SYNTHESIS®

JBL

SYNTHESIS
SDP-40HD
DIGITAL SURROUND
PROCESSOR/CONTROLLER
USER GUIDE

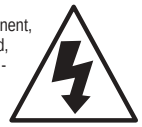
IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus, (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12.  Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when a power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

This triangle, which appears on your component, alerts you to the presence of uninsulated, dangerous voltage inside the enclosure - voltage that may be sufficient to constitute a risk of shock.



CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

This triangle, which appears on your component, alerts you to important operating and maintenance instructions in this accompanying literature.

- Refer to the manufacturer's operating instructions for power requirements. Be advised that different operating voltages may require the use of a different line cord and/or attachment plug.
- Do not install the unit in an unventilated rack, or directly above heat producing equipment such as power amplifiers. Observe the maximum ambient operating temperature listed in the product specification.
- Never attach audio power amplifier outputs directly to any of the unit's connectors.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

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DOCUMENTATION CONVENTIONS

This document contains general safety, installation and operation instructions for the SDP-40HD Digital Surround Processor/Controller. It is important to read this user guide before attempting to use the product. Pay particular attention to safety instructions.

The following symbols are used in the document:

Appears on the component to indicate the presence of uninsulated, dangerous voltage inside the enclosure – voltage that may be sufficient to constitute a risk of shock.

Appears on the component to indicate important operating and maintenance instructions in the accompanying literature.

WARNING Calls attention to a procedure, practice, condition or the like that, if not correctly performed or adhered to, could result in injury or death.

CAUTION! Calls attention to a procedure, practice, condition or the like that, if not correctly performed or adhered to, could result in damage or destruction to part or all of the product.

Note: Calls attention to information that is essential to highlight.

SETUP ▸ INPUTS ▸ DVD1 ▸ NAME ▸ EDIT INPUT NAME

Represents a menu path. The menu items in gray boxes must be selected with the remote control Menu ▸ arrow to access the menu or menu item in the black box. For example, the SETUP, INPUTS, and DVD1 menu items must be selected to open the DVD1 INPUT SETUP menu.

The DVD1 INPUT SETUP menu is used here as an example and will continue to be used as an example throughout this document. Whenever it appears, any other INPUT SETUP menu may be substituted. Likewise, whenever the DVD1 input appears as a step in a menu path, any other input may be substituted.

This document uses the term DTS(-ES) to indicate that DTS-ES encoding may or may not be present in the input source.

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1

Getting Started

ABOUT THE SDP-40HD

Thank you for purchasing the SDP-40HD Digital Controller, a reference-quality, 12-channel audio and video control center with independent zone monitoring to provide control of input source selection in three zones at the same time. As flexible as it is powerful, the SDP-40HD includes 12 inputs, each of which can be configured and assigned to any of its 6 HDMI™ (High-Definition Multimedia Interface™), 13 digital audio, 8 analog audio, 2 composite video, 3 S-video, or 4 component video input connectors. The analog audio input connectors can be configured for stereo or 5.1-channel sources.

The SDP-40HD features an HDMI interface that enables the transmission of uncompressed digital audio and video signals through a single connector. The SDP-40HD can pass digital video signals of up to 720p/1080i, and multiple digital audio channels (5.1 channels) at sample rates of up to 96kHz through the HDMI interface. The SDP-40HD also supports the High-bandwidth Digital Content Protection (HDCP) technology that comprises data encryption and authentication of the partner equipment.

Beyond the HDMI connectors and standard 5.1-channel audio output connectors, the rear panel includes stereo rear and stereo subwoofer connectors to provide even more audio channels. All Main Zone audio output connectors include 24-bit/96kHz D/A converters operating in dual differential mode. In addition, the SDP-40HD includes balanced audio output connectors for all Main Zone and Zone 2 channels.

Two RS-232 connectors are provided for serial control. One of the connectors is for performing flash-memory software upgrades and backing up or restoring configuration files. The other connector is reserved for possible upgrades.

More than just an audio and video control center, the SDP-40HD features the latest version of Harman's critically acclaimed Logic 7® decoding, which derives 7.1-channel output from stereo, 5.1-, and 6.1-channel sources. Unlike other decoders, Logic 7 is compatible with all input sources and requires no special encoding. Because the improvement it provides is clearly audible, Logic 7 decoding is widely regarded as the finest available.

In addition to Logic 7, the SDP-40HD is also equipped with Dolby® Digital Surround EX™, Dolby Pro Logic®, Dolby Pro Logic II, Dolby Pro Logic IIx, DTS 96/24™, DTS NEO:6®, DTS-ES®, THX Ultra2™, and THX Surround EX™ decoding. THX Ultra2 certification guarantees that the SDP-40HD meets the highest THX performance specifications.

With four 32-bit floating-point SHARC™ digital signal processing (DSP) engines, the SDP-40HD offers unparalleled processing power. These DSP engines perform custom processing such as Logic 7 decoding, bass enhancement, dialog enhancement, auto azimuth, 5-speaker enhancement, bass management, high-precision digital crossovers, and tone controls. This processing is available at sample rates up to 96kHz, with 24-bit resolution to retain top performance from all input sources and listening modes. A fifth DSP engine is dedicated to decoding multi-channel compressed audio sources.

High-precision 96kHz/24-bit A/D converters can be used to convert stereo and 5.1 analog audio input signals to digital signals, allowing the SDP-40HD to provide the benefits of precise digital signal processing without sacrificing signal integrity.

Digital audio input signals are processed through a two-stage phase lock loop for extremely low intrinsic jitter and high jitter rejection. Auto azimuth technology corrects timing and level imbalances in stereo sources, ensuring exceptionally accurate playback of surround encoded sources. A digital audio pass-through option is available for recording digital signals with a CD recorder or a similar component.

To complement its audio performance, the SDP-40HD features two broadcast-quality video switchers. An ultra-wide bandwidth component video switcher accepts analog component or RGB video signals, & can pass analog high-definition (HD), enhanced-definition (ED), and standard-definition (SD) TV signals. A composite and S-video switcher accepts NTSC, PAL or SECAM video signals. Both switchers are designed to pass video signals without alteration or degradation. In addition, the SDP-40HD can convert composite and S-video input signals to analog component video.

High-definition digital TV (HDTV) broadcasts require equipment that can process and display digital video signals at a resolution of either 720p or 1080i. For sources with HDMI digital video outputs, the SDP-40HD delivers these resolutions through the HDMI output to compatible display devices.

Analog 720p or 1080i video signals can pass through the broadcast-quality component video switcher. In comparison, most standard-definition (SDTV) broadcasts have a resolution of 480i. Some DVD players and enhanced-definition (ED) digital TV broadcasts have a 480p resolution. For digital video input sources using an HDMI interface, the SDP-40HD delivers these resolutions through the HDMI switcher.

Resolution is defined by the number of horizontal lines displayed on-screen that comprise each frame of a video image. The more lines of resolution used to create each frame of video, the greater the detail and sharpness of the image. For example, the resolution known as 720p refers to 720 horizontal lines of progressive video. The resolution known as 1080i refers to 1,080 lines of interlaced video.

An unparalleled processor, the SDP-40HD conveys the best in music and cinema with awesome power and leading-edge technological sophistication. Even the most demanding enthusiasts will be impressed with its exceptional performance. The SDP-40HD is a must-have addition for any high-quality home theater.

HIGHLIGHTS

- 12 channels
- 12 configurable inputs
- 3 independent zones
- 6 HDMI input connectors
- 13 digital audio input connectors, including 6 S/PDIF coaxial, 6 S/PDIF optical, and 1 AES/EBU
- 5.1-channel analog audio input connector
- Balanced audio output connectors for all Main Zone and Zone 2 channels
- Analog bypass option for stereo and 5.1-channel analog audio input connectors
- Auto switching between digital and analog audio input connectors
- 24-bit/192kHz D/A converters for all Main Zone audio channels
- Stereo subwoofer connectors, and one LFE output connector
- Manual calibration of speaker distances and output levels
- 4 sets component video input connectors with full HDTV compatibility (3 RCA, 1BNC)
- 1 set BNC component video output connectors
- 3 S-video input connectors
- 2 composite video input connectors
- Broadcast-quality video switching
- Four 32-bit DSP engines
- Separate DSP engine for decoding compressed audio sources
- LOGIC 7 decoding
- Dolby Digital Surround EX, Dolby Pro Logic, Dolby Pro Logic II, and Dolby Pro Logic IIx decoding
- DTS 96/24, DTS Neo:6, and DTS-ES (discrete and matrix) decoding
- THX Ultra2 and THX Surround EX decoding
- THX Ultra2 Certification
- RS-232 connector for flash memory software upgrades and configuration backups
- 1 HDMI output connector
- 2 digital audio output connectors
- 4 composite video output connectors (2 Main Zone, 2 Record Zone)
- 4 S-video output connectors (2 Main Zone, 2 Record Zone)
- 3 trigger output connectors
- Rear panel IR input connector
- 4 microphone input connectors

PRODUCT REGISTRATION

Please register the SDP-40HD Digital Controller within 15 days of purchase. Register online at www.jbl.com. Retain the original sales receipt as proof of warranty coverage.

INSTALLATION CONSIDERATIONS

The SDP-40HD requires special care during installation to ensure optimal performance. Pay particular attention to instructions below and to other precautions that appear throughout this user guide.

Do install the SDP-40HD on a solid, flat, level surface such as a table or shelf. The SDP-40HD can also be installed in a standard 19-inch equipment rack using an optional rack-mount kit available from an authorized dealer.

Do select a dry, well-ventilated location out of direct sunlight.

Do Not expose the SDP-40HD to high temperatures, humidity, steam, smoke, dampness or excessive dust. Avoid installing the SDP-40HD near radiators and other heat-producing appliances.

Do Not install the SDP-40HD near unshielded TV or FM antennas, cable TV decoders, or other RF-emitting devices that might cause interference.

Do Not place the SDP-40HD on a thick rug or carpet, or cover the SDP-40HD with a cloth, as this might prevent proper cooling.

Do Not place the SDP-40HD on a window sill or any location exposed to direct sunlight.

Do Not obstruct the front-panel IR receiver window. The remote control must be in line of sight with the IR receiver for proper operation.

Do Not install the SDP-40HD on a surface that is unstable or unable to support all four feet, **unless** it is installed in an equipment rack.

Do Not stack the SDP-40HD directly above heat-producing equipment such as a power amplifier.

CAUTION!

Before moving the SDP-40HD, power the unit off using the rear-panel power switch and unplug the power cord from the wall outlet.

REMOTE CONTROL BATTERY INSTALLATION AND REPLACEMENT

The remote control requires two AA batteries (included).

To install the remote control batteries:

1. Locate the battery compartment on the back of the remote control. Press the tab and lift the cover away from the remote control.
2. Observing the proper polarity, insert two AA batteries.
3. Align the cover over the battery compartment and gently press down until it snaps back into place.

The batteries should be replaced as needed. Alkaline batteries, which last longer without leaking, are recommended. When battery power is low, the remote control enters a low-voltage condition, preventing it from operating the SDP-40HD. When this occurs, replace the batteries. Normal operation will resume when new batteries are installed.

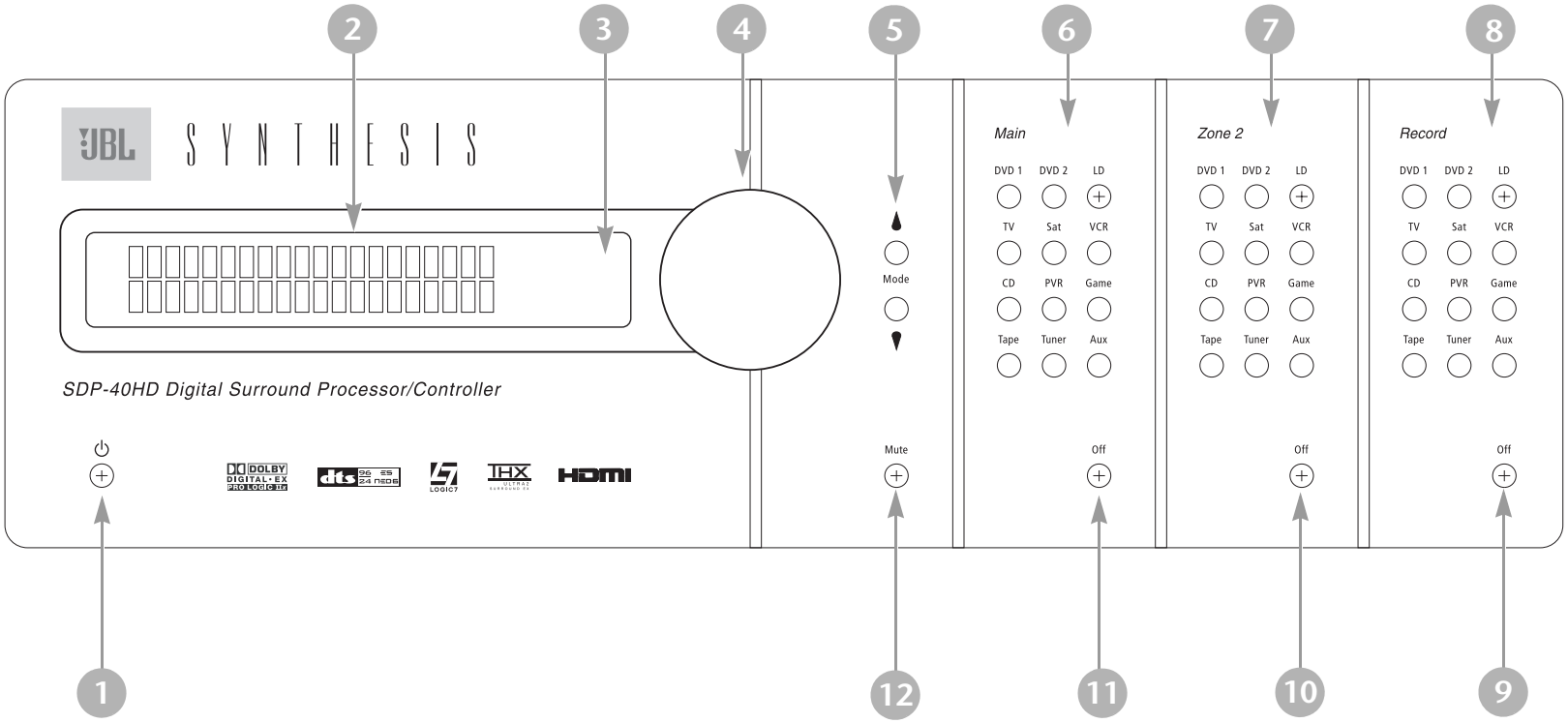
To replace the remote control batteries, remove the old batteries and install new ones following steps above.

2

Basic Operation

FRONT-PANEL OVERVIEW

The SDP-40HD is shown below. The numbers in the front panel illustration correspond with the numbered items below.



1. Standby Button
2. Front Panel Display
3. IR Receiver
4. Volume Knob
5. Mode ▲ and ▼ Buttons
6. Main Zone Input Selection Buttons
7. Zone 2 Input Selection Buttons
8. Record Zone Input Selection Buttons
9. Record Zone Off Button
10. Zone 2 Off Button
11. Main Zone Off Button
12. Mute Button

1 STANDBY BUTTON

Use the Standby button to activate or deactivate standby mode. The Standby button performs no function when the SDP-40HD rear panel power switch is powered off. When standby mode is deactivated, all SDP-40HD zones that were active during the last session are reactivated. The red LED in the Standby button lights to indicate that standby mode is activated. Power is still supplied to the SDP-40HD when it is put into standby mode.

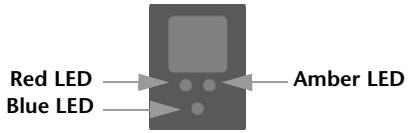
2 FRONT-PANEL DISPLAY

Use the front-panel display to view the current input, listening mode, input source, and volume level. The 2 x 20 character display also functions as a display for messages and menus.

3 IR RECEIVER

The IR receiver accepts infrared commands from the SDP-40HD remote control. There are three associated LEDs.

- The amber LED blinks when a remote control command is received.
- The red LED lights when the A/D converters are overloading.
- The blue LED lights when the SDP-40HD is powered on and activated – even if the FRONT PANEL DISPLAY menu STATUS parameter is set to ALWAYS OFF.



4 VOLUME KNOB

Use the volume knob to adjust volume level in all zones.

Note:

When SDP-40HD output levels are properly calibrated, the +0dB volume level setting corresponds to the THX reference level (75dB).

To adjust the Main Zone volume level:

Rotate the volume knob clockwise or counterclockwise to increase or decrease the volume level in 1dB increments. A horizontal bar graph indicating the current Main Zone volume level appears in the on-screen and front-panel displays. The Main Zone volume range is –80 to +6dB.

To adjust the Zone 2 or Record Zone volume level:

1. Press and hold the front panel Zone 2 or Record Zone input selection button that corresponds with the current input source. For example, if the current input source is DVD1, press and hold the Zone 2 or Record Zone DVD1 input selection button.
2. Rotate the volume knob clockwise or counterclockwise to increase or decrease the volume level in 1dB increments. A horizontal bar graph appears on the on-screen and front panel displays. The Zone 2 or Record Zone volume ranges are –80 to +6dB.

3. When the Zone 2 or Record Zone volume level has been set, release the input selection button.

Remote control input selection buttons cannot be used to select Zone 2 or Record Zone volume level adjustment, even if the Zone 2 or Record Zone command bank is activated.

FRONT-PANEL OVERVIEW *(continued)*

5 MODE ▲ AND ▼ BUTTONS

Use the Mode buttons to scroll to the previous and next available listening mode. Scrolling occurs in the order shown in the MODE ADJUST menu (See "Mode Adjust" on page 2.). Press the Mode ▲ button to scroll upward through available listening modes. Press the Mode ▼ button to scroll downward through available listening modes.

6 MAIN ZONE INPUT SELECTION BUTTONS

Selects an input in the Main Zone. When an input is selected, a blue LED lights on the corresponding input selection button. When the Main Zone is deactivated, pressing a Main Zone input selection button activates the Main Zone and selects the corresponding input. Zone 2 and the Record Zone remain deactivated until a Zone 2 or Record Zone input is selected.

7 ZONE 2 INPUT SELECTION BUTTONS

Selects the input in Zone 2. When an input is selected, an amber LED lights on the corresponding input selection button. When Zone 2 is deactivated, pressing a Zone 2 input selection button activates Zone 2 and selects the corresponding input. The Main and Record Zones remain deactivated until a Main or Record Zone input is selected.

8 RECORD ZONE INPUT SELECTION BUTTONS

Selects an input in the Record Zone. When an input is selected, a red LED lights on the corresponding input selection button. When the Record Zone is deactivated, pressing a Record Zone input selection button activates the Record Zone and selects the corresponding input. The Main Zone and Zone 2 remain deactivated until a Main Zone or Zone 2 input is selected.

9 RECORD ZONE OFF BUTTON

Deactivates the Record Zone.

10 ZONE 2 OFF BUTTON

Deactivates Zone 2.

11 MAIN ZONE OFF BUTTON

Deactivates the Main Zone.

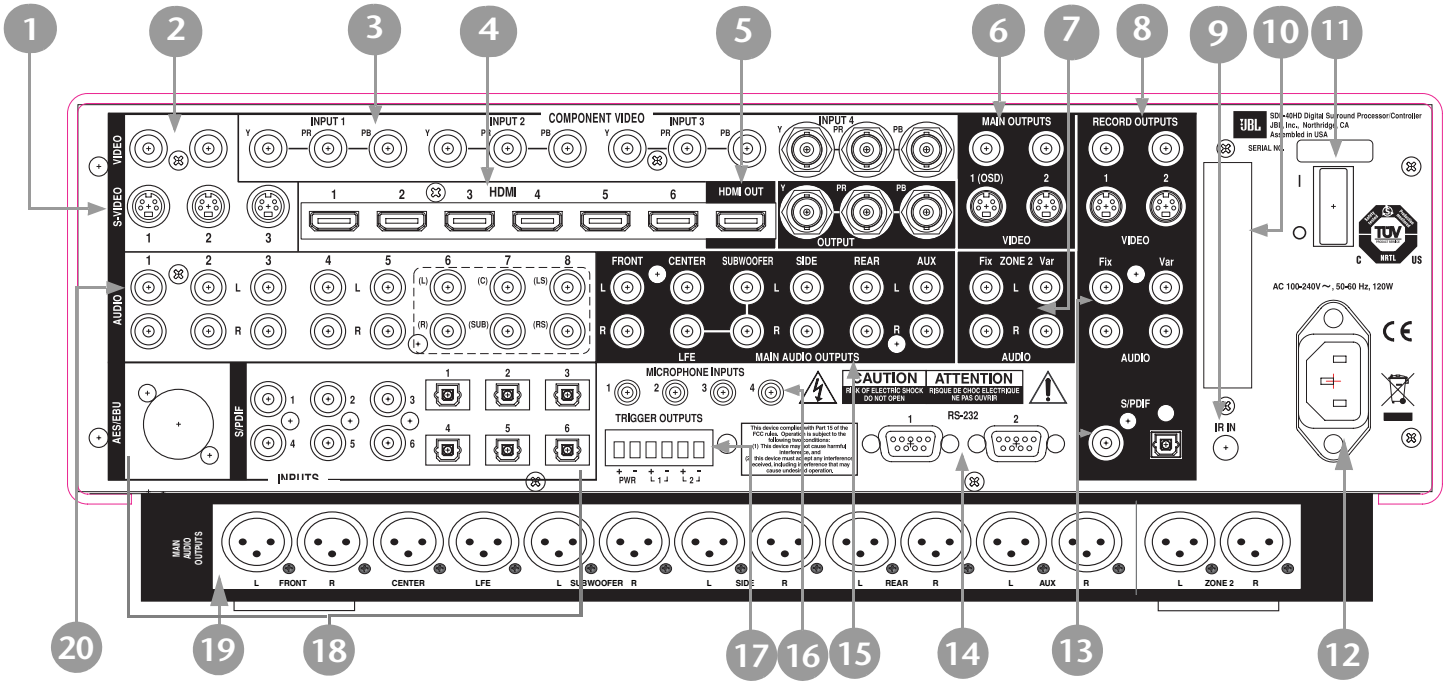
12 MUTE BUTTON

Press the Mute button to mute the SDP-40HD Main Zone volume; "MUTE ON" appears in the on-screen and front panel displays. Press the Mute button again to restore the SDP-40HD volume to its original level. Under VOLUME CONTROL SETUP, the MUTE LEVEL parameter can be used to set mute levels.

Mute can be activated automatically or manually. For example, the SDP-40HD briefly activates mute when changing input sources or listening modes. The amber LED on the Mute button lights whenever mute is activated.

REAR-PANEL OVERVIEW

The SDP-40HD is shown below. The numbers in the rear-panel illustrations correspond with the numbered items.



1. S-video Input Connectors
2. Composite Video Input Connectors
3. Component Video Input Connectors
4. HDMI Input Connectors
5. HDMI Output Connector
6. Main Video Output Connectors
7. Zone 2 Audio Output Connectors
8. Record Zone Video Output Connectors
9. IR In Connector
10. Removable Access Panel
11. Power Switch
12. AC Input Connector
13. Record Zone Audio Output Connectors
14. RS-232 Connectors

15. Main Audio Output Connectors
16. Microphone Input Connectors
17. Trigger Output Connectors
18. Digital Audio Input Connectors (AES/EBU, S/PDIF, & OMJ)
19. Balanced Audio Output Connectors
20. Analog Audio Input Connectors

CAUTION!

Never make or break connections to the SDP-40HD unless the SDP-40HD and *all* associated components are powered off.

1 S-VIDEO INPUT CONNECTORS

Provides video input to the Main and Record Zones. Three S-video connectors labeled S-VIDEO 1 to 3 are available.

2 COMPOSITE VIDEO INPUT CONNECTORS

Provides video input to the Main and Record Zones. Two composite video connectors labeled VIDEO 1 and 2 are available.

3 COMPONENT VIDEO INPUT CONNECTORS

Provides video input to the Main Zone. Four sets of component video connectors (three RCA and one BNC) labeled INPUT 1 to 4 are available. The component video connectors are not available for the Record Zone.

4 HDMI INPUT CONNECTORS

Provides HDMI audio/video input to the Main Zone (not available for the Record Zone). Six HDMI connectors labeled HDMI 1 to 6 are available.

Note:

A DVI (Digital Visual Interface) device can be connected to the SDP-40HD through a DVI-to-HDMI cable or adaptor. DVI carries video but no audio.

5 HDMI OUTPUT CONNECTOR

Provides HDMI output from the Main Zone. One HDMI output connector is available. The HDMI OUT connector supports HDCP (High-bandwidth Digital Content Protection).

Note:

A DVI (Digital Visual Interface) device can be connected to the SDP-40HD through a DVI-to-HDMI cable or adaptor. The DVI device must be HDCP compliant.

6 MAIN VIDEO OUTPUT CONNECTORS

Provides video output from the Main Zone. Two composite video connectors, two S-video connectors, and one set of component video connectors (BNC) are available. The composite and S-video connectors labeled 1 (OSD), and the component video connectors incorporate the on-screen display.

Composite video output is available when a composite or S-video source is present.

S-video output is available when an S-video source is present.

Component video output is available when a component, composite, or S-video source is present.

Note:

The video outputs that incorporate the on-screen display (OSD) can also display the two-line status. However, to view the two-line status through the component output, it must be configured to convert and display composite or S-video. See "COMPONENT IN" on page page 12.

CAUTION!

Never make or break connections to the SDP-40HD unless the SDP-40HD and all associated components are powered off.

7 ZONE 2 AUDIO OUTPUT CONNECTORS

Provides analog audio output from Zone 2. Two sets of stereo connectors are available. The connectors labeled "Fix" pass audio at fixed output levels. The connectors labeled "Var" pass audio at variable output levels and include a built-in volume control.

8 RECORD ZONE VIDEO OUTPUT CONNECTORS

Provides video output from the Record Zone. Two composite video connectors and two S-video connectors are available. These connectors can be used to connect a monitor or video recording device.

9 IR IN CONNECTOR

Accepts input of IR signals from infrared distribution equipment. One 3.5mm jack that accepts a stereo plug (Tip/Ring/Sleeve connection) or mono plug (Tip/Sleeve connection) is available.

10 REMOVABLE ACCESS PANEL

Covers the expansion slot, which is reserved for emerging technologies.

11 POWER SWITCH

The Power Switch disconnects power from the AC Input Connector (12) to the product. The **I** and **O** positions represent "on" and "off" status, respectively. When the SDP-40HD is powered on, the front-panel Standby button or remote control On button can be used to activate and deactivate standby mode. When the SDP-40HD is powered off, standby mode is not available.

12 AC INPUT CONNECTOR

Provides power to the SDP-40HD through the supplied power cord.

13 RECORD ZONE AUDIO OUTPUT CONNECTORS

Provides analog and digital audio output from the Record Zone. Two stereo connectors labeled Audio L/R output analog audio. The connector labeled "Fix" passes audio at a fixed output level. The connector labeled "Var" passes audio at variable output levels and includes a built-in volume control. Two S/PDIF connectors (one coaxial and one optical) output digital audio.

These connectors can be used to connect a recording device. When the Record Zone audio output connector labeled Var is connected to a recording device, you should set the volume to +0dB to achieve appropriate recording levels. See "REC PWR ON" on page page 55 for more information.

REAR-PANEL OVERVIEW *(continued)*

14 RS-232 CONNECTORS

The RS-232 serial connector (1) is used to perform backup and restoration of configuration files and flash memory software upgrades. The RS-232 connector (2) is capable of supporting future developments.

15 MAIN ZONE AUDIO OUTPUT CONNECTORS

Provides analog audio output from the Main Zone. Ten connectors labeled Front L/R, Center, LFE, Subwoofer L/R, Side L/R, and Rear L/R are available. Two connectors labeled Aux L/R are provided for future expansion.

16 MICROPHONE INPUT CONNECTORS

Provides microphone input. Four 3.5mm Tip/Ring/Sleeve connectors are available.

17 TRIGGER OUTPUT CONNECTORS

Provides 12V DC output to control connected components. Three trigger output connectors are available on a removable terminal block. The PWR connector – the power trigger output connector – cannot be configured. It is activated when the SDP-40HD is activated, and deactivated when the SDP-40HD is deactivated. The trigger output connectors (1) and (2) can be configured for remote or program operation.

18 DIGITAL AUDIO INPUT CONNECTORS (AES/EBU & S/PDIF)

Provides digital audio input to all zones. One AES/EBU (XLR), six S/PDIF coaxial (RCA), and six S/PDIF TOSLINK™ optical input connectors are available. These connectors are compatible with PCM (44.1, 48, 88.2, and 96kHz), Dolby Digital, and DTS-ES sources. These connectors are not compatible with MPEG or MP3 sources.

19 BALANCED AUDIO OUTPUT CONNECTORS

Provides balanced analog audio outputs in the Main Zone and Zone 2. Ten connectors labeled Front L/R, Center, LFE, Subwoofer L/R, Side L/R, and Rear L/R are available in the Main Zone. The connectors labeled Aux L/R are provided for future expansion. Two connectors labeled Zone 2 L/R are available for Zone 2.

