CD SACD   ᴰᴰ+TrueHD
S VCD 2CH   dts-HDMA
MUTE M.CH   PCM MPEG

Audio muted

Audio channel indicator

Main display

Audio type indicator

Status LED   BD⟩ DVD⟩ DVD-A⟩ SACD⟩ CD⟩

There is a status LED on the front panel to the lower-left of the control ring. It changes color to indicate various states of the DX-5^{DSD} as follows:

- Blue = Display Off (see page 54)

- Green = Pure Audio (see page 46)

- Red = LFE Mixdown (see page 47)

- Orange = HDMI Audio Active (see page 9)

- Violet = HDMI Audio with ARC (see page 9)

Basic Functions   BD   DVD   DVD-A   SACD   CD

While the remote control handset has a multitude of functions, only a few of them are commonly used. These basic functions apply to all optical discs, including Blu-ray discs (BDs), DVDs, DVD-Audios, SACDs, and CDs. Details on the remaining functions may be found in a separate chapter, "Advanced Features" (page 39).

POWER

Standby/Operate

The "Standby/Operate" button toggles the unit between normal operation and standby mode. When in standby mode, the LED in the front-panel "Standby" button is green and all critical circuitry remains powered. This ensures optimal performance with a minimum of warm-up time.

Please note that the **"Power"** button on the remote control corresponds to the "Standby/Operate**"** function on the DX-5^{DSD}.

OPEN

Open/Close

The "Open/Close" button opens and closes the disc tray. An open tray may also be closed by pressing gently on the front edge of the tray. When the tray is closed, most video discs will automatically begin playing. The behavior of CDs and SACDs when closing the tray is determined by the On-Screen Setup Menu (page 61).

Play

Pressing the "Play" button initiates playback of the disc. If the drawer is open, pressing "Play" will also close the drawer.

Pause

Pressing the "Pause" button will pause the disc playback. Playback may be resumed either by pressing the "Pause" button again or the "Play" button.

Stop

Pressing the "Stop" button will stop disc playback. However the position is memorized and the video display shows "Press PLAY to continue." Press "Play" to start from the memorized position, or press "Stop" a second time to clear the memorized position.

For more information on the **"Memory Resume"** feature, please refer to page 50.

Previous

Pressing the "Previous" button will back up to the start of the current chapter or track. Additional presses will move to previous chapters or tracks.

Next

Pressing the "Next" button will move to the start of the next chapter or track. Additional presses will move to subsequent chapters or tracks.

REV
◀◀

Reverse Scan

The "Reverse Scan" mode scans backward through the disc. Each button press increases the scan speed until it returns to the normal playing speed as shown at the diagram. Pressing "Play" will also restore normal playback speed.
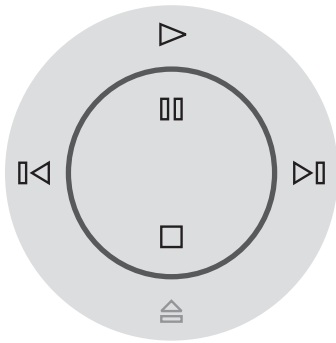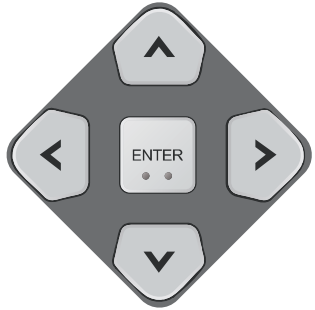
▶ ◀◀1 ◀◀2
◀◀5 ◀◀4 ◀◀3

FWD
▶▶

Forward Scan

The "Forward Scan" mode scans forward through the disc. Each button press increases the scan speed until it returns to the normal playing speed as shown at the diagram. Pressing "Play" will also restore normal playback speed.

▶ ▶▶1 ▶▶2
▶▶5 ▶▶4 ▶▶3

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Cursor Buttons

Nearly all video discs feature on-screen menus to access the various features found on the disc. These menus use a highlighted cursor that is controlled by using the "Cursor" buttons on the remote control handset. When the desired selection is highlighted, press the "Enter" button.

The cursor buttons are also used to navigate the "On-Screen Setup Menu". For additional information, please refer to page 58.

Please note that the front panel control rings may also be used to navigate on-screen menus. The "Previous" and "Next" buttons correspond to "Left" and "Right". The "Pause" button corresponds to "Up", while the "Stop" button corresponds to "Down". Finally, the "Play" button corresponds to the "Enter" function.

Menu Buttons

The on-screen menus found on nearly all video discs will normally automatically display upon loading the disc.

Blu-ray discs usually contain a Top Menu and a Pop-Up Menu. The Top Menu normally appears at the beginning of the playback, after the previews and copyright messages. The Pop-Up Menu can be accessed during the movie without interrupting playback. Some menus make use of the "Color" buttons. You can select menu functions by pressing the corresponding "Color" button on the remote control.

Most DVD discs use a chapter menu for navigation. Press the "Pop-Up Menu" button to display the chapter menu. Some DVD discs may contain a title menu, usually in addition to the chapter menu. During playback, press the "Top Menu" button to return to the disc title menu.

Number Buttons BD   DVD   DVD-A   SACD   CD
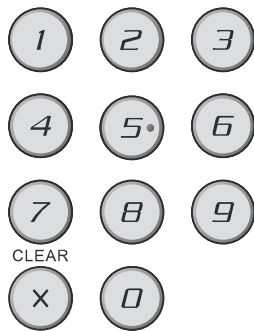
During the playback of a disc, you can use the "Number" buttons on the remote control to directly jump to a specified chapter or track number.

> To enter a number greater than **"9"**, simply press the desired number buttons in order. For example, to enter **"23"**, first press **"2"**, then **"3"**.

Audio BD   DVD   DVD-A   SACD

Most video discs and some audio discs have multiple soundtracks. These usually offer choices of different languages, although some discs will have a choice of different encoding schemes (e.g., Dolby Digital or PCM). You can select a preferred language that will automatically play using the On-Screen Setup Menus (page 56), or you can scroll through the available soundtrack choices using the "Audio" button on the remote control.

Subtitle BD   DVD   DVD-A

Many video discs offer a choice of subtitles. You can select a preferred language that will automatically display using the On-Screen Setup Menus (page 56),

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or you can scroll through the available subtitle choices, or turn the subtitles off completely, using the "Subtitle" button on the remote control.

Pressing the "Subtitle" button once displays the current setting. Additional presses will scroll through the available choices.

REPEAT

Repeat   BD   DVD   DVD-A   SACD   CD

To repeat a certain chapter, title, track or disc, press the "Repeat" button on the remote control. Each press of the "Repeat" button switches the repeat mode in the following sequence:

• DVD and DVD-Audio

➡ Repeat Chapter ➡ Repeat Title ➡ Repeat All ➡ Repeat Off

• Blu-ray

➡ Repeat Chapter ➡ Repeat Title ➡ Repeat Off

• CD and SACD

➡ Repeat One ➡ Repeat All ➡ Repeat Off

Selecting a Repeat mode cancels any Shuffle or Random mode you may be using.

BLUE

Shuffle and Random   SACD   CD

When playing a CD or SACD, press the "Blue" button on the remote control to activate the Shuffle and Random modes. Each press of the "Blue" button switches the playback mode in the following sequence:

Shuffle ➡ Random ➡ Normal

In normal playback mode, each track is played back in sequential order. The Random playback mode randomly selects a track to play. The Shuffle mode also plays back the tracks in random order, but it ensures that each track is played only once.

> Selecting the Shuffle or Random mode cancels any Repeat mode you may be using.

YELLOW

DVD Quick-Start   DVD

When watching a DVD, the "Yellow" button allows you to skip any previews or other material before the beginning of the film. Simply load the disc in the open tray and press the "Yellow" button to begin play.

LIGHT

Light   BD DVD DVD-A SACD CD

When any button is pressed on the remote control, the backlight will illuminate the buttons with a soft amber glow for a few seconds. Conveniently placed in the lower right corner, the "Light" button allows you to turn the backlight on without activating any functions on the DX-5^{DSD}.

> If the front-panel display is off, pressing the "Light" button will momentarily turn the display on.

Bass on Multi-Channel Discs   BD DVD DVD-A

If you are playing a multi-channel disc using the HDMI Audio Output and the sound quality has

poor bass response, be sure that the "Speaker Configuration" settings are correct as explained on page 86.

If a multi-channel disc played through the two-channel Analog Audio Outputs has poor bass response, first check the "Speaker Configuration" settings and then try the "LFE Downmix " mode as explained on page 47. This will correct for improperly authored multi-channel discs.

USB Computer Audio

The DX-5^{DSD} can be connected to any modern personal computer to create a powerful, flexible state-of-the-art music server. Connect and configure your computer as explained in the previous chapters.

When the DX-5^{DSD} receives an active signal at the USB Audio Input, all of the disc playing functions will shut down, including both HDMI outputs. The audio will be routed to the analog audio outputs.

Simply play your favorite songs on your computer using your favorite software music player. The audio will be routed through the DX-5^{DSD} to your stereo system.

When receiving a USB signal, the front panel display will read **"USB"** along with the sample rate in kHz.

When the DX-5^{DSD} Universal A/V Engine stops receiving a valid USB audio signal, it will simply switch "Off" completely.

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Media File Playback

In addition to playing standard disc-based formats such as Blu-ray disc, DVD, CD, and SACD, the Ayre DX-5^{DSD} Universal A/V Engine can play media files. You can enjoy digital music, movies and photos stored on an optical disc (recordable CD or DVD) or a USB drive. Due to the variation of media, encoding software and techniques used, compatibility cannot be guaranteed for all user-created or downloaded contents. Support for such content is on a best-effort basis.

Playback from a USB Drive

The Ayre DX-5^{DSD} is equipped with two USB host ports, one on the front panel and the other on the back. You may use either to plug in a USB drive stored with digital music, movie and photo files.

> **The USB host ports are rated to provide a maximum of 5V, 500mA power to the USB drive. This is sufficient for all USB thumb drives and flash memory card readers, but may not be sufficient for USB hard disks. It is recommended that you use a USB hard disk with an external power supply to avoid damage to the USB host ports.**

This unit supports "USB Mass Storage Class Bulk-Only Transport" devices only. Most USB thumbs drives, portable hard disk drives and card readers conform to this device class. Other USB

devices such as MP3 players, digital cameras, and mobile phones may not be compatible.

Supported USB drives must be formatted with the FAT (File Allocation Table) or FAT32 file system. Drives formatted with the NTFS or HFS Plus file systems are not supported.

In some cases, an incompatible USB device may cause the player to stop responding. If this occurs simply turn off the power, remove the USB device, and turn the player back on.

The player accesses the USB drive in read-only mode. In order to minimize the risk of data corruption, it is recommended that you only unplug the USB device when playback is completely stopped.

The Home Menu

When a USB drive or an optical disc with media files is inserted, the player presents a "Home Menu" to assist you in navigating and playing the files. You can also bring up the "Home Menu" with the "Home" button on the remote control. The "Home Menu" is the starting point for accessing media files.

There are four selections in the "Home Menu". Depending on what type of media files that you intend to play, you can choose among the "Music," "Movie", and "Photo" categories. The "Setup Menu" selection will bring you to the player's Setup Menu just like pressing the "Setup" button on the remote control.

Playing Music Files

To play digital music files stored on an optical disc or USB drive, select "Music" from the "Home Menu". A file browser will appear to assist you in navigating the files and folders. The first step is to select the "Data Disc" or USB device that contains the music files. The player will read the disc and list the folders and music files. In the music browser, you can perform the following operations:

- Press the "Up/Down" arrow or "Page Up/Down" buttons to move the cursor.

- When a music file is highlighted by the cursor, press the "Enter" or "Play" button to start playback.

- Press the "Green" button to add the currently highlighted music file to the Playlist. A green check mark will appear in front of the file name, and the Playlist count in the lower left corner of the screen will increase by one.

- Press the "Left" arrow button to move the cursor to the Selection Menu in the lower left corner of the screen. This menu contains the following choices:

  - All Music – List all music files in a flat view without any directory structure.

  - Playlist – List only music files added to the Playlist.

  - Browser – List folders and music files according to the directory structure on the disc or USB drive.

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- Now Playing – Show the status of the currently playing music file.

- Press the "Right" arrow button to move the cursor back to the file listing.

- If a music file starts playing and there is no other user operation, the "Now Playing" screen will appear after a few seconds. You can also get to this screen using the "Now Playing" menu. This screen can show the following information:

  - Playback status: "Play", "Stop", "Pause".

  - Playback mode: "Shuffle", "Random", "Repeat One", "Repeat All".

  - Playback progress: "Track" and "Time".

  - Other embedded information: If the music file contains supported album art image and tags, those will be displayed.

- The following operations are available while the "Now Playing" screen is shown:

  - Normal playback control: "Play", "Stop", "Pause", "Prev/Next", "Rev", and "Fwd" buttons.

  - Special playback modes: "Repeat" button and "Shuffle/Random" button ("Blue" button)

  - Return to the Browser without stopping the music: "Return" button.

  - Stop playback and return to the Browser: Press the "Stop" button twice.

Playing Movie Files

To play movie files stored on an optical disc or USB drive, select "Movie" from the "Home Menu". A file browser will appear to assist you in navigating the files and folders.

The first step is to select the "Data Disc" or USB device that contains the movie files. The player will take a moment to read the disc and list the folders and movie files. In the movie browser, you can perform the following operations:

- Press the "Up/Down" arrow or "Page Up/Down" buttons to move the cursor and select movie files.

- When a movie file is highlighted by the cursor, press the "Enter" or "Play" button to start playback.

Once a movie file starts playing, the normal playback control functions are available. To stop the movie and return to the file browser, press the "Stop" button twice. You can also press the "Home" button at any time to get back to the "Home Menu".

Viewing Photo Files

To view digital photo files stored on an optical disc or USB drive, select "Photo" from the "Home Menu". A file browser will appear to assist you in navigating the files and folders.