20 ANALOG AUDIO INPUT CONNECTORS

Provides analog audio input. Eight stereo analog audio input connectors labeled 1 to 8 are available. Connectors labeled 6, 7 and 8 can be configured as 5.1-channel connectors.

When a 5.1-channel analog audio source is present in the Main Zone input signals are sent to the Main Zone audio output connectors as indicated in the table on the following page. If the ANALOG BYPASS is ON, a 5.1-channel analog source is present in the Main Zone, and the INPUT SETUP menu ZONE2 IN or RECORD IN parameter is set to DMIX, only the (L) and (R) input signals are sent to the Zone 2 or Record Zone audio output connectors.

Input Connector	Output Connector
(L) & (R)	Front L/ R
(C)	Center
(SUB)	Subwoofer L/R & LFE
(LS) & (RS)	Side L/R and Rear L/R

REMOTE CONTROL OVERVIEW

The SDP-40HD remote control provides full operation of the SDP-40HD, including commands such as menu navigation that are not available from the front-panel. The command matrix, beginning on page 2-1100, indicates the commands that remote control buttons perform when each command bank is active. The numbered items in the matrix correspond with the remote control illustrations.

OPERATION CONSIDERATIONS

The following factors can improve or impede remote control operation.

Note the following before operating the SDP-40HD remote control:

- The remote control must be in line of sight with the front-panel IR receiver. Eliminate obstructions between the remote control and the IR receiver. The remote control may become unreliable if strong sunlight or fluorescent light shines on the IR receiver.
- For optimal performance, position the remote control at a 30 degree angle no more than 17 feet (5m) from the SDP-40HD. Placing the SDP-40HD inside a smoked glass cabinet will reduce the remote control range.
- Remote controls for different components can interfere with one another. Avoid using remote controls for different components at the same time.
- Remote control batteries should be replaced as needed.

COMMAND BANK ACTIVATION

Remote control buttons perform different commands depending on whether the Main Zone, Zone 2, Record Zone, or Shift command bank is activated. Pressing and releasing a remote control command bank selection button – MAIN, ZONE, REC, or SHIFT – activates the corresponding command bank. The selected command bank remains active until another command bank is activated.

The command bank selection buttons themselves do not send commands to the SDP-40HD. When pressed and released, these buttons activate the corresponding command bank. For example, pressing and releasing the SHIFT button activates the Shift command bank. When the Shift command bank is activated, pressing and releasing the DVD-1 button turns off the Main Zone. See Command Matrix, page 2-11.

To activate a command bank:

1. Press and release a command bank selection button to activate the desired command bank.

   The command matrix that begins on the next page indicates which commands the remote control buttons perform when each command bank is activated.

2. Press a remote control button to send a command to the SDP-40HD.

The MAIN MENU ▸ SETUP ▸ DISPLAYS ▸ ON-SCREEN DISPLAY menu REMOTE STATE parameter controls the remote control command bank indicator that appears on the on-screen display. When the REMOTE STATE parameter is set to ON, a command bank indicator appears in the top-right corner of the on-screen display to indicate the last command bank from which the SDP-40HD received a command. A “Z” appears to indicate Zone 2. An “R” appears to indicate the Record Zone. An “S” appears to indicate the Shift command bank. No letter appears when the Main Zone command bank is active. When the REMOTE STATE parameter is set to OFF, no command bank indicator appears on the on-screen display.

Note:

Remote control command bank selection buttons should not be pressed and held.

COMMAND MATRIX

The numbers in the remote control illustrations correspond to the numbered items in the matrix. The sections following the command matrix provide a more detailed explanation of the functionality and menu structure of the digital controller that can be accessed through the remote control.

Button	Main Zone	Zone 2	Record Zone	Shift
1	Activates and deactivates standby mode when the SDP-40HD rear panel power switch is in the on position. When standby mode is activated, pressing the standby button deactivates standby mode and activates the SDP-40HD, including all zones that were activated during the previous operating session. When standby mode is deactivated, pressing the standby button activates standby mode and deactivates the SDP-40HD. The red front panel standby button LED lights to indicate that standby mode is activated. ***Note:*** *Power is still supplied to the SDP-40HD when standby mode is activated.*			
2	Activates the remote control back-light, illuminating remote control buttons to make them more visible in the dark. The back-light also illuminates whenever a remote control button is pressed. Once illuminated, the back-light remains on for about 5 seconds before extinguishing.			
3	Activates the Main Zone command bank, which includes commands that control the Main Zone.			
	Activates the Zone 2 command bank, which includes commands that control Zone 2 and the Main Zone.			
	Activates the Record Zone command bank, which includes commands that control the Record Zone.			
	Activates the Shift command bank, which includes commands that control all zones.			
4	Selects the DVD1 input for the Main Zone.	Selects the DVD1 input for Zone 2.	Selects the DVD1 input for the Record Zone.	Deactivates the Main Zone.
	Selects the DVD2 input for the Main Zone.	Selects the DVD2 input for Zone 2.	Selects the DVD2 input for the Record Zone.	Deactivates Zone 2.
	Selects the LD input for the Main Zone.	Selects the LD input for Zone 2.	Selects the LD input for the Record Zone.	Deactivates the Record Zone.
	Selects the TV input for the Main Zone.	Selects the TV input for Zone 2.	Selects the TV input for the Record Zone.	Sets the AUDIO CONTROLS menu LOUDNESS parameter to ON.

Button	Main Zone	Zone 2	Record Zone	Shift
4 SAT	Selects the SAT input for the Main Zone.	Selects the SAT input for Zone 2.	Selects the SAT input for the Record Zone.	Sets the AUDIO CONTROLS menu LOUDNESS parameter to OFF.
VCR	Selects the VCR input for the Main Zone.	Selects the VCR input for Zone 2.	Selects the VCR input for the Record Zone.	Reserved for possible future expansion.
CD	Selects the CD input for the Main Zone.	Selects the CD input for for Zone 2.	Selects the CD input for the Record Zone.	Increases the AUDIO CONTROLS menu BASS parameter in 0.5dB increments.
PVR	Selects the PVR input for the Main Zone.	Selects the PVR input for Zone 2.	Selects the PVR input for the Record Zone.	Increases the AUDIO CONTROLS menu TREBLE parameter in 0.5dB increments.
GAME	Selects the GAME input for the Main Zone.	Selects the GAME input for Zone 2.	Selects the GAME input for the Record Zone.	Increases the AUDIO CONTROLS menu TILT EQ parameter in 0.2dB increments.
TAPE	Selects the TAPE input for the Main Zone.	Selects the TAPE input for Zone2.	Selects the TAPE input for the Record Zone.	Decreases the AUDIO CONTROLS menu BASS parameter in 0.5dB increments.
TUNER	Selects the TUNER input for the Main Zone.	Selects the TUNER input for Zone 2.	Selects the TUNER input for the Record Zone.	Decreases the AUDIO CONTROLS menu TREBLE parameter in 0.5dB increments.
AUX	Selects the AUX input for the Main Zone.	Selects the AUX input for Zone 2.	Selects the AUX input for the Record Zone.	Decreases the AUDIO CONTROLS menu TILT EQ parameter in 0.2dB increments.

Button	Main Zone	Zone 2	Record Zone	Shift
5 FP	Toggles the FRONT PANEL DISPLAY menu STATUS parameter between ALWAYS OFF and the current setting.	Sets Zone 2 volume level to -15dB	Sets Record Zone volume level to -15dB	Sets Main Zone volume level to -15dB.
6 BLUE	Toggles the ON SCREEN DISPLAY menu BACKGROUND parameter between ON and OFF.	Sets Zone 2 volume level to -30dB	Sets Record Zone volume level to -30dB	Sets Main Zone volume level to -30dB.
7 OSD	Toggles the ON SCREEN DISPLAY menu STATUS parameter between ALWAYS OFF and the current setting.	Reserved for possible future expansion.	Reserved for possible future expansion.	Sets the AUDIO CONTROL menu BASS, TREBLE, and TILT EQ parameters to +0.0dB. However, the screen displays: EQ BALANCE EQ OFF
8 MODE	Scroll to the previous or next available listening mode, with the current Main Zone input source. Scrolling occurs in the order shown on the MODE ADJUST menu.	Activates (+) and deactivates (-) the trigger output connector labeled 1 when the connector is configured for remote operation.	Activates (+) and deactivates (-) the trigger output connector labeled 2 when the connector is configured for remote operation.	Deactivates (+) and activates (-) standby mode when the SDP-40HD is powered on with the rear panel power switch.
9 VOL	Increases and decreases Main Zone volume level in 1dB increments.	Increases and decreases Zone 2 volume level in 1dB increments.	Increases and decreases Record Zone volume level in 1dB increments.	Increases and decreases Main Zone volume level in 3dB increments.
10 MUTE	Toggles between lowering Main Zone volume level and restoring Main Zone volume to the original level.	Toggles between full Zone 2 muting and restoring Zone 2 volume to the original level.	Toggles between full Record Zone muting and restoring Record Zone volume to the original level.	Toggles between full Main Zone muting and restoring Main Zone volume to the original level.

Button	Main Zone	Zone 2	Record Zone	Shift
11 STAT	Displays the Main Zone two-line status for 2 seconds.	Displays the Zone 2 two-line status for 2 seconds.	Displays the Record Zone two-line status for 2 seconds.	Opens and closes the status menu for the current input source.
12 MENU	When a menu is open, pressing the MENU button closes the structure. When no menus are open, pressing the MENU button opens the MAIN MENU.	Centers the AUDIO CONTROLS menu ZONE2 BALANCE parameter.	Centers the AUDIO CONTROLS menu RECORD BALANCE parameter.	Centers the AUDIO CONTROLS menu Main Zone BALANCE and FADER parameters.
13 ▶ ◀	Closes the current (◀) menu or opens the menu structure and selects the highlighted menu item (▶).	Adjusts the AUDIO CONTROLS menu ZONE2 BALANCE parameter left and right.	Adjusts the AUDIO CONTROLS menu RECORD BALANCE parameter left and right.	Adjusts the AUDIO CONTROLS menu Main Zone BALANCE parameters left and right.
▲ ▼	Scroll upward and downward through menu items.	Increase and decrease subwoofer output levels applied to the current listening mode.	Reserved for possible future expansion.	Adjusts the AUDIO CONTROLS menu Main Zone FADER parameters forward (▲) and backward (▼).
14 7/5	Toggles between 7-channel and 5-channel playback.	Reserved for possible future expansion.	Reserved for possible future expansion.	Adjusts the MAIN ADV menu INPUT SELECT parameter, cycling through the ANALOG, DIGITAL, and AUTO settings.
15 2CH	Toggles between the current listening mode and the 2-CHANNEL listening mode.	Reserved for possible future expansion.	Reserved for possible future expansion.	Toggles the MAIN ADV menu ANALOG BYPASS parameter between ON and OFF.

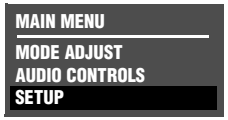
Button	Main Zone	Zone 2	Record Zone	Shift
16 THX	Selects the THX mode family for the current input source.	Reserved for possible future expansion.	Reserved for possible future expansion.	Activates the THX UL2Cin or the THX SurEX listening mode when a 5.1-channel Dolby Digital source is present.
DD	Selects the Dolby mode family for the current input source.	Reserved for possible future expansion.	Reserved for possible future expansion.	Activates the Dolby Digital EX or Dolby Digital listening mode when a 5.1-channel Dolby Digital source is present.
7	Selects the LOGIC 7 FILM mode family for the current input source.	Reserved for possible future expansion.	Reserved for possible future expansion.	Activates the PANORAMA listening mode.
7VL	Selects the LOGIC 7 TV mode family for the current input source.	Reserved for possible future expansion.	Reserved for possible future expansion.	Activates the MONO LOGIC listening mode for 2-channel sources and the 5.1 MONO LOGIC listening mode for 5.1 channel Dolby Digital sources.
dts	Selects the DTS mode family for the current input source.	Reserved for possible future expansion.	Reserved for possible future expansion.	When a DTS(-ES) source is present, pressing the dts button toggles the ES DECODING parameter, cycling through the AUTO, ON, and OFF settings.
MUSIC	Selects the LOGIC 7 MUSIC mode family for the current input source.	Reserved for possible future expansion.	Reserved for possible future expansion.	Activates the L7 MUSIC SURR listening mode.

MENU NAVIGATION

Use the remote control Menu and arrow buttons to navigate the extensive menu structure shown in the Appendix. The table below indicates the navigation commands that the remote control buttons perform when the Main Zone command bank is activated.

MAIN MENU

The MAIN MENU represents the beginning of the menu structure. Use the MAIN MENU to open the three main menu branches: MODE ADJUST, AUDIO CONTROLS, and SETUP.



Button	Navigation Function(s)
	• When no menus are displayed, press the MENU button to open the MAIN MENU. • When a menu is open, press the MENU button to close the menu structure.
	• When no menus are displayed, press the ▸ arrow button to open the MAIN MENU. • When a menu is open, press the ▸ arrow button to select the highlighted menu item.
	• When a menu is open, press the ◂ arrow button to close the menu and, in most cases, open the previous menu. Subsequent presses continue to close the current menu and open the previous menu until the MAIN MENU is closed. When the MAIN MENU is closed, the menu structure is also closed. • When no menus are displayed, pressing the ◂ arrow button performs no function. • When a drop-down menu is open, press the ◂ arrow button to select the current setting and close the drop-down menu.
	• When a menu is open, press the ▲ or ▼ arrow buttons to scroll upward or downward through the complete list of menu items. All menu items are displayed on-screen. A scroll bar appears on the left side of the menu when menu items exceed the top and bottom margins of the display, and the cursor automatically advances to the next menu item when the first or last menu item is passed. The highlighted menu item is displayed on the SDP-40HD front panel.

MENU ITEM SELECTION

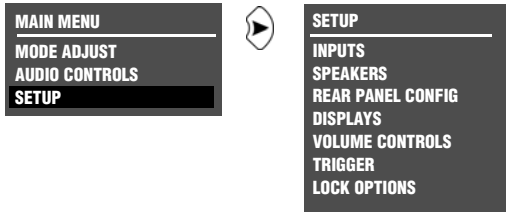
Use the remote control Menu arrows to select menu items.

To select a menu item:

1. Press the remote control ▲ or ▼ arrow buttons to highlight the desired menu item.
2. When the desired menu item is highlighted, press the ▶ arrow button to select the highlighted item. If you select an option, another menu displays. If you select a parameter, a parameter menu or horizontal graph opens.

MENU OPTIONS

Selecting a menu option opens another menu within the menu structure. For example, selecting SETUP from the MAIN MENU opens the SETUP menu.

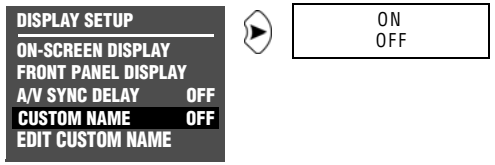


MENU PARAMETERS

Selecting a menu parameter opens a drop-down menu or horizontal bar graph that is used to select the desired setting.

PARAMETER DROP-DOWN MENUS

When certain menu parameters are selected, a drop-down menu opens with a list of available parameter settings. For example, selecting the DISPLAY SETUP menu CUSTOM NAME parameter opens a drop-down menu for selecting the ON or OFF setting.



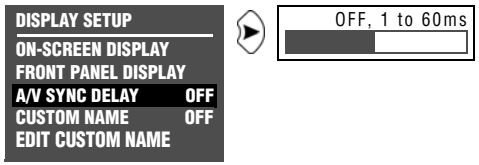
To select a setting in a parameter drop-down menu:

1. When the drop-down menu opens, press the remote control ▲ or ▼ arrow button to scroll up or down through the complete list of available settings. The current setting is displayed beneath the parameter name in the on-screen and front-panel displays.
2. When the desired setting appears beneath the parameter name, press the ◀ arrow button to accept the setting and close the drop-down menu.

HORIZONTAL BAR GRAPHS

Selecting some menu parameters opens a horizontal bar graph. The bar graph indicates the position of the current parameter setting within the entire parameter range. The setting appears to the right of the parameter name in the on-screen and front-panel displays.

For example, selecting the DISPLAY SETUP menu A/V SYNC DELAY parameter opens the horizontal bar graph shown below, which is used to adjust the amount of audio delay.



To adjust a parameter setting with a horizontal bar graph:

1. When the horizontal bar graph appears, press the remote control ▲ or ▼ arrow button to increase or decrease the setting in designated increments.

   The setting appears to the right of the parameter name in the on-screen and front-panel displays.

2. When you have finished adjusting the settings, press the ◀ arrow button to select the current setting and close the horizontal bar graph.

ABOUT THE ZONES

The SDP-40HD features three zones of operation: the Main Zone, Zone 2, and the Record Zone. The Main Zone controls audio and video sources in the primary listening space. Zone 2 controls audio sources in the secondary listening space. The Record Zone controls audio and video sources sent to recording devices or to a third listening space.

These zones have separate digital audio receivers and dedicated analog source selectors that allow for independent input selection in each zone. The SDP-40HD can process input sources in three zones at the same time. For example, the SDP-40HD can play a DVD in the Main Zone, while playing a CD in Zone 2, while sending satellite receiver signals to a VCR in the Record Zone.

The following are exceptions to independent zone operation:

1. When a Dolby Digital or DTS(-ES) source is present in the Main Zone, the same Dolby Digital or DTS(-ES) source can also be present in Zone 2 or the Record Zone. However, a different Dolby Digital or DTS(-ES) source cannot be present in Zone 2 or the Record Zone.
2. Main Zone multi-channel audio can be down-mixed in Zone 2 or the Record Zone when all of the following conditions are met:
   - A Dolby Digital or DTS(-ES) source is present in the Main Zone.
   - The Main Zone input is also selected in Zone 2 or the Record Zone. For example, if the DVD1 input is selected in the Main Zone, the DVD1 input must also be selected in Zone 2 or the Record Zone.
   - The MAIN MENU ▸ SETUP ▸ INPUTS ▸ INPUT SETUP menu ZONE2 IN or RECORD IN parameter is set to DMIX.
3. When the MAIN MENU ▸ SETUP ▸ INPUTS ▸ INPUT SETUP menu ZONE2 IN or RECORD IN parameter is set to ANLG, the Zone 2 or Record Zone audio output connectors are not available during 5.1mc BYPASS listening mode. However, it is possible to have a 5.1-channel analog audio source present in the Main Zone and a digital audio source present in Zone 2 or the Record Zone.
4. When an HDMI source is selected for digital audio input, the down-mixed audio is available on the digital audio output in the Record Zone. When the source on the HDMI connector is copy-protected DVD-Audio, no digital audio is output, but analog audio is still output.

TWO-LINE STATUS

The two-line status opens on the on-screen and front panel displays whenever the SDP-40HD detects a status change such as a new input source or listening mode. The information included on the two-line status differs depending on the zone in which the SDP-40HD last detected a status change.

MAIN ZONE TWO-LINE STATUS

Opens on the on-screen and front panel displays whenever the Main Zone status changes. The Main Zone two-line status indicates the current input, listening mode, input source, and volume level selected in the Main Zone.

ZONE 2 TWO-LINE STATUS

Opens on the on-screen and front panel displays whenever the Zone 2 status changes. The Zone 2 two-line status indicates the current input, input source, and volume level selected in Zone 2.

RECORD ZONE TWO-LINE STATUS

Opens on the on-screen and front panel displays whenever the Record Zone status changes. The Record Zone two-line status indicates the current input, input source, and volume level selected in the Record Zone.

The ON-SCREEN DISPLAY menu STATUS parameter controls how long the two-line status appears on the on-screen display. The ON-SCREEN DISPLAY menu POSITION parameter controls the vertical alignment of the two-line status on the display device screen.

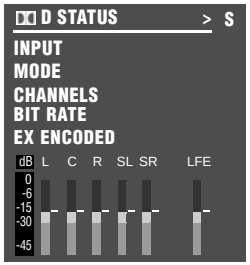
Notes:

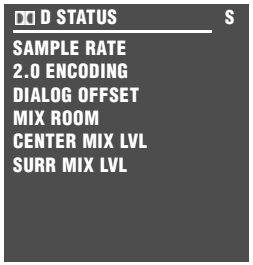
- *When the display device is connected to a component video output connector and the ADVANCED menu COMPONENT OSD parameter is set to OFF, the display device does not show the on-screen display, including the two-line status.*
- *The two-line status displays on the component video output only when VIDEO IN is set to composite or S-video and COMPONENT IN is set to VIDEO.*

STATUS MENUS

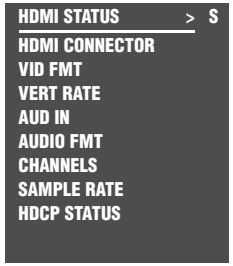
The STATUS menu contains parameters that provide information about the current input source and listening mode. Status menus are available for HDMI, 2-channel, Dolby Digital, DTS(-ES), analog, and digital input sources.

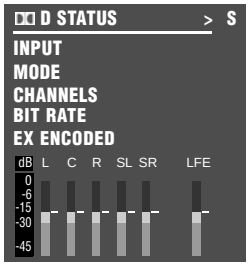
All status menus include the letter "S" at the top right corner. Certain status menus also include level meters that indicate fluctuating audio input levels. Some status menus have more information than can fit on one screen, or page. These status menus have two or three pages, and are identified by the caret (>) near the top right corner.

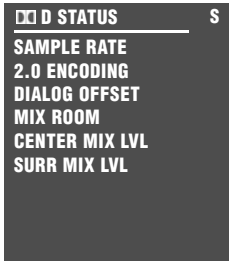




If HDMI audio or video is active, the HDMI status menu will appear before other status menus.







Unlike most other menus, status menus cannot be opened by selecting menu options. The remote control command sequence outlined below must be executed.

To open and navigate the STATUS menu for the current input source:

1. Press and release the remote control **SHIFT** button.
2. Press and release the remote control **STAT** button.

The first page of the STATUS menu for the current input source appears in the on-screen and front-panel displays.

3. If the > indicator appears near the top right corner of the menu, press and release the **STAT** button again to open the second page. Press and release the **STAT** button again to open the third page (if one exists).

If the STATUS menu does not include a second or third page, pressing and releasing the **STAT** button again closes the menu.

Note:

When viewing a STATUS menu on the front panel display, press the remote control **MAIN** *button, then press the ▲ or ▼ arrow button to scroll up or down through the list of available parameters.*

4. Press the **STAT** button to close the STATUS menu. In some cases, you must press **STAT** twice in succession to close the STATUS menu.

Note:

STATUS menu parameters provide information about the current input source and listening mode. These parameters cannot be adjusted.

STATUS MENU LEVEL METERS

Most STATUS menus contain level meters that indicate fluctuating input levels in the front left (L), center (C), front right (R), surround left (SL), surround right (SR), surround back (SB) and low frequency effects (LFE) channels. These level meters indicate input levels for both analog and digital input sources. For example, the level meters indicate digital audio input levels when a digital audio source is present.

Different combinations of level meters appear on each STATUS menu, depending on the current source. The SB level meter appears when a 6.1-channel source or a 5.1-channel source is present and the ES DECODING parameter is set to ON.

Level meters appear in combinations of green, yellow and red when the on-screen display is configured for a blue screen background. Green indicates low levels, yellow indicates normal levels, and red indicates high levels and the onset of overload. Level meters appear in white when the on-screen display is not configured for a blue screen background.

STATUS MENU DESCRIPTIONS

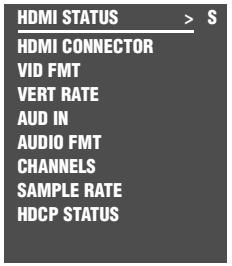
The table beneath each description lists the possible settings for each parameter.

HDMI STATUS

Provides information about HDMI input sources. VID FMT is the video format. VERT RATE is the vertical scan rate frequency.

Parameter	Possible Settings
HDMI CONNECTOR	1–6
VID FMT (video format)	480i, 480p, 720p, 1080i, ---
VERT RATE (vertical scan rate)	60Hz, 50Hz, 59.94Hz, ---
AUD IN	HDMI, OPTICAL1–6, COAX1–6, ANALOG, 5.1 ANLG (6–8)
AUDIO FMT	DD, DTS, PCM, N/A
CHANNELS	6.1, 5.1, 5.0, 2.1, 2.0, 1.0, N/A
SAMPLE RATE	44.1kHz, 48kHz, 88.2kHz, 96kHz, N/A
HDCP STATUS	ACTIVE, INACTIVE, ERROR

See "Status Menu Parameter Descriptions" on page 27 for detailed information.

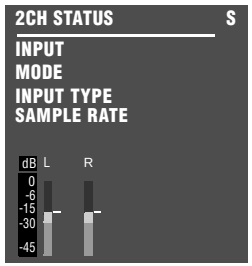


2CH STATUS

Provides information about 2-channel input sources. Features L and R level meters.

Parameter	Possible Settings
INPUT	Current input
MODE	Current listening mode
INPUT TYPE	ANLG, PCM
SAMPLE RATE	44.1kHz, 48kHz, 88.2kHz, 96kHz

See "Status Menu Parameter Descriptions" on page 27 for detailed information.

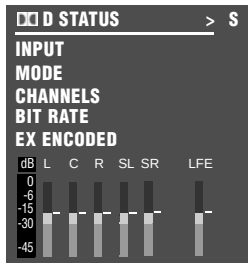


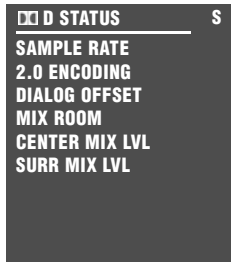
D STATUS

Provides information about Dolby Digital input sources. Features L, C, R, SL, SR, SB, and LFE level meters.

Parameter	Possible Settings
INPUT	Current input
MODE	Current listening mode
CHANNELS	3/2.1, 3/2, 3/1, 2/2, 2/1, 2/0, 1/0
BIT RATE	32 to 640kbps
EX ENCODED	YES, NO
SAMPLE RATE	48kHz
2.0 ENCODING	MATRIX, NONE
DIALOG OFFSET	-27 to +4dB
MIX ROOM	SMALL, LARGE
CENTER MIX LVL	-3.0dB, -4.5dB, -6.0dB
SURR MIX LVL	+0.0dB, -3.0dB, -6.0dB

See "Status Menu Parameter Descriptions" on page 27 for detailed information.



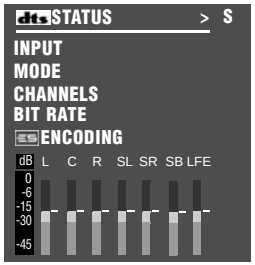


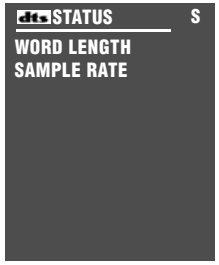
dts STATUS

Provides information about DTS(-ES) input sources. Includes L, C, R, SL, SR, SB and LFE level meters.

Parameter	Possible Settings
INPUT	Current input
MODE	Current listening mode
CHANNELS	3/3.1, 3/2.1
BIT RATE	754.5 to 1509.7kbps
ES ENCODING	DISCRETE, MATRIX, OFF
WORD LENGTH	16 bits, 20 bits, 24 bits
SAMPLE RATE	44.1kHz, 48kHz, 88.2kHz, 96kHz

See "Status Menu Parameter Descriptions" on page 27 for detailed information.





5.1mc STATUS

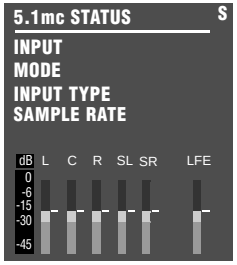
Provides information about 5.1-channel sources. Includes L, C, R, SL, SR, and LFE level meters.

Parameter	Possible Settings
INPUT	Current input
MODE	Current listening mode
INPUT TYPE	ANLG, PCM
SAMPLE RATE	44.1kHz, 48kHz, 96kHz

Note:

The only possible sample rate for 5.1 analog sources is 96kHz, as they are converted to 96kHz PCM at the SDP-40HD input (when MAIN ADVANCED ▸ ANALOG BYPASS is set to OFF).

See "Status Menu Parameter Descriptions" on page 27 for detailed information.

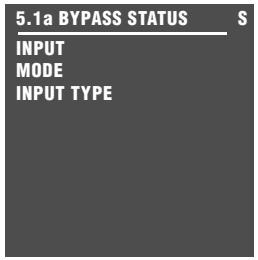


5.1a BYPASS STATUS

Provides information about 5.1-channel analog input sources when the MAIN ADV menu ANALOG BYPASS parameter is set to ON.

Parameter	Possible Settings
INPUT	Current input
MODE	5.1a BYPASS
INPUT TYPE	BYPASS

See "Status Menu Parameter Descriptions" on page 27 for detailed information.

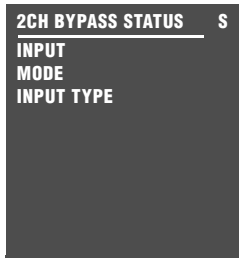


2CH BYPASS STATUS

Provides information about 2-channel analog input sources when the MAIN ADV menu ANALOG BYPASS parameter is set to ON.