The first step is to select the "Data Disc" or USB device that contains the photo files. The player will take a moment to read the disc and list the folders and photo files. In the photo browser, you can perform the following operations:

- Press the "Up/Down" arrow or "Page Up/Down" buttons to move the cursor and select photo files.

- When a photo file is highlighted by the cursor, press the "Enter" or "Play" button to start playback in a full screen slideshow fashion.

If you choose to start a photo slideshow (automatic viewing of all photos in a folder), the following operations are available:

- Show the help screen: "Display" button.

- Normal playback control: "Play", "Stop", "Pause", "Prev/Next" buttons.

- Adjust slideshow speed: "Rev" and "Fwd" buttons.

- Zoom: "Zoom" button. Once in "Zoom" mode the arrow buttons can be used to pan the photo.

- Reflect (flip the photo along its horizontal axis to make it upside-down): "Up" arrow.

- Mirror (flip the photo along its vertical axis to make it a mirror image): "Down" arrow.

- Rotate left (counterclockwise): "Left" arrow.

- Rotate right (clockwise): "Right" arrow.

- Repeat: "Repeat" button.

- Show photos in "Digest" mode: "Red" button. The "Digest" mode shows nine photo thumbnails in a screen to make visual navigation easy.

- Show EXIF information: "Green" button.

- Play in random sequence: "Blue" button.

- Change slideshow transition effect: "Yellow" button.

Adding Background Music

You can add background music to the photo slideshow. To do so, you will need to prepare some digital music files. The music files can be stored on the same disk as the photos, or on a different USB drive. Start music playback first by selecting "Music" from the home menu. Once the music is playing, press the "Home" button to get back to the home menu, and start the photo slideshow by selecting "Photo" in the usual manner.

Customization

The Ayre DX-5^{DSD} offers many advanced features. It is configured at the factory to provide the best performance for a typical installation. In certain situations you may wish to change the default configuration for optimal performance in your system, using small toggle switches on the rear of the unit.

The default configuration settings (all switches in the "up" position) will work best for the vast majority of users.

Digital Audio Output

An adapter is available from Ayre should you need to connect the digital output to a device with an S/PDIF input that uses an RCA connector.

The Ayre DX-5^{DSD} features a balanced AES/EBU Digital Audio Output on the rear of the unit. This may be used when connecting to an older surround-sound processor that lacks an HDMI input.

The Digital Audio Output is only active with PCM or compressed PCM (Dolby Digital or DTS) based discs. It is inactive when playing SACDs.

Listen
DAO Off
Rsrv C
Rsrv A

Measure
DAO On
Rsrv D
Rsrv B

A switch on the rear panel allows the Digital Audio Output to be turned off if its use is not required.

Turning the Digital Audio Output "off" when not using it will result in slightly higher sound quality through the analog outputs.

Digital Filter

Listen
DAO Off
Rsrv C
Rsrv A

Measure
DAO On
Rsrv D
Rsrv B

The digital filter of the Ayre DX-5^{DSD} features two user-selectable algorithms. A selector switch is located on the rear panel. One algorithm produces greater accuracy in the time domain and is labeled "Listen". The other algorithm produces greater accuracy in the frequency domain and is labeled "Measure".

Normally the selector switch is set to the "Listen" position when listening to music. However some listeners may prefer the additional high-frequency energy provided by the "Measure" position.

This switch only affects the Analog Audio Outputs, and not the Digital Audio Output or either of the HDMI outputs.

USB Audio Input Speed

Listen
DAO Off
Rsrv C
Rsrv A

Measure
DAO On
Rsrv D
Rsrv B

USB Audio may connect to the computer at two speeds. The first is known as "Class 1 Audio" and is supported by all operating systems (e.g., Windows, Mac OS X, Linux). Class 1 Audio uses the "Full Speed" mode of USB and is capable of transporting all sample rates up to 96 kHz. Select Class 1 Audio by setting the switch to "Rsrv A".

Setting the switch to "Rsrv B" selects "Class 2 Audio", which uses the USB "High Speed" mode to transport data at higher rates as long as the operating system also supports Class 2 Audio.

For Mac, this requires OS X version 10.6.4 or higher. None of the Windows operating systems supports "High Speed" mode for audio via the USB ports. We therefore have made available a custom driver that is compatible with Windows XP, Service Pack 2 and later. Please refer to the Ayre website to download the required file and also additional instructions:

www.ayre.com/usb.htm

Remote Code

The remote control supports three remote codes. The default is "Code 1". Some other products may inadvertently respond to the DX-5^{DSD} remote control. In this case you can select a different remote code to avoid conflicts.

Battery Compartment
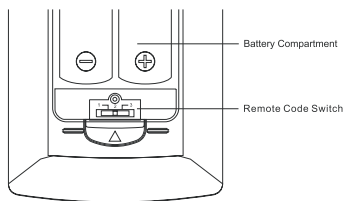
Remote Code Switch

To select a new remote code, open the battery compartment cover of the remote control, and then use a ball point pen to flip the switch to one of the positions marked as "1", "2", or "3". Close the battery compartment cover. Make sure that the DX-5^{DSD} is turned on and the disc tray is ejected. Aim the remote control at the player. Press and hold the "Enter" button for 5 seconds. The player will start using the new remote code.
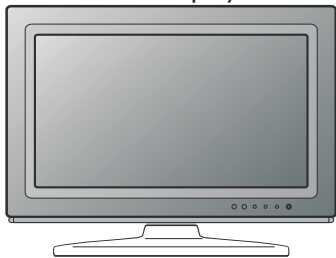
Aspect Ratios

The term "aspect ratio" simply refers to the ratio of the picture's width to its height. Nonetheless there is some room for confusion, as the original film, the picture transferred to the disc, and the display itself each have their own aspect ratio. Most viewers prefer to see the film in its original aspect ratio, which preserves the director's intention for the visual composition of the film and is made easy with the Ayre DX-5^{DSD} Digital A/V Engine.

Aspect Ratios of Video Displays

4:3 Display

16:9 Display

Originally video displays were created with a 4:3 aspect ratio, mimicking the original aspect ratio used in films. These types of displays are less commonly available today, and are often referred to as "standard" displays.

Most modern displays now use a 16:9 aspect ratio and are referred to as "widescreen" displays. Widescreen displays are highly preferred for displaying the wide aspect ratio movies that have been commonly made for the last 40 years.

The aspect ratios of video displays are usually given as a ratio of integers. However as noted below, the aspect ratios of films are usually normalized to one. To make comparisons between video displays and films easier, the ratios for displays can also be normalized to one. Hence 16:9 becomes 1.78:1 and 4:3 becomes 1.33:1.

Aspect Ratios of Films

Nearly all films made from the 1920s through the early 1950s used an aspect ratio of 1.37:1. To compete against the threat of television, movie studios began adding features such as color and a wider (larger) picture.

Now nearly all films are made in a widescreen format. The most commonly used aspect ratios today are 1.85:1 and 2.35:1. This wider picture allows for more dramatic and creative visual compositions.

Matching Film to Display

When the aspect ratio of the film closely matches the aspect ratio of the display, the film can easily be viewed as the director intended. This happens when watching a 1.37:1 film on a 1.33:1 standard video display or when watching a 1.85:1 film on a 1.78:1 widescreen video display, as there is only a negligible mismatch. But when there is a significant mismatch, some action must be taken to allow the film to be viewed without distortion.

Widescreen Displays

Let's start with a widescreen movie shot in 1.85:1 and viewed on a 1.78:1 widescreen video display. In this case virtually the entire image can be seen with no adjustments required. The film is presented in the same way as in a movie theater.

If we want to now watch a standard movie shot in 1.37:1, With the DX-5^{DSD} TV Aspect Ratio menu set to 16:9 Wide we run into a problem. The narrower picture automatically fills up the screen, stretching and distorting the image.

This is clearly unacceptable, so instead select 16:9 Wide/Auto in the TV Aspect Ratio On-Screen Setup Menu. The DX-5^{DSD} adds black vertical bars on each side of the picture. These correspond to the movable curtains used to block part of the screen in a movie theater and restores the correct geometry.

Standard Displays

When watching a standard (1.37:1) film on a standard (1.33:1) display, we can see virtually the full image without adjustments. Again, the film is presented in the same way as it would be in a movie theater.

However if we watch a widescreen (1.85:1) film, we have a new problem. The picture will be distorted as the wide image is squeezed to fit the standard display.

Again, this distorted image is unacceptable. A few high-quality standard video displays will allow for the vertical size of the picture to be decreased, restoring the proper image geometry. But since nearly all standard displays lack any type of aspect ratio control, this capability is instead built into all video disc players.

By selecting 4:3 Letterbox for the TV Aspect Ratio setting in the On-Screen Setup Menu (see page 68), when a widescreen disc is played the player will automatically squeeze the image vertically to restore the correct geometry while adding black bars at the top and bottom.

Additional Factors

So far everything has been relatively straightforward. However, there are a few more cases to consider that introduce some complexity to the situation.

Very Wide Films

Many films are made with aspect ratios even wider than 1.85:1, such as 2.35:1. Even on a widescreen (1.78:1) video display these films would be distorted if they were simply allowed to fill the screen. Instead thin black bars are added to the top and bottom of the image on the disc itself when the transfer from film to video is made.

On a widescreen display these thin black bars are perfectly normal and there is no distortion of the

image. On a standard display, additional black bars will be added by the video disc player (or much less commonly by the display itself). The end result will be thick black bars at the top and bottom of the screen. Again this is perfectly normal.

Pan and Scan Discs

Sometimes when a widescreen film is transferred to video disc, only the center portion is scanned. This process is called "pan and scan" and changes the aspect ratio to 1.33:1, allowing for viewing on standard displays without the use of black bars. However this not only changes the film director's original visual composition, but can even lead to critical elements being left out of the picture entirely.

These discs are often euphemistically called "fullscreen". Most film enthusiasts prefer to watch the film's original aspect ratio and therefore avoid these discs. As far as compatibility with either widescreen or standard displays, pan and scan discs will work in the same way as standard 1.37:1 films.

Letterboxed Discs

Since all DVD players can convert a widescreen disc to display properly on a standard video display, there is no technical reason to make a "letterboxed" disc. However in the very early days of DVD, movie studios were selling to a much smaller audience of DVD player owners. Instead of making a new transfer to DVD in widescreen format, to save

money they would use an existing transfer that had been made for the laser disc format. Since laser disc had no provision for widescreen films, these transfers were done in "letterboxed" format, where the black bars at the top and bottom of the image were added to the disc itself during the transfer process.

These letterboxed discs will display properly on a standard display. However, on a widescreen display you will not only see black bars at the top and bottom of the image from the letterboxing process on the disc itself, but the display will add additional black bars at the sides of the image to maintain the correct picture geometry. The final result is a very small picture centered on your screen.

Most widescreen displays and the Ayre DX-5^{DSD} have a "zoom" mode (see page 55) that will expand the image in all four directions to fill the screen. However, the picture resolution suffers as many of the available pixels on the disc have been discarded. Fortunately as the market for video discs have grown, these types of discs are now rarely seen.

Features

The remote handset for the Ayre DX-5^{DSD} Digital A/V Engine includes many features that may be used only occasionally or even rarely. The buttons and their actions are described in this chapter.

PURE AUDIO

Pure Audio

BD   DVD   DVD-A   SACD   CD

You can achieve higher quality audio by turning off the video processing and output. The Pure Audio mode reduces any potential interference between the video and audio signals.

Since the main HDMI output carries audio together with video, the HDMI video signal cannot be completely turned off. A black screen is transmitted instead.

Press the "Pure Audio" button on the remote control to turn off video and enter Pure Audio mode. In addition the front-panel display will be turned off. The status LED will glow green to indicate that the unit is in Pure Audio mode. Press the "Pure Audio" button again to cancel Pure Audio mode.

Pure Audio mode is automatically canceled when the unit is switched off or when playback is stopped.

Mute   BD   DVD   DVD-A   SACD   CD

Press the "Mute" button on the remote control during playback to turn off audio output. The TV screen displays a mute icon. The front panel **MUTE** indicator will also light up. Press the "Mute" button again to resume audio output.

Volume   BD   DVD   DVD-A   SACD   CD

The volume control function on the remote control sends commands via the AyreLink to a linked preamplifier or integrated amplifier.

LFE Mixdown   BD   DVD   DVD-A

"LFE" is short for "Low-Frequency Effects". It is a separate channel on a multi-channel disc, dedicated for sound effects such as explosions in movies. In a surround-sound system this channel is typically directed to a dedicated sub-woofer.

When playing a multi-channel disc the two-channel Analog Audio Outputs contains a downmix of all channels *except* for the LFE channel. This is because the LFE channel uses a different reference level and cannot be readily mixed in with the other channels. Normally this doesn't pose a problem, as the only thing missing is an occasional sound effect. Unfortunately a handful of discs have been authored incorrectly, and *all* low-frequency information from *all* of the channels has been routed to the LFE channel. Since the LFE channel is not part of the downmix, the sound will be "thin" or "lean".

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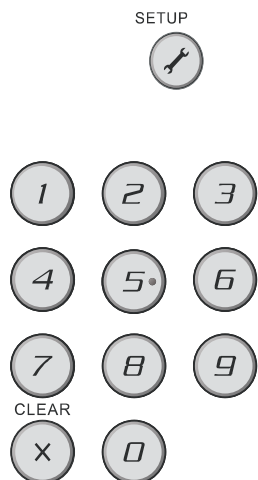
SETUP

To address this problem, the Ayre DX-5^{DSD} offers a mode whereby the LFE channel is mixed in with the main channels for playback through the Analog Audio Outputs. Simply press the "Setup" button on the remote control handset, and then the numbers "7 - 1 - 2 - 0" (for 7.1 channels to 2.0 channels). The LED indicator on the front panel will glow red to show the "LFE Mixdown" mode is active. To exit the "LFE Mixdown" mode, press the "Setup" button followed by "0 - 0 - 0 - 0".

CLEAR

To achieve the mixing of digital signals of different levels, the output level is reduced by 6 dB. This requires an increase of the system's volume. Do not forget to reduce the volume before exiting the "LFE Mixdown" mode.

The "LFE Mixdown" mode is *only* for those multi-channel discs that have been improperly authored. Do not use it for two channel discs.

PAGE

Viewing DVD-A Pictures   DVD-A

Some DVD-Audio discs contain static pictures, such as photos of the band or song lyrics. When a DVD-Audio track is playing, you may use the "Page Up" button to select the previous picture or the "Page Down" button to select the next picture.

DISPLAY

Display   BD   DVD   DVD-A   SACD   CD

During the playback of a DVD or Blu-ray disc, press the "Display" button on the remote control to show

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status information. For CD and SACD, the status information is shown automatically.

While the status information is shown, press the "Page Up/Down" buttons to scroll through several display formats. The playback time information displayed on the front panel changes together with the on-screen display.

Press the "Display" button again to hide the on-screen display. The playback time information display on the front panel will remain in the selected format. The following display formats are available:

DVD and Blu-ray

T Title elapsed time		**C** Chapter elapsed time
T Title remaining time		**C** Chapter remaining time

CD and SACD

Track elapsed time		Disc elapsed time
Track remaining time		Disc remaining time

In addition to the playback time, the on-screen display may also contain the following information:

- Playback status: an icon indicating play, pause, and fast forward/reverse status.

- Bit rate meter: an indication of the bit rate of the audio and video stream.

- Current and total title numbers. (video discs)

- Current and total title chapters. (video discs)

- Current and total tracks. (CD and SACD)

- Audio information: current and available number of audio tracks including language, format, and channels.

- Subtitle information: current and available number of subtitle tracks and language.

- Video format information: encoding type, frame rate and original aspect ratio.

Memory Resume BD DVD DVD-A SACD CD

The player automatically remembers the current position when playback is interrupted. Operations such as "Open" or turning "Power" off will cause the player to save the current playing position. The position is memorized even after changing the disc.

When the next time the disc with a memorized playing position is played back, the player will recognize the saved playing position. Playback will automatically resume from this saved position. However if you wish to cancel the automatic resume and start playback from the beginning, you may press the "Stop" button when prompted.

The player can remember playback position for up to five discs. When the sixth disc is memorized, the oldest one is replaced.

RETURN

←

Return Function   DVD   DVD-A

When you are using on-screen menus with a DVD, the "Return" function allows you to go back one menu level. The "Return" function also performs the same function when you are in a deeper level of the On-Screen Setup Menu.

AB REPLAY

A-B Replay   BD   DVD   DVD-A   SACD   CD

To repeatedly play a specified section, please follow these steps:

- During normal playback, press the "AB Replay" button at the desired beginning point (Point A) for the repeat play. The TV screen displays "A-".

- When playback reaches the desired ending point (Point B) for the repeat play, press the "AB Replay" button again. The player now repeatedly plays back the specified section (A-B). The TV screen displays "A-B".

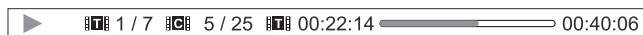- Press the "AB Replay" button for the third time to resume normal playback.

GOTO

Go-To   BD   DVD   DVD-A   SACD   CD

You may quickly find a specific location on the disc by using the "Go-To" function. The first press brings up the on-screen display, shown here for video discs:

| ▶ | 🎬 1 / 7 | 📖 5 / 25 | 🎬 00:22:14 ═══════════ 00:40:06 |

Pressing the "Go-To" button on the remote control

scrolls through the choices of searching by time, chapter (track for audio discs), title (video discs only), or display.

Time Search ➡ Chapter Search
Display ⬅ Title Search ⬅

Select the desired location using the Number Buttons or Cursor (Arrow) Buttons, and then press "Enter".

For video discs, when the cursor is positioned on the Time Counter, you can use the "Page Up" and "Page Down" buttons to toggle between Title Time or Chapter Time. The icon to the left of the Time Counter will change from "T" for Title Time to "C" for Chapter Time.

PREV   NEXT
⏮   ⏭

Frame-by-Frame   BD   DVD

While a DVD or Blu-ray disc is paused, press the "Prev" or "Next" button to reverse or advance the video frame-by-frame. Press the "Play" button to resume normal playback.

REV   FWD
◀◀   ▶▶

Slow Playback   BD   DVD

While a DVD or Blu-ray disc is paused, press the "Rev" or "Fwd" button to play the video in slow motion.

Each press of the "Rev" button switches the playback speed in the following sequence:

➡ ▶ ➡ ◀1/16 ➡ ◀1/8
◀1/2 ⬅ ◀1/4 ⬅

Each press of the "Fwd" button switches the playback speed in the following sequence:

▶ ⟹ ▶ ⟹ ▶1/16 ⟹ ▶1/8

▶1/2 ⟸ ▶1/4 ⟸

Press the "Play" button to resume normal playback.

Angle BD DVD

When playing a DVD or Blu-ray disc, an angle mark will be displayed on the screen when the player detects scenes recorded with multiple angles:

The angle mark is also illuminated on the front panel display.

Press the "Angle" button on the remote control to select the desired playing angle. To resume normal playback, repeat pressing the "Angle" button until the default angle is displayed.

> With the exception of adult entertainment titles and a few music videos, almost no video discs use multiple angles.

Secondary Audio and Video BD

Certain Blu-ray discs contain secondary video (Picture-in-Picture, or PIP) and secondary audio. This feature is often called BonusView. When such a disc is played, a Picture-in-Picture mark (PIP mark) and a Secondary Audio Program mark (SAP mark) may be displayed on the screen to signify the availability of the secondary audio/video content.

The disc menu usually features interactive controls to turn on/off the Picture-in-Picture video and Secondary Audio Program. Please use those controls to select the desired secondary audio/video content.

PIP

There is a "PIP" button on the remote control. If the disc menu does not offer interactive Picture-in-Picture controls, please use this button to turn on/off Picture-in-Picture or select from multiple secondary video programs.

SAP

There is also an "SAP" button on the remote control. If the disc menu does not offer interactive secondary audio controls, please use this button to turn on/off Secondary Audio Program or select from multiple secondary audio tracks. Secondary Audio Programs are generally only available when Picture-in-Picture is shown.

DIMMER

Dimmer

BD DVD DVD-A SACD CD

The front panel display of the DX-5^{DSD} has two brightness settings, plus an "Off" position. Pressing the "Dimmer" button will scroll through the three choices. The status LED near the display glows blue when the display is turned off.

When the display is off, pressing any button will illuminate the display for a few seconds. If the disc is playing when the display is off, pressing "Play" will illuminate the display without affecting playback.

ON   OFF

| ON | OFF |

Power

In addition to the red "Power" button that toggles the power state of the DX-5^{DSD}, there are also discrete power buttons. These will not be used in normal use, as the user can see the state of the unit at a glance. However, they may be useful with an aftermarket programmable remote control that can create sequences of commands.

P/N

| P/N |

P/N

The "P/N" button provides a shortcut for changing the "TV System" from PAL to NTSC to Multi-system. Normally this setting only needs to be changed if the display is replaced. To prevent accidental activation, the button must be held for five seconds with no disc playing. For more information, please refer to "TV System" on page 69.

| RESOLUTION |

Resolution

The "Resolution" button provides a shortcut for changing the "Output Resolution". Normally this setting only needs to be changed when the display is replaced. For more information, please refer to "Output Resolution" on page 70.

Zoom   BD   DVD   DVD-A

The "Zoom" button zooms in or out of the displayed frame and also changes the aspect ratio (image width vs. Height). To change the zoom level, press the "Zoom" button on the remote control. Each press of the "Zoom" button will switch the zoom level in the following sequence:

- 1:1 (No zooming.)
  The zoom level is reset to 1:1 when the disc is ejected, or when the player is turned off.

- Stretch – This zoom mode stretches and distorts the image. It is not recommended except in one specific situation.

  When playing a widescreen (16:9) disc and the player is set to 16:9 Wide/Auto, the image is vertically stretched by 1.33 times. For movies with 2.35:1 aspect ratio, this zoom level cuts off the black borders at the top and bottom of the image. This mode is only for users of projectors with an anamorphic lens.

- Full Screen – This zoom mode stretches the image in both the horizontal and vertical dimensions, thereby cutting off part of the original picture. It is not recommended except in one specific situation.

  Some early DVD titles (released from 1997 until early 2000's) use a 4:3 non-anamorphic widescreen aspect ratio ("letterbox" format). When the player is set to 16:9 Wide/Auto, the content is shown in a small window with black

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borders on all four sides. The top and bottom borders are encoded into the video. The left and right borders are added by the player to maintain the correct aspect ratio. For this type of discs the "Full Screen" zoom mode can be used to eliminate the borders.

- Under Scan – The "Under Scan" zoom level shrinks the image by 5%. This zoom level may be used to compensate for displays that over scan (typically direct-view CRTs and CRT rear projectors), so the viewer can see the entire image area with no cropping.

- 1.2, 1.3, 1.5, 2.0, ½ – These zoom levels are indicated by their respective zoom ratio. There is little practical use for these zoom levels.

- Return to 1:1

SOURCE

S

Source

The "Source" button duplicates the function of the "Home" button and brings up the "Home Menu" for playback of media files. For more information, please refer to "Media File Playback" on page 29.

Setup Menu

The Ayre DX-5^{DSD} has an On-Screen Setup Menu that allows you to adjust a variety of system settings to ensure compatibility with your system. The basic menu items have normally already been set up with the Video Setup (see page 13). Following is information regarding the more detailed items for advanced users.
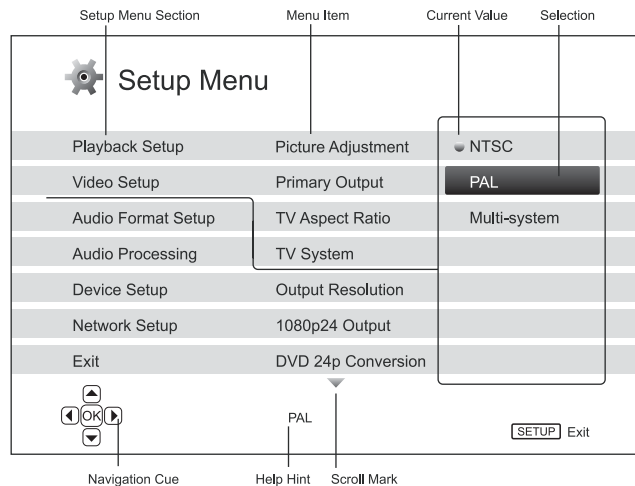
SETUP

To access the On-Screen Setup Menu, press the "Setup" button located above the "Red" button on the remote control.

Use the cursor buttons on the remote control to navigate the On-Screen Setup Menu. Once you have made the desired changes, press the "Setup" button again to exit the On-Screen Setup Menu.

If a disc is playing, some of the On-Screen Setup Menu choices will be unavailable and greyed-out. In this case, stop the disc before entering the "Setup" mode.

⚙ **Setup Menu**

Setup Menu Section	Menu Item	Current Value / Selection
Playback Setup	Picture Adjustment	● NTSC
Video Setup	Primary Output	PAL
Audio Format Setup	TV Aspect Ratio	Multi-system
Audio Processing	TV System	
Device Setup	Output Resolution	
Network Setup	1080p24 Output	
Exit	DVD 24p Conversion	

◀ OK ▶   PAL   [SETUP] Exit

Navigation Cue   Help Hint   Scroll Mark

Navigating the On-Screen Setup Menu

After entering the On-Screen Setup Menu, you will see that there are six main categories at the left, along with the "Exit" choice. As you use the "Up" and "Down" arrow buttons to navigate these Setup Menu choices, you will see various Menu Items appear for each choice.

💡 If there are more Menu Items than will fit on the screen, triangular arrow **"Scroll"** icons will be displayed at the top or bottom of the Setup Menu screen, indicating that additional choices exist.

Use the arrows buttons to select a Menu Item, and you will then see the options available for that choice. The currently active choice has a colored dot next to it, while the possible choice will be highlighted with the cursor. To change the option, highlight the desired choice and press the "Enter" button.

Press the "Setup" button again to exit the
On-Screen Setup Menu or select "Exit" from the
Setup Menu options. The settings are permanently
changed when the player is turned off.

Playback Setup

The "Playback Setup" section is designed to
configure playback preferences for various content.
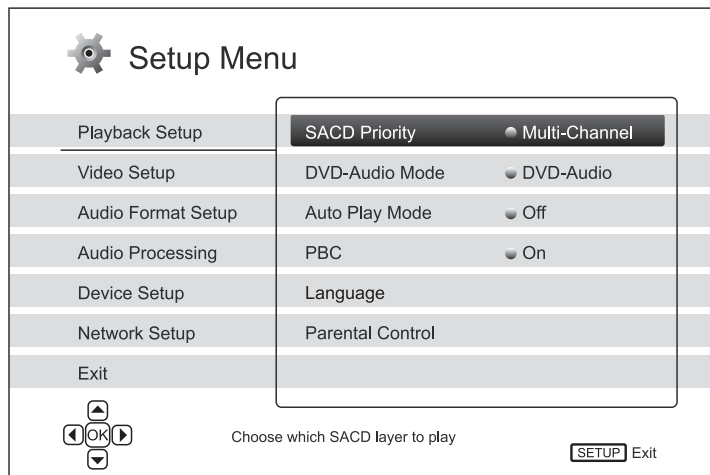
SACD Priority

Select which audio area to play for SACD. Virtually
all multi-channel SACDs also have a stereo area.
Many, but not all, SACDs also have a second layer
with standard CD data. The options are:

- Multi-Channel – Play the multi-channel audio
  layer. Select this option if you have a
  surround-sound system connected via the
  HDMI link.