Parameter	Possible Settings
INPUT	Current input
MODE	2CH BYPASS
INPUT TYPE	BYPASS

See "Status Menu Parameter Descriptions" on page 27 for detailed information.

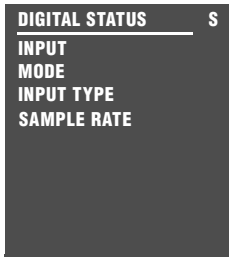


DIGITAL STATUS

Provides information about digital input sources for which a sample rate is detected, but no audio is present in the input signal.

Parameter	Possible Settings
INPUT	Current input
MODE	Current listening mode
INPUT TYPE	---
SAMPLE RATE	44.1kHz, 48kHz, 88.2kHz, 96kHz

See "Status Menu Parameter Descriptions" on page 27 for detailed information.



STATUS MENU PARAMETER DESCRIPTIONS

2.0 ENCODING MATRIX, NONE

Indicates whether a matrix encoded source is detected. When the parameter setting is MATRIX, a matrix encoded source is detected. When the parameter setting is NONE, a matrix encoded source is not detected.

AUD IN HDMI, OPTICAL-1 to 6, COAX-1 to 6, ANALOG, 5.1 ANLG (6-8)

Displays the audio input connector that is selected as the active input.

AUDIO FMT DD, DTS, PCM, ---

Displays the type of audio present at the selected active digital audio input.

BIT RATE 32 to 640 kbps or 754 to 1509.7kbps

Indicates the rate at which the input signal is encoded. A higher bit rate indicates that less compression was used during the encoding process. Possible settings for Dolby Digital sources range from 32 to 640 kbps. Possible settings for DTS(-ES) sources range from 754 to 1509.7kbps.

CENTER MIX LVL -3.0dB, -4.5dB, -6.0dB

Indicates the relative level of the center channel that was used during the mixing process.

CHANNELS 3/3.1, 3/2.1, 3/2, 3/1, 2/2, 2/1, 2/0, 1/0

Indicates the number of channels present in the input source. The first digit indicates the number of front channels present. The digit after the slash indicates the number of surround channels present. The digit after the decimal point indicates the presence of LFE (low frequency effects) information.

Possible settings for Dolby Digital input sources include 3/2.1, 3/2, 3/1, 2/2, 2/1, 2/0 and 1/0. Current settings for DTS-ES input sources include 3/3.1 and 3/2.1.

DIALOG OFFSET -27 to +4dB

Indicates the dialog normalization value applied to the input signal. Dolby Digital input sources reproduce dialog at 27 decibels below full-scale (-27dBFS). When the dialog normalization value of the incoming signal is higher or lower, the DIALOG OFFSET parameter indicates the amount of adjustment the SDP-40HD makes to normalize dialog to -27dBFS.

ES ENCODING DISCRETE, MATRIX, OFF

Indicates whether or not a DTS-ES encoded source is detected. When the parameter setting is DISCRETE, a discrete 6.1-channel DTS-ES source is detected. When the parameter setting is MATRIX, a 5.1-channel DTS-ES source with a surround encoded back channel is detected. When the parameter setting is OFF, a standard DTS source with no DTS-ES encoding is detected.

EX ENCODED YES, NO

Indicates whether or not a Dolby Digital Surround EX encoded source is detected. When the parameter setting is yes, a 5.1-channel Dolby Digital source recorded with Dolby Digital Surround EX is detected. When the parameter setting is NO, a

standard 5.1-channel Dolby Digital source recorded without Dolby. Digital Surround EX encoding is detected. The SDP-40HD cannot automatically detect Dolby Digital Surround EX encoding in non-flagged input sources.

HDCP STATUS ACTIVE, INACTIVE, ERROR

Indicates the current HDCP status of the media present at the active HDMI input.

HDMI CONNECTOR 1-6

Indicates the HDMI connector selected as the active HDMI input.

INPUT

Indicates the selected input (for example, DVD1).

INPUT TYPE ANLG, BYPASS, PCM, ---

Indicates the input source that is present. When the parameter setting is ANLG, a 2-channel analog audio source is present and the ADVANCED menu ANALOG BYPASS parameter is set to OFF. When the parameter setting is BYPASS, a 2-channel analog audio source is present and the ANALOG BYPASS parameter is set to ON. When the parameter setting is PCM, a 2-channel digital audio source is present. When the parameter setting is ---, an unknown digital audio source is present.

MIX ROOM SMALL, LARGE

Indicates the size of the mixing room that was used during the mixing process. When the parameter setting is LARGE, you should set the RE-EQUALIZER parameter to ON for THX listening modes.

MODE

Indicates the activated listening mode (e.g., L7 FILM).

SAMPLE RATE 44.1kHz, 48kHz, 88.2kHz, 96kHz

Indicates the sample rate of the input source that is present.

SURR MIX LVL +0.0dB, -3.0dB, -6.0dB

Indicates the relative surround channel level that was used during the mixing process.

VERT RATE 60Hz, 50Hz, 59.94Hz, ---

Indicates the vertical timing rate for the active video format being carried on HDMI.

VID FMT 720P, 1080I, ---

Indicates the active video format of the media present at the active HDMI input.

WORD LENGTH 16 bits, 20 bits, 24 bits

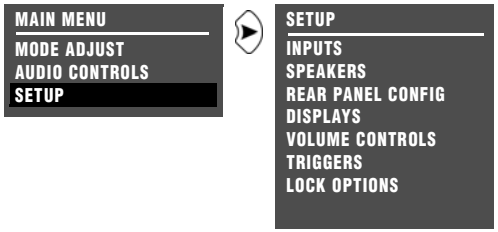
Indicates the word length of the audio data present in the input signal.

3

Setup

SETUP

Selecting SETUP from the MAIN MENU opens the SETUP menu.



INPUTS

SETUP ▸ INPUTS

Prompts for an input selection (e.g., DVD1), and opens the corresponding INPUT SETUP menu. When the menu is open, you can change input names, assign audio, HDMI, and video input connectors, select preferred listening modes, and configure Main Zone, Zone 2 and Record Zone settings. See "INPUT SETUP" on page 3-3 for more information.

SPEAKERS

SETUP ▸ SPEAKERS

Opens the SPEAKER SETUP menu, to configure the Main Zone audio output connectors for the desired speaker setup. See "SPEAKER SETUP" on page 3-27 for more information.

REAR PANEL CONFIG

SETUP ▸ REAR PANEL CONFIG

Opens the REAR PANEL CONFIG menu, to configure the analog audio input connectors as eight stereo connectors or as five stereo and one 5.1-channel connectors. See "REAR PANEL CONFIG" on page 3-47 for more information.

DISPLAYS

SETUP ▸ DISPLAYS

Opens the DISPLAY SETUP menu, to customize the on-screen and front-panel displays, restore audio/video synchronization, and create and activate a custom unit name. See "DISPLAY SETUP" on page 3-49 for more information.

VOLUME CONTROLS

SETUP ▸ VOLUME CONTROLS

Opens the VOLUME CONTROL SETUP menu, to configure Main Zone, Zone 2, and Record Zone volume levels. See "Volume Control Setup" on page 3-54 for more information.

TRIGGERS

SETUP ▸ TRIGGERS

Prompts the selection of a desired trigger output connector (1 or 2) and opens the corresponding TRIGGER SETUP menu for configuration of remote or program operation. See "TRIGGER SETUP" on page 3-56 for more information.

LOCK OPTIONS

SETUP ▸ LOCK OPTIONS

Opens the LOCK OPTIONS menu, to protect MODE ADJUST, AUDIO CONTROLS and SETUP menu branch settings from accidental changes. See "LOCK OPTIONS" on page 3-59 for more information.

INPUT SETUP

SETUP ▶ INPUTS ▶ (INPUT) ▶ INPUT SETUP

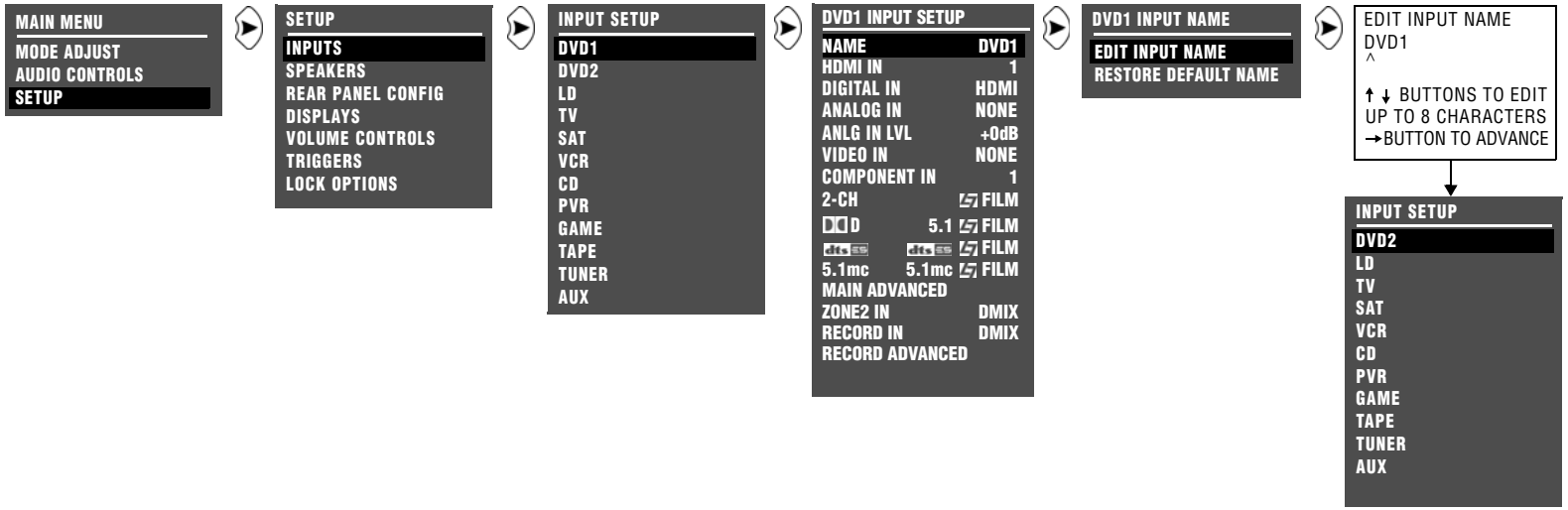
Selecting the SETUP menu INPUTS option prompts the selection of a desired input (e.g., DVD1). Selecting an input opens the corresponding INPUT SETUP menu, which changes input names, assigns audio and video input connectors, selects preferred listening modes, and configures advanced Main Zone, Zone 2, and Record Zone settings.

NOTE: The DVD1 INPUT SETUP menu is shown here as an example, and will continue to be shown as an example throughout this section. Whenever it appears, any other INPUT SETUP menu can be substituted. Likewise, whenever the DVD1 input appears as a step in a menu path, any other input can be substituted.

All INPUT SETUP menus are shown in the Appendix on page A-7. The parameters on the left side of the INPUT SETUP menus are identical, regardless of which input is selected. The parameter settings on the right side are adjustable. The INPUT SETUP menus shown in the Appendix indicate factory-default parameter settings for each input.

CHANGING INPUT NAMES

Selecting the INPUT SETUP menu NAME parameter opens the INPUT NAME menu, to customize or restore the factory-default name of the selected input. Factory-default input names correspond to front-panel and remote control input selection button labels.



EDIT INPUT NAME

SETUP ▸ INPUTS ▸ DVD1 ▸ NAME ▸ EDIT INPUT NAME

Opens the EDIT INPUT NAME editing menu, to customize the name of the selected input. Custom input names can include up to eight characters.

To customize the name of the selected input:

1. Follow the EDIT INPUT NAME menu path to open the EDIT INPUT NAME editing menu.
2. When the editing menu opens, the current input name appears on the second line. Use the remote control ▲ and ▼ arrow buttons to change the character above the cursor (^).
3. When the character you want is displayed, press the ▸ arrow button to advance to the next character space. The cursor will automatically wrap to the first character space when the last character space is passed.

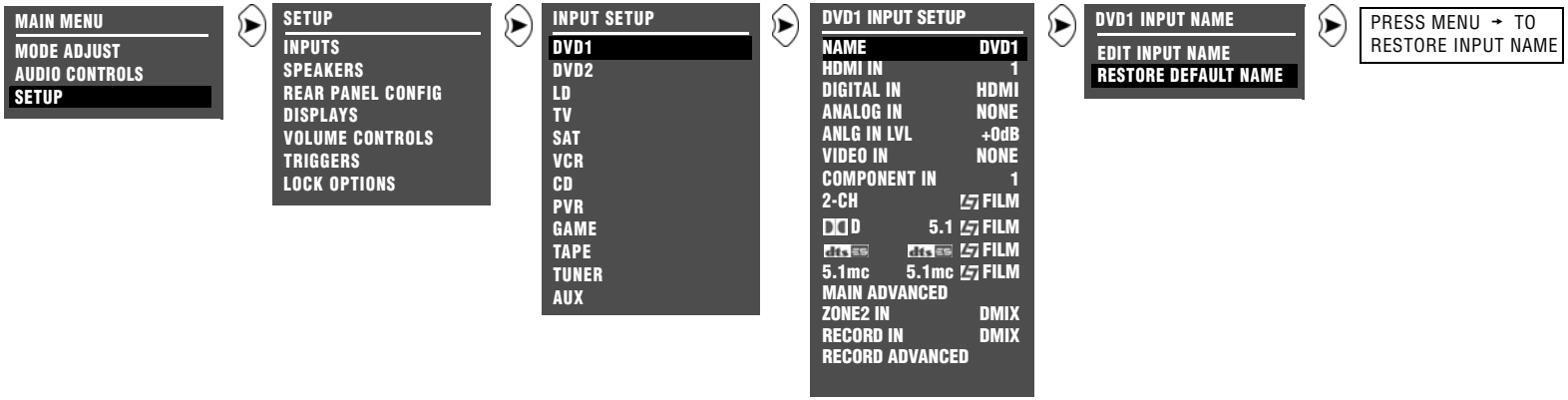
Note:

Pressing the ◂ arrow button closes the menu and returns to the INPUT NAME menu.

CHANGING INPUT NAMES *(continued)*

4. Repeat step 3 to enter all characters in the new name. When the input name you want is displayed, press the ◂ arrow button to close the menu and return to the INPUT NAME menu.

The custom input name appears in the on-screen and front-panel displays. Both the custom and factory-default input names appear in the INPUT SETUP menu. The custom input name appears against the left margin of the on-screen display, and the factory-defaul input name appears in parentheses against the right margin.



RESTORE DEFAULT NAME

SETUP ▸ INPUTS ▸ DVD1 ▸ NAME ▸ RESTORE DEFAULT NAME

Restores the factory-default name of the selected input. Factory default input names correspond to front-panel and remote control input selection button labels.

To restore the factory-default name of the selected input:

1. Follow the RESTORE DEFAULT NAME menu path to open the INPUT NAME menu.
2. When the INPUT NAME menu opens, press the remote control ▲ or ▼ buttons to highlight the RESTORE DEFAULT NAME option.
3. Press the ▸ arrow button to select this option. The message: "PRESS MENU → TO RESTORE INPUT NAME" appears in the on-screen and front-panel displays.
4. Press the ▸ button to restore the factory-default name and close the message. (Press the ◂ button to close the message without restoring the factory-default name of the selected input.)

ASSIGNING HDMI, AUDIO AND VIDEO INPUT CONNECTORS

The SDP-40HD has 12 inputs, to which any (depending on compatibility) of its 6 HDMI, 13 digital audio, 8 analog audio, 2 composite video, 3 S-video, or 4 component video input connectors can be assigned. The table below indicates the INPUT SETUP menu parameters that can be used to assign audio and video input connectors. The ANLG IN LVL parameter can be used to adjust 2-channel and 5.1 analog audio input levels for the selected input.

Parameter	Possible Settings
HDMI IN	HDMI-1 to 6, NONE
DIGITAL IN	HDMI AUDIO, COAX-1 to 6, OPTICAL-1 to 6, AES/EBU, NONE
ANALOG IN	ANALOG-1 to 8, 5.1 ANLG (6-8), NONE
ANLG IN LVL	AUTO, -18dB to +12dB
VIDEO IN	COMPOSITE-1 to 2, S-VIDEO-1 to 3, NONE
COMPONENT IN	COMPONENT-1 to 4, VIDEO

Note:

The digital audio input connectors (including HDMI) are compatible with PCM (44.1, 48, 88.2, and 96kHz), Dolby Digital and DTS(-ES) sources. These connectors are not compatible with MPEG, MP3 or MP4.

HDMI IN

HDMI-1 TO 6, NONE

SETUP ▶ INPUTS ▶ DVD1 ▶ HDMI IN

Opens the HDMI IN menu, to assign an HDMI (High Definition Multimedia Interface) input connector to the selected input.

The relationship between the HDMI inputs and HDMI analog and digital outputs depends upon whether the HDMI IN parameter is set to HDMI-1 to 6 or NONE, and also the setting of the DIGITAL IN parameter. Refer to the table on page 3-7 during the following explanation.

When HDMI IN is set to HDMI 1 to 6, and DIGITAL IN is set to HDMI AUDIO, then only HDMI video (no audio) is active on the HDMI output connector. The received HDMI audio is processed by the SDP-40HD and is available on the analog audio outputs. See page 3-8 for details on the DIGITAL IN menu selections.

When HDMI IN is set to NONE, and DIGITAL IN is set to HDMI AUDIO, then the COAX-1 connector is automatically assigned to DIGITAL IN in place of any previously assigned HDMI connectors. No audio or video is available on the HDMI output connector.

When one of the HDMI inputs is selected and DIGITAL IN is set to a parameter other than HDMI AUDIO, then both HDMI audio and video are passed through the SDP-40HD (no processing occurs) to the HDMI output connector.

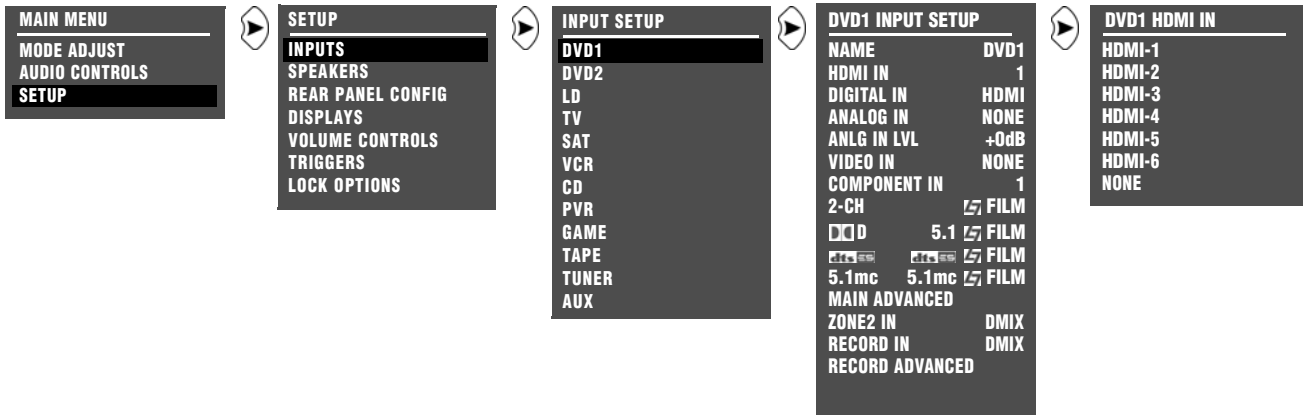
Copyright protection system

The SDP-40HD supports HDCP (High-bandwidth Digital Content Protection). HDCP is a copy protection technology that comprises data encryption and authentication of associated equipment connected through HDMI. All equipment connected to the SDP-40HD through HDMI must support HDCP if the HDCP-protected content is to be displayed properly.

ASSIGNING HDMI, AUDIO AND VIDEO INPUT CONNECTORS *(continued)*

The following table shows the behavior of the SDP-40HD relating to the HDMI inputs.

Inputs		Outputs	
HDMI	**Digital In**	**HDMI Output**	**Analog Audio Outputs**
HDMI-1 to 6	HDMI AUDIO	HDMI video	HDMI digital audio
NONE	---- or COAX-1	No audio or video	Analog inputs (or COAX-1 if valid)
HDMI-1 to 6	NONE	HDMI audio and video	Analog inputs
HDMI-1 to 6	S/PDIF input (COAX or OPTICAL)	HDMI audio and video	S/PDIF input (if valid)



DIGITAL IN HDMI AUDIO, COAX-1 TO 6, OPTICAL-1 TO 6, AES/EBU, NONE

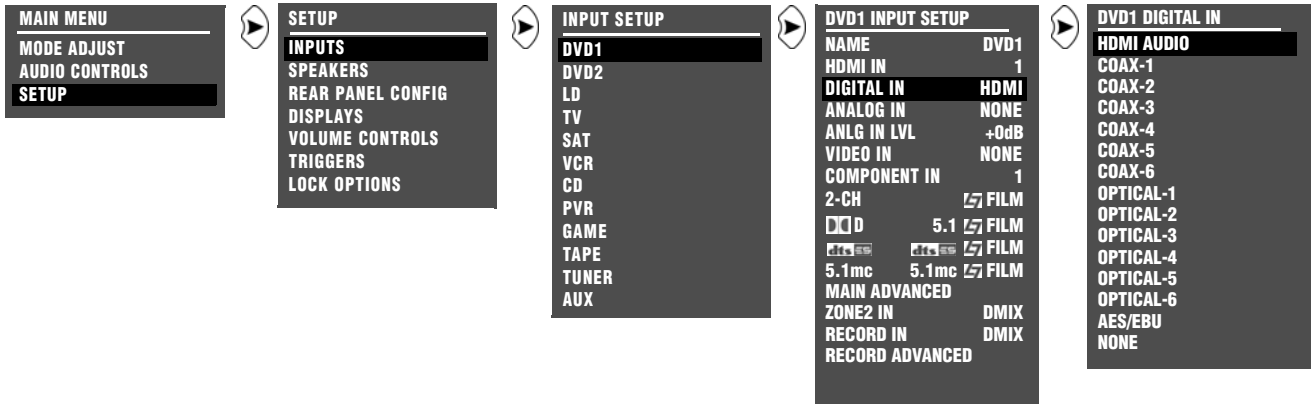
SETUP ▶ **INPUTS** ▶ **DVD1** ▶ **DIGITAL IN**

Opens the DIGITAL IN menu, to assign a digital audio input connector to the selected input. A digital audio input connector must be assigned if no analog audio input connector is assigned.

When no analog audio input connector is assigned, the SDP-40HD automatically sets the:

- MAIN ADV menu INPUT SELECT parameter to DIGITAL
- INPUT SELECT menu ZONE2 IN parameter to DIGITAL
- INPUT SELECT menu RECORD IN parameter to DIGITAL

When the HDMI AUDIO parameter is selected an HDMI input must also be selected (in the HDMI IN menu) or the HDMI audio will not be available.



ASSIGNING HDMI, AUDIO & VIDEO INPUT CONNECTORS *(continued)*

ANALOG IN ANALOG-1 TO 8, 5.1 ANLG (6-8), NONE

SETUP ▶ INPUTS ▶ DVD1 ▶ ANALOG IN

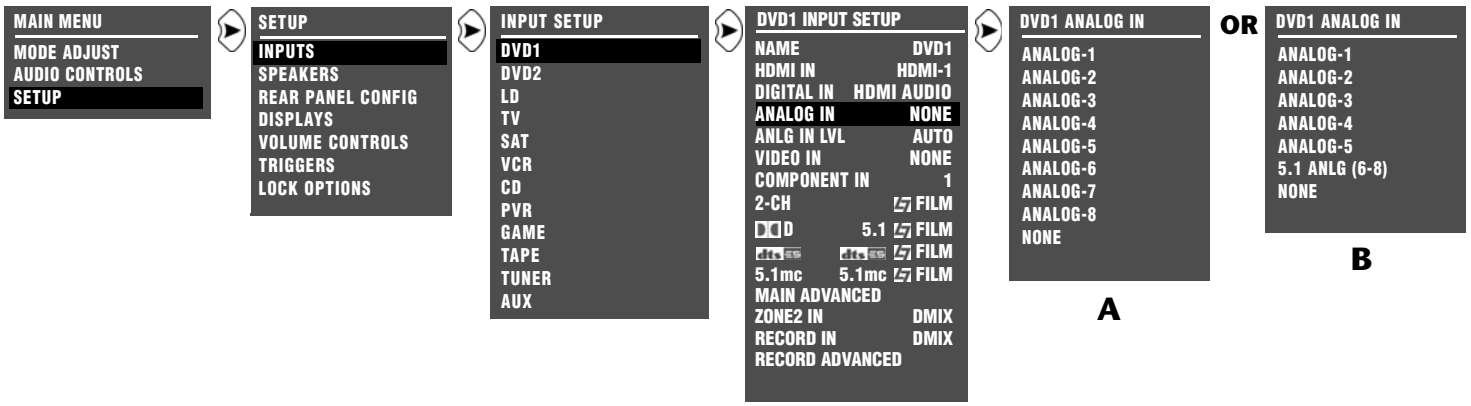
Opens the ANALOG IN menu, to assign an analog audio input connector to the selected input. An analog audio input connector must be assigned if no digital audio input connector is assigned.

The appearance of the ANALOG IN menu depends on the configuration of the analog audio input connectors.

- The ANALOG IN menu (A below) appears when the REAR PANEL CONFIG menu 8 STEREO INPUTS option is selected.
- The ANALOG IN menu (B below) appears when the REAR PANEL CONFIG menu 5 STEREO & 5.1 ANLG option is selected.

When no digital audio input connector is assigned, the SDP-40HD automatically sets the:

- MAIN ADV menu INPUT SELECT parameter to ANALOG
- INPUT SELECT menu ZONE2 IN parameter to ANLG
- INPUT SELECT menu RECORD IN parameter to ANLG



ANLG IN LVL

AUTO, -18 to +12dB

SETUP ▸ **INPUTS** ▸ **DVD1** ▸ **ANGL IN LVL**

Opens the ANLG IN LVL menu, to adjust the 2-channel (and 5.1-channel when the MAIN ADVANCED ▸ ANALOG BYPASS parameter is set to OFF) analog audio input level for the selected input. Analog audio sources have a wide range of levels. To compensate, the SDP-40HD allows independent input level adjustment of each stereo analog audio input connector. The input level of the 5.1-channel analog audio input connector is only adjustable when the ANALOG BYPASS parameter is set to OFF.

Parameter	Possible Settings
AUTO	ON, OFF
MANUAL	-18 to +12dB
AUTO GAIN*	-18 to +12dB

** This parameter cannot be adjusted.*

Note:

Adjustments made on the ANLG IN LVL menu are applied to the stereo analog audio input connector assigned for the selected input. When another stereo analog audio input connector is assigned, these adjustments are automatically applied to the new connector.

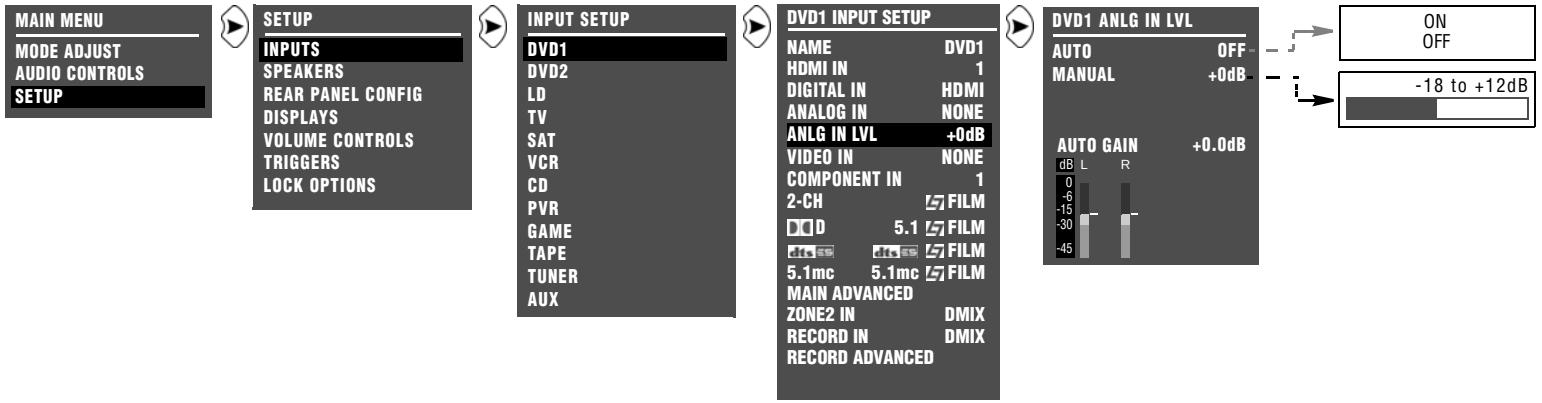
AUTO

ON, OFF

SETUP ▸ **INPUTS** ▸ **DVD1** ▸ **ANGL IN LVL** ▸ **AUTO**

Provides automatic adjustment of the 2-channel (and 5.1-channel when the MAIN ADVANCED ▸ ANALOG BYPASS parameter is set to OFF) analog audio input levels. When set to ON, the input levels are automatically monitored and optimized. When the input signal is too high, the input levels are quickly decreased to avoid overload. When the input signal is too low, the input levels are slowly increased to maximize the signal-to-noise ratio and dynamic range.