- Stereo (default) – Play the two-channel audio
  layer. Select this option if you have a
  two-channel audio system (normally connected
  via the analog audio outputs).

- CD Mode – Play the CD layer of a hybrid
  SACD disc. The only reason to select this option
  is if you have a two-channel audio system and
  you are playing one of a handful of discs that
  doesn't have a stereo SACD layer.

The "Audio" button on the remote control
provides a shortcut that can toggle between the
multi-channel and stereo areas of an SACD, but it
cannot toggle between the SACD and CD layers
of a hybrid disc.

DVD-Audio Mode

Select which portion of a DVD-Audio disc to play.
The options are:

- DVD-Audio (default) – Play the DVD-Audio
  portion of the disc with high-resolution audio.
  Select this option if you are using either the
  analog audio outputs or the HDMI output
  connected to a surround-sound processor with
  capability to accept high-resolution digital
  audio data streams.

- DVD-Video – Play the DVD-Video portion of
  the disc with Dolby Digital or DTS audio.
  Select this option if you have an older
  surround-sound processor that won't accept
  high sample rates.

Auto Play Mode

Select whether the player shall start playing an audio CD or SACD automatically.

- On – These discs will start playing upon insertion into the player. This allows audio discs to mimic the behavior of video discs.

- Off (default) – The player will wait for the user to start playback by pressing the "Play" button. This allows audio discs to behave as they normally would in an audio-only player.

PBC

Enable/disable Play Back Control. PBC is a disc menu used on VCDs (Video CDs). Few users will ever make use of this option. The selections are:

- On (default) – If the disc contains Play Back Control, show the menu.

- Off – Play back the content by sequence.

Parental Control

Parental control ratings prevent minors from watching inappropriate content. This function depends on the disc being properly encoded.

To adjust the parental control settings, you must enter the current parental control password. If you have not set a parental control password yet, the default password is "0000".

- BD Ratings - Press the "Up" and "Down" buttons to select the rating. "Off" means all discs are allowed. Numbers 1 to 21 correspond to the age limit. Any rating above the selected age will be blocked.

- DVD Ratings - Press the "Up" and "Down" buttons to select the rating. The available ratings are Kid, G, PG, PG-13, PGR, R, NC17, Adult, and Off. The selected rating and below are allowed. "Off" means all discs are allowed.

- Area Code – Some Blu-ray discs have different parental control ratings for different geographical areas. At this time the player only supports the ratings used in the United States.

- Change Password – To change the parental control password, enter a 4-digit number as the new password. Enter it again to confirm.

Language

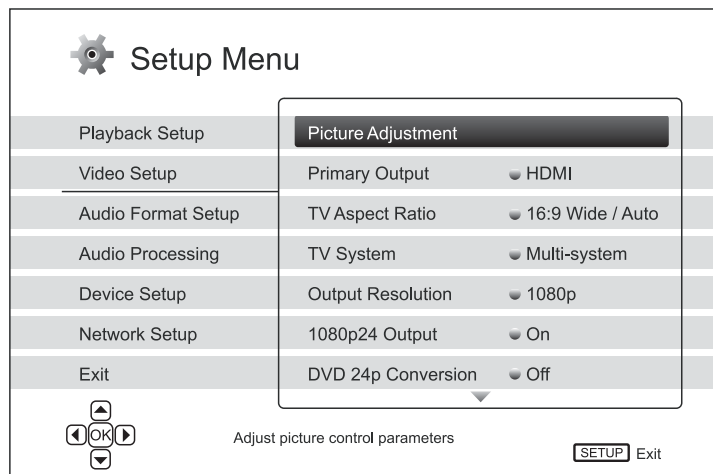Allows you to configure language preferences.:

- Player Language – To choose the language for the On-Screen Setup Menu and on-screen display. At this time only English is available.

- Disc Menu Language – To choose the preferred language for video disc menus. If a disc menu of the selected language is available, that menu will be shown instead of the default disc menu.

- Audio Language – To choose the preferred audio language for video discs. If the selected language is available, it will be played back.

- Subtitle Language – To choose the preferred subtitle language for DVD. If a subtitle of the selected language is available, it will be displayed. When "Auto" is selected, the subtitle display is decided by the disc.

The most common language choices (English, French, Spanish, Chinese) are available directly from the on-screen menu. Many other language choices are also available by selecting "Other" and entering the four-digit language code. A list of available languages can be found at the end of this chapter.

Video Setup

The "Video Setup" section of the On-Screen Setup Menu system allows you to configure the video output options.

⚙ Setup Menu		
Playback Setup	Picture Adjustment	
Video Setup	Primary Output	◡ HDMI
Audio Format Setup	TV Aspect Ratio	◡ 16:9 Wide / Auto
Audio Processing	TV System	◡ Multi-system
Device Setup	Output Resolution	◡ 1080p
Network Setup	1080p24 Output	◡ On
Exit	DVD 24p Conversion	◡ Off

◀OK▶ Adjust picture control parameters   SETUP Exit

Picture Adjustment

The DX-5^{DSD} contains a powerful video processing engine. Its output parameters can be adjusted by accessing the "Picture Adjustment" menu. However, in general these adjustments should be avoided. Any processing runs the risk of reducing the signal quality.

- Brightness: Adjusts the brightness (black level) of the video output.

- Contrast: Adjusts the contrast (white level) of the video output.

Brightness and contrast *must* be properly adjusted to achieve the best picture from your display. However the adjustments should be made from the display, preferably with the aid of a video setup (test) disc. Only adjust the brightness and contrast of your source components if they are miscalibrated, which is not possible with the purely digital signal path used in the Ayre DX-5^{DSD}.

- Hue: Adjusts the hue (tint) of the analog video output only.

As this control applies only to the composite output used for troubleshooting measures, it is safe to ignore this control altogether.

- Saturation: Adjusts the saturation (color intensity level) of the video output.

This control is unnecessary when the video disc provides a high-quality signal. Its use should be limited to attempts to improve low-quality discs.

• Detail Enhancement (Sharpness): Adjusts the sharpness of video output. Detail enhancement level can be set between -16 and +16. The default is level 0, which turns off detail enhancement.

This control is unnecessary when the video disc provides a high-quality signal. Its use should be limited to attempts to improve low-quality discs.

• Edge Enhancement: Adjusts the sharpness of object edges in the video. Edge enhancement level can be set between -16 and +16. The default is level 0. Level 0 turns off edge enhancement.

This control is unnecessary when the video disc provides a high-quality signal. Its use should be limited to attempts to improve low-quality discs.

• Noise Reduction: Adjusts the video noise reduction processing. Noise reduction levels can be set between 0 and 8. The default is level 0, which turns off noise reduction.

This control is unnecessary when the video disc provides a high-quality signal. Its use should be limited to attempts to improve low-quality discs.

• YC Delay: Adjusts the time difference between the Luminance (Y) and Chrominance (Cr) channels of the video signal. The YC delay setting applies to the HDMI output only.

This control is unnecessary when the video disc provides a high-quality signal. Its use should be limited to attempts to improve low-quality discs.

- Border Level: Sets the brightness level of the border area when borders are inserted by the player to maintain correct aspect ratio. The default level is 0, which corresponds to total black. If you set it to a positive level, the bars gradually become lighter grey instead of black.

This setting may be useful for users with plasma or CRT TVs that are sensitive to "burn-in". A grey border setting allows the phosphor in the bar area to be moderately used, matching the active portion of the screen and can alleviate the burn-in problem.

The Border Level setting only applies to the HDMI output, and only affects borders inserted by the player. If the borders are encoded in the original video, the border brightness level will not be affected by this setting.

Primary Output

Selects the primary video output port. The options are:

- HDMI (default) – Use HDMI as the primary video output port. This setting will ensure that the display receives a purely digital signal for the best possible picture quality.

The Anchor Bay Technology VRS video processor will be used unless "Source Direct" output resolution is selected, in which case VRS video processing is bypassed.

- Component – The component analog video outputs have been removed from the Ayre DX-5^{DSD}.

⚠ **Selecting this setting will result in only a low-quality signal at the composite video output. Do not use this setting.**

TV Aspect Ratio

Sets the aspect ratio of the player's output image. The options are:

- 4:3 Letterbox – Choose this when the display is standard 4:3. A widescreen image is displayed in "letterbox" format with black borders on top and bottom.

- 4:3 Pan & Scan – Choose this when the display is standard 4:3. A widescreen image will be stretched vertically, filling the screen but distorting the image.

- 16:9 Wide – Choose this when the display is widescreen 16:9. 16:9 materials will be displayed in its native aspect ratio, and 4:3 materials will be stretched horizontally, filling the screen but distorting the image.

- 16:9 Wide/Auto (default) – Choose this when the display is widescreen 16:9. 16:9 materials will be displayed in its native aspect ratio, and 4:3 materials will be displayed with black borders on both sides in order to maintain the original 4:3 aspect ratio.

💡 Only two choices will preserve the original image without distortion – 4:3 Letterbox for older "standard" displays and 16:9 Wide/Auto for newer "widescreen" displays. These are the only recommended selections.

TV System

You also may wish to play video discs from other countries. In this situation you must consider whether the video standards match between the disc and your video display. There are two commonly used video standards, NTSC and PAL. NTSC is used in North America and Japan, while PAL is used in Europe, Asia (except Japan), Australia, South America, and Africa. Select the output video standard to match your display. The options are:

- Multi-system (default) – No system conversion is performed. The output video system is the same as that encoded on the disc. Requires a TV that supports both NTSC and PAL systems. Blu-ray discs encoded with 24Hz frame rate are converted to 60Hz frame rate if neither 1080p24 Output nor Source Direct output resolution is enabled.

- NTSC – When playing NTSC-encoded discs, no system conversion is performed. PAL-encoded content is converted to NTSC output. Blu-ray discs encoded with 24Hz frame rate are converted to 60Hz frame rate if neither 1080p24 Output nor Source Direct output resolution is enabled.

- PAL – When playing PAL-encoded discs, no system conversion is performed. NTSC encoded content is converted to PAL output. Blu-ray discs encoded with 24Hz frame rate are converted to 50Hz frame rate if neither 1080p24 Output nor Source Direct output resolution is enabled.

If your display is compatible with both video standards, select "Multi-system". Then when playing an NTSC disc the player will output an NTSC signal, and when playing a PAL disc the player will output a PAL signal. This ability to display the "native" format of the source material provides the very highest picture quality.

However, many video displays will only accept one type of signal and not the other. In this case the DX-5^{DSD} is capable of transcoding from one video format to the other. You may select either "NTSC" or "PAL" from the On-Screen Setup Menu and all source material will be presented in the format required by your display device. The conversion is performed at the highest level of quality possible by the Anchor Bay VRS digital video engine.

Output Resolution

The Ayre DX-5^{DSD} offers several video output resolutions. To achieve the best visual result, it is important to select the output resolution that best matches the "native resolution" of your display device.

For the latest generation of 1080p, "Full HD" or "True HD" displays, the best output resolution will be 1080p. (A few early model 1080p displays do not accept 1080p signal. For these displays the best output resolution to use is 1080i.) For all other digital televisions this will likely be 720p. For CRT tube or rear projection televisions this will likely be 1080i. These are general recommendations that work for most users, but there can be exceptions.

There is also an **"Auto"** mode that depends on the display communicating properly with the DX-5[DSD]. It should usually provide good results but in some cases there may be incompatibilities.

The DX-5[DSD] also supports a special Source Direct output resolution. This resolution is only recommended for use with high-performance external video processors. In Source Direct mode, the player works as a "transport". It decodes video from the discs and then sends the raw video signal in its native resolution and format, without extra processing, to the external video processor.

Very few external video processors can match the performance of the Anchor Bay VRS video processing engine in the Ayre DX-5[DSD]. **"Source Direct"** is recommended only for use with external processors of the very highest quality.

1080p24 Output

Sets the 1080p 24Hz output options. This option only applies to the HDMI output at 1080p resolution. If the TV properly supports 1080p 24Hz, smoother motion can be achieved by enabling 1080p24 output for such discs.

Many Blu-ray discs that originated from theatrical movies are encoded using 24Hz frame rate, the same number of frames per second as the original theatrical film. In a theater, each frame is flashed twice to achieve a frame rate of 48Hz.

This relatively low frame rate works well in a completely darkened theater where the projector can

display the entire frame simultaneously and with a small fraction of "dead time". However a home video display operates under different conditions and normally uses a refresh rate of 60Hz in NTSC countries (North America and Japan) to provide smooth motion.

Since 60Hz is not an even multiple of the 24Hz rate used in theatrical movies, the frame rate must be multiplied by 2.5. This is achieved by displaying one frame twice and the next frame three times, a process called "2:3 pulldown".

This uneven display of the original frames can cause a slight jerkiness to motion displayed in the movie, called "judder". To provide smoother rendition of motion, some displays can operate at an even multiple of 24Hz, for example 72Hz. If fed the original 24Hz signal, they simply show each frame three times in succession.

The available options are:

- Auto – Video encoded in 24Hz frame rate will be output as 1080p 24Hz if the TV informs the player that it can support the 1080p24 signal.

- On – Video encoded in 24Hz frame rate will be output as 1080p 24Hz without regard to whether the TV can support the 1080p24 signal or not. Please note that if the TV cannot support 1080p24, selecting this option will result in no video.

- Off (default) – Video encoded in 24Hz frame rate will be converted to 60Hz ("TV System" set to NTSC) or 50Hz ("TV System" set to PAL).

DVD 24p Conversion

Sets 24Hz frame rate conversion for DVD. This option only applies to the HDMI output and is available only when "1080p24 Output" is enabled (set to Auto or On).

Many DVDs that originated from theatrical movies are encoded using a method called "2:3 telecine" to convert the 24 frames per second film to 60Hz video signal. The Ayre DX-5^{DSD} can convert the 60Hz video signal back to 24 frames per second and output as 1080p 24Hz.

Smoother motion can be achieved by enabling this option, provided that both the display can operate at an even multiple of 24Hz and the disc was sourced from a theatrical release using "2:3 telecine". The available options are:

- On – Convert DVD to 24Hz frame rate when possible.