When set to OFF, the 2-channel and 5.1 analog audio input levels are not automatically monitored and optimized. Instead, input levels must be adjusted with the ANLG IN LVL MANUAL parameter.



ASSIGNING HDMI, AUDIO & VIDEO INPUT CONNECTORS *(continued)*

MANUAL -18 to +12dB

SETUP ▶ INPUTS ▶ DVD1 ▶ ANGL IN LVL ▶ MANUAL

Provides manual adjustment of the 2-channel (and 5.1-channel when the MAIN ADVANCED ▸ ANALOG BYPASS parameter is set to OFF) analog audio input levels. Lower levels cause more noise, while higher levels pose a risk of overload distortion. When manual adjustments are made, the SDP-40HD automatically sets the ANLG IN LVL menu AUTO parameter to OFF, deactivating automatic input level adjustment. Manual input level adjustments are retained when the AUTO parameter is ON.

Note:

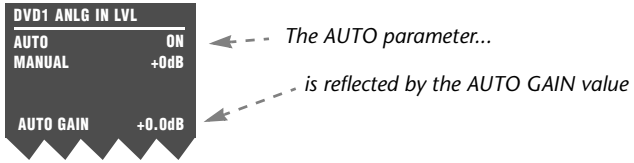
When the AUTO parameter is ON, the SDP-40HD will not make adjustments that exceed the ANLG IN LVL menu MANUAL parameter setting.

AUTO GAIN

SETUP ▶ INPUTS ▶ DVD1 ▶ ANGL IN LVL ▶ AUTO GAIN

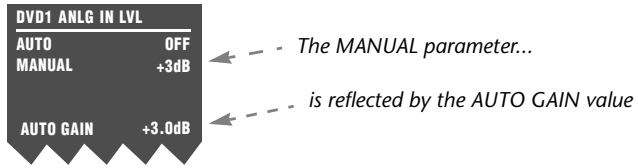
Indicates the current amount of input level adjustment for the selected 2-channel (and 5.1-channel when the MAIN ADVANCED ▸ ANALOG BYPASS parameter is set to OFF) analog audio input connector. This parameter cannot be directly adjusted. When the ANLG IN LVL menu AUTO parameter is ON, the AUTO GAIN parameter indicates the amount of automatic input level adjustment.

When AUTO GAIN is set to ON



When the AUTO parameter is OFF, the AUTO GAIN parameter indicates the amount of input level adjustment as set by the MANUAL parameter.

When AUTO GAIN is set to OFF



When the AUTO parameter is ON, the AUTO GAIN parameter continues to indicate the amount of manual input level adjustment until automatic adjustments have been made.

LEVEL METERS

Indicate fluctuating input levels in the front left (L) and front right (R) channels for the selected input. Meters are also present for center (C), surround left (SL), surround right (SR), and sub (LFE) when the input is set up for 5.1-analog. Like the STATUS menu level meters,

ANLG IN LVL menu level meters indicate input levels for both analog and digital audio sources. However, ANLG IN LVL menu input level adjustments only affect 2-channel (or 5.1-channel sources when the MAIN ADVANCED ▸ ANALOG BYPASS parameter is set to OFF) analog audio sources.

Level meters appear in combinations of green, yellow and red when the on-screen display is configured for a blue-screen background. Green indicates low levels; yellow indicates normal levels; and red indicates the onset of overload. Occasional flashes from yellow into red are normal peak indicators. Level meters appear in white when the on-screen display is not configured for a blue-screen background (see page 3-52).

VIDEO IN COMPOSITE-1 TO 2, S-VIDEO-1 TO 3, NONE

SETUP ▸ INPUTS ▸ DVD1 ▸ VIDEO IN

Opens the VIDEO IN menu, to assign a composite or S-video input connector to the selected input.

Note:

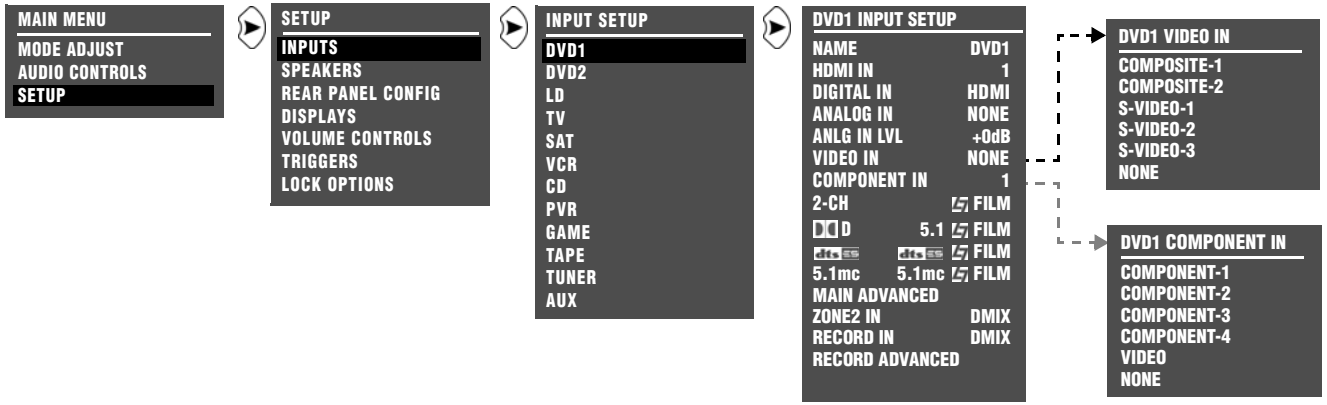
- *Composite video output connectors are available when a composite or S-video source is present.*
- *S-video output connectors are available when an S-video source is present.*

COMPONENT IN COMPONENT 1 to 4, VIDEO, NONE

SETUP ▸ INPUTS ▸ DVD1 ▸ COMPONENT IN

Opens the COMPONENT IN menu, to assign a component video input connector to the selected input.

The VIDEO parameter assigns the video selected by the VIDEO IN parameter (composite or S-video) to be converted and output as component video.



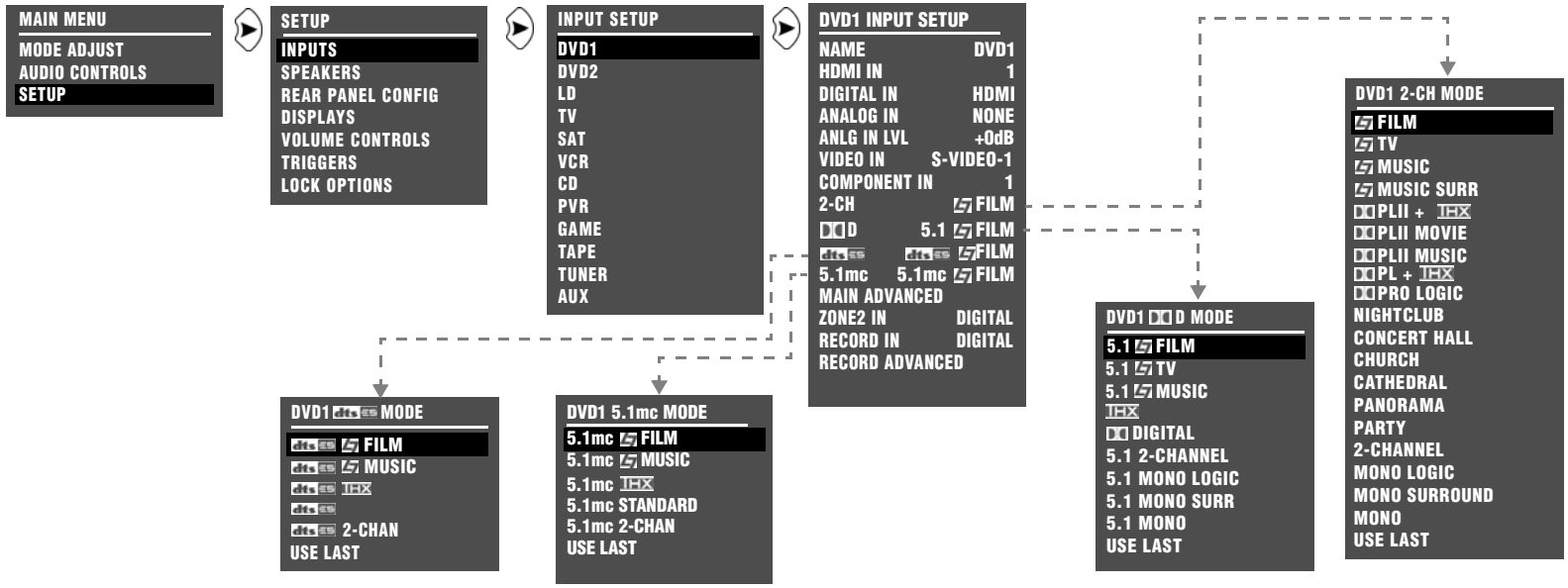
SELECTING PREFERRED LISTENING MODES

Preferred listening modes can be preselected so that when a particular type of input source is played, the preselected listening mode is activated.

The SDP-40HD allows four preferred listening modes for each Main Zone input: one listening mode each for 2-channel, Dolby Digital, DTS(-ES), and 5.1-multichannel sources. The table below indicates the INPUT SETUP menu parameters that can be used to select preferred listening modes.

Preferred Listening Mode Selection Parameters

2-CH	Selects a preferred listening mode for 2-channel sources
DD D	Selects a preferred listening mode for Dolby Digital sources
dts es	Selects a preferred listening mode for DTS(-ES) sources
5.1mc	Selects a preferred listening mode for 5.1-channel sources



When a preferred listening mode is selected, that listening mode is automatically activated whenever a new input is selected or an appropriate input source is present. For example, the following can occur when a preferred listening mode is activated (also refer to the corresponding menus on page 3-13):

If the DVD1 input is selected and a 2-channel source is played, the L7 FILM listening mode is activated. If a Dolby Digital source is played, the 5.1 L7 FILM listening mode is activated. If a DTS(-ES) source is played, the DTS(-ES) L7 FILM listening mode is activated.

Dynamic Listening Modes

Dynamic listening modes are only available under certain conditions. For example, many of the dynamic modes are only available when the SDP-40HD is configured for seven main output channels and source material with specific encoding is played. All Dynamic Listening Modes are available through the remote control or front panel Mode button. The dynamic listening modes are listed in the table below.

Modes That Do Not Appear in the Input Setup Menu

The SDP-40HD features the ability to assign preferred listening modes for each input and incoming audio format. However, not all listening modes will appear in the Input Setup Menu. Listening modes that do not appear in the Input Setup menu as preferred listening modes under any circumstances are listed in the table at the bottom of the page.

Dynamic modes			
2-Channel	**Dolby Digital**	**DTS**	**5.1mc**
Dolby PLIIx + THX	Dolby Digital or Dolby Digital EX	DTS THX or DTS THX UL2Cin or DTS(-ES) THX	5.1mc THX MUSIC
Dolby PLIIx MOV	THX or THX UL2Cin or THX SurEX	DTS or DTS(-ES) MATRIX or DTS(-ES) DISCR	
Dolby PLIIx MUS	THX MUSIC	DTS THX MUSIC	
DTS Neo:6 + THX	5.1 PLIIx MOV	DTS L7 FILM or DTS(-ES) L7 FILM	
DTS Neo:6 CIN	5.1 PLIIx MUS	DTS L7 MUSIC or DTS(-ES) L7 MUSIC	
DTS Neo:6 MUSIC		DTS 2-CHAN or DTS(-ES) 2-CHAN	

Modes that do not appear in the Input Setup menu			
2-Channel	**Dolby Digital**	**DTS**	**5.1mc**
Dolby PLIIx + THX	THX MUSIC	DTS THX MUSIC	5.1mc THX MUSIC
Dolby PLIIx MOV	5.1 PLIIx MOV	5.1 MONO LOGIC	
Dolby PLIIx MUS	5.1 PLIIx MUS	5.1 MONO SURR	
DTS Neo:6 + THX		5.1 MONO	
DTS Neo:6 CIN			

Modes that do not appear in the Input Setup menu			
DTS Neo:6 MUSIC			

SELECTING PREFERRED LISTENING MODES *(continued)*

The Use Last Parameter

When the SDP-40HD is set to use a preferred listening mode for a selected input, selecting another mode from the Mode scroll list replaces the preferred selection. However, this newly selected mode will be lost when switching between inputs.

The USE LAST parameter was designed to allow the SDP-40HD software to "remember" the last used listening mode for a given input source. Once selected, that mode will always be active on the corresponding input until another listening mode is selected as demonstrated in the following example:

1. Select **Main Menu ▸ SETUP ▸ INPUTS ▸ DVD1 ▸ DTS ▸ USE LAST**.
2. Press the **MENU** button.
3. Press the **DVD-1** button.
4. Play a DTS input source.
5. Press the **MODE +** button until you reach DTS(-ES) 2-CHAN.
6. Press the **TV** button

   The SDP-40HD switches to the TV input and the on-screen display identifies the preferred listening mode.
7. Press the **DVD-1** button.

The on-screen display should identify that the active listening mode for the DVD1 input is still DTS(-ES) 2-CHAN. As the DTS(-ES) 2-CHAN mode is a preferred listening mode, it can also be set in the SETUP menu.

When seven speakers are selected in the SPEAKER SETUP menu, and the appropriate source material is played, the dynamic listening mode (or mode that does not appear in the input setup menu) can always be accessed using the MODE + or MODE - buttons whether or not a preferred mode is set. When a preferred listening mode is set and a dynamic listening mode (or mode that does not appear in the input setup menu) is active, the selected dynamic mode is lost when switching between inputs.

When USE LAST is selected as the preferred listening mode, and a dynamic listening mode (or mode that does not appear in the input setup menu) is active, the selected listening mode is retained when switching between inputs, even when the SDP-40HD is set to standby as in the following example:

1. Select **Main Menu ▸ SETUP ▸ INPUTS ▸ DVD1 ▸ 2-CH ▸ USE LAST**.
2. Press the **MENU** button.
3. Press the **DVD-1** button.
4. Play a 2-channel input source.
5. Press the **MODE +** button until you reach DD PLIIx MOV.
   DD PLIIx MOV is a dynamic listening mode.
6. Press the **TV** button

   The SDP-40HD switches to the TV input and the on-screen display identifies the preferred listening mode.
7. Press the **DVD-1** button.

The on-screen display should identify that the active listening mode for the DVD1 input is still DD PLIIx MOV. This is the only method of setting up a dynamic mode (or mode that does not appear in the input setup menu) to behave like a preferred listening mode.

Note:

When a dynamic mode (or mode that does not appear in the input setup menu) is set as in the above example, the setting is retained even when the SDP-40HD is set to standby.

2-CH

SETUP ▶ INPUTS ▶ DVD1 ▶ 2-CH

Opens the 2-CH MODE menu, to select a preferred listening mode for 2-channel input sources. The SDP-40HD activates the preferred listening mode whenever a new input is selected or a new 2-channel source is present.

When the 2-CH parameter is set to USE LAST:

- The SDP-40HD uses the listening mode that was activated the last time a 2-channel source was present.
- The remote control 2 CH button toggles between the 2-CHANNEL listening mode and the previous listening mode, and ignores the USE LAST setting. Instead, it uses the listening mode (for example, L7 FILM) that was activated before the 2-CHANNEL listening mode.
- The SDP-40HD will automatically activate a DTS NEO:6 listening mode if a DTS NEO:6 listening mode was activated the last time a 2-channel source was present, and 44.1kHz or 48kHz PCM digital source is present. Since the DTS NEO:6 listening modes are dynamic, they cannot be selected as the preferred listening mode for 2-channel sources.

DD D

SETUP ▶ INPUTS ▶ DVD1 ▶ DD D

Opens the DOLBY DIGITAL MODE menu, to select a preferred listening mode for Dolby Digital input sources. The SDP-40HD activates the preferred listening mode whenever a new input is selected or a new Dolby Digital source is present.

When the DD D parameter is set to USE LAST:

- The SDP-40HD uses the listening mode that was activated the last time a Dolby Digital source was present.
- If the THX MUSIC listening mode was activated the last time a Dolby Digital source was present, then the THX MUSIC listening mode is used. Since THX MUSIC is a dynamic listening mode, it cannot be selected as the preferred listening mode for Dolby Digital sources.

dts ES

SETUP ▶ INPUTS ▶ DVD1 ▶ dts ES

Opens the DTS(-ES) MODE menu, to select a preferred listening mode for DTS(-ES) input sources. The SDP-40HD activates the preferred listening mode whenever a new input is selected or a new DTS(-ES) source is present.

When the DTS(-ES) parameter is set to USE LAST:

- The SDP-40HD uses the listening mode that was activated the last time a DTS(-ES) source was present.
- The DTS(-ES) THX MUSIC listening mode is used if this listening mode was activated the last time a DTS(-ES) source was present. Since DTS(-ES) THX MUSIC is a dynamic listening mode, it cannot be selected as the preferred listening mode for DTS(-ES) sources.

SELECTING PREFERRED LISTENING MODES *(continued)*

5.1mc

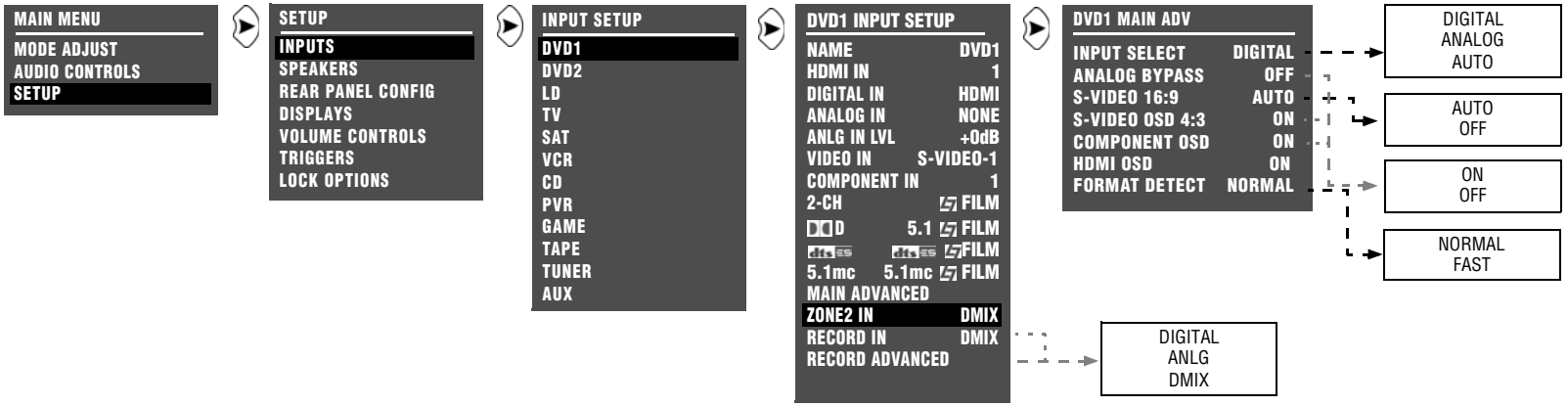
SETUP ▶ INPUTS ▶ DVD1 ▶ 5.1mc

Opens the 5.1mc MODE menu, to select a preferred listening mode for 5.1-channel input sources. The SDP-40HD activates the preferred listening mode whenever a new input is selected or a new 5.1-channel source is present.

When the 5.1mc parameter is set to USE LAST:

- The SDP-40HD uses the listening mode that was activated the last time a 5.1-channel analog source was present.
- The 5.1mc THX MUSIC listening mode is used if this listening mode was activated the last time a 5.1-channel source was present. Since 5.1mc THX MUSIC is a dynamic listening mode, it cannot be selected as the preferred listening mode for 5.1-channel analog sources.

CONFIGURING ADVANCED INPUT SETTINGS



The SDP-40HD allows the assignment of one digital and one analog audio input connector for each input. The table below indicates the INPUT SETUP menu parameters that can be used to control the interaction of these connectors, as well as other advanced Main Zone, Zone 2, and Record Zone input settings.

Parameter	Possible Settings
MAIN ADVANCED	See MAIN ADVANCED, this page
ZONE2 IN	DIGITAL, ANLG, DMIX
RECORD IN	DIGITAL, ANLG, DMIX
RECORD ADVANCED	Refer to page 3-25

MAIN ADVANCED

SETUP ▸ **INPUTS** ▸ **DVD1** ▸ **MAIN ADVANCED**

The MAIN ADV menu controls the interaction of the digital and analog audio input connectors assigned to the current Main Zone input, and other advanced Main Zone input settings.

The parameter settings on the right side of the MAIN ADV menu are adjustable. The MAIN ADV menu shown in the Appendix indicates factory-default parameter settings for each input.

Parameter	Possible Settings
INPUT SELECT	DIGITAL, ANALOG, AUTO
ANALOG BYPASS	ON, OFF
S-VIDEO 16:9	AUTO, OFF
S-VIDEO OSD 4:3	ON, OFF
COMPONENT OSD	ON, OFF
HDMI OSD	ON, OFF
FORMAT DETECT	NORMAL, FAST

CONFIGURING ADVANCED INPUT SETTINGS *(continued)*

INPUT SELECT DIGITAL, ANALOG, AUTO

SETUP ▸ INPUTS ▸ DVD1 ▸ MAIN ADVANCED ▸ **INPUT SELECT**

Controls the interaction of the digital and analog audio input connectors assigned to the current Main Zone input. The table on the next page describes INPUT SELECT parameter settings.

Note:

When the Shift command bank is activated, the 7/5 button adjusts the INPUT SELECT parameter by cycling through the DIGITAL, ANALOG, and AUTO settings.

ANALOG BYPASS ON, OFF

SETUP ▸ INPUTS ▸ DVD1 ▸ MAIN ADVANCED ▸ **ANALOG BYPASS**

Forces analog sources to bypass A/D conversion and internal processing. When ON, analog input signals pass directly to the Main Zone audio output connectors.

- When a 2-channel analog source is present, analog input signals pass directly to the Front L/R output connectors.
- When a 5.1-channel analog source is present, analog input signals pass to the Main Zone audio output connectors as indicated in the tables on page 1-8 and page 3-47.
- When OFF, the SDP-40HD passes analog input signals through A/D conversion and internal processing before passing them to the Main Zone audio output connectors. This allows analog sources to use bass management, speaker crossovers, speaker distance calibration, and tone controls.

Note:

When the Shift command bank is activated, pressing the 2CH button toggles ANALOG BYPASS between ON and OFF.

S-VIDEO 16:9 AUTO, OFF

SETUP ▸ INPUTS ▸ DVD1 ▸ MAIN ADVANCED ▸ **S-VIDEO 16:9**

Controls the passage of anamorphic trigger signals present in some video sources. When set to AUTO, the SDP-40HD allows anamorphic video input signals to pass through the S-video switcher, enabling compatible display devices to automatically switch between anamorphic and non-anamorphic display modes.

When OFF, the SDP-40HD prevents anamorphic video input signals from passing through the S-video switcher, preventing compatible display devices from automatically switching between anamorphic and non-anamorphic display modes.

INPUT SELECT PARAMETER SETTINGS

DIGITAL	ANALOG	AUTO
The SDP-40HD sends the digital audio from the assigned input to the Main Zone audio output connectors. The assigned analog audio input connector is ignored. The digital audio input connectors are compatible with PCM (44.1, 48, 88.2, and 96kHz), Dolby Digital, and DTS(-ES) sources. The digital audio input connectors are not compatible with MPEG or MP3 sources. **Note the following:** • The SDP-40HD automatically sets the INPUT SELECT parameter to DIGITAL when no analog audio input connector is assigned. • The INPUT SETUP ▸ DIGITAL IN parameter can assign a digital audio input connector for the selected input.	The SDP-40HD sends the analog audio from the assigned input to the Main Zone audio output connectors. The assigned digital audio input connector is ignored. **Note the following:** • The SDP-40HD automatically sets the INPUT SELECT parameter to ANALOG when no digital audio input connector is assigned. • The INPUT SETUP ▸ ANALOG IN parameter can assign an analog audio input connector for the selected input.	The SDP-40HD toggles between sending digital or analog audio input to the Main Zone audio output connectors based on the input source that is present. **Example:** • The SDP-40HD selects the assigned digital audio input when a compatible digital source is present. The SDP-40HD does not select the assigned analog audio input when a compatible digital source is present. • The SDP-40HD selects the assigned analog audio input connector when no compatible digital source is present. • The SDP-40HD selects the assigned analog audio input connector when an analog source, such as an SACD, is present. **Note the following:** • The SDP-40HD automatically sets the MAIN ADVANCED ▸ INPUT SELECT parameter to AUTO when both digital and analog audio input connectors are assigned. • Use the AUTO setting for components, such as DVD/SACD players, that generate both digital and analog output signals.

CONFIGURING ADVANCED INPUT SETTINGS *(continued)*

S-VIDEO OSD 4:3 ON, OFF

SETUP ▶ INPUTS ▶ DVD1 ▶ MAIN ADVANCED ▶ S-VIDEO OSD 4:3

Controls the on-screen display aspect ratio when the display device is connected to a Main Zone S-video output connector. Aspect ratio refers to the shape of the picture or the display device screen. A 4:3 aspect ratio is almost square. A 16:9 aspect ratio, often referred to as widescreen, is almost twice as wide as it is high. When ON, the on-screen display appears in a 4:3 aspect ratio regardless of the incoming video input signal. When OFF, the on-screen display appears in the same aspect ratio as the incoming video input signal.

The on-screen display appears horizontally stretched across the display device screen when all of the following conditions are met:

- The S-VIDEO OSD (4:3) parameter is OFF.
- An anamorphic video input signal is present.
- A 16:9 display device (widescreen) is connected to an S-video output connector.

COMPONENT OSD ON, OFF

SETUP ▶ INPUTS ▶ DVD1 ▶ MAIN ADVANCED ▶ COMPONENT OSD

Controls the appearance of the on-screen display when the display device is connected to the component video output connector. When ON, the display device shows the on-screen display as a 480i video signal on a full blue screen background. To minimize viewing distractions, the two-line status does not appear in the on-screen display. When OFF, the display device does not show the on-screen display, including the two-line status.

When the ON-SCREEN DISPLAY menu BACKGROUND parameter is OFF, the display device using the component video output connector shows the on-screen display only when composite or S-video is converted and output through the component video connectors (INPUT SETUP menu VIDEO IN parameter is set to COMPOSITE VIDEO or S-VIDEO and COMPONENT IN is set to VIDEO).

HDMI OSD HDMI-1 TO HDMI-6, NONE

SETUP ▶ INPUTS ▶ DVD1 ▶ MAIN ADVANCED ▶ HDMI OSD

Controls the appearance of the on-screen display when the display device is connected to the HDMI output connector. When ON, the display device shows the on-screen display as a video signal overlayed on the incoming HDMI video. If the SETUP > DISPLAYS > ON-SCREEN DISPLAY > BACKGROUND parameter is set to ON, or the INPUT SETUP menu DHMI IN parameter is set to NONE, the OSD will display on a full blue screen background.

If the current input also has an active incoming S-video or composite video signal, the OSD on both the HDMI and S-video/composite main zone outputs will display as white characters on the screen. Otherwise the HDMI OSD will display in full color.

FORMAT DETECT NORMAL, FAST

SETUP ▶ INPUTS ▶ DVD1 ▶ MAIN ADVANCED ▶ FORMAT DETECT

Provides a means of preventing audible digital noise from occurring during digital audio signal changes. Digital sources typically output a short period of silence when switching between sources. The FORMAT DETECT parameter controls how the SDP-40HD reacts when it detects silence in the digital audio stream.

When set to NORMAL, the SDP-40HD will not mute when silence is detected. This setting is appropriate for most sources.

When set to FAST, the SDP-40HD will mute when a period of continuous digital silence is detected. Once valid audio is received, the SDP-40HD will configure its processing and deactivate mute. This prevents audible digital noise from occurring during digital audio signal changes. For example, the SDP-40HD will briefly mute when FORMAT DETECT is set to FAST and the digital audio stream changes from PCM to DTS.

Note

The Format Detection parameter does not apply to the Dolby PLIIx family of listening modes. Use the Logic 7 family of listening modes as an alternative when using Format Detection.

ZONE2 IN & RECORD IN DIGITAL, ANLG, DMIX

SETUP ▶ INPUTS ▶ DVD1 ▶ ZONE2 IN OR RECORD IN

Controls the interaction of the digital and analog audio input connectors assigned to the current Zone 2 and Record Zone inputs. The table on the next page describes ZONE2 and RECORD IN parameter settings.

CAUTION!

When the ZONE2 or RECORD IN parameter is set to DIGITAL or ANLG, the SDP-40HD recognizes some DTS encoded sources as audio signals (not data signals) and outputs loud digital noise from the Zone 2 or Record Zone audio output connectors.