- Off (default) – Do not convert DVD to 24Hz frame rate.

The result of DVD 24p Conversion depends heavily on the quality of the content. If the video encoded on the DVD contains incorrect 2:3 cadence, cadence breaks caused by edits, or heavy compression noise that can affect cadence detection, the result may have motion judder or frame tearing. Should this happen, you should turn off DVD 24p Conversion and watch the DVD in its original frame rate.

HDMI Options

Configures video options for the HDMI output. There is a sub-menu with the following settings:

- De-interlacing Mode – Selects the deinterlacing algorithm that the player should use to convert interlaced video on a disc to progressive output. The proper mode will ensure the output video is free of artifacts. The available options are:

    - Auto (default) – Source adaptive deinterlacing is on. This is the recommended setting as the player will optimally process a variety of signals.

    - Film Bias Mode – The Film Bias Mode may improve film mode detection in some cases.

    - Video Mode – Turn off film mode detection and treat all content as video origin. Use this setting if you are certain the disc is made from footage originally shot with a video camera, and not with a film camera.

    - 2:2 Even - This mode should be used when you know that the source is high-quality 2:2 pulldown (i.e., film-based content from a country with a 50Hz video standard). This mode weaves two adjacent fields together starting with an even field and combining it with the following odd field. This may provide a higher quality overall signal than the 'Auto' or 'Film Bias Mode' settings, providing that the source really is a 2:2 pull-down and does not have bad edits.

    - 2:2 Odd - This mode is very similar to "2:2 Even" except that this weaves two adjacent fields together starting with an odd field and combining it with the following even field. Only one of the 2:2 de-interlacing settings is correct for any given

source and the correct mode can be chosen by simply trying both of them and selecting the one which does not result in combing artifacts.

The "Auto" setting is highly recommended. The video processing engine designed by Anchor Bay Technology has enough "intelligence" to select the best deinterlacing mode automatically.

- CUE Correction – Selects whether the player should apply filtering to remove Chroma Upsampling Errors (CUE) and the Interlaced Chroma Problem (ICP). CUE is caused by improper decoding and deinterlacing of MPEG video. The Ayre DX-5^{DSD} is completely free of the CUE problem. ICP is an inherent byproduct of the encoding process for interlaced video, so you may encounter it on some video discs. The CUE Correction function can detect and filter out the errors. The available options are:

  - Auto (default) – Automatic chroma error detection and correction. Use this setting for all normal circumstances.

  - On – Chroma filtering is always on. Use this setting if the disc is known to have chroma errors.

  - Off – No chroma filtering is applied. Use this setting if the disc is known not have chroma errors.

The "Auto" setting is highly recommended. The video processing engine designed by Anchor Bay Technology has enough "intelligence" to select the best chroma correction mode automatically.

- Color Space – Selects the color space for the HDMI output. The available options are:

- Auto (default) – The player communicates with the display to automatically determine what color space to use. If the display device supports YCbCr 4:4:4, then it will be used to avoid additional color space conversions.

- RGB Video Level – The HDMI output uses RGB color space and normal signal range suitable for video displays.

- RGB PC Level – The HDMI output uses RGB color space and expands the signal range for personal computer (PC) displays. Some TVs are designed to be used as a PC monitor, and expect signal in expanded RGB range when the DVI input is selected. For these displays if the video signal uses the normal RGB range, the contrast will be reduced. You can select the RGB PC Level output and restore proper contrast.

- YCbCr 4:4:4 – The HDMI output uses YCbCr 4:4:4 color space.

- YCbCr 4:2:2 – The HDMI output uses YCbCr 4:2:2 color space. Generally this is the color space that is closest to the color space encoded on the discs. (All discs are encoded in YCbCr 4:2:0 color space, and the video decoder in the player extrapolates it to YCbCr 4:2:2.)

- HDMI Deep Color – Deep Color is an option for some newer displays. Normally, each pixel of the video image is transmitted using 24-bit data (8-bit per color channel). If Deep Color is supported, each pixel of the video image can be transmitted using 30-bit (10-bit per color channel) or 36-bit (12-bit per color channel) data. The increased bit depth should result in smoother color transitions and better gradients, but only under specific circumstances. If the display does not support 36-bit deep color,

dithering 36-bit to 30-bit or 24-bit may produce an image that is visually smoother than rounding 36-bit to 30- or 24-bit. The available options are:

- 36 Bits – Use 36-bit per pixel Deep Color.

- 30 Bits (Dithered) – Use 30-bit per pixel Deep Color with dithering applied.

- 30 Bits – Use 30-bit per pixel Deep Color.

- Off (Dithered) – Do not use Deep Color but apply dithering to the color signal.

- Off (default) – Do not use Deep Color.

Enabling Deep Color while connected to a display without this feature will result in no effect (or possibly) no video. At this time, no disc is encoded with Deep Color.

Enabling Deep Color with a compliant display will not magically make colors richer, but will help preserve the maximum color precision as a result of any video processing or picture control adjustment. However, simply leaving the player controls at their default will achieve the same result.

- Demo Mode

Enables a special split-screen demonstration mode. This is designed for the demonstration of the Anchor Bay VRS video processing technology. It can also be used as an aid for setting picture control adjustments for Detail Enhancement, Edge Enhancement and Noise Reduction. It should *not* be used for normal movie watching. The available options are:

- On – The video screen will be split in half. The left side demonstrates the result of the VRS video processing, and the right side shows video without the help VRS video processing.

- Off (default) – Normal viewing mode.

- A/V Sync – Adds a delay to the audio portion of the HDMI A/V Output. It is not recommended to use the audio portion of the HDMI A/V Output. Improved sound quality is obtained by using the HDMI Audio Output.

Display Options

Configures video options that affect the format of the display. This item contains a sub-menu with the following settings:

- Subtitle Shift – Shifts the subtitles vertically from their original position. The range of adjustment is from -5 to +5, with 0 being the default.

- OSD Position – Shifts the position of the On-Screen Display (time and track/chapter information) vertically. The range of adjustment is from 0 to +5, with 0 being the default.

- OSD Mode – Selects how long the on-screen display information, such as elapsed or remaining time, stays on the TV screen. The available options are:

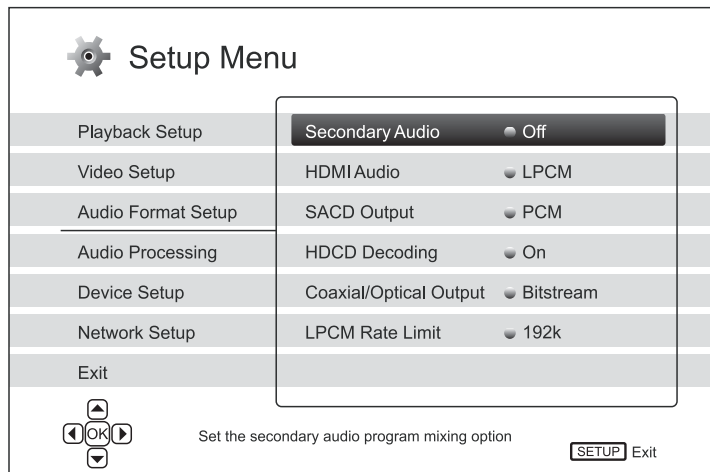 - Normal (default) – On-screen display information remains until the user cancels it.

- Silent – On-screen display information shows on the screen for a few seconds and then disappears. The front panel display still maintains the selected display information.

- Remaining – On-screen display information stays on the screen until the user cancels it. However, it displays remaining time instead of elapsed time.

- Angle Mark – Turn on/off the display of an angle mark when a video disc with multiple available angles is played. Keeping the angle mark off avoids distraction from normal movie watching.

- Picture-In-Picture Mark – Turn on/off the display of a Picture-in-Picture (PIP) mark when a Blu-ray disc with secondary video is played. Keeping the PIP mark off avoids distraction from normal movie watching.

- Secondary Audio Program Mark – Turn on/off the display of a Secondary Audio Program mark when a Blu-ray disc with secondary video and audio is played. Keeping the SAP mark off avoids distraction from normal movie watching.

- Screen Saver – Turn on/off the screen saver function. The screen saver is designed to minimize burn-in concerns for plasma and CRT display devices. The available options are:

  - On – After 3 minutes of inactivity, the player will show a logo moving on a black background. This allows most areas of the screen to rest and gives all areas an equal opportunity to refresh. Use this option for displays that are susceptible to burn-in (e.g., CRT, plasma, et cetera).

- Off – The screen saver will not be activated. Use this option if your display does not have burn-in issues (e.g., DLP, D-ILA, LCD).

- Energy Saver – Video output will be turned off after 3 minutes of inactivity. Many projectors and LCD displays will go into a standby or sleep mode and turn off their projection or backlight lamp, thus saving energy and prolonging the lamp life. When you press any button on the DX-5^{DSD} front panel or remote control, the screen saver will be canceled and video output will be restored. If your display is in standby or sleep mode, you may need to wake up the display by pressing a button on its remote or control panel.

Audio Format Setup

The "Audio Format Setup" section allows you to configure preferences for audio output formats. The menu items in this section are:

⚙ Setup Menu		
Playback Setup	Secondary Audio	⦿ Off
Video Setup	HDMI Audio	⦿ LPCM
Audio Format Setup	SACD Output	⦿ PCM
Audio Processing	HDCD Decoding	⦿ On
Device Setup	Coaxial/Optical Output	⦿ Bitstream
Network Setup	LPCM Rate Limit	⦿ 192k
Exit		

Set the secondary audio program mixing option

SETUP Exit

Secondary Audio

Sets the Secondary Audio Program (SAP) mixing option. Some Blu-ray discs contain a secondary program, such as a director's commentary or menu sounds. This menu item allows you to mix the SAP sounds into the primary audio. The options are:

- On – The Secondary Audio Program and menu sounds are mixed into the primary audio. High resolution primary audio will be converted to normal resolution in order to mix with the secondary audio.

- Off (default) – The Secondary Audio Program and menu sounds are turned off. This setting preserves the highest possible audio quality for the primary audio.

It is recommended to turn the Secondary Audio "Off". This provides the highest sound quality for the main soundtrack.

HDMI Audio

Selects digital audio output format from the HDMI A/V Output. The options are:

- Auto – The audio format will be selected automatically, based on communications with the surround-sound processor.

- LPCM – Digital audio output will be Linear PCM, and compressed audio bit streams will be decoded by the player.

- Bitstream – Digital audio output will be in the format encoded on the disc.

- Off (default) – No digital audio output via the HDMI A/V Output. This is the recommended setting.

> The HDMI Audio Output will provide higher performance than the audio output of the HDMI A/V Output. It is recommended to use the HDMI Audio Output and set the HDMI Audio option to "Off".

> **If the HDMI Audio is set to any selection besides "Off", when the HDMI A/V Output is connected to any equipment that cannot accept DSD then all signals (internal and external outputs) will be forced to PCM when playing SACD, regardless of the other player settings.**

SACD Output

Selects audio output format for SACD. The options are:

- PCM – Audio data on SACDs ("DSD") is converted into PCM at 88.2 kHz/24 bits. The PCM data is then output through both HDMI ports and also used for the analog audio outputs.

- DSD (default) – "DSD" data from an SACD is output over both HDMI ports and also used for the analog audio outputs without any conversion.

Nearly all systems will achieve higher sound quality with this selection set to **"DSD".** The only time to select **"PCM"** is if you wish to listen to SACDs in multi-channel while using a surround-sound processor that is new enough to have an HDMI input for audio but old enough that it does not support DSD.

HDCD Decoding

There are four audio outputs on the Ayre DX-5^{DSD}; the Analog Audio Outputs and the HDMI Audio Output, which are the main outputs, and the HDMI A/V Output and the Digital Audio Output, which are secondary outputs only to be used if your system is not equipped to connect with the main outputs.

When "HDCD Decoding" is set to "On", the signal for the main outputs (Analog Audio and HDMI Audio) will be decoded inside the DX-5^{DSD}. The behavior of the secondary outputs (HDMI A/V and Digital Audio) depends on the setting for each respective output ("HDMI Audio" and "Coaxial/Optical Output"). When set to "LPCM" that output will present a decoded signal, but when set to "Bitstream" that output will present the undecoded signal that requires HDCD decoding by the downstream device. When the decoding is "Off" the undecoded data will be sent to all four outputs regardless of any other setting.

It is strongly recommended to set the **"HDCD Decoding"** to **"On",** as this is the only way that the Analog Audio Outputs can decode an HDCD disc properly.

Coaxial/Optical Output

Sets the output format for the (AES/EBU) Digital Audio Output for use with Dolby Digital and DTS-compatible surround-sound processors. The options are:

- LPCM – Creates downmixed two-channel digital audio output. However, no external converter will outperform the one built into the unit that drives the Analog Audio Outputs.

- Bitstream (default) – Passes audio as compressed bitstream format to the receiver/amplifier. Choose this setting if your receiver/amplifier is capable of decoding Dolby Digital and/or DTS.

Certain audio discs will achieve higher sound quality with this selection set to "Bitstream". This allows pre-emphasized CDs to be equalized with the high-quality minimum-phase digital filter built into the internal Ayre D/A converter and connected to the Analog Audio Output.
You may also use this setting when connecting to a very old surround-sound processor that does not accept an HDMI audio connection. There is no reason to ever select "LPCM".

LPCM Rate Limit

Sets the maximum Linear PCM output frequency for the AES/EBU Digital Audio Output. Higher sample rate material will be down-sampled to stay within the maximum rate. The player does not up-sample audio to higher sample rates. The options are:
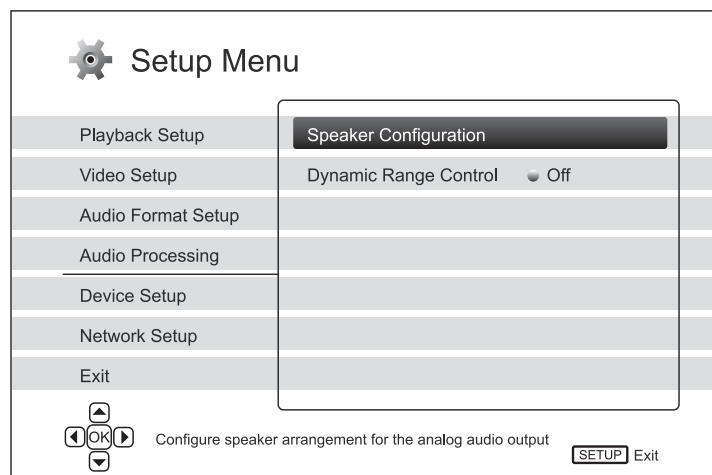
- 48K – Supported by most equipment.

- 96K – Allows a higher sampling rate for better audio quality. Ensure that the receiver/amplifier can support it.

- 192K (default) – Allows the highest sampling rate for best audio quality. Ensure that the receiver/amplifier can support it.

> This output will only be used with older surround-sound processors that lack an HDMI input. Select the highest sample rate supported by your processor.

Audio Processing

The "Audio Processing Setup" section of the On-Screen Setup Menu system allows you to configure how the player will process audio signals.

Setup Menu

Playback Setup	Speaker Configuration
Video Setup	Dynamic Range Control ◕ Off
Audio Format Setup	
Audio Processing	
Device Setup	
Network Setup	
Exit	

Configure speaker arrangement for the analog audio output

SETUP Exit

Speaker Configuration

"Speaker Configuration" applies only to the HDMI Audio Output and LFE Mixdown mode. The other digital outputs and normal operation of the Analog Audio Outputs are unaffected by these settings.

⚠ **For proper performance of the HDMI Audio Output and LFE Mixdown mode, it is critical that the settings be adjusted exactly as they were pre-configured at the factory. If they should ever be changed, be sure to revert them to their original settings as explained below.**

Enter the "Speaker Configuration" menu. There will be a picture of a listening room with speakers. At the bottom of the yellow floor, the Down Mix Mode is indicated. This should be 7.1Ch.

If it is not 7.1Ch, use the "Right"/"Left" arrow buttons to highlight the Down mix sign behind the couch. Press "Enter", use the "Up"/"Down" arrow buttons to select 7.1Ch and then press the "Left" arrow button to return to the picture of the listening room.

Next, select a speaker, press "Enter" and adjust the Size to Large, the Distance to 0 ft, and the Trim to 0.0 dB. Select the Next Speaker, and apply the same settings to all speakers *except* the Subwoofer.

For the Subwoofer (SW), select the Size as On, the Distance as 0 ft, and the Trim as 5.0 dB.

⚠ **Do not ever change these settings, as this will adversely affect the sound from the HDMI Audio Output or if the LFE Mixdown mode is engaged.**

⚠ **The operation "Reset Factory Defaults" will automatically change these settings, requiring you to reset the "Speaker Configuration" settings for proper operation of the HDMI Audio Output and LFE Mixdown mode.**
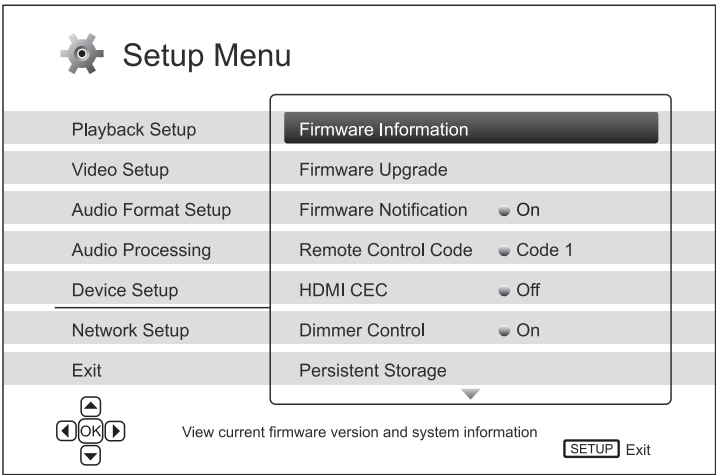
Dynamic Range Control

Sets the audio Dynamic Range Control (DRC). DRC tends to make all sounds play back at a similar loudness. This is useful when listening while others may be sleeping, as it prevents the loud sounds from playing back at a high level and it becomes easier to hear the dialog during quiet scenes. Otherwise the DRC should be turned off to hear the sonic dynamics present in the original recording. The available options are:

- Auto – Play at the dynamic range specified by the disc. This option applies to Blu-ray discs only. For other disc types no dynamic range compression is applied.

- On – Turn on dynamic range compression.

- Off (default) – Turn off dynamic range compression.

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Device Setup

The "Device Setup" section of the On-Screen Setup Menu system allows you to configure additional player options related to the hardware and control functions. The menu items in this section are:

```
 ⚙  Setup Menu

  Playback Setup        Firmware Information
  Video Setup           Firmware Upgrade
  Audio Format Setup    Firmware Notification    ⦿ On
  Audio Processing      Remote Control Code      ⦿ Code 1
  Device Setup          HDMI CEC                 ⦿ Off
  Network Setup         Dimmer Control           ⦿ On
  Exit                  Persistent Storage
                                ▼
  ▲
 ◀ OK ▶      View current firmware version and system information
  ▼                                                    SETUP  Exit
```

Firmware Information

Displays the currently installed firmware version.

Firmware Upgrade

Upgrades the player's firmware. This operation is only available when the playback is completely stopped. The firmware is the system software that controls the features and functions of the player. To ensure the best possible viewing experience, the player may need a firmware update from time to time. Please visit Ayre's web site "www.ayre.com"

to check for firmware updates and instructions on installing the updates. There are three ways to upgrade the player's firmware. The options are:

- Via USB – You may download the firmware files from Ayre's web site to a solid-state USB ("thumb") drive and use the drive to upgrade the player. Please follow the instructions on the firmware download web page.

- Via Disc – You may request a firmware upgrade disc from Ayre or download a disc image from Ayre's web site and burn an upgrade disc with your computer. Please follow the instructions that come with the upgrade disc.

- Via Network – If the player has a working internet connection, you may upgrade the player directly over the internet. Please follow the instructions on your display device screen.

Firmware Notification

Sets whether the player should automatically check if new firmware versions are available on the internet server and notify the user about new firmware. The options are:

- On (default) – Check for new firmware version automatically and notify the user. Requires a working internet connection.

- Off – Do not check for new firmware version automatically.

Remote Control Code

The Ayre DX-5^{DSD} can respond to one of 4 sets of remote control codes. The default is "Code 1". If you have other products that respond to the DX-5^{DSD} remote control, you can select a different remote code to avoid conflicts. The available codes are:

- Code 1 (default) – Remote code set 1. This is the normal remote code.

- Code 2 – Remote code set 2. Use this code if you have other products that conflict with the Ayre DX-5^{DSD}.

- Code 3 – Remote code set 3. Use this code if you have other products that conflict with the Ayre DX-5^{DSD}.

- Alt. Code – Alternative remote code. The alternative remote control code enables users to program universal remote controls that come with a display or A/V receiver to operate the Ayre DX-5^{DSD} player. If the universal remote control has a DVD player control function, program it with the code for Toshiba, Philips, Magnavox, Marantz, or Zenith DVD players. You may need to try several times using different codes to find a working code.

If you have selected a new remote code, you must set the remote control handset to use the same code. Please refer to "Remote Code" section on page 39 of this manual for details. If you have selected "Alt. Code", the supplied handset will not operate the player, and you must use a universal remote control with the properly configured code set.

HDMI CEC

Sets the HDMI Consumer Electronics Control (CEC) mode. CEC is an optional HDMI feature that enables remote control and automatic setup of consumer electronics over the HDMI connection.

The remote control function allows you to use a single remote handset to operate multiple devices connected via HDMI. For example, you may use the TV remote to control playback of the Blu-ray disc player.

The automatic setup function can automatically turn on the TV and change to the proper input when you start playing a disc in the Blu-ray disc player. It can also turn off the player automatically when you turn off the TV.

The implementation and compatibility of this feature varies by device manufacturer. Each may only implement part of the features or add their own proprietary functions. The manufacturer-specific implementation of the HDMI CEC function is often given a proprietary name of "…Link" or "…Sync". The Ayre DX-5^{DSD} provides three modes for the HDMI CEC function:

- On – HDMI CEC is enabled. Use this mode if your other devices are compatible with the player.

- Limited – HDMI CEC is enabled but the DX-5^{DSD} will only respond to playback control commands. It will not respond or issue power on/off and input selection commands. Use this

mode if you do not want the automatic setup function to turn on/off your devices.

- Off (default) – HDMI CEC feature is turned off. The player will not respond to HDMI CEC commands from other devices, nor will it setup other devices automatically.

The HDMI CEC feature only operates with the main HDMI video port. It does not operate with the separate HDMI Audio Output.

Dimmer Control

Controls the display intensity of the front panel Vacuum Fluorescent Display (VFD) information window. In case you feel that the display becomes a distraction to your enjoyment of the video, this option allows you to dim it or turn it off. The available options are:

- On (default) - The VFD is at normal brightness.

- Dim - The VFD is at reduced brightness.

- Off – The VFD is turned off. In this mode the display resumes momentarily when there is any user operation.

DIMMER

The "Dimmer" button on the remote control provides a short-cut to this function. It is much easier to change the display brightness directly with this button.

Persistent Storage

Manages the persistent storage for BD-Video content. The persistent storage is a data storage area that holds additional content for BonusView and BD-Live features. The data will be kept even if you turn off the player. The following persistent storage management options are available:

- Storage Device – Selects which storage device should be used as the persistent storage. The Ayre DX-5^{DSD} is equipped with 1GB of internal flash memory. There are two USB ports on the player that can accept a USB drive to be used as the persistent storage. The choices are:

  - Internal Flash (default) – Use the internal flash memory for persistent storage.

  - USB Drive – Use a USB drive for persistent storage. To meet the specification for BD-Live, a USB drive of 1GB or larger is required.

The power available at the USB ports is limited. It is recommended to use a solid-state "flash" or "thumb" drive. If you use a USB hard disk, be sure to use one with its own external power supply. The use of a USB hard drive without a power supply may damage the USB ports of the DX-5^{DSD}.

The new storage device choice becomes effective only after the player is restarted. Make sure that you turn off the player and then turn it back on after changing the "Storage Device" option.

- Total Space – To display the total space of the persistent storage.

- Available Space – To display the currently available space of the persistent storage. If the available space becomes too low, some Blu-ray discs may not play properly.

- Erase BD-Video Data – To erase the BD-Video data from the persistent storage.

Reset Factory Defaults

Resets all settings to the factory default value. The remote control code, parental control password, and ratings will not be reset. This operation is only available when the playback is completely stopped or when there is no disc loaded.

⚠ **Warning! The factory default settings are not correct for the Ayre DX-5^{DSD}, particularly the "Speaker Configuration" that affects the HDMI Audio Output and LFE Mixdown mode.**

⚠ **If the menu settings are reset to the factory default, you will need to manually change many of the settings to restore proper operation. Please refer to the chapter "On-Screen Menu Settings Checklist".**

Network Setup

The "Network Setup" section of the Setup Menu
system allows you to configure the parameters for
the internet connection of the player, test the
connection and restrict BD-Live access. An internet
connection is strictly optional. It allows for easy
firmware updates and also access to additional
material on some newer Blu-ray discs. The menu
items in this section are:
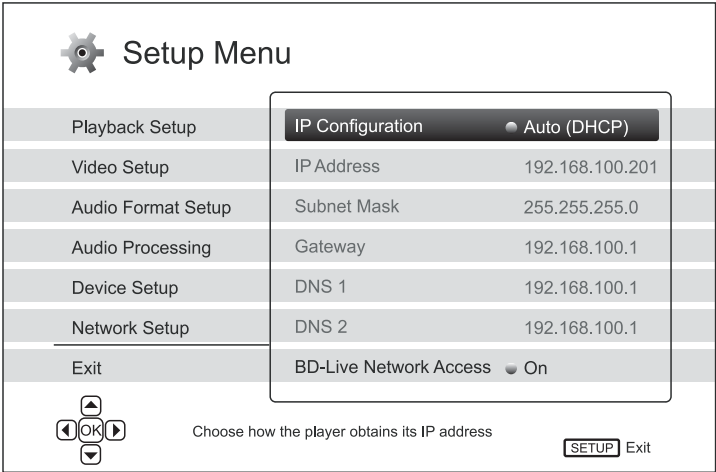
IP Configuration

Determines how the player obtains its IP (Internet
Protocol) address. The available options are:

• Auto (DHCP) (default) - The player
  automatically obtains its IP address information
  using DHCP (Dynamic Host Configuration
  Protocol). This is the default setting. In most
  cases, automatic IP configuration can be used.

- Manual – Manually enter the numeric IP address information. Set the IP configuration manually only when the router has no DHCP server functions or when the router's DHCP server function is disabled. For more information on how to manually configure the internet connection and what values to use, please consult your router/modem instruction manuals or call your internet service provider.

IP Address

Displays the Internet Protocol (IP) address of the player. When "IP Configuration" is set to "Auto (DHCP)", the value displayed here is obtained using DHCP and cannot be changed.

Subnet Mask

Each IP address has an associated subnet mask. It is used by the player to decide whether to route network traffic through the router or directly to another device on the same network. When "IP Configuration" is set to "Auto (DHCP)", the value displayed here is obtained using DHCP and cannot be changed.

Gateway

Displays the IP address of the router. It is also called "default gateway" or "default router". When "IP Configuration" is set to "Auto (DHCP)", the value displayed here is obtained using DHCP and cannot be changed.