ZONE2 & RECORD IN PARAMETER SETTINGS

DIGITAL	ANLG (Analog)	DMIX (Downmix)
The SDP-40HD passes digital audio from the assigned input to the Zone 2 or Record Zone audio output connectors. The assigned analog audio input is ignored. Zones can be independently monitored. **Note the following:** • Zone 2 and the Record Zone are muted if the DIGITAL IN parameter is set to HDMI AUDIO. In this case, DMIX must be selected. • The SDP-40HD passes digital sources to all Zone 2 or Record Zone audio output connectors. • The SDP-40HD passes digital input signals directly to the Record Zone digital audio output connectors. The SDP-40HD sends digital input signals through D/A conversion before passing them to the Zone 2 or Record Zone analog audio output connectors. • When no analog audio input is assigned, ZONE2 IN and RECORD IN are set to DIGITAL. • The INPUT SETUP menu DIGITAL IN parameter can be used to assign a digital audio input connector for the selected input.	The SDP-40HD passes analog audio from the assigned input to the Zone 2 or Record Zone audio output connectors. The assigned digital audio input is ignored. Zones can be independently monitored. **Note the following:** • The SDP-40HD passes analog sources to all Zone 2 or Record Zone audio output connectors. • The SDP-40HD passes analog input signals directly to the Zone 2 or Record Zone analog audio output connectors. The SDP-40HD sends analog input signals through A/D conversion before passing them to the Record Zone digital audio output connectors. • When no digital audio input is assigned, ZONE2 IN and RECORD IN are set to ANALOG. • The INPUT SETUP menu ANALOG IN parameter can be used to assign an analog audio input connector for the selected input.	The SDP-40HD passes a downmixed version of Main Zone audio to the Zone 2 or Record Zone audio output connectors. Zones cannot be independently monitored. Downmixing is possible when all of the following conditions are met: • The same input is selected in both Main Zone and Zone 2 or in both Main Zone and Record Zone. Otherwise, the Zone 2 or Record Zone audio output connectors will mute. • The 5.1mc BYPASS listening mode is not activated. **Note the following:** • If the downmixed audio is coming from the HDMI input, and the content is HDCP-encoded, the sample rate is limited to no more than 48kHz. • If the audio from a copy-protected DVD-Audio disc is input through HDMI, then no digital audio output is available. • A downmix of all channels is sent to Zone 2. • Main Zone listening mode activation affects the Zone 2 and Record Zone audio output connectors. For example, when the MONO listening mode is activated, the Zone 2 and Record Zone audio output connectors will generate mono output signals. • Set the ZONE2 IN and RECORD IN parameters to DMIX when using a playback device (DVD player) that does not have built-in Dolby Digital or DTS(-ES) decoding, and the recording device is a VCR or Personal Video Recorder (PVR). • The SDP-40HD automatically downmixes multi-channel sources (except LOGIC 7 FILM and MUSIC sources) to stereo output signals for listening and recording. Also, 5.1-channel analog sources can be downmixed when the MAIN ADVANCED ▸ ANALOG BYPASS parameter is set to OFF. Upon playback, these downmixes are compatible with matrix decoders, but sound best through a Logic 7 listening mode.

CONFIGURING ADVANCED INPUT SETTINGS *(continued)*

RECORD ADVANCED

SETUP ▶ INPUTS ▶ DVD1 ▶ RECORD ADVANCED

Opens the RECORD ADV menu, which configures advanced Record Zone input settings.

The parameters on the left side of the RECORD ADV menu are identical regardless of the selected input. The parameter settings on the right side are adjustable. The RECORD ADV menu shown in the Appendix indicates factory-default parameter settings.

Parameter	Possible Settings
ANLG IN LVL	-18 to +12dB
DIGITAL BYPASS	ON, OFF
DIG OUT RATE	INPUT, 96kHz, 88.2kHz, 48kHz, 44.1kHz
RECORD	BLOCKED, ENABLED

ANLG IN LVL

-18 to +12dB

SETUP ▶ INPUTS ▶ DVD1 ▶ RECORD ADVANCED ▶ ANLG IN LVL

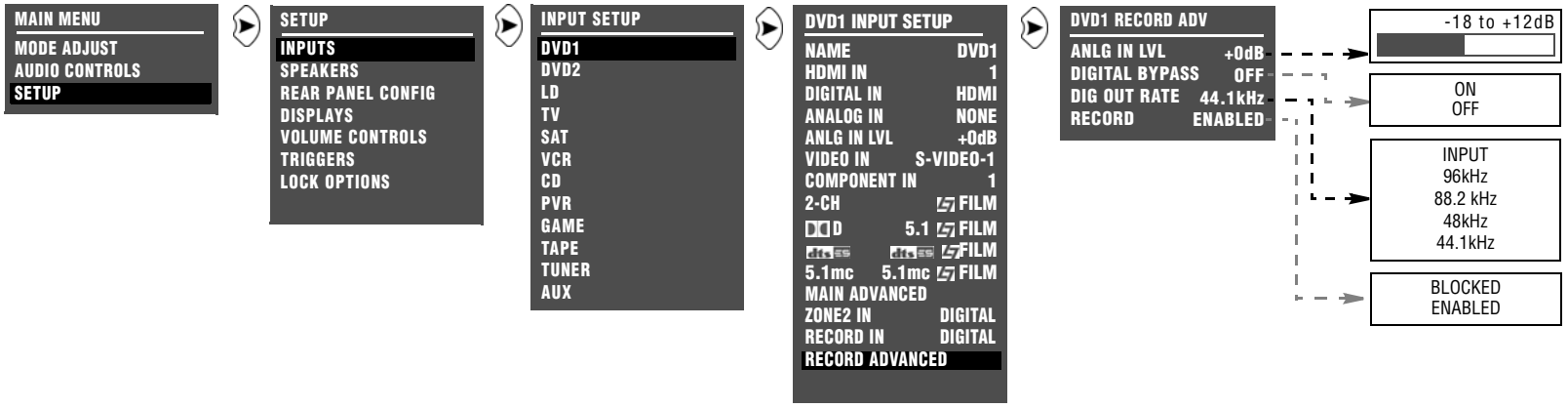
Allows adjustment of analog audio input levels for input signals sent to the Record Zone digital audio output connectors. Adjustments are applied to the input signals before passing them to the Record Zone digital audio output connectors. This parameter can be adjusted when an input source is present to prevent the internal A/D converter from overloading.

DIGITAL BYPASS

ON, OFF

SETUP ▶ INPUTS ▶ DVD1 ▶ RECORD ADVANCED ▶ DIGITAL BYPASS

Allows direct digital recording (digital sources bypass sample rate conversion). When ON, digital input signals pass directly to the Record Zone digital audio output connectors, preserving the original input signal sample rate. When OFF, the sample rate of the digital signals is converted, then passed to the Record Zone digital audio output connectors. The sample rate of the output signal then matches the sample rate of the recording device. The DIG OUT



RATE parameter settings have no effect when the DIGITAL BYPASS parameter is set to ON.

If the downmixed audio is coming from the HDMI input, and the content is HDCP-encoded, the sample rate is limited to no more than 48kHz.

If the audio from a copy-protected DVD-Audio disc is input through HDMI, then no digital audio output is available.

DIG OUT RATE

INPUT, 44.1kHz, 48kHz, 88.2kHz, 96kHz

SETUP ▶ INPUTS ▶ DVD1 ▶ RECORD ADVANCED ▶ DIG OUT RATE

Controls the sample rate of digital and analog input signals sent to the Record Zone digital audio output connectors. When INPUT is selected, the sample rate of input signals is not converted. Therefore, the original sample rate is maintained from the input connectors through to the Record Zone digital audio output connectors.

When a value is selected, the input signals pass through the selected value of sample rate conversion, then pass to the Record Zone digital audio output connectors. Set the DIG OUT RATE parameter to the appropriate value when using a recording format that operates on a single sample rate, such as CD-R format (44.1kHz).

If the downmixed audio is coming from the HDMI input, and the content is HDCP-encoded, the sample rate is limited to no more than 48kHz.

RECORD

BLOCKED, ENABLED

SETUP ▶ INPUTS ▶ DVD1 ▶ RECORD ADVANCED ▶ RECORD

Prevents recording device feedback loops. When BLOCKED is selected, the SDP-40HD blocks the Record Zone audio output connectors to prevent feedback loops. However, video input signals are still passed to the Record Zone video output connectors. When ENABLED is selected, audio and video input signals are passed to the Record Zone audio and video output connectors.

SPEAKER SETUP

SETUP ▶ **SPEAKERS**

Selecting the SETUP menu SPEAKERS option opens the SPEAKER SETUP menu, which configures the Main Zone audio output connectors for the desired speaker setup. The Main Zone includes 10 unbalanced audio output connectors labeled Front L/R, Center, LFE, Subwoofer L/R, Side L/R, and Rear L/R. Two additional audio output connectors labeled Aux L/R are provided for future expansion.

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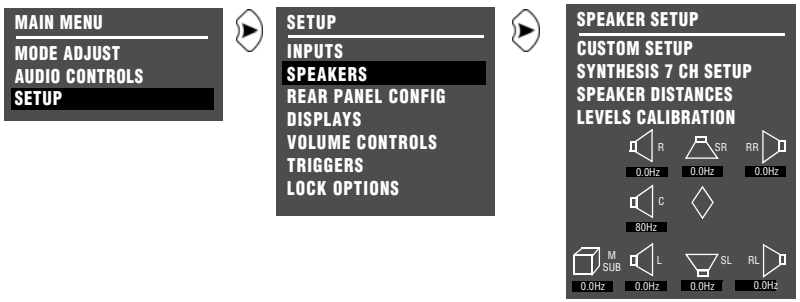
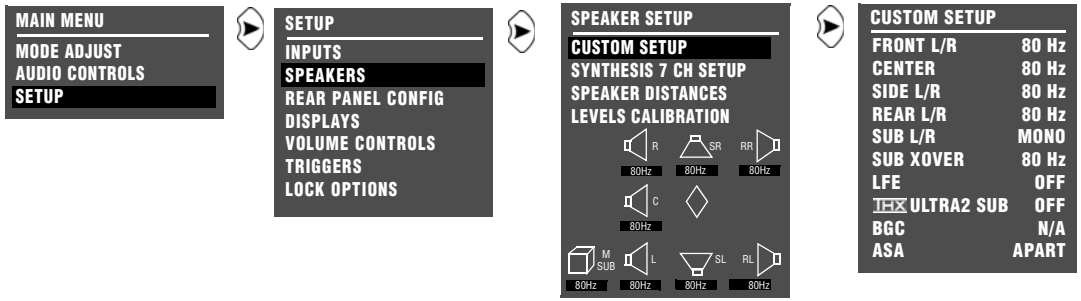




CUSTOM SETUPS

SETUP ▸ **SPEAKERS** ▸ **CUSTOM SETUP**

Selecting the SPEAKER SETUP menu CUSTOM SETUP option opens the CUSTOM SETUP menu, which assigns independent crossover points for each Main Zone audio output connector. Crossover points can be selected in 10Hz increments within a 30 to 120Hz range. The graphs shown on the next page indicate the frequency response of each crossover point.

To configure a custom speaker setup:

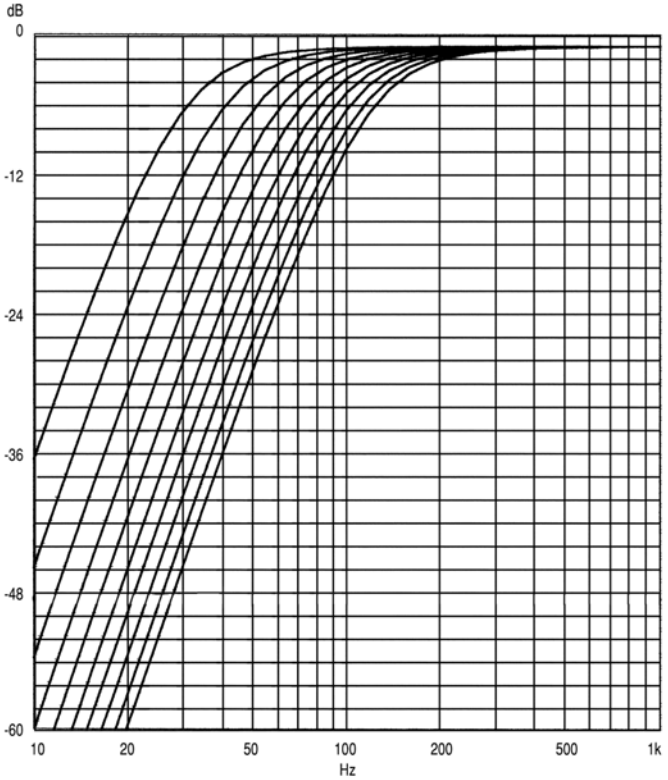
- Select the crossover point closest to the low frequency rating of the associated speakers. For example, set the FRONT L/R parameter to the crossover point closest to the low frequency rating of the front speakers.
- Select the subwoofer crossover point equal to the lowest crossover point of any of the other speakers. For example, if CUSTOM SETUP menu parameters are set as shown above, set the SUB XOVER parameter to 80Hz – the lowest crossover point of the other speakers.

In a custom setup, low frequencies are generally redirected from speakers with the highest crossover points to speakers with the lowest crossover points. Signals lower than the lowest crossover point are redirected to the subwoofer. If the lowest crossover point is FULL, low frequency signals, excluding LFE information, are not redirected to the subwoofer.

Low frequencies between the Subwoofer L/R and any or all of the other speaker channels can be duplicated. To do this, select the FULL + SUB crossover setting for the front, center, side or rear speakers. Making this selection can result in excessive bass.

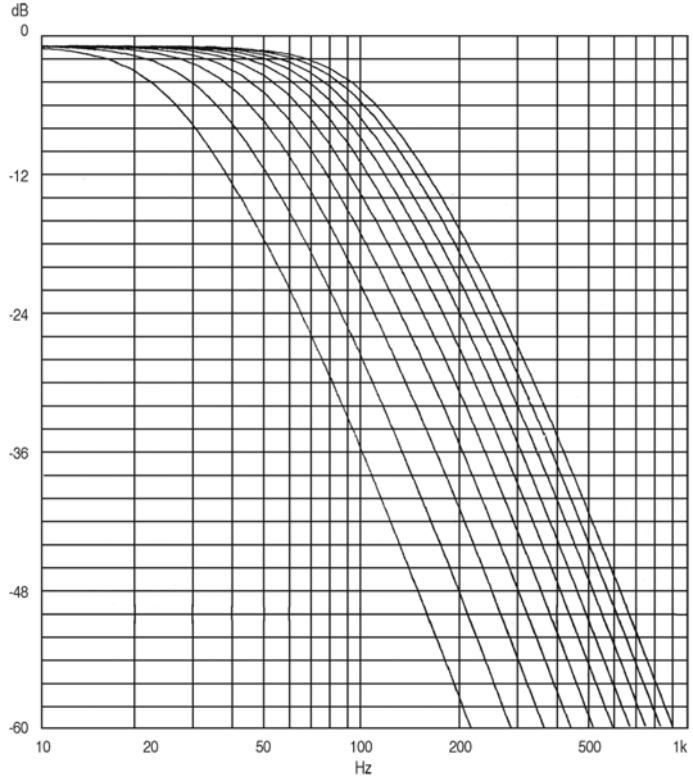
SETTING CROSSOVER POINTS *(continued)*

High-pass Filter

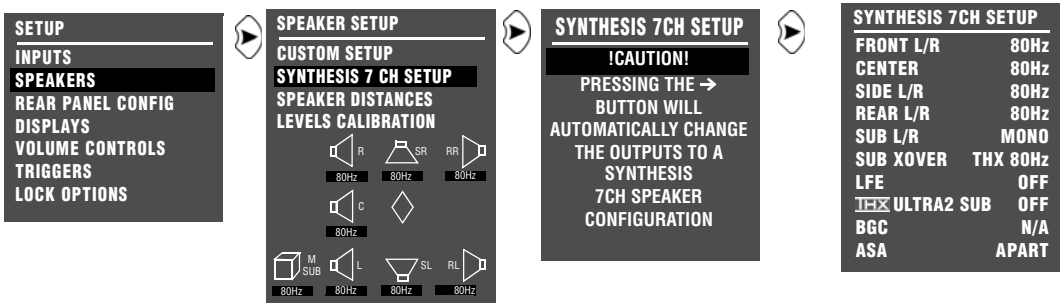


High-pass filters attenuate low frequencies at 24dB per octave. The curves in the graph above indicate the frequency response of each crossover setting. From left to right, the curves represent crossover settings from 30Hz to 120Hz. The graph above does not show the THX 80Hz crossover point, which is 12dB per octave.

Low-pass Filter



Low-pass filters attenuate high frequencies at 24dB per octave. The curves in the graph above indicate the frequency response of each crossover setting. From left to right, the curves represent crossover settings from 30Hz to 120Hz.



SYNTHESIS 7CH SPEAKER SETUPS

SETUP ▸ **SPEAKERS** ▸ **SYNTHESIS 7 CH SETUP** ▸▸

Selecting CUSTOM SETUP ▸ SYNTHESIS 7CH SETUP opens the SYNTHESIS 7CH SPEAKER SETUP screen, which indicates that pressing the ▸ arrow button will automatically configure the Main Zone audio output connectors for a SYNTHESIS 7CH speaker setup. You should use THX certified speakers in a SYNTHESIS speaker setup.

When the SYNTHESIS 7CH SPEAKER SETUP screen opens:

- Press the ▸ arrow button to configure the Main Zone audio output connectors for a SYNTHESIS 7CH speaker setup. The SYNTHESIS 7CH SETUP menu will open on the on-screen display.
- Press the ◂ arrow button to close the message without configuring the Main Zone audio output connectors for a SYNTHESIS 7CH speaker setup.
- When a SYNTHESIS 7CH speaker setup is selected, the SDP-40HD applies a THX 80Hz crossover point with a 12dB-per-octave filter to the Front L/R, Center, Side L/R, and Rear L/R output connectors. The SDP-40HD applies a THX 80Hz crossover point with a 24dB-per-octave filter to the Subwoofer L/R output connectors.

Note:

- *A SYNTHESIS 7CH speaker setup is not required to activate THX listening modes.*
- *In the SYNTHESIS 7CH SETUP menu, only the REAR L/R, THX ULTRA2 SUB, BGC, and ASA parameters can be changed.*

SETTING CROSSOVER POINTS *(continued)*

SPEAKER SETUP PARAMETERS

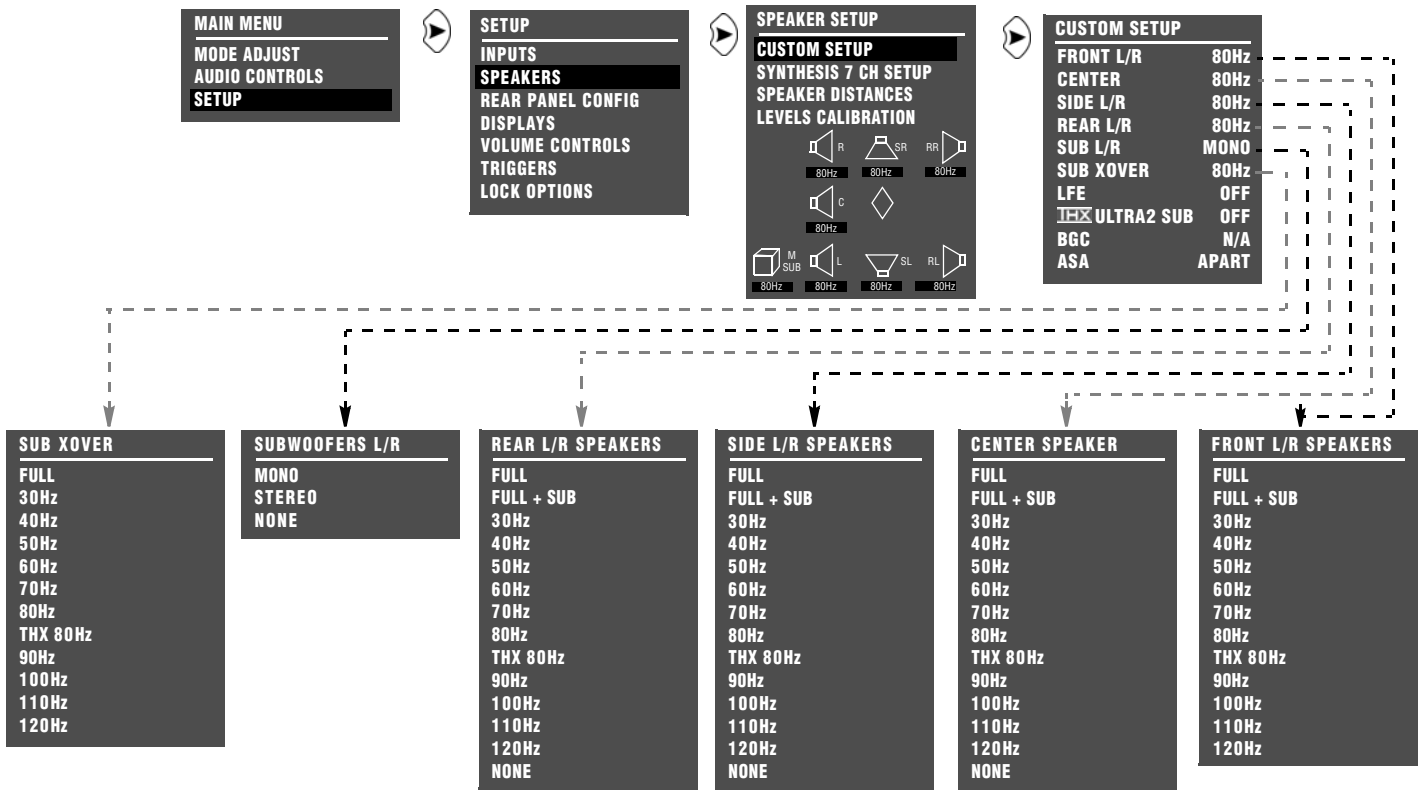
SETUP ▸ SPEAKERS ▸ CUSTOM SETUP ▸ *or* SETUP ▸ SPEAKERS ▸ SYNTHESIS 7CH SETUP ▸

The table below indicates the speaker setup parameters for configuring all possible settings for speaker setup parameters in the CUSTOM SETUP and SYNTHESIS 7CH SETUP menus.

Speaker setup parameters perform the same function regardless of the selected speaker setup. When a parameter setting is adjusted on one menu, the corresponding parameter setting is automatically adjusted on the other menu. For example, when a SYNTHESIS 7CH speaker setup is selected, the speaker setup parameters on the CUSTOM SETUP menu are set to THX 80Hz.

Parameter	CUSTOM SETUP Menu		SYNTHESIS 7CH SETUP Menu	
	Default Setting	Possible Setting	Default Setting	Possible Settings
FRONT L/R*	80Hz	FULL, FULL + SUB, 30Hz to 120Hz, THX 80Hz	80Hz	80Hz
CENTER*	80Hz	FULL, FULL + SUB, 30Hz to 120Hz, THX 80Hz, NONE	80Hz	80Hz
SIDE L/R*	80Hz	FULL, FULL + SUB, 30Hz to 120Hz, THX 80Hz, NONE	80Hz	80Hz
REAR L/R	80Hz	FULL, FULL + SUB, 30Hz to 120Hz, THX 80Hz, NONE	80Hz	80Hz, NONE
SUB L/R*	MONO	MONO, STEREO, NONE	MONO	MONO
SUB XOVER*	80Hz	FULL, 30Hz to 120Hz, THX 80Hz	80Hz	80Hz
LFE*	OFF	ON, OFF	ON	ON
THX ULTRA2 SUB	OFF	ON, OFF	OFF	ON, OFF
BGC	N/A†	ON, OFF	N/A†	ON, OFF
ASA	APART	APART, CLOSE, TOGETHER	APART	APART, CLOSE, TOGETHER

** These parameters cannot be adjusted on the SYNTHESIS 7CH SETUP menu.*
† When the THX ULTRA2 SUB parameter is set to OFF, the BGC parameter is not available (N/A).



FRONT L/R FULL, FULL + SUB, 30Hz to 120Hz, THX 80Hz

SETUP ▶ **SPEAKERS** ▶ **CUSTOM SETUP** ▶ **FRONT L/R**

Assigns a crossover point for the Main Zone audio output connectors labeled FRONT L/R when a custom speaker setup is selected. Opens the FRONT L/R SPEAKERS menu to select a crossover point for the FRONT L/R output connectors.

- Select **FULL** to send a full-range signal to the front speakers. Otherwise, select the crossover point closest to the low frequency rating of the front speakers.
- Select **FULL + SUB** to send a full-range signal to the front speakers and duplicate bass frequencies to the SUB L/R outputs. (The set crossover point of the SUB XOVER parameter determines the upper range of duplicate bass.) Selecting the FULL + SUB option can result in excessive bass.

SETTING CROSSOVER POINTS *(continued)*

FRONT L/R (continued)

SETUP ▸ SPEAKERS ▸ SYNTHESIS 7CH ▸ FRONT L/R

When a SYNTHESIS 7CH speaker setup is selected, an 80Hz crossover point is applied to the FRONT L/R output connectors, and the FRONT L/R parameter cannot be adjusted.

CENTER FULL, FULL + SUB, 30Hz to 120Hz, THX 80Hz, NONE

SETUP ▸ SPEAKERS ▸ CUSTOM SETUP ▸ CENTER

Opens the CENTER SPEAKER menu to select a crossover point for the CENTER output connector.

- Select **FULL** to send a full-range signal to the center speaker. Otherwise, select the crossover point closest to the low frequency rating of the center speaker.
- Select **FULL + SUB** to send a full-range signal to the center speaker and duplicate bass frequencies to the SUB L/R outputs. (The set crossover point of the SUB XOVER parameter determines the upper range of duplicate bass.) Selecting the FULL + SUB option can result in excessive bass.
- Select **NONE** when the speaker setup does not include a center speaker. The SDP-40HD then redirects center channel signals to the Front L/R output connectors – unless the 5.1mc BYPASS listening mode is activated. In this case, configure the speaker setup with the associated DVD-A/SACD player to redirect center channel signals.

SETUP ▸ SPEAKERS ▸ SYNTHESIS 7CH ▸ CENTER ▸

When a SYNTHESIS 7CH speaker setup is selected, an 80Hz crossover point is applied to the Center output connector, and the CENTER parameter cannot be adjusted.

SIDE L/R FULL, FULL + SUB, 30Hz to 120Hz, THX 80Hz, NONE

SETUP ▸ SPEAKERS ▸ CUSTOM SETUP ▸ SIDE L/R

Assigns a crossover point for the Main Zone audio output connector labeled SIDE L/R when a custom speaker setup is selected. Opens the SIDE L/R SPEAKERS menu to select a crossover point for the SIDE L/R output connectors.

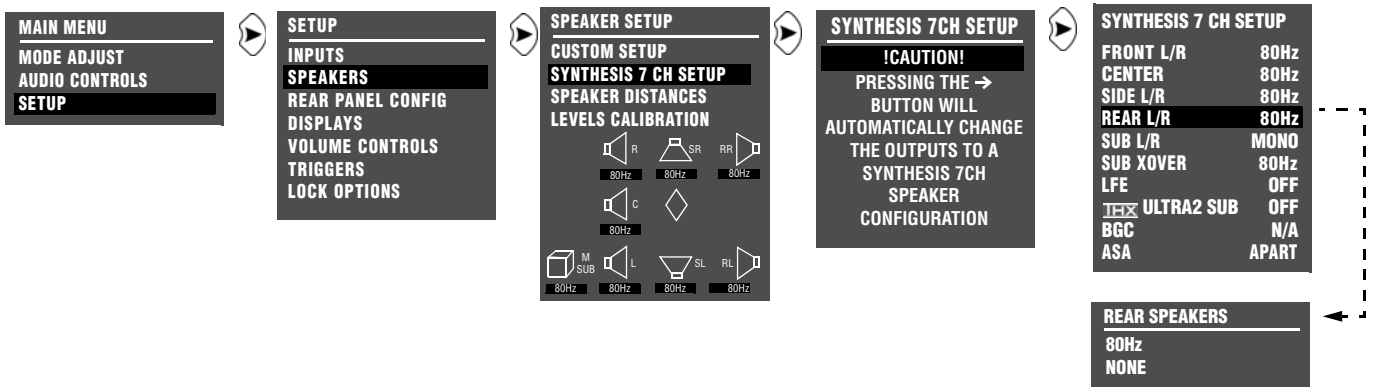
- Select **FULL** to send a full-range signal to the side speakers. Otherwise, select the crossover point closest to the low frequency rating of the side speakers.
- Select **FULL + SUB** to send a full-range signal to the side speakers and duplicate bass frequencies to the SUB L/R outputs. (The set crossover point of the SUB XOVER parameter determines the upper range of duplicate bass.) Selecting the FULL + SUB option can result in excessive bass.
- Select **NONE** when the speaker setup does not include side speakers. The SDP-40HD will redirect side channel signals to the Rear L/R output connectors. If the REAR L/R parameter is also set to NONE, the SDP-40HD will redirect surround channel signals to the Front L/R output connectors.

Note:

When the SIDE L/R parameter is set to NONE, Dolby Digital SurroundEX, THX Ultra2, THX Surround EX, DTS(-ES) decoding, the ASA parameter, and PLIIx modes are not available.

SETUP ▸ SPEAKERS ▸ SYNTHESIS 7CH ▸▸

When a SYNTHESIS 7CH speaker setup is selected, an 80Hz crossover point is applied to the SIDE L/R output connectors, and the SIDE L/R parameter cannot be adjusted.



REAR L/R FULL, FULL + SUB, 30Hz to 120Hz, THX 80Hz, NONE

SETUP ▸ **SPEAKERS** ▸ **CUSTOM SETUP** ▸ **REAR L/R**

Assigns a crossover point for the Main Zone audio output connector labeled REAR L/R when a custom speaker setup is selected. Opens the REAR L/R SPEAKERS menu to select a crossover point for the REAR L/R output connectors.

- Select **FULL** to send a full-range signal to the rear speakers. Otherwise, select the crossover point closest to the low frequency rating of the rear speakers.
- Select **FULL + SUB** to send a full-range signal to the rear speakers and duplicate bass frequencies to the SUB L/R outputs. (The set crossover point of the SUB XOVER parameter determines the upper range of duplicate bass.) Selecting the FULL + SUB option can result in excessive bass.
- Select **NONE** when the speaker setup does not include rear speakers. The SDP-40HD then redirects rear channel signals to the Side L/R output connectors. If the SIDE L/R parameter is also set to NONE, surround channel signals are sent to the Front L/R output connectors.

SETUP ▸ **SPEAKERS** ▸ **SYNTHESIS 7CH** ▸ **REAR L/R**

When a SYNTHESIS 7CH speaker setup is selected, the REAR L/R parameter opens the SYNTHESIS 7CH REAR SPEAKERS menu shown above, to activate and deactivate the REAR L/R output connectors.

- Select **80Hz** to activate and configure the Rear L/R output connectors for a 7.1-channel THX speaker setup.
- Select **NONE** to deactivate the Rear L/R output connectors, configuring the Main Zone audio output connectors for a 5.1-channel THX speaker setup.

Note:

When the REAR L/R parameter is set to NONE, Dolby Digital Surround EX, THX Ultra2, THX Surround EX, PLIIx modes, DTS(-ES) decoding, and the ASA parameter are not available.

SETTING CROSSOVER POINTS *(continued)*

SUB L/R MONO, STEREO, NONE

SETUP ▶ SPEAKERS ▶ CUSTOM SETUP ▶ SUB L/R

Configures the Main Zone audio output connectors labeled SUBWOOFER L/R for a speaker setup that includes one, two, or no subwoofer(s).

When a custom speaker setup is selected, the SUB L/R parameter opens the SUBWOOFERS L/R menu, to select a configuration for the SUBWOOFER L/R output connectors.

- Select **MONO** if the speaker setup includes one subwoofer. The SDP-40HD sends low frequency front, center, and surround channel signals to the SUBWOOFER L/R output connectors.
- Select **STEREO** if the speaker setup includes two subwoofers. The SDP-40HD sends low frequency front left, center, and surround left channel signals to the SUBWOOFER L output connector and low frequency front right, center, and surround right channel signals to the SUBWOOFER R output connector.
- Select **NONE** if the speaker setup does not include a subwoofer. The SDP-40HD redirects low frequency signals to the speakers with the lowest crossover points – unless the 5.1mc BYPASS listening mode is activated. In this instance, configure the speaker setup with the associated DVD-A/SACD player to redirect low frequency signals.

SETUP ▶ SPEAKERS ▶ SYNTHESIS 7CH ▶▶

When a SYNTHESIS 7CH speaker setup is selected, the SUBWOOFER L/R output connectors are configured for a speaker setup that includes one subwoofer, and the SUB L/R parameter cannot be adjusted.

SUB XOVER FULL, 30 to 120Hz, THX 80Hz

SETUP ▶ SPEAKERS ▶ CUSTOM SETUP ▶ SUB XOVER

Assigns a crossover point for the Main Zone audio output connectors labeled SUBWOOFER L/R when a custom speaker setup is selected. Opens the SUB XOVER menu to select a crossover point for the SUBWOOFER L/R output connectors.

Select **FULL** to send a full-range signal to the subwoofer(s). Otherwise, select the crossover point equal to the lowest crossover point of the other speakers.

SETUP ▶ SPEAKERS ▶ SYNTHESIS 7CH ▶▶

When a SYNTHESIS 7CH speaker setup is selected, an 80Hz crossover point is applied to the SUBWOOFER L/R output connectors, and the SUB L/R parameter cannot be adjusted.

LFE ON, OFF

SETUP ▶ SPEAKERS ▶ CUSTOM SETUP ▶ LFE

Activates and deactivates the Main Zone audio output connector labeled LFE when a custom speaker setup is selected.

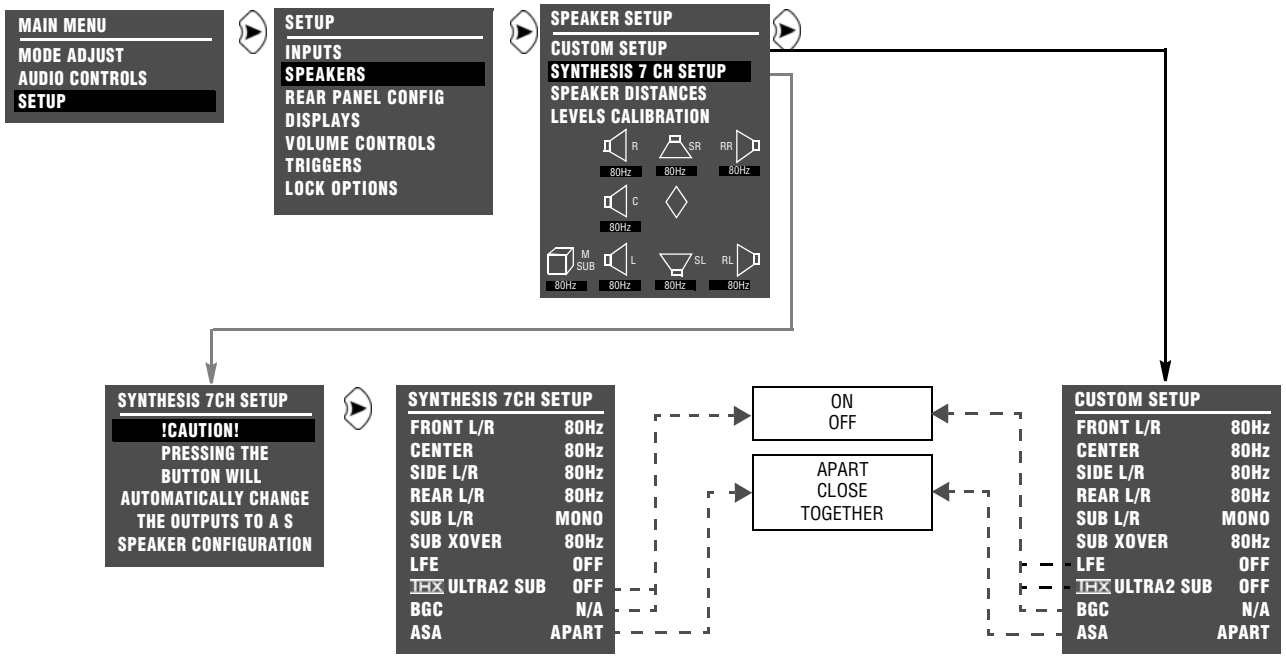
When a custom speaker setup is selected:

- Select **ON** to activate the LFE output connector. LFE information is sent to the LFE output connector.
- Select **OFF** to deactivate the LFE output connector. LFE signals are redirected to the SUBWOOFER L/R output connectors. If the SUB L/R parameter is set to OFF, LFE signals are redirected to the speakers with the lowest crossover point – unless the

5.1mc BYPASS listening mode is activated. In this instance, configure the speaker setup with the associated DVD-A/SACD player to redirect low frequency signals.

SETUP ▶ **SPEAKERS** ▶ **SYNTHESIS 7CH** ▶▶

When a SYNTHESIS 7CH speaker setup is selected, the LFE information is redirected to the SUBWOOFER L/R output connectors, and the LFE parameter cannot be adjusted.



SETTING CROSSOVER POINTS *(continued)*

THX ULTRA2 SUB ON, OFF

SETUP ▶ SPEAKERS ▶ CUSTOM SETUP ▶ THX ULTRA2 SUB

or SETUP ▶ SPEAKERS ▶ SYNTHESIS 7CH ▶ THX ULTRA2 SUB

Enables boundary gain compensation (BGC) for THX Ultra2-certified subwoofers.

- Select **ON** if the subwoofer using the Main Zone audio output connectors labeled Subwoofer L/R is THX Ultra2-certified. When ON is selected, the BGC parameter can be used to adjust boundary gain compensation.
- Select **OFF** if the subwoofer using the Main Zone audio output connectors labeled Subwoofer L/R is not THX Ultra2-certified. When OFF is selected, the BGC parameter is not available (N/A).

BGC (BOUNDARY GAIN COMPENSATION) ON, OFF

SETUP ▶ SPEAKERS ▶ CUSTOM SETUP ▶ BGC

or SETUP ▶ SPEAKERS ▶ SYNTHESIS 7CH ▶ BGC

Adjusts boundary gain compensation when the THX ULTRA2 SUB parameter is set to ON.

- Select **ON** to apply a high pass 55Hz filter to all Main Zone audio output connectors and listening modes.
- Select **OFF**, and no filtering is applied to the Main Zone audio output connectors and listening modes.

Note:

BGC compensates for increased bass energy that is caused by the proximity of the speakers to the listening room walls.

ASA (ADVANCED SPEAKER ARRAY) ON, OFF

SETUP ▶ SPEAKERS ▶ CUSTOM SETUP ▶ ASA

or SETUP ▶ SPEAKERS ▶ SYNTHESIS 7CH ▶ ASA

ASA is a proprietary THX technology to process rear channel signals to optimize the listening experience for THX Ultra2 listening modes, including THX UL2Cin, THX MUSIC, DTS THX UL2Cin, DTS THX MUSIC, 5.1mc THX UL2Cin, and 5.1mc THX MUSIC. Applied to film sources, ASA processing blends surround channel signals to optimize ambient and directional surround sounds. Applied to music sources, ASA processing places surround channel signals on a wide, stable rear soundstage.

ASA processing is available when one of the THX ULTRA2 listening modes is activated and both side and rear speakers are present.

The ASA parameter can be changed in any mode, but the change will have no effect unless the above conditions are met.

To maximize the effectiveness of ASA processing, configure a 7.1-channel speaker setup so the rear speakers are placed close together facing the center of the listening space.

- Select **APART** if the distance between the rear speakers is greater than 4 feet (1.2m).
- Select **CLOSE** if the distance between the rear speakers is greater than 1 foot (0.3m), but less than 4 feet (1.2m).
- Select **TOGETHER** if the distance between the rear speakers is less than 1 foot (0.3m).

You can use the remote control 7/5 button to toggle between 7- and 5-channel playback. When you use the 7/5 button, the SDP-40HD automatically:

- Activates ASA processing during 7-channel playback.
- Deactivates ASA processing during 5-channel playback.
- Switches between the 5.1 THX ULTRA2 and THX, DTS THX ULTRA2 and DTS THX, or 5.1mc THX ULTRA2 and 5.1mc THX listening modes.

CALIBRATING SPEAKER DISTANCES & OUTPUT LEVELS

The SDP-40HD offers calibration of speaker distances and output levels. Calibration helps to ensure accurate output signal arrival time and level at the primary listening position. However, it is not a substitute for proper speaker placement.

Before calibrating speaker distances and output levels:

- Set crossover points for the Main Zone audio output connectors. Setting crossover points afterwards could invalidate calibrated output levels (the CUSTOM or THX SETUP menu can be used to set crossover points).
- Eliminate extraneous noise in the listening space, including conversation, air conditioners, and sounds that filter in through open doors and windows.
- Move or remove people or objects blocking the path between the microphones or SPL meter and the speakers.

SPEAKER CALIBRATION PARAMETERS

The table on the next page indicates the speaker calibration parameters that can be used to set speaker distances and output levels for the speakers connected to the corresponding Main Zone audio output connectors. These parameters are available on the speaker distance and output level menus shown throughout this section.

SPEAKER DISTANCE PARAMETERS +0.0 to 30.0ft or 12.0m

Reflect the distance between the primary listening position and the speaker connected to the corresponding Main Zone audio output connector.

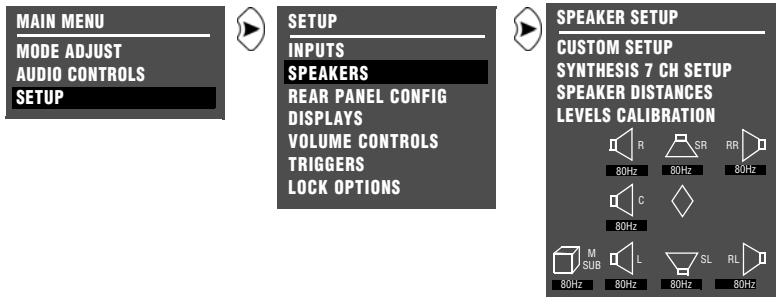
OUTPUT LEVEL PARAMETERS -18.0db to +12.0dB

Reflect the output level of signals sent to the speaker connected to the corresponding Main Zone audio output connector.

LEVELS CALIBRATION

SETUP ▶ **SPEAKERS** ▶ **MANUAL**

Selecting the SPEAKER SETUP menu LEVELS CALIBRATION option displays the LEVELS CALIBRATION menu, to manually calibrate speaker distances and output levels. The table below indicates available manual calibration options.



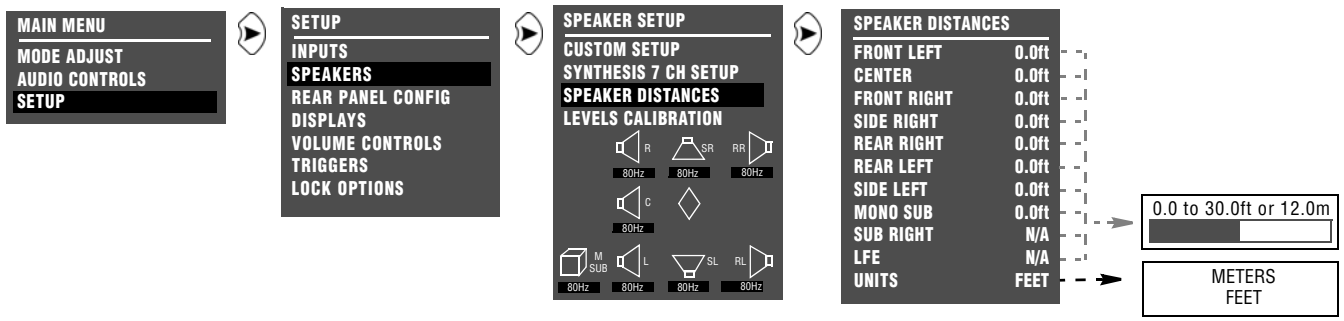
Manual Options	Details
SPEAKER DISTANCES	Provides manual calibration and individual adjustment of speaker distances.
LEVELS CALIBRATION	Provides manual calibration and individual adjustment of output levels.
INTERNAL NOISE TEST	Automatically sends an internal calibration noise signal to each Main Zone audio output connector, allowing for simultaneous output level adjustment.
DACS CALIBRATION	• Requires an external calibration source such as an audio calibration disc. • Activates an appropriate listening mode based on the current Main Zone input source.
BASS PEAK LIMITERS	• Provides amplitude limits for low-frequency signals sent to the Main Zone audio output connectors labeled Subwoofer L/R and LFE, and low-frequency signals redirected to other Main Zone audio output connectors. • Protects speakers against input sources that produce low-frequency signal peaks.

CALIBRATION *(continued)*

PERFORMING SPEAKER DISTANCE CALIBRATION

SETUP ▶ SPEAKERS ▶ MANUAL ▶ SPEAKER DISTANCES

Selecting the MANUAL SPEAKER SETUP menu SPEAKER DISTANCES option displays the SPEAKER DISTANCES menu, to manually calibrate speaker distances.



To manually calibrate speaker distances:

1. Follow the menu path shown above to select SPEAKER DISTANCES. The SPEAKER DISTANCES menu shown above will open on the on-screen display.
2. Press the ▲ or ▼ arrow button to highlight the desired speaker distance parameter. Then, press the ▶ arrow button to select the highlighted speaker distance parameter.
3. To determine the appropriate speaker distance, measure the distance between the primary listening position and the front of the speaker.

   For example, when the FRONT LEFT parameter is selected, measure the distance between the primary listening position and the front of the front left speaker (connected to the Main Zone audio output connector labeled Front L).
4. When the speaker distance has been measured, press the ▲ or ▼ arrow button to set the parameter to the closest available value.

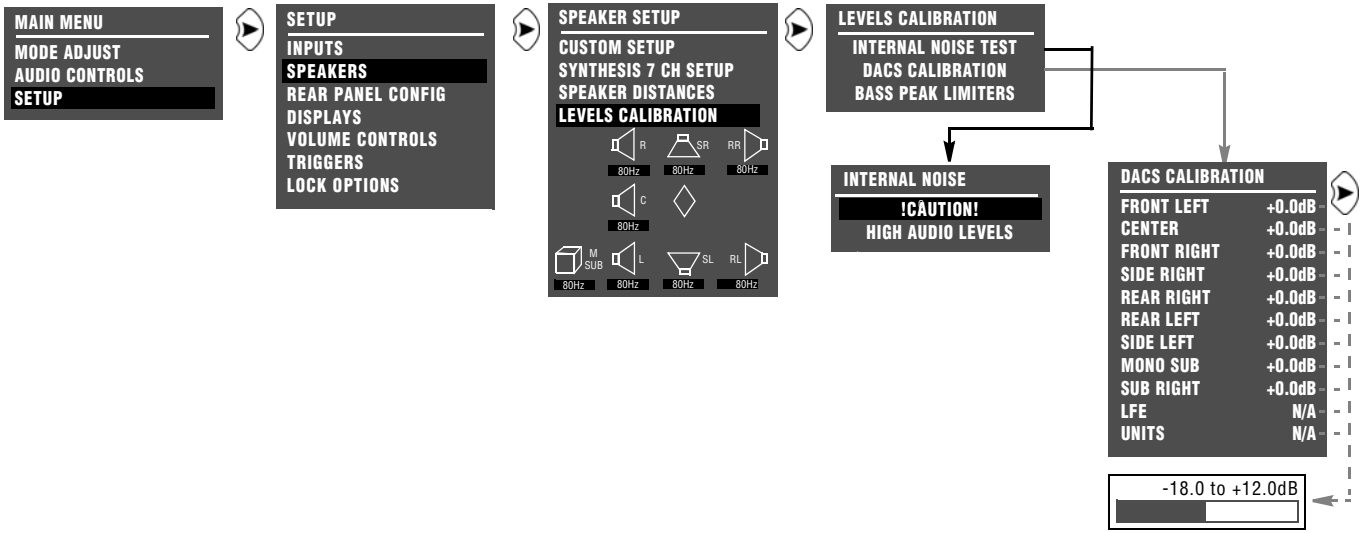
PERFORMING MANUAL OUTPUT LEVEL CALIBRATION

SETUP ▶ **SPEAKERS** ▶ **LEVELS CALIBRATION**

Selecting the MANUAL SPEAKER SETUP menu LEVELS CALIBRATION option displays the LEVELS CALIBRATION menu to manually calibrate output levels.

Note the following:

- You should use a Sound Pressure Level (SPL) meter to manually calibrate output levels. An SPL meter is a device that measures the relative loudness of the speakers to ensure accurate output level calibration. SPL meters are available at Radio Shack.
- Output levels should be calibrated from the primary listening position by placing the SPL meter at the approximate location where the listener's head will be during listening.
- Output levels for speakers that are not included in the speaker setup cannot be adjusted during the internal noise test. These output levels can be adjusted during the external noise test, but there is no need to do so.



MANUAL CALIBRATION *(continued)*

INTERNAL NOISE TEST

SETUP ▶ SPEAKERS ▶ LEVELS CALIBRATION ▶ INTERNAL NOISE TEST

Opens the INTERNAL NOISE message shown on the previous page, which indicates that the internal noise test generates loud calibration noise signals.

When the INTERNAL NOISE message opens:

- Press the ▸ arrow button to open the SPEAKER LEVEL ADJUST menu shown on the previous page. When the SPEAKER LEVEL ADJUST menu opens, the internal noise test automatically begins.
- Press the ◂ button to stop the internal noise test.

During the internal noise test, the SDP-40HD sends calibration noise signals to each speaker in the order shown on the SPEAKER LEVEL ADJUST menu. The cursor automatically scrolls through output level parameters, highlighting each parameter as the SDP-40HD sends the calibration noise signal to the corresponding speaker. The calibration noise signal is sent to each speaker for about 4 seconds.

Note:

When the internal noise test begins, the SDP-40HD automatically sets the volume level to +0dB. Avoid adjusting the master volume level while the test is in progress to achieve THX reference levels (75dB).

To manually calibrate output levels during the internal noise test:

1. Set the SPL meter to "C" weighting and "SLOW" response.
2. Press the ▲ or ▼ arrow button to highlight the desired output level parameter. Then, quickly press the ▸ button to select this output level parameter. The horizontal bar graph shown on the previous page will open on the on-screen display and automatic scrolling will stop.

   Note:

   During the internal noise test, it is possible to select an output level parameter just as the cursor is about to automatically scroll to the next parameter, causing the SDP-40HD to send the calibration noise signal to both speakers. If this occurs, reselect the desired speaker.

3. When the horizontal bar graph opens, press the ▲ or ▼ button to select the output level that achieves a 75dB SPL meter reading from the primary listening position.
4. Press ◂ to close the parameter. The internal noise test will continue and automatic scrolling will resume.
5. Repeat steps 2, 3, and 4 until all desired output levels have been set.

DACS CALIBRATION

SETUP ▶ SPEAKERS ▶ LEVELS CALIBRATION ▶ DACS CALIBRATION

Selecting the LEVELS CALIBRATION menu DACS CALIBRATION option opens the SPEAKER LEVEL ADJUST menu shown on page 3-42, which manually calibrates the output levels.

DACS CALIBRATION requires an external noise source. In JBL Synthesis systems, this source is the JBL Digital Acoustical Calibration System (DACS®). However, an alternate source such as an audio calibration disc can also be used. When the noise test is conducted, the SDP-40HD activates a listening mode based on the current Main Zone input source. Refer to the table below for more information about external noise test listening mode activation.

When a listening mode is activated during the DACS CALIBRATION test, all custom listening mode menu parameter settings are ignored. The listening mode is applied to the current Main Zone input source in its factory-default condition. When the DACS CALIBRATION test is finished, the listening mode returns to its custom condition.

Note:

When the DACS CALIBRATION test begins, the SDP-40HD automatically sets the volume level to +0dB. Avoid adjusting the master volume level while the test is in progress to achieve THX reference levels (75dB).

To manually calibrate output levels during the DACS calibration:

1. Set the SPL Meter to "C" weighting and "SLOW" response.
2. Place the SPL Meter at the primary listening position.
3. Press the ▲ or ▼ arrow button to highlight the output level parameter you want. Then, press the ▶ button to select this output level parameter. The horizontal bar graph shown on page 3-42 displays.
4. Begin playback of the external calibration source and press the ▲ or ▼ arrow button to select the output level that achieves the SPL Meter reading specified in the external calibration source instructions.
5. After selecting the output level, press the ◀ arrow button to close the horizontal bar graph.
6. Repeat steps 2, 3, and 4 until you have set all the output levels you want.

INPUT SOURCE	LISTENING MODE
2-Channel	DOLBY PLII MOVIE, DOLBY PLIIx MOVIE*
Dolby Digital	DIGITAL**
DTS(-ES)	dts ES*
5.1-Channel Analog	5.1mc STANDARD

** These listening modes depend on the speaker configuration. Dolby Pro Logic IIx MOVIE will only load when side and rear speakers are present.*

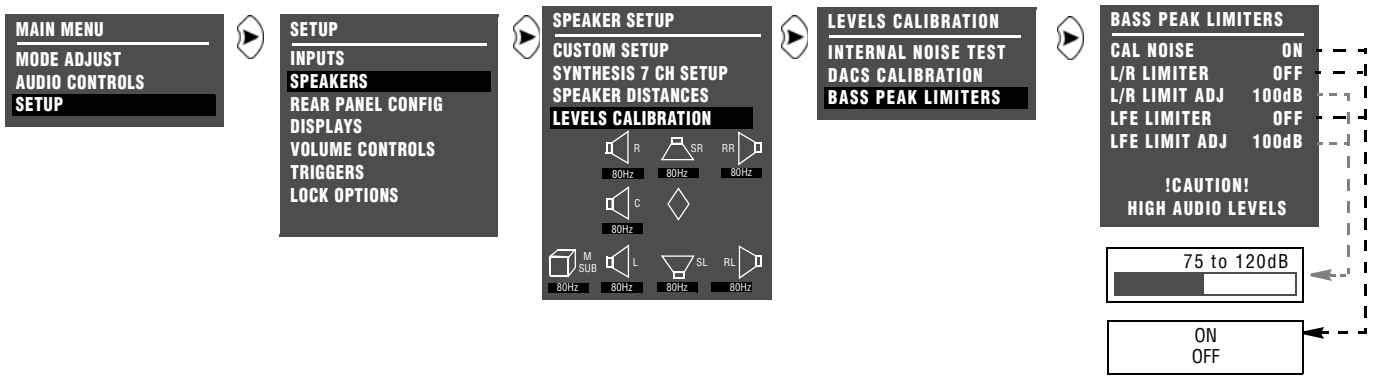
***These listening mode names differ depending on the current input source, speaker setup, and parameter settings. Refer to the Listening Mode Descriptions section beginning on page 5-5 for more information.*

MANUAL CALIBRATION *(continued)*

SETTING BASS PEAK LIMITERS

SETUP ▶ SPEAKERS ▶ MANUAL ▶ LEVELS CALIBRATION ▶ BASS PEAK LIMITERS

The BASS PEAK LIMITERS option displays the BASS PEAK LIMITERS menu to set amplitude limits on low frequency signals sent to the Main Zone audio output Subwoofer L/R and LFE connectors. This menu also sets amplitude limits on low frequency signals redirected to other Main Zone audio output connectors. The SDP-40HD is equipped with an internal limiter to prevent low frequency signals from exceeding a designated output level. This is essential for Dolby Digital and DTS(-ES) sources that produce low frequency signal peaks at much higher output levels than 2-channel sources. In home theaters, there is a danger of the subwoofers and their associated amplifiers overloading when attempting to reproduce low frequency signals.



Parameter	Default Setting	Possible Setting
CAL NOISE	ON	ON, OFF
L/R LIMITER	OFF	ON, OFF
L/R LIMIT ADJ	100dB	75 to 120dB
LFE LIMITER	OFF	ON, OFF
LFE LIMIT ADJ	100dB	75 to 120dB

Note:

You should configure BASS PEAK LIMITERS menu parameter settings whether output levels are automatically or manually calibrated.

CAL NOISE ON, OFF

SETUP ▶ SPEAKERS ▶ LEVELS CALIBRATION ▶ BASS PEAK LIMITERS ▶ CAL NOISE

Determines whether bass peak limiters are set with an internal or external calibration source.

To set the CAL NOISE parameter:

- Select **ON** to activate an internal calibration noise signal to set bass peak limiters.
- Select **OFF** to deactivate the internal calibration noise signal.

  Setting bass peak limiters with the calibration noise set to OFF requires an external calibration source such as an audio calibration disc.

L/R LIMITER ON, OFF

SETUP ▶ SPEAKERS ▶ LEVELS CALIBRATION ▶ BASS PEAK LIMITERS ▶ L/R LIMITER

Limits low frequency signals sent to the subwoofer or redirected to other speakers.

To set the L/R LIMITER parameter:

- Select **ON** to restrict the output level of the low frequency signals to the L/R LIMIT ADJ parameter setting.
- Select **OFF** to allow an unrestricted signal output level, regardless of the L/R LIMIT ADJ parameter setting.

L/R LIMIT ADJ 75 to 120dB

SETUP ▶ SPEAKERS ▶ LEVELS CALIBRATION ▶ BASS PEAK LIMITERS ▶ L/R LIMITER ADJ

Specifies the output level restriction applied to the Subwoofer L/R output connectors, and to other Main Zone audio output connectors to which low frequency signals are redirected.

To set the L/R LIMIT ADJ parameter:

1. Select the **L/R LIMIT ADJ** parameter.

   The parameter initially sets to 75dB.

2. Press the ▲ or ▼ arrow button to change the parameter value.

   The selected output level restriction is applied when the L/R LIMITER parameter is set to ON.

LFE LIMITER ON, OFF

SETUP ▶ SPEAKERS ▶ LEVELS CALIBRATION ▶ BASS PEAK LIMITERS ▶ LFE LIMITER

Limits low frequency signals sent to the LFE subwoofer or redirected to other speakers.

To set the LFE LIMITER parameter:

- Select **ON** to restrict the output level of the low frequency signals to the LFE LIMIT ADJ parameter setting.
- Select **OFF** to allow an unrestricted signal output level, regardless of the LFE LIMIT ADJ parameter setting.