DNS 1

Displays the IP address of the first (primary) DNS (Domain Name System) server. DNS is the mechanism to translate human-readable addresses (such as "www.ayre.com") to numeric IP addresses. When "IP Configuration" is set to "Auto (DHCP)", the value displayed here is obtained using DHCP and cannot be changed.

DNS 2

Displays the IP address of the second (secondary) DNS server. When "IP Configuration" is set to "Auto (DHCP)", the value displayed here is obtained using DHCP and cannot be changed.

BD-Live Network Access

Controls BD-Live content access. The available options are:

- On – BD-Live access is permitted.

- Limited – BD-Live access is permitted only for content that has a valid content owner certificate. Internet access is prohibited if the BD-Live content does not have a certificate. This option ensures that you are accessing only authentic content, although it may block your access to smaller independent content providers.

- Off (default) – BD-Live access is prohibited.

Connection Test

Tests the internet connection. It is recommended that you test the connection when you initially connect the player to the internet, or whenever changes to "IP Configuration" and other network parameters are made.

MAC Address

This read-only field displays the MAC (Media Access Control) address of the player. Each networked device has a unique MAC address. It is used by network controllers (such as a router or PC) on the same network to provide identification and facilitate communication.

Language Code List

When selecting language preferences for subtitles and audio soundtracks, the frequently used languages have names that show in the On-Screen Setup Menu. Other languages must be entered by using a numeric code.

Frequently Used Languages

Chinese (zh), 9072
English (en), 6978
French (fr), 7082
Spanish (es), 6983

Complete Language List

Abkhazian (ab), 6566
Afar (aa), 6565
Afrikaans (af), 6570
Albanian (sq), 8381
Amharic (am), 6577
Arabic (ar), 6582
Armenian (hy), 7289
Assamese (as), 6583
Aymara (ay), 6588
Azerbaijani (az), 6590
Bashkir (ba), 6665
Basque (eu), 6985
Bengali (bn), 6678
Bhutani (dz), 6890
Bihari (bh), 6672
Breton (br), 6682
Bulgarian (bg), 6671
Burmese (my), 7789
Byelorussian (be), 6669
Cambodian (km), 7577
Catalan (ca), 6765
Chinese (zh), 9072
Corsican (co), 6779
Croatian (hr), 7282
Czech (cs), 6783
Danish (da), 6865
Dutch (nl), 7876
English (en), 6978
Esperanto (eo), 6979
Estonian (et), 6984
Faroese (fo), 7079
Fiji (fj), 7074
Finnish (fi), 7073
French (fr), 7082
Frisian (fy), 7089
Galician (gl), 7176
Georgian (ka), 7565
German (de), 6869
Greek (el), 6976
Greenlandic (kl), 7576

Guarani (gn), 7178
Gujarati (gu), 7185
Hausa (ha), 7265
Hindi (hi), 7273
Hungarian (hu), 7285
Icelandic (is), 7383
Indonesian (in), 7378
Interlingua (ia), 7365
Irish (ga), 7165
Italian (it), 7384
Hebrew (iw), 7387
Japanese (ja), 7465
Javanese (jw), 7487
Kazakh (kk), 7575
Kannada (kn), 7578
Kashmiri (ks), 7583
Kirghiz (ky), 7589
Korean (ko), 7579
Kurdish (ku), 7585
Laothian (lo), 7679
Latin (la), 7665
Lingala (ln), 7678
Lithuanian (lt), 7684
Latvian (lv), 7686
Macedonian (mk), 7775
Malagasy (mg), 7771
Malay (ms), 7783
Malayalam (ml), 7776
Maltese (mt), 7784
Maori (mi), 7773
Marathi (mr), 7782
Moldavian (mo), 7779
Mongolian (mn), 7778
Nauru (na), 7865
Nepali (ne), 7869
Norwegian (no), 7879
Oriya (or), 7982
Panjabi (pa), 8065
Pashto, Pushto (ps), 8083
Persian (fa), 7065
Polish (pl), 8076
Portuguese (pt), 8084
Quechua (qu), 8185

Rhaeto-Romance (rm), 8277
Romanian (ro), 8279
Russian (ru), 8285
Samoan (sm), 8377
Sanskrit (sa), 8365
Scots-Gaelic (gd), 7168
Serbian (sr), 8382
Serbo-Croatian (sh), 8372
Shona (sn), 8378
Sindhi (sd), 8368
Singhalese (si), 8373
Slovak (sk), 8375
Slovenian (sl), 8376
Somali (so), 8379
Spanish (es), 6983
Sundanese (su), 8385
Swahili (sw), 8387
Swedish (sv), 8386
Tagalog (tl), 8476
Tajik (tg), 8471
Tamil (ta), 8465
Tatar (tt), 8484
Telugu (te), 8469
Thai (th), 8472
Tibetan (bo), 6679
Tigrinya (ti), 8473
Tonga (to), 8479
Turkish (tr), 8482
Turkmen (tk), 8475
Twi (tw), 8487
Ukrainian (uk), 8575
Urdu (ur), 8582
Uzbek (uz), 8590
Vietnamese (vi), 8673
Volapük (vo), 8679
Welsh (cy), 6789
Wolof (wo), 8779
Xhosa (xh), 8872
Yiddish (ji), 7473
Yoruba (yo), 8979
Zulu (zu), 9085

Settings Checklist

In case the On-Screen Menu settings are accidentally changed, it is important to return the settings to the correct values. There is an On-Screen Menu option Reset Factory Defaults, but these settings will *not* give the proper results for the HDMI Audio Output and LFE Mixdown mode. There is also an "Initial Wizard" that will quickly set up many menu items, but it also will *not* provide the correct settings for the HDMI Audio Output and LFE Mixdown mode. It is critically important that the settings be restored manually.

This chapter contains a checklist of all of the settings in the On-Screen Setup Menu. It provides a simple way to check the settings should the need arise.

Menu options are in [brackets], "Reset Factory Defaults" values are in *italics*, correct default settings for the Ayre DX-5^{DSD} are in **bold**. A setting that is both a value from the "Reset Factory Defaults" and a default for the DX-5^{DSD} will be in ***bold italics***.

Initial Wizard

The Initial Wizard only appears after the "Reset Factory Defaults" menu setting has been run. It is useful for selecting a few of the basic settings, but many other On-Screen Menu Settings will *have* to be changed manually.

Primary video output [*HDMI* | Component]
(HDMI is the only video output on the Ayre DX-5^{DSD}. Selecting "Component" will result in no picture.)

Output Resolution [*Auto* | 1080p | 1080i | 720p | 480p/576p | 480i/576i | Source Direct]
(Select the proper output for your display as explained on page 70.)

Aspect Ratio [4:3 Letterbox | 4:3 Pan & Scan | *16:9 Wide* | **16:9 Wide/Auto**]
("4:3 Letterbox" is the correct setting for a standard 4:3 display. "16:9 Wide/Auto" is the correct setting for a widescreen 16:9 display.)

Audio Setting [*Compatible* | **Advanced**]

Playback Setup

SACD Priority [*Multi-Channel* | **Stereo** | CD Mode]
(Select "Multi-Channel" to use the HDMI Audio Output with a surround-sound system. Select "Stereo" to use the Analog Audio Outputs with a two-channel system.)

DVD-Audio Mode [*DVD-Audio* | DVD-Video]

Auto Play Mode [*On* | **Off**]
(This applies only to audio discs.)

PBC [*On* | Off] (This applies only to old VCD/SVCD discs.)

Parental Control
(None of these are changed by **"Reset Factory Default".**)

Password [***0 0 0 0***]

BD Ratings [***Off*** | 1–21]

DVD Ratings [***Off*** | Kid | G | PG | PG-13 | PGR | R | NC17 | Adult]

Area Code [***United States***]

Change Password

Language

Player Language [***English***]

Disc Menu Language [***English*** | French | Spanish | Chinese | Other: _ _ _ _]

Audio Language [***English*** | French | Spanish | Chinese | Other: _ _ _ _]

Subtitle Language [Auto | ***Off*** | English | French | Spanish | Chinese | Other: _ _ _ _]

Video Setup

Picture Adjustment

Brightness [-16–***0***–16]

Contrast [-16–***0***–16]

Hue (Analog) [-16–***0***–16]
(does not affect HDMI)

Saturation [-16–***0***–16]

Detail Enhancement [-16–***0***–16]

Edge Enhancement [-16–*0*–16]

Noise Reduction [*0*–8]

Y© Delay [-16–*0*–16]

Border Level [*0*–16]

Primary Output [**HDMI** | Component]
(The only video output on the Ayre DX-5^DSD is the HDMI
A/V Output. Selecting "Component" will yield no picture.)

TV Aspect Ratio [4:3 Letterbox | 4:3 Pan & Scan |
16:9 Wide | **16:9 Wide/Auto**]
("4:3 Letterbox" is correct for a standard 4:3 display. "16:9
Wide/Auto" is correct for a widescreen 16:9 display.)

TV System [*NTSC* | PAL | **Multi-system**]
("Multi-system" provides no format conversion. Video discs
of each television system will be output in their native format.
If your display does not accept both NTSC and PAL
formatted signals, select the proper format for your display.)

Output Resolution [**Auto** | 1080p | 1080i | 720p |
480p/576p | 480i/576i | Source Direct]
(Select the proper output as explained on page 70.)

1080p24 Output [Auto | On | *Off*]

DVD 24p Conversion [On | *Off*]

HDMI Options

De-interlacing Mode [**Auto** | Film Bias Mode |
Video Mode | 2:2 Even | 2:2 Odd]

CUE Correction [**Auto** | On | Off]

Color Space [**Auto** | RGB Video Level | RGB PC Level |
YCbCr 4:4:4 | YCbCr 4:2:2]

HDMI Deep Color [36 Bits | 30 Bits (dithered) |
30 Bits | Off (dithered) | *Off*]

Demo Mode [On | *Off*]

A/V Sync [*0*–200]
(Only for HDMI.)

Display Options

Subtitle Shift [-5–*0*–5]

OSD Position [*0*–5]

OSD Mode [*Normal* | Silent | Remaining]

Angle Mark [*Off* | On]

PIP Mark [*Off* | On]

SAP Mark [*Off* | On]

Screen Saver [*On* | Off | Energy Saver]

Audio Format Setup

Secondary Audio [On | *Off*]
(Default = On when Initial Wizard: Compatible.)

HDMI Audio [Auto | LPCM | *Bitstream* | *Off*]
(Default = Auto when Initial Wizard: Compatible.)

SACD Output [PCM | *DSD*]
(Default = PCM when Initial Wizard: Compatible.)

HDCD Decoding [*On* | Off]

Coaxial/Optical Output [LPCM | *Bitstream*]
(Default = LPCM when Initial Wizard: Compatible.)

LPCM Rate Limit [48k | 96k | *192k*]
(Default = 48k when Initial Wizard: Compatible.)
(LPCM Rate Limit applies only to Digital Audio Output)

Audio Processing

Speaker Configuration
(These settings affect the HDMI Audio Output and LFE
Mixdown. They **must** be set correctly for proper operation.)

FL
> Size [*Small* | **Large**]
> Distance [**0**–*12*–60] (Same as FR.)
> Trim [-10.0–**0.0**–10.0]

SW
> Size [***On*** | Off]
> Distance [**0**–*12*–60]
> Trim [-10.0–*0.0*–**5.0**–10.0]

C
> Size [*Small* | **Large** | Off]
> Distance [**0**–*12*–60]
> Trim [-10.0–**0.0**–10.0]

FR
> Size [*Small* | **Large**]
> Distance [**0**–*12*–60] (Same as FL.)
> Trim [-10.0–**0.0**–10.0]

SR
> Size [*Small* | **Large** | Off]
> Distance [**0**–*12*–60] (Same as SL.)
> Trim [-10.0–**0.0**–10.0]

SBR
> Size [*Small* | **Large** | Off]
> Distance [**0**–*12*–60] (Same as SBL.)
> Trim [-10.0–**0.0**–10.0]

SBL
> Size [*Small* | **Large** | Off]
> Distance [**0**–*12*–60] (Same as SBR.)
> Trim [-10.0–**0.0**–10.0]

SL
> Size [*Small* | **Large** | Off]
> Distance [**0**–*12*–60] (Same as SR.)
> Trim [-10.0–**0.0**–10.0]

Down Mix Mode [LT/RT | Stereo | 5.1ch | ***7.1ch***]

Dynamic Range Control [*Auto* | On | **Off**]

Device Setup

Firmware Information

Firmware Upgrade

Firmware Notification [**On** | Off]

Remote Control Code [***Code 1*** | Code 2 | Code 3 | Alt. Code]
("Remote Control Code" is not changed by "Reset Factory Default".)

HDMI CEC [On | Limited | **Off**]

Dimmer Control [**On** | Dim | Off]

Persistent Storage

Storage Device [***Internal Flash*** | USB Drive]

Total Space

Available Space

Erase BD-Video Data

Reset Factory Default
(Warning! Using the "Reset Factory Default" will result in the "Speaker Configuration" being set to the incorrect values. If the "Reset Factory Default" is used, the "Speaker Configuration" settings **must** be restored to their correct values for the HDMI Audio Output and LFE Mixdown mode to operate properly.)

Network Setup

IP Configuration [*Auto (DHCP)* | Manual]

IP Address [_ . _ . _ . _]
(Only when IP Configuration = Manual.)

Subnet Mask [_ . _ . _ . _]
(Only when IP Configuration = Manual.)

Gateway [_ . _ . _ . _]
(Only when IP Configuration = Manual.)

DNS 1 [_ . _ . _ . _]
(Only when IP Configuration = Manual.)

DNS 2 [_ . _ . _ . _]
(Only when IP Configuration = Manual.)