MANUAL CALIBRATION *(continued)*

LFE LIMITER ADJ 75 to 120dB

SETUP ▶ SPEAKERS ▶ LEVELS CALIBRATION ▶ BASS PEAK LIMITERS ▶ LFE LIMITER ADJ

Specifies the output level restriction the SDP-40HD applies to the LFE output connector.

To set the LFE LIMIT ADJ parameter:

1. Select the **LFE LIMIT ADJ** parameter.

   The parameter initially sets to 75dB.

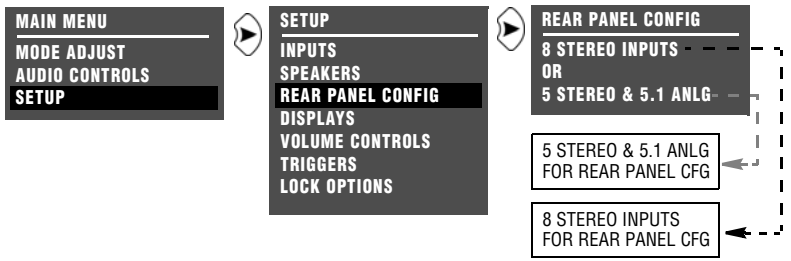
2. Press the ▲ or ▼ arrow button to change the parameter value.

   The selected output level restriction is applied when the LFE LIMITER parameter is set to ON.

REAR-PANEL CONFIGURATION

SETUP ▶ REAR PANEL CONFIG

Selecting the REAR PANEL CONFIG option displays the REAR PANEL CONFIG menu shown below, to configure the analog audio input connectors as eight (Left/Right) stereo connectors or as five (Left/Right) stereo connectors and one 5.1-channel configuration (Front L/R, Center, Subwoofer, Side L/R).



8 STEREO INPUTS

SETUP ▶ REAR PANEL CONFIG ▶ 8 STEREO INPUTS

Select the 8 STEREO INPUTS option to configure the analog audio input connectors as eight stereo connectors.

When 8 STEREO INPUTS is selected:

- All analog audio input connectors are configured as stereo connectors.
- The 5.1-channel connector is not available.
- Input sources that were assigned to the 5.1-channel connector are reassigned to the stereo connector labeled 6.

5 STEREO & 5.1 ANLG

SETUP ▶ **REAR PANEL CONFIG** ▶ **5 STEREO & 5.1 ANLG**

Select the 5 STEREO & 5.1 ANLG option to configure the analog audio input connectors as five stereo and one 5.1-channel connectors.

When 5 STEREO & 5.1 ANLG is selected:

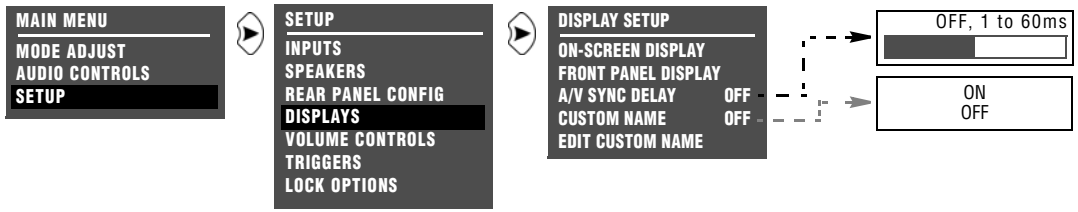
- The 5.1-channel connector should only be used with 5.1-channel analog sources such as DVD-As and SACDs.
- The analog audio input connectors labeled 1, 2, 3, 4, and 5 are configured as stereo connectors.
- The analog audio input connectors labeled 6, 7, and 8 are configured as 5.1-channel connectors.
- Input sources that were assigned to the stereo connectors labeled 6, 7, and 8 are reassigned to conform to the 5.1-channel configuration.
- The 5.1-channel input is sent to the Main Zone audio output connectors as indicated in the table below.

Input Connector(s)	Output Connector(s)
(L) & (R)	Front L/R
(C)	Center
(SUB)	Subwoofer L/R & LFE
(LS) & (RS)	Side L/R & Rear L/R

DISPLAY SETUP

SETUP ▶ DISPLAYS

The DISPLAYS option displays the DISPLAY SETUP menu, to customize the on-screen and front-panel displays, restore audio/video synchronization, and create and activate a custom unit name.



Parameter	Default Setting	Possible Setting
ON-SCREEN DISPLAY	Refer to page 3-51	
FRONT PANEL DISPLAY	Refer to page 3-53	
A/V SYNC DELAY	OFF	OFF, 1 to 60ms
CUSTOM NAME	OFF	ON, OFF
EDIT CUSTOM NAME	Refer to page 3-50	

A/V SYNC DELAY

OFF, 1 to 60ms

SETUP ▶ DISPLAYS ▶ A/V SYNC DELAY

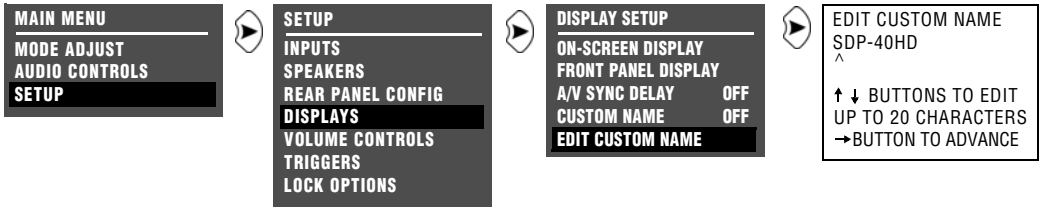
Restores audio/video synchronization when the SDP-40HD is connected to components such as video processors that introduce video signal delays. Select a value between 1 and 60ms to activate an audio signal delay to compensate for the video signal delay.

CUSTOM NAME

ON, OFF

SETUP ▶ DISPLAYS ▶ CUSTOM

Activates the display of the custom unit name, which can be created with the EDIT CUSTOM NAME menu. When ON is selected, the custom unit name scrolls across the on-screen and front panel displays whenever the SDP-40HD is activated. When OFF is selected, the custom unit name does not scroll across the on-screen and front- panel displays when the SDP-40HD is activated.



EDIT CUSTOM NAME

SETUP ▶ **DISPLAYS** ▶ **EDIT CUSTOM NAME**

Opens the EDIT CUSTOM NAME drop-down menu shown above, which can be used to create a custom unit name. The factory default unit name is SDP-40HD.

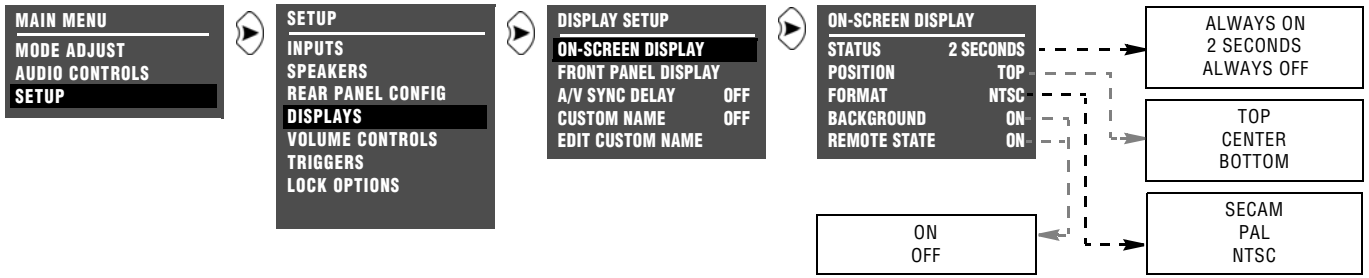
To create a custom unit name:

1. Follow the EDIT CUSTOM NAME menu path shown above to open the EDIT CUSTOM NAME drop-down menu.
2. When the EDIT CUSTOM NAME menu drops down, locate the current unit name on the second line. The cursor automatically appears beneath the first character in the current unit name.
3. Use the following remote control commands to enter a new unit name:
   - Press the ▲ or ▼ arrow button to change the character above the cursor.
   - Press the ▶ button to advance to the next character space. The cursor will automatically wrap to the first character space when the last (twentieth) character space is passed.
   - Pressing ◀ will close the EDIT CUSTOM NAME drop-down menu.
4. When the desired custom unit name has been entered, press ◀ until the EDIT CUSTOM NAME menu closes. The new unit name is saved automatically.

ON-SCREEN DISPLAY

SETUP ▶ DISPLAYS ▶ ON-SCREEN DISPLAY

The ON-SCREEN DISPLAY option opens the ON-SCREEN DISPLAY menu, to customize the on-screen display.



Parameter	Default Setting	Possible Settings
STATUS	2 SECONDS	ALWAYS ON, 2 SECONDS, ALWAYS OFF
POSITION	TOP	TOP, CENTER, BOTTOM
FORMAT	NTSC	SECAM, PAL, NTSC
BACKGROUND	ON	ON, OFF
REMOTE STATE	ON	ON, OFF

STATUS

ALWAYS ON, 2 SECONDS, ALWAYS OFF

SETUP ▶ DISPLAYS ▶ ON-SCREEN DISPLAY ▶ STATUS

Controls the activation of the on-screen display when the display device is connected to a Main Zone video output connector. When ALWAYS ON is selected, the on-screen display remains activated at all times. When 2 SECONDS is selected, the on-screen display activates for two seconds whenever a new input source is present or a new command is received. When ALWAYS OFF is selected, the on-screen display remains deactivated at all times, and will not reactivate until the STATUS parameter is set to ALWAYS ON or 2 SECONDS.

Note:

When the ON-SCREEN DISPLAY menu STATUS parameter is set to ALWAYS OFF, the on-screen display immediately deactivates. Press the OSD button or use the front-panel display as a guide to reset the ON-SCREEN DISPLAY menu STATUS parameter to ALWAYS ON or 2 SECONDS.

POSITION

TOP, CENTER, BOTTOM

SETUP ▶ DISPLAYS ▶ ON-SCREEN DISPLAY ▶ POSITION

Controls the vertical alignment of the two-line status on the display device screen. When TOP is selected, the two-line status appears near the top of the display device screen. When CENTER is selected,

the two-line status appears centered on the display device screen. When BOTTOM is selected, the two-line status appears near the bottom of the display device screen.

FORMAT SECAM, PAL, NTSC

SETUP ▸ DISPLAYS ▸ ON-SCREEN DISPLAY ▸ FORMAT

Controls the compatibility between the composite and S-video output connectors, the video switcher, and the display device. Select the setting that is compatible with the source components and the display device.

Note:

The FORMAT parameter has no effect on the component video output connector.

BACKGROUND ON, OFF

SETUP ▸ DISPLAYS ▸ ON-SCREEN DISPLAY ▸ BACKGROUND

Determines the on-screen display background. When ON is selected, the on-screen display appears over a solid blue or gray background (depending on the display device). When OFF is selected, the on-screen display appears over the video input signal.

Note:

When the BACKGROUND parameter is set to OFF, the on-screen display automatically deactivates when the display device is connected to the Main Zone component video output connector.

REMOTE STATE ON, OFF

SETUP ▸ DISPLAYS ▸ ON-SCREEN DISPLAY ▸ REMOTE STATE

Activates the remote control command bank indicator, a letter that appears in the top-right corner of the on-screen display to indicate the command bank from which the SDP-40HD last received a command. The table below indicates the letter that represents each command bank.

When ON is selected, the command bank indicator appears in the top-right corner of the on-screen display whenever the SDP-40HD receives a remote control command. When OFF is selected, the command bank indicator does not appear on the on-screen display when the SDP-40HD receives a remote control command.

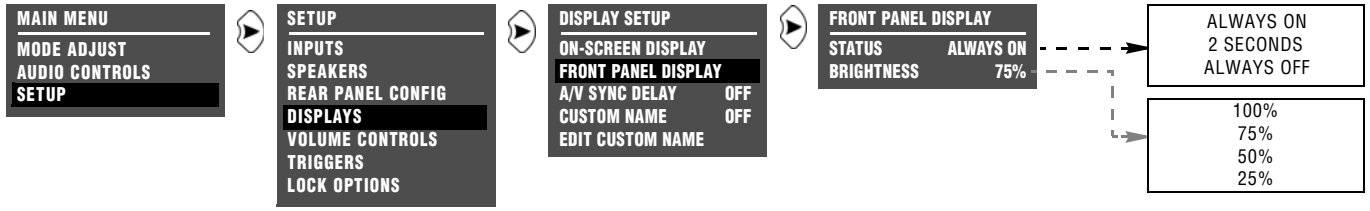
Letter Indicator	Command Bank
None*	Main Zone
Z	Zone 2
R	Record Zone
S	Shift

** No letter appears when the SDP-40HD receives a command from the Main Zone command bank, even if the REMOTE STATE parameter is set to ON.*

FRONT-PANEL DISPLAY

SETUP ▶ DISPLAYS ▶ FRONT PANEL DISPLAY

Opens the FRONT PANEL DISPLAY menu, to customize the front panel display.



Parameter	Default Setting	Possible Settings
STATUS	ALWAYS ON	ALWAYS ON, 2 SECONDS, ALWAYS OFF
BRIGHTNESS	75%	100%, 75%, 50%, 25%

STATUS ALWAYS ON, 2 SECONDS, ALWAYS OFF

SETUP ▶ DISPLAYS ▶ FRONT PANEL DISPLAY ▶ STATUS

Controls the activation of the front-panel display. When ALWAYS ON is selected, the front panel display remains activated at all times. When 2 SECONDS is selected, the front-panel display activates for two seconds whenever a new input source is present or a new command is received. When ALWAYS OFF is selected, the front panel display remains deactivated at all times, and will not reactivate until the STATUS parameter is reset to ALWAYS ON or 2 SECONDS.

Note:

If both the on-screen and front panel displays are inadvertently turned off, pressing the DISPLAY button on the remote control always turns the front panel display on.

BRIGHTNESS 100%, 75%, 50%, 25%

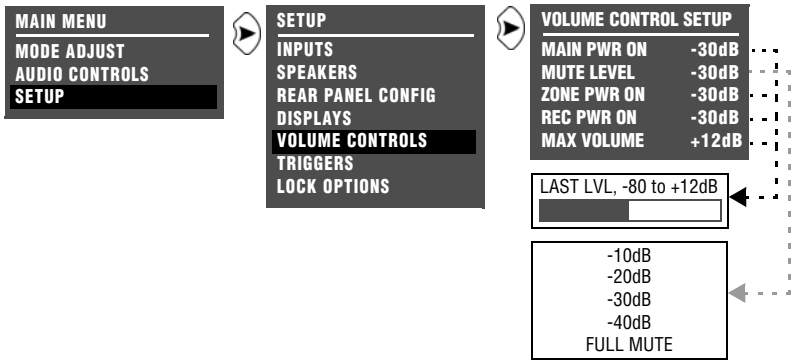
SETUP ▶ DISPLAYS ▶ FRONT PANEL DISPLAY ▶ BRIGHTNESS

Controls the illumination of front panel display characters. When a setting is selected, front panel display characters automatically adjust to the selected illumination percentage.

VOLUME CONTROL SETUP

SETUP ▶ **VOLUME CONTROLS**

Opens the VOLUME CONTROL SETUP menu, to configure the Main Zone, Zone 2, and Record Zone volume levels.



Parameter	Default Setting	Possible Setting
MAIN PWR ON	-30dB	LAST LVL, -80 to +6dB
MUTE LEVEL	FULL MUTE	-10dB, -20dB, -30dB, -40dB, FULL MUTE
ZONE PWR ON	-30dB	LAST LVL, -80 to +6dB
REC PWR ON	-30dB	LAST LVL, -80 to +6dB
MAX VOLUME	+6dB	-80 to +6dB

MAIN PWR ON

LAST LVL, -80 to +6dB

SETUP ▶ **VOLUME CONTROLS** ▶ **MAIN PWR ON**

Selects the volume level at which the Main Zone activates. When a value is selected, the SDP-40HD automatically sets the Main Zone volume level to the selected value when the Main Zone is activated. When LAST LVL is selected, the SDP-40HD sets the Main Zone volume level to the last volume level that was selected in the Main Zone during the previous operating session.

MUTE LEVEL

-10dB, -20dB, -30dB, -40dB, FULL MUTE

SETUP ▶ **VOLUME CONTROLS** ▶ **MUTE LEVEL**

Determines the amount of attenuation that occurs in the Main Zone when the Mute button is pressed. When a value is selected, the Main Zone volume level is attenuated to the selected value when the Mute button is pressed. When FULL MUTE is selected, the Main Zone volume level is fully attenuated when the Mute button is pressed.

ZONE PWR ON

LAST LVL, -80 to +6dB

SETUP ▶ **VOLUME CONTROLS** ▶ **ZONE PWR ON**

Sets the Zone 2 volume level for the output connector labeled Var to the selected value when Zone 2 is activated. When a value is selected, the Zone 2 volume level is automatically set to the selected value when Zone 2 is activated. When LAST LVL is selected, the SDP-40HD sets the Zone 2 volume level to the last volume level that was selected in Zone 2 during the previous operating session.

VOLUME CONTROL SETUP *(continued)*

REC PWR ON LAST LVL, -80 to +6dB

SETUP ▶ VOLUME CONTROLS ▶ REC PWR ON

Sets the Record Zone volume level for the output connector labeled Var to the selected value when the Record Zone is activated. When LAST LVL is selected, the SDP-40HD sets the Record Zone volume level to the last volume level that was selected in the Record Zone during the previous operating session.

When the Record Zone Var audio output connector is connected to a recording device, set the volume to +0dB to achieve appropriate recording levels. Adjusting the Record Zone volume level will affect the recording.

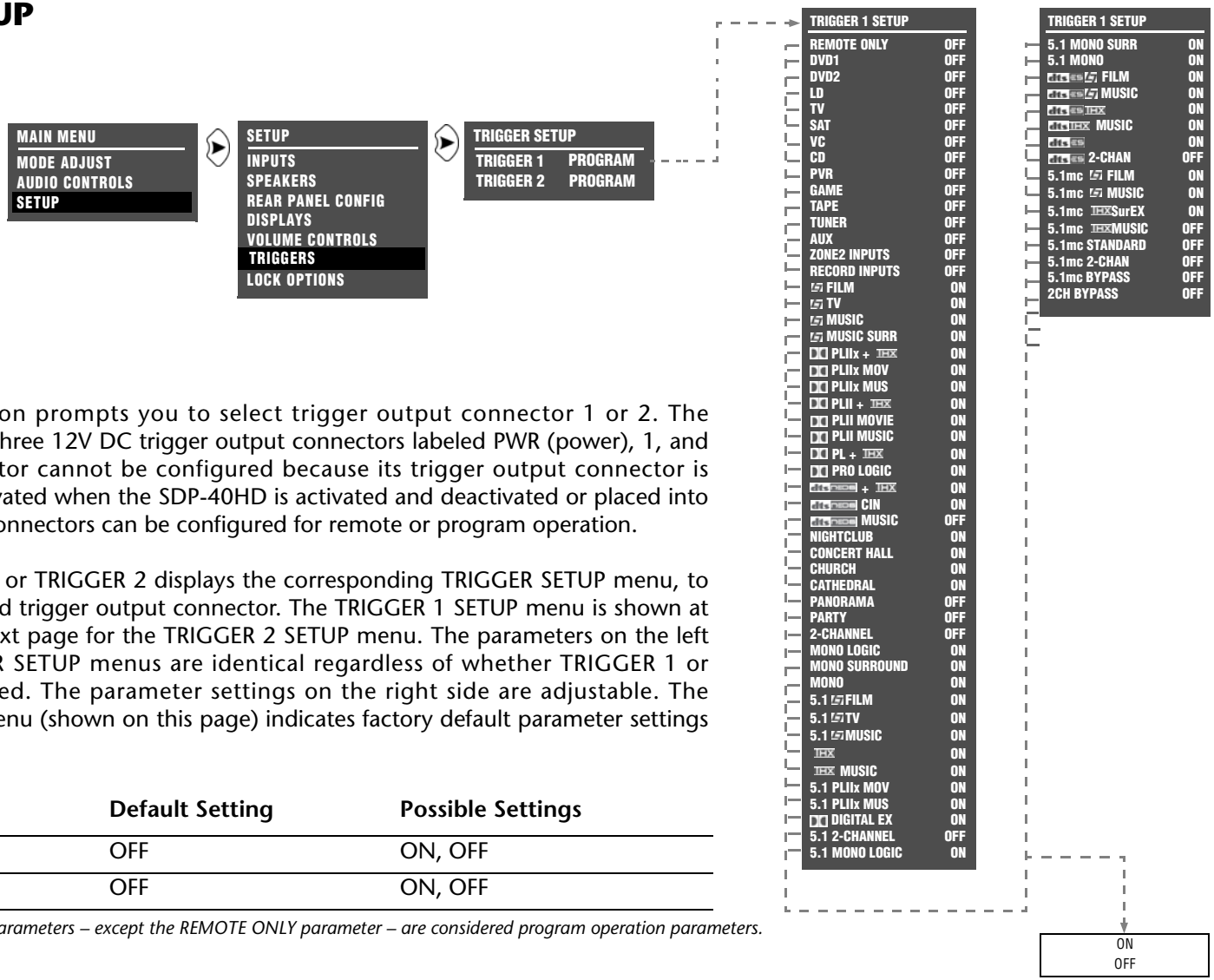
MAX VOLUME -80 to +6dB

SETUP ▶ VOLUME CONTROLS ▶ MAX VOLUME

Limits the volume to the MAX VOLUME parameter value if you attempt to adjust the volume above that level.

TRIGGER SETUP

SETUP ▶ **TRIGGERS**



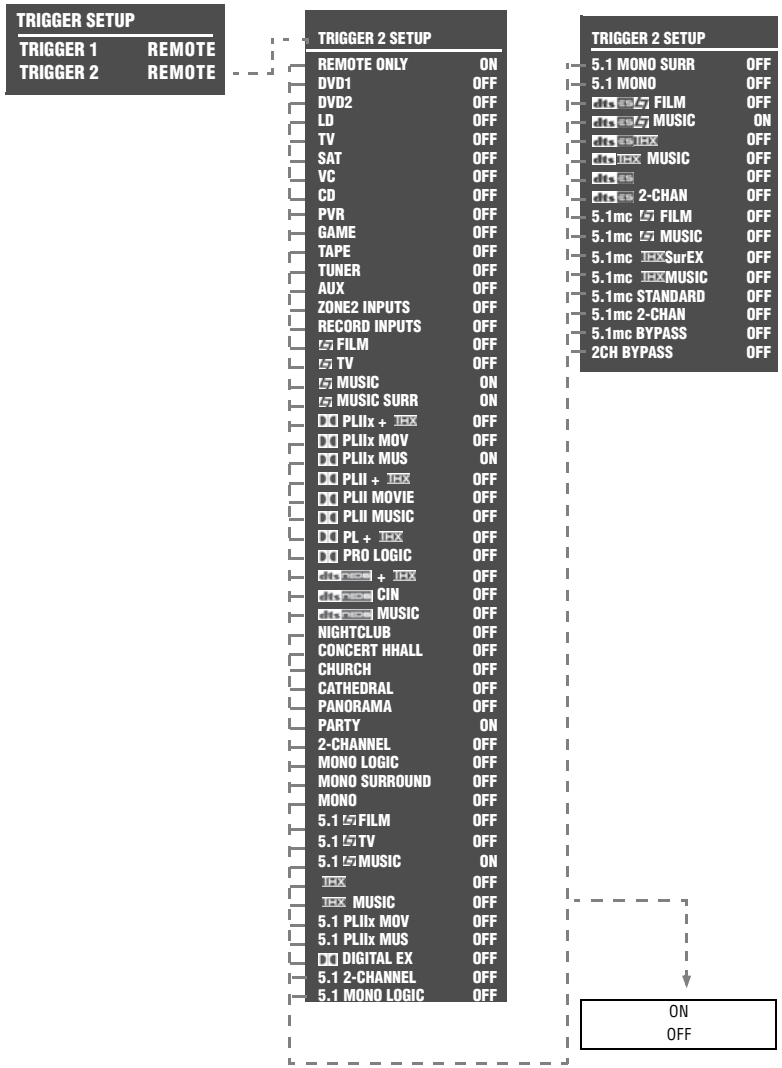
The TRIGGERS option prompts you to select trigger output connector 1 or 2. The SDP-40HD includes three 12V DC trigger output connectors labeled PWR (power), 1, and 2. The PWR connector cannot be configured because its trigger output connector is activated and deactivated when the SDP-40HD is activated and deactivated or placed into standby. The other connectors can be configured for remote or program operation.

Selecting TRIGGER 1 or TRIGGER 2 displays the corresponding TRIGGER SETUP menu, to configure the selected trigger output connector. The TRIGGER 1 SETUP menu is shown at the right. See the next page for the TRIGGER 2 SETUP menu. The parameters on the left side of the TRIGGER SETUP menus are identical regardless of whether TRIGGER 1 or TRIGGER 2 is selected. The parameter settings on the right side are adjustable. The TRIGGER 1 SETUP menu (shown on this page) indicates factory default parameter settings for TRIGGER 1.

Parameter	Default Setting	Possible Settings
REMOTE ONLY	OFF	ON, OFF
Program Operation	OFF	ON, OFF

All TRIGGER SETUP menu parameters – except the REMOTE ONLY parameter – are considered program operation parameters.

TRIGGER SETUP *(continued)*



REMOTE ONLY ON, OFF

SETUP ▸ TRIGGERS ▸ TRIGGER 1 OR TRIGGER 2 ▸ REMOTE ONLY

Configures the selected trigger output connector for remote operation. Select the ON setting to configure the selected connector for remote operation. Select the OFF setting to configure the selected connector for program operation. Refer to the Program Operation Parameter description below for more information.

When configured for remote operation, the connector labeled 1 can be activated and deactivated with the MODE + and – buttons when the Zone 2 command bank is activated, and the connector labeled 2 can be activated and deactivated with the MODE + and – buttons when the Record Zone command bank is activated.

Note:

When the REMOTE ONLY parameter is set to ON, all TRIGGER SETUP menu program operation parameter settings are ignored.

PROGRAM OPERATION PARAMETERS ON, OFF

SETUP ▸ TRIGGERS ▸ TRIGGER 1 OR TRIGGER 2 ▸ Program Operation Parameter

Configures the selected trigger output connector for program operation when the REMOTE ONLY parameter is set to OFF. Select the ON setting to associate the selected connector with the corresponding input(s) or listening mode(s).

When configured for program operation, the connector is activated and deactivated when the associated inputs or listening modes are activated and deactivated.

Note the following:

- Trigger output connectors can be associated with individual Main Zone inputs and listening modes.
- Connectors can be associated with both the Zone 2 and Record Zone inputs, but cannot be associated with Zone 2 only or the Record Zone only.
- Connectors can be associated with multiple inputs and listening modes at the same time.

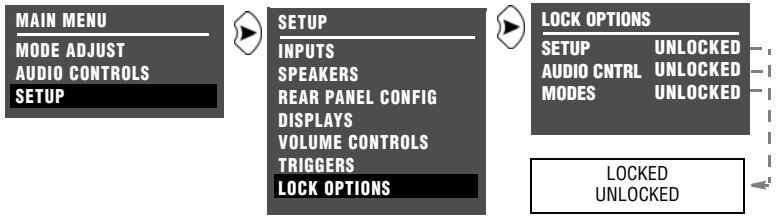
Note:

When the CUSTOM menu RESET MODE option is selected to restore the factory-default version of the selected listening mode, the corresponding TRIGGER SETUP menu program operation parameter is automatically set to OFF.

LOCK OPTIONS

SETUP ▶ LOCK OPTIONS

Displays the LOCK OPTIONS menu, which protects the MODE ADJUST, AUDIO CONTROLS, and SETUP menu branch parameter settings from accidental changes.



Parameter	Default Setting	Possible Settings
MODES	UNLOCKED	LOCKED, UNLOCKED
AUDIO CNTRL	UNLOCKED	LOCKED, UNLOCKED
SETUP	UNLOCKED	LOCKED, UNLOCKED

MODES

LOCKED, UNLOCKED

SETUP ▶ LOCK OPTIONS ▶ MODES

Protects the MODE ADJUST menu branch settings from accidental changes. When LOCKED is selected, MODE ADJUST menu branch settings – including all listening mode menu settings – cannot be adjusted. When UNLOCKED is selected, all MODE ADJUST menu branch settings can be adjusted.

AUDIO CNTRL

LOCKED, UNLOCKED

SETUP ▶ LOCK OPTIONS ▶ AUDIO CNTRL

Protects the AUDIO CONTROLS menu branch settings from accidental changes. When LOCKED is selected, the AUDIO CONTROLS menu branch settings cannot be adjusted. When UNLOCKED is selected, the AUDIO CONTROLS menu branch settings can be adjusted.

SETUP

LOCKED, UNLOCKED

SETUP ▶ LOCK OPTIONS ▶ SETUP

Protects SETUP menu branch settings from accidental changes. When LOCKED is selected, the SETUP menu branch settings cannot be adjusted. When UNLOCKED is selected, the SETUP menu branch settings can be adjusted.

Note the following:

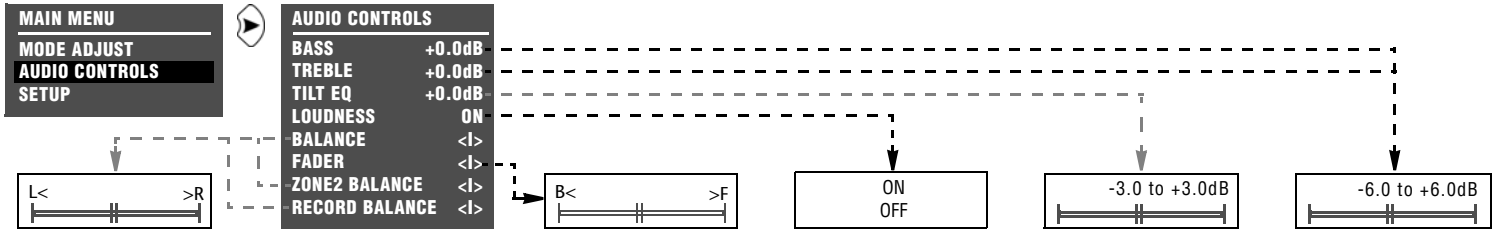
- When the MODES parameter is set to LOCKED, the up and down arrows can still be used to adjust subwoofer output levels applied to the selected listening mode when the Shift command bank is activated.
- When the SETUP parameter is set to LOCKED, the 2CH button can still be used to adjust the MAIN ADV menu ANALOG BYPASS parameter setting when the Shift command bank is activated.
- When the SETUP parameter is set to LOCKED, the 7/5 button can still be used to adjust the MAIN ADV menu INPUT SELECT parameter setting when the Shift command bank is activated.

4

Audio Controls

AUDIO CONTROLS

Selecting the MAIN MENU AUDIO CONTROLS option opens the AUDIO CONTROLS menu, to customize the Main Zone, Zone 2, and Record Zone audio output connectors.



- The BASS, TREBLE, TILT EQ, LOUDNESS, BALANCE, and FADER parameters affect the Main Zone audio output connectors. This includes all Main Zone inputs and listening modes, except the 5.1a BYPASS and 2CH BYPASS listening modes.
- The ZONE2 BALANCE parameter affects the Zone 2 audio output connectors, including all Zone 2 inputs.
- The REC BALANCE parameter affects the Record Zone audio output connectors, including all Record Zone inputs.

Parameter	Default Setting	Possible Settings
BASS	+0.0dB	-6.0 to +6.0dB
TREBLE	+0.0dB	-6.0 to +6.0dB
TILT EQ	+0.0dB	-3.0 to +3.0dB
LOUDNESS	ON	ON, OFF
BALANCE	<I>	L< to <I> to >R
FADER	<I>	B< to <I> to >F
ZONE2 BALANCE	<I>	L< to <I> to >R
REC BALANCE	<I>	L< to <I> to >R

AUDIO CONTROLS menu parameter descriptions begin on the next page.

BASS

-6.0dB to +6.0dB

AUDIO CONTROLS ▶ BASS

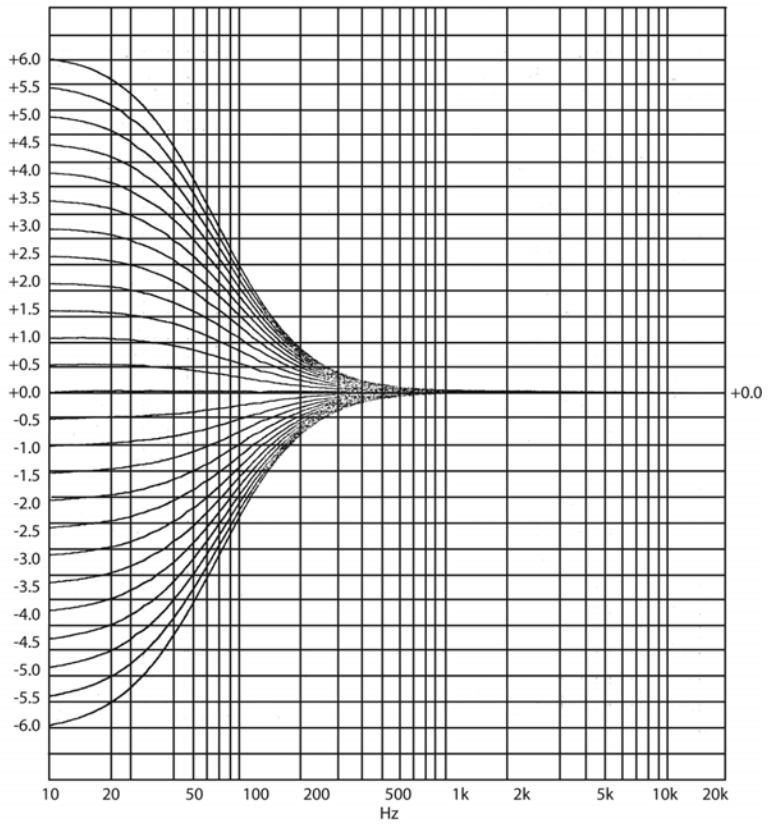
Controls the amount of low-frequency boost or cut applied to the Main Zone audio output connectors labeled Front L/R, Center, LFE, and Subwoofer L/R. The graph to the right indicates the frequency response of all BASS parameter settings.

To control the bass from the remote control:

Press the **Shift** button:

- Press the **CD** button to increase the BASS parameter setting in 0.5dB increments.
- Press the **TAPE** button to decrease the BASS parameter setting in 0.5dB increments.
- Press the **OSD** button to set the BASS, TREBLE, and TILT EQ parameters to +0.0dB.

BASS



The BASS parameter controls the amount of low-frequency boost or cut applied to the Main Zone audio output connectors labeled Front L/R, Center, LFE, and Subwoofer L/R.

TREBLE

-6.0dB to +6.0dB

AUDIO CONTROLS ▶ TREBLE

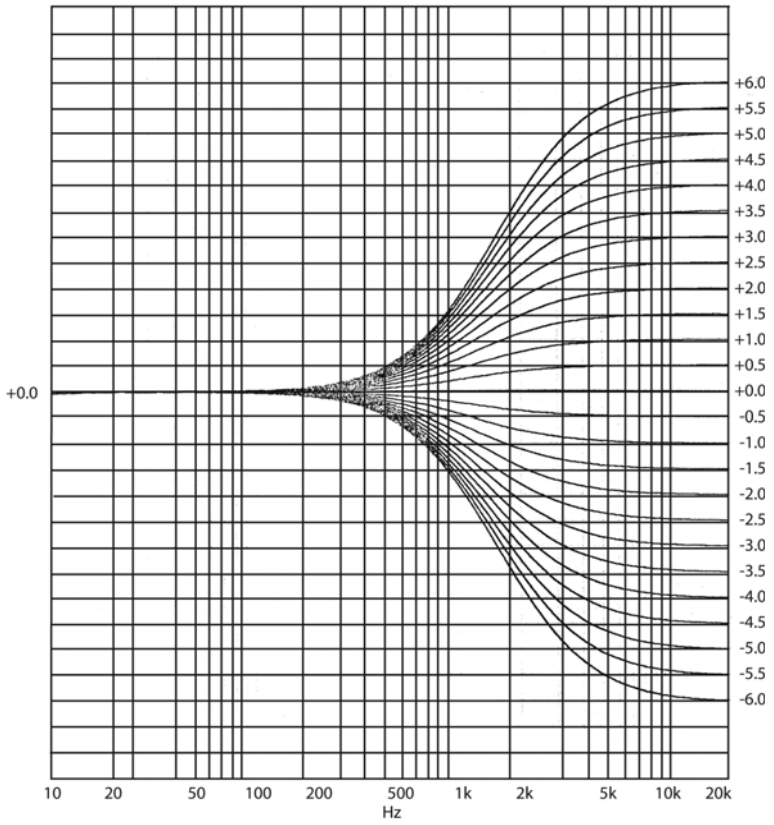
Controls the amount of boost or cut applied to the Main Zone audio output connectors labeled Front L/R and Center. The graph shown at the right indicates the frequency response of all TREBLE parameter settings.

To control the treble from the remote control:

Press the **Shift** button:

- Press the **PVR** button to increase the TREBLE parameter setting in 0.5dB increments.
- Press the **TUNER** button to decrease the TREBLE parameter setting in 0.5dB increments.
- Press the **OSD** button to set the BASS, TREBLE, and TILT EQ parameters to +0.0dB.

TREBLE



The TREBLE parameter controls the amount of boost or cut applied to the Main Zone audio output connectors labeled Front L/R and Center.

TILT EQ

-3.0 to +3.0dB

AUDIO CONTROLS ▸ TILT EQ

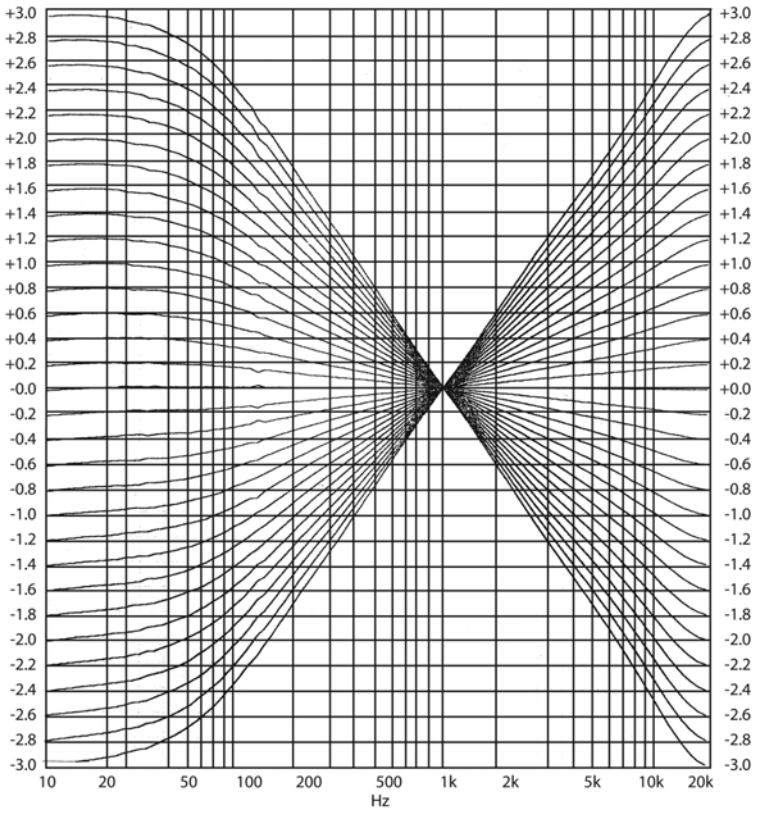
Controls the amount of tilt equalization applied to the Main Zone audio output connectors labeled Front L/R, Center, LFE, and Subwoofer L/R. This parameter setting affects the entire frequency spectrum with a hinge point at 1kHz. As the setting increases, frequencies higher than 1kHz are boosted while frequencies lower than 1kHz are simultaneously cut. As the setting decreases, frequencies higher than 1kHz are cut while frequencies lower than 1kHz are simultaneously boosted. The graph shown at the right indicates the frequency response of all TILT EQ parameter settings.

To control the tilt EQ from the remote control:

Press the **Shift** button:

- Press the **GAME** button to increase the TILT EQ parameter setting in 0.2dB increments.
- Press the **AUX** button to decrease the TILT EQ parameter setting in 0.2dB increments.
- Press the **OSD** button to set the BASS, TREBLE, and TILT EQ parameters to +0.0dB.

TILT EQ



The TILT EQ parameter controls the amount of tilt equalization applied to the Main Zone audio output connectors labeled Front L/R, Center, LFE, and Subwoofer L/R.

LOUDNESS

ON, OFF

AUDIO CONTROLS ▸ **LOUDNESS**

Controls the amount of low-frequency boost that is automatically applied to the Main Zone audio output connectors labeled Front L/R, Center, LFE, and Subwoofer L/R. When ON is selected, loudness compensation is automatically applied based on volume level. As volume level increases, the amount of low-frequency boost automatically decreases. The loudness contour is optimized for input sources calibrated to THX reference levels. When OFF is selected, no loudness compensation is applied.

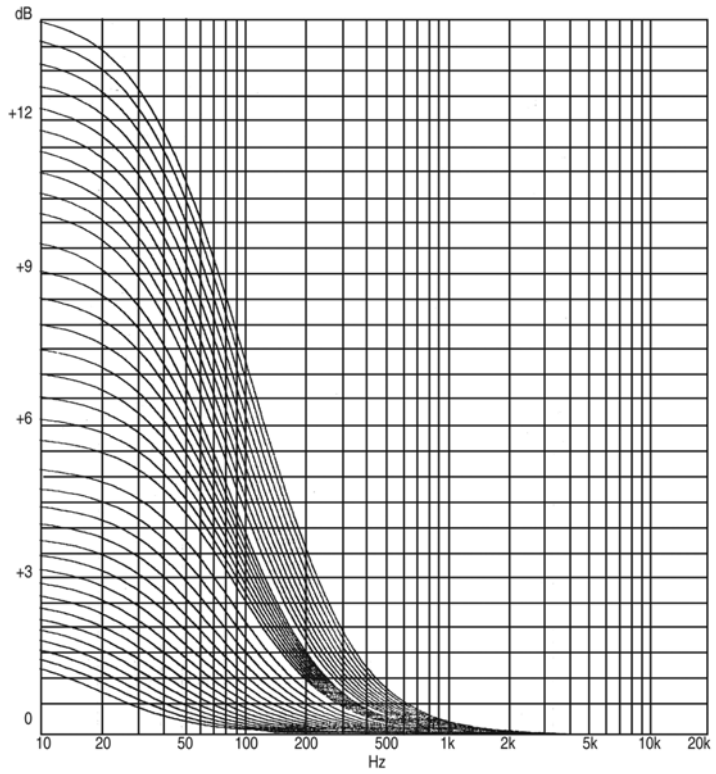
The graph shown at the right indicates the frequency response that is automatically applied when the LOUDNESS parameter is set to ON and Main Zone volume level is adjusted.

To control the loudness from the remote control:

Press the **Shift** button:

- Press the **TV** button to turn the LOUDNESS on.
- Press the **SAT** button to turn the LOUDNESS off.

LOUDNESS



The LOUDNESS parameter controls the amount of low-frequency boost that is automatically applied to the Main Zone audio output connectors labeled Front L/R, Center, LFE, and Subwoofer L/R.

BALANCE

L< <I> >R

AUDIO CONTROLS ▶ BALANCE

Controls the left-to-right balance of the Main Zone audio output connectors labeled Front L/R, SIDE L/R, and REAR L/R.

To control the balance from the remote control:

Press the **Shift** button:

- Press the **MENU** button to center the Main Zone balance.
- Press the ◀ or ▶ arrow buttons to adjust the Main Zone balance left and right.

FADER

B< <I> >F

AUDIO CONTROLS ▶ FADER

Controls the front-to-back balance of the Main Zone audio output connectors labeled Front L/R, SIDE L/R, and REAR L/R.

To control the fade from the remote control:

Press the **Shift** button:

- Press the **MENU** button to center the Main Zone fader.
- Press the ▲ or ▼ arrow buttons to adjust the Main Zone fader backward and forward.

ZONE2 BALANCE

L< <I> >R

AUDIO CONTROLS ▶ ZONE2 BALANCE

Controls the left-to-right balance of the Zone 2 audio output connectors.

To control the Zone 2 balance from the remote control:

Press the **ZONE** button:

- Press the **MENU** button to center the Zone2 balance.
- Press the ◀ or ▶ arrow buttons to adjust the Zone2 balance left and right.

RECORD BALANCE

L< <I> >R

AUDIO CONTROLS ▶ RECORD BALANCE

Controls the left-to-right balance of the Record Zone analog audio output connectors.

To control the balance from the remote control:

Press the **REC** button:

- Press the **MENU** button to center the Main Zone balance.
- Press the ◀ or ▶ arrow buttons to adjust the record balance left and right.

5

Mode Adjust

** These listening mode names differ depending on the current input source, speaker setup, and parameter settings. Refer to the Listening Mode Descriptions beginning on page 5-5 for more information.*

MODE ADJUST

Selecting MAIN MENU ▸ MODE ADJUST displays the available listening modes. Selecting a listening mode opens the corresponding listening mode menu, to customize the selected listening mode. These adjustments are applied immediately.

All listening mode menus are shown in the Appendix. The parameters on the left side of the menus differ from listening mode to listening mode. The parameter settings on the right side are adjustable. Factory default parameter settings are shown for each listening mode.

When the MODE ADJUST menu opens, the activated listening mode is highlighted. To activate a different listening mode, you must use one of the methods described in "Listening Mode Activation" below.

LISTENING MODE ACTIVATION

The SDP-40HD allows listening mode activation in the Main Zone. Listening modes are available for 2-channel, Dolby Digital, DTS(-ES), and analog sources. In some cases, the SDP-40HD automatically activates a listening mode in response to certain commands. For this reason, it is important to understand the three methods through which listening mode activation occurs.

Listening modes activation occurs through:

- The INPUT SETUP menu preferred listening mode selection parameters.
- The front panel or remote control Mode ▲ and ▼ buttons.
- The remote control mode family selection buttons (THX, Dolby Digital, LOGIC 7, TVL, DTS, and MUSIC).

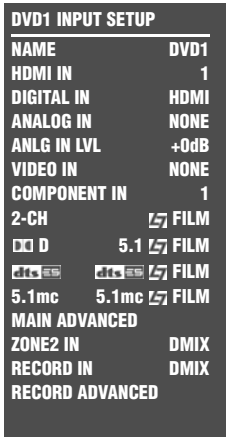
PREFERRED LISTENING MODE SELECTION PARAMETERS

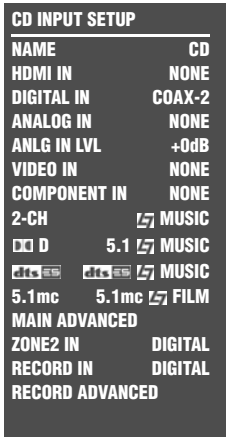
You can select four preferred listening modes for each Main Zone input, including one listening mode each for 2-channel, Dolby Digital, DTS(-ES), and 5.1-channel sources. The table below indicates the INPUT SETUP menu parameters that can be used to select preferred listening modes.

Preferred Listening Mode Selection Parameters

2-CH	Selects a preferred listening mode for 2-channel sources
DD D	Selects a preferred listening mode for Dolby Digital sources
dts ES	Selects a preferred listening mode for DTS-(ES) sources
5.1mc	Selects a preferred listening mode for 5.1-channel sources

Preferred listening modes can be preselected so that when a particular type of input source is played, the preselected listening mode is activated on the selected input. For example, the DVD1 and CD INPUT SETUP menu preferred listening mode selection parameters are set as shown at the top of the next column.





- If the DVD1 input is selected and a 2-channel source is present, the L7 FILM listening mode is activated. If a Dolby Digital source is played, the 5.1 L7 FILM listening mode is activated.
- If the CD input is selected while a Dolby Digital source is present, the 5.1 L7 MUSIC listening mode is activated. If the DVD1 input is then selected to play a DTS(-ES) source, the DTS or DTS(-ES) L7 FILM listening mode is activated.

Note:

Refer to the Selecting Preferred Listening Modes section that begins on page 3-13 for more information.

MODE BUTTONS

Use the front panel and remote control Mode buttons to audition listening modes with the current Main Zone input source. Press the Mode + or – button to scroll up or down through the available listening modes for the current Main Zone input source. For example, if a 2-channel source is present in the Main Zone, the Mode buttons can be used to audition 2-channel listening modes.

Scrolling occurs in the order shown on the MODE ADJUST menu. The selected listening mode appears in the bottom-left corner of the Main Zone two-line status. The selected listening mode is automatically activated when scrolling stops.

MODE FAMILY SELECTION BUTTONS

The remote control mode family selection buttons select a listening mode within the corresponding mode family. Pressing a mode family selection button activates the most appropriate listening mode for the current Main Zone input source. For example, pressing the L7 button while a 2-channel source is present in the Main Zone activates the L7 FILM listening mode.

The table below indicates the listening modes associated with each mode family selection button.

	Input Source			
Button	**2-Channel**	**5.1 Dolby Digital**	**DTS(-ES)**	**5.1mc**
THX	N/A**†	THX*	DTS(-ES) THX*	5.1mc THX*
DD	DOLBY PLII MOVIE†	DD 5.1 PLII MOV*	N/A**	N/A**
L7	L7 FILM	5.1 L7 FILM	DTS(-ES) L7 FILM*	5.1mc L7 FILM
TVL	L7 TV	5.1 L7 TV	N/A**	N/A**
dts	DTS Neo:6 CIN††	N/A**	DTS(-ES)*	N/A**
MUSIC	L7 MUSIC	5.1 L7 MUSIC	DTS(-ES) L7 MUSIC*	5.1mc L7 MUSIC

* *These listening mode names differ depending on the current input source, speaker setup, and parameter settings. Refer to the Listening Mode Descriptions section that begins on the next page for more information. For 5.1 systems with only side or rear speakers (but not both), pressing the DD button loads the DOLBY DIGITAL mode.*

** *The MODE SELECTION NOT AVAILABLE message appears on the on-screen and front panel displays when the selected listening mode family does not offer a listening mode for the current Main Zone input source.*

† *When a 7-speaker configuration is in use, the Dolby PLIIx variant of this mode is loaded.*

†† *The MODE SELECTION NOT AVAILABLE message appears on the on-screen and front panel displays if the input has a sampling rate of 96kHz. This includes analog inputs converted to 96kHz.*

LISTENING MODE DESCRIPTIONS

The SDP-40HD offers an assortment of listening modes for 2-channel, Dolby Digital, DTS(-ES), and analog sources. Listening mode descriptions begin below and continue in the order shown on the MODE ADJUST menu. The table included with each description indicates the corresponding listening mode menu parameters, as well as their factory default and possible parameter settings. All listening mode menus are shown in the Appendix. Descriptions of the listening mode parameters begin on page 5-35.

LOGIC 7 FILM

MODE ADJUST ▶ LOGIC 7 FILM

This listening mode is designed for enhanced playback of 2-channel stereo or matrix encoded film sources.

LOGIC 7 FILM is a proprietary Lexicon listening mode that derives seven channels from 2-channel input sources. Logic 7 also derives full frequency stereo surround channels that realistically increase the perceived width, length and sense of envelopment of the listening space. Logic 7 provides remarkable improvement compared to other decoders.

Parameter	Default Setting	Possible Settings
AUTO AZIMUTH	ON	ON, OFF
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
RE-EQUALIZER	ON	ON, OFF
SOUND STAGE	REAR	FRONT, NEUTRAL, REAR
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20.0kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

LOGIC 7 TV

MODE ADJUST ▶ LOGIC 7 TV

This listening mode is designed for playback of 2-channel stereo or matrix encoded television broadcast sources.

LOGIC 7 TV is a proprietary Lexicon listening mode based on the LOGIC 7 FILM listening mode, but specifically tailored for broadcast sources.

Parameter	Default Setting	Possible Settings
AUTO AZIMUTH	ON	ON, OFF
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
FRONT STEERING	FILM	OFF, MSURR, MUSIC, FILM
RE-EQUALIZER	OFF	ON, OFF
SOUND STAGE	REAR	FRONT, NEUTRAL, REAR
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20.0kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

MUSIC

MODE ADJUST ▶ MUSIC

This listening mode is designed for playback of 2-channel stereo or matrix encoded music sources.

LOGIC 7 MUSIC is a proprietary listening mode based on the LOGIC 7 FILM listening mode, but specifically tailored for music sources.

Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
FRONT STEERING	MUSIC	OFF, MSURR, MUSIC, FILM
SOUND STAGE	NEUTRAL	FRONT, NEUTRAL, REAR
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20.0kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

MUSIC SURR

MODE ADJUST ▶ MUSIC SURR

The LOGIC 7 MUSIC SURR listening mode is designed for playback of 2-channel stereo music sources recorded in real spaces and for playback of recordings that contain added reverb. It is recommended for classical music sources, which are often recorded in real spaces with added reverb to enhance the stereo mix.

Logic 7 extracts ambient sounds from the input source and sends these sounds to all speakers. Ambient sounds are heard from all directions, creating a realistic playback presentation that simulates what listeners experience in real spaces.

Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
FRONT STEERING	MSURR	OFF, MSURR, MUSIC, FILM
SOUND STAGE	NEUTRAL	FRONT, NEUTRAL, REAR
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20.0kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

DD PLIIx + THX & DD PLII + THX

MODE ADJUST ▶ DD PLIIx +THX OR DD PLII + THX

Dolby Pro Logic IIx technology is an extension to Dolby Pro Logic II that enables the listener to experience natural and seamless 6.1- or 7.1-channel surround sound from any native two-channel (stereo) source. These modes are recommended for home theaters with THX certified speakers. The PLIIx + THX listening mode is only available when the front, side and rear speakers are present. The PLII listening mode is available when the front and side speakers are present.

Note:

The PLIIx + THX mode does not appear in the list of available listening modes if either the side or rear speakers are missing from the configuration.

Dolby PLII(x) + THX encoding:

- Applies THX re-equalization to simulate high frequency rolloffs that occur in movie theaters. Most films are mixed for movie theaters, and might sound too bright when played back in home theaters without re-equalization.
- Applies THX timbre matching to minimize timbre differences between the front and surround channels, which results in smoother sound movements between them.

Parameter	Default Setting	Possible Settings
RE-EQUALIZER	ON	ON, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

DD PLIIx MOV & DD PLII MOVIE

MODE ADJUST ▶ DD PLIIx MOV OR DD PLII MOVIE

Dolby Pro Logic IIx technology is an extension to Dolby Pro Logic II that enables the listener to experience natural and seamless 6.1- or 7.1-channel surround sound from any native two-channel (stereo) source. The PLIIx listening mode is only available when the front, side and rear speakers are present. The PLII listening mode is available when the front and side speakers are present.

Note:

The PLIIx MOV mode does not appear in the list of available listening modes if either the side or rear speakers are missing from the configuration.

Dolby PLIIx MOVIE and Dolby PLII MOV modes:

- Are designed for playback of Dolby Surround encoded sources.
- Provide impressive enhancement compared to Dolby Pro Logic decoding.
- Are appropriate for Dolby Surround-encoded film sources.

Dolby PLIIx MOV decodes seven channels from Dolby Surround encoded sources. Dolby PLII MOVIE decodes five channels from Dolby Surround encoded sources.

Parameter	
OUTPUT LEVELS	Refer to page 5-33
CUSTOM	Refer to page 5-34

See page 5-35 for detailed parameter descriptions.

DD PLIIx MUS & DD PLII MUSIC

MODE ADJUST ▶ DD PLIIx MUS OR DD PLII MUSIC

Dolby Pro Logic IIx technology is an extension to Dolby Pro Logic II that enables the listener to experience natural and seamless 6.1- or 7.1-channel surround sound from any native two-channel (stereo) source. The PLIIx listening mode is only available when the front, side and rear speakers are present. The PLII listening mode is available when the front and side speakers are present.

Note:

The PLIIx MUS mode does not appear in the list of available listening modes if either the side or rear speakers are missing from the configuration.

Parameter	Default Setting	Possible Settings
PANORAMA	OFF	ON, OFF
CTR WIDTH	3	MIN, 1 to 6, MAX
DIMENSION	NEUTRAL	FRONT, NEUTRAL, REAR
SURROUND DLY	10ms	0 to 15ms
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

DD PL + THX

MODE ADJUST ▶ DD PL + THX

This mode is designed for playback of Dolby Surround encoded sources and decodes four channels: three front channels and one mono surround channel with a high frequency rolloff above 7kHz. This mode is recommended for home theaters with THX-certified speakers.

Dolby PL + THX mode:

- Applies THX re-equalization to simulate high frequency rolloffs that occur in movie theaters. Most films are mixed for movie theaters, and may sound too bright when played back in home theaters without re-equalization.
- Applies THX timbre matching to minimize timbre differences between the front and surround channels, which results in smoother sound movements between them.

Parameter	Default Setting	Possible Settings
RE-EQUALIZER	ON	ON, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

PRO LOGIC

MODE ADJUST ▶ PRO LOGIC

The Dolby PRO LOGIC mode is designed for playback of Dolby Surround encoded sources. It decodes four channels from Dolby Surround encoded sources, and uses a mono surround channel with a high frequency rolloff above 7kHz.

This mode is useful for comparison purposes, particularly with the L7 FILM, Dolby PLIIx MOVIE and DTS Neo:6 CIN listening modes.

Parameter	Setting
OUTPUT LEVELS	Refer to page 5-33
CUSTOM	Refer to page 5-34

See page 5-35 for detailed parameter descriptions.

DTS NEO:6 + THX

MODE ADJUST ▶ DTS NEO:6 + THX

This mode is designed for playback of matrix encoded digital stereo film sources. DTS NEO:6 derives six channels when both side and rear speakers are present (rear channels will be in parallel). It derives five channels when only side or rear speakers are present.

In addition to THX processing, THX re-equalization is applied to simulate high frequency rolloffs that occur in movie theaters. Most films are mixed for movie theaters, and may sound too bright when played back in home theaters