BD-Live Network Access [On | Limited | *Off*]

Connection Test

MAC Address

Specifications

HDMI Video Output	Selectable output formats:

RGB, video levels (16 - 235)
RGB, PC levels (0 - 255)
YCbCr, 4:4:4, video levels (16 - 235)
YCbCr, 4:2:2, video levels (16 - 235)
"Deep Color" – 10 bits per color
"Deep Color" – 12 bits per color

NTSC: 480i/480p/720p/1080i/1080p/1080p24
PAL: 576i/576p/720p/1080i/1080p/1080p24

HDMI Audio Output   Selectable output formats:

PCM (standard discs)
DSD or PCM (SACDs)

(All compressed formats decoded to PCM)

Analog Audio – Maximum   4.00 V rms – balanced outputs
Output Level   2.00 V rms – single-ended outputs

Analog Audio – XLR Output Polarity	Pin 1 = Ground Pin 2 = Non-inverting (Positive) Pin 3 = Inverting (Negative)
Analog Audio – Frequency Response ("Measure" Mode)	DC - 20 kHz (44.1 kHz sample rate) DC - 22 kHz (48 kHz sample rate) DC - 40 kHz (88.2 kHz sample rate) DC - 44 kHz (96 kHz sample rate) DC - 80 kHz (176.4 kHz sample rate) DC - 88 kHz (192 kHz sample rate) DC - 100 kHz (2.8224 MHz sample rate)
Disc Types	BD-Video, DVD-Video, DVD-Audio, AVCHD, SACD, CD, HDCD, Kodak Picture CD, CD-R/RW, DVD±R/RW, DVD±R DL, BD-R/RE
Power Consumption	60 watts 20 watts, low power consumption mode
Dimensions	17-¼" W x 12-½" D x 3-¾" H 44 cm x 32 cm x 9.5 cm
Weight	23 pounds 10.4 kg

Statement of

Warranty

North American Warranty

Your Ayre DX-5^{DSD} universal stereo player is warranted against defects in workmanship and materials for a period of ninety days from the date of original purchase. This ninety-day coverage is automatic upon acceptance of delivery and no registration is required.

Additionally you have the option, at no cost, to extend the warranty for a period of five years from the date of purchase (except for the disc transport mechanism, which will be warrantied for a period of two years from the date of purchase) by returning the completed Warranty Registration Card and a photocopy of your original purchase receipt in the enclosed postage-paid envelope to Ayre within thirty days of product delivery. This optional warranty is only available within the thirty-day registration period.

North American Warranty Statement

1. If any defects are found in the materials or workmanship of this Ayre product within the warranty period, the unit will be repaired or replaced by Ayre Acoustics, Inc. (Ayre) or its authorized agent.

2. Purchaser must return the product, packed in the original shipping carton, freight prepaid to:

> Ayre Acoustics, Inc.
> 2300-B Central Avenue
> Boulder, Colorado 80301

or to Ayre's authorized agent. The product must be accompanied by a written description of the defect and a photocopy of your original purchase receipt. Ayre will not be responsible for any shipping damage and strongly recommends the purchase of shipping insurance.

3. Ayre reserves the right to inspect any product that is the subject of any warranty claim prior to repairing or replacing it. Final determination of warranty coverage lies solely with Ayre.

Out-of-warranty claims will be billed for labor, materials, return freight, and insurance as required. Any product for which a warranty claim is accepted will be returned to the purchaser and the cost of shipping and insurance will be factory prepaid within the boundaries of the USA. Units to be shipped outside of the USA will be shipped freight collect only.

4. Ayre strives to manufacture the finest possible equipment, and therefore reserves the right to make improvements on its products, without necessarily assuming any obligation to retrofit such changes upon its previously manufactured models.

5. The above warranty is the sole warranty given by Ayre, and is in lieu of all other warranties. All implied warranties, including warranties of merchantability or fitness for any particular purpose shall be strictly limited to the duration of the above warranty. Ayre shall have no further obligation of any kind, whether express or implied. Further, Ayre shall in no event be obligated for any incidental or consequential damages as a result of any defect or any warranty claim, whether express or implied.

6. Ayre does not authorize any third party, including any dealer or sales representative, to assume any liability of Ayre or make any warranty for Ayre. The unit must not have been altered or improperly serviced. The serial number on the unit must not have been altered or removed.

7. The remaining period of this warranty is only transferable to subsequent purchasers if the product is resold by an authorized Ayre dealer.

International Warranty

Warranty terms outside of North America may vary. Please contact the authorized Ayre distributor in your country of purchase for the terms of warranty and also the service itself.

Glossary

480i   Shorthand for an interlaced *NTSC* signal, where "480" refers to the number of actual picture lines and "I" refers to *Interlaced*. This is the resolution normally available from North American DVDs sourced directly from video cameras.

480p   Shorthand for a progressive *NTSC* signal, where "480" refers to the number of actual picture lines and "p" refers to *Progressive*. This is the resolution normally available from North American DVDs sourced from film.

576i   Shorthand for an interlaced *PAL* signal, where "576" refers to the number of actual picture lines and "I" refers to *Interlaced*. This is the resolution normally available from European DVDs sourced directly from video cameras.

576p   Shorthand for a progressive *PAL* signal, where "576" refers to the number of actual picture lines and "p" refers to *Progressive*. This is the resolution normally available from European DVDs sourced from film.

720p	Shorthand for a progressive *ATSC* high-definition signal, where "720" refers to the number of actual picture lines and "p" refers to *Progressive*. Some broadcasts use 720p resolution, and the DX-5^{DSD} can scale all video discs to 720p if that matches your display best.
1080i	Shorthand for an interlaced *ATSC* high-definition signal, where "1080" refers to the number of actual picture lines and "I" refers to *Interlaced*. Some broadcasts use 1080i resolution, and the DX-5 can scale all video discs to 1080i if that matches your display best.
1080p	Shorthand for a progressive *ATSC* high-definition signal, where "1080" refers to the number of actual picture lines and "p" refers to *Progressive*. Most Blu-ray discs offer 1080p resolution, and most modern display do also. This is the highest resolution format available for the home cinema, and the DX-5 can scale all video discs to 1080p if that matches your display best.
AES/EBU	The Audio Engineering Society and European Broadcast Union are standards organizations in the US and Europe, respectively. The term "AES/EBU" is commonly used to refer to the system of transmitting digital audio signals used in professional studios. This format is very similar to the *S/PDIF* digital audio standard, although the performance is higher due to the use of balanced cables employing three-pin XLR connectors.

Aspect Ratio	The ratio of the video display's width to its height. The two common aspect ratios used for video displays are 16:9 (1.78:1), also known as "widescreen", and 4:3 (1.33:1), also known as "standard".
ATSC	The Advanced Television Systems Committee was established in the USA to oversee the transition from the original analog broadcast system to the current digital high-definition broadcast system.
AVC	AVC (Advanced Video Coding) is a video compression algorithm used in the some Blu-ray discs.
CRT	The Cathode Ray Tube is the original analog technology used in video displays. It is rarely used today.
Composite	An *Interlaced* analog video signal that combines brightness (black-and-white) information together with color information. Performance is reduced compared to other transmission formats, as the two video signals cannot be perfectly separated again as required by the display device.
Compressed Audio	To allow storage of more video information on a DVD, the digital audio surround soundtrack is typically compressed to take up less room. The original *PCM* digital audio data is compressed by discarding data that is deemed to be of less importance. Various companies have developed proprietary schemes for reducing the quantity of audio data while attempting to minimize the impact on sound quality. See also *Dolby Digital*, *DTS*, and *MPEG Audio*

With the advent of Blu-ray, the additional storage space has allowed for lossless audio compression schemes. While the compression ratio is typically five times lower than lossy compression, lossless compression allows for the exact reproduction of the original *PCM* signal.

Compressed Video
Full-motion video requires a monumental amount of information to be stored. All digital consumer formats compress the video signal to allow it to fit on the disc. Luckily, digital video lends itself well to compression and both DVD and Blu-ray can provide superb picture quality using various video compression schemes.

D-ILA
Digital-Imaging Light Amplifier is a type of *LCOS* video display technology developed by JVC. This is one example of a *Fixed Pixel* display.

DLP
Digital Light Processing is the name of Texas Instruments' movable micro-mirror technology used in video displays. This is one example of a *Fixed Pixel* display.

Dolby Digital
A *Compressed Audio* format developed by Dolby Labs, this is found on virtually all DVDs. For higher quality audio on Blu-ray discs Dolby Labs has developed Dolby True HD, a *Lossless Audio* compression format.

DoP
DSD over PCM is a method of packetizing streaming *DSD* audio data so that it appears to audio devices as a standard *PCM* format.

DSD Direct Stream Digital is the name for a Pulse Demsity Modulation (*PDM*) digital encoding scheme.

DTS A *Compressed Audio* format developed by Digital Theater Systems. A DTS soundtrack is found on some DVDs, and in generally considered to sound better than the Dolby Digital soundtrack, in part due to the higher data rates used. For higher quality audio on Blu-ray discs DTS has developed DTS-HD Master Audio, a *Lossless Audio* compression format.

DVI The Digital Visual Interface was developed as a way to send digital video signals to a *Fixed-Pixel* (i.e., digital) display without any additional conversions to or from analog.

Fixed Pixel In a *CRT* video display the cathode ray, or beam, can be focused at any arbitrary point on the viewing surface. Thus multiple *Resolutions* are easily supported. In contrast, *Fixed Pixel* (i.e., digital) displays have the individual *Pixels* in predetermined locations. Incoming signals must be converted to the native resolution of the display element itself. This conversion process, called *Scaling*, can introduce visible artifacts if not performed at a high performance level. All fixed pixel displays have internal scalers incorporated internally.

HDMI The High Definition Multimedia Interface is an extension of the *DVI* interface that adds *HDCP*, digital audio, and an inter-device communication link, all in a smaller connector.

HDCP	High-bandwidth Digital Content Protection is a method of scrambling the *HDMI* video and audio signals in an attempt to avoid copying of copyrighted material.
Interlaced	An interlaced video system draws half of the picture lines on the video display at a time. The odd-numbered lines are displayed in one pass and the even numbered lines in the next. The interlaced format was developed as a means of reducing the bandwidth required for television broadcasting, but can result in visible artifacts in the picture compared to *Progressive* video.
LCD	A Liquid Crystal Display is the familiar display as found on laptop computers. These are most often transmissive displays, where a white light source behind the display element shines through colored *Pixels* to create an image. This is one example of a *Fixed Pixel* display.
LCOS	Liquid Crystal On Silicon places the *LCD* display element directly on the silicon wafer that forms the electronic control circuitry. A transmissive display element cannot be used as the silicon is not transparent. Instead, a reflective display element is used. This is one example of a *Fixed Pixel* display.
Lossless Audio	Unlike commonplace *Compressed Audio* that sacrifices sound quality in order to minimize storage requirements, Lossless Audio only offers moderate compression of the original *PCM* audio soundtrack, but still allows bit-perfect reproduction. Also see *Dolby Digital* and *DTS*.

MPEG	Moving Picture Experts Group is an international standards organization that developed the MPEG-2 video compression algorithm used in the DVD format and some Blu-ray discs.
MPEG Audio	One type of *Compressed Audio* developed by Philips. This was originally proposed as the audio format to be used on European DVDs, in a political compromise designed to share royalty revenues between Philips and Dolby. Philips was late to market with this format, and it has now largely been supplanted by Dolby Digital.
NTSC	The National Television Standards Committee was the body that defined the analog television video signal format originally used in the North America. Japan also used a variation of this signal. This format has a total of 525 lines, of which 480 are used for the actual picture information.
PAL	Phase Alternating Line was the analog video signal format used in Europe, Asia (except Japan), Australia, Africa, and South America. This format has a total of 625 lines, of which 576 are used for the actual picture information.
PCM	Pulse Code Modulation is a method of encoding the amplitude of audio or video signals as digital numbers. This is the highest performing method of storing audio, and is the system used on CDs, Blu-ray discs, and some DVDs.
PDM	Pulse Density Modulation is a method of encoding the amplitude of audio signals as the density of a string of digital pulses. The only commercial system to use PDM is *DSD* audio.

Pixel	As digital formats, DVD and Blu-ray reproduce video image as a grid of very fine colored dots. The smallest element of this video image is called a pixel, which is a shortened form of "picture element".
Plasma	A plasma video display uses ionized gases to excite colored phosphors, similar to the way that a fluorescent light bulb operates. This is one example of a *Fixed Pixel* display.
Progressive	A progressive video system draws all of the picture lines on the video display in one pass. Commonly used for computer displays, progressive video results in a more stable, flicker-free picture than does *Interlaced* video.
Region Coding	In an attempt to control the distribution of video discs, the DVD Forum has designated eight different regions and the Blu-ray Disc Association has designated three different regions throughout the world. Discs from any given region are normally only playable on players purchased from that same region.
Resolution	Every video display device or video format has a maximum number of *Pixels* that can be displayed. This resolution is specified as the number of horizontal pixels by the number of vertical pixels. The resolution of a DVD is 720x480 for *NTSC* discs and 720x576 for *PAL* discs. *Scaling* must be used to convert this resolution to the resolution of a *Fixed Pixel* display. The horizontal resolution of a *CRT* (i.e., analog) is somewhat ambiguous, as there are no discrete pixels used in this technology.

Scaling	Scaling is the process of converting a video signal from one *Resolution* to another. As with any type of signal processing, care must be taken to ensure that the signal is not degraded by the processing itself.
S/PDIF	The Sony/Philips Digital Interface Format is commonly used to transmit digital audio information from a source (such as a DVD player) to a receiver (such as a surround-sound processor). The connectors used for S/PDIF are common RCA (Cinch) connectors. Also see *AES/EBU*.
UOP	Video disc formats allows the disc itself to send commands to the player. A User Operation Prohibition is a disc-based command that tells the player to ignore commands issued by the user. For example, many video discs will display an FBI warning at the beginning of the disc and issue a UOP that temporarily disables most user commands.
VC-1	VC-1 is a higher-performance video compression algorithm used in the some Blu-ray discs.
Video Decoder	The Video Decoder is a highly complex integrated circuit that decodes the video and audio information stored on optical discs.

A Place for

Notes

Serial Number: _____

Purchase Date: _____

Dealer: _____

Salesperson: _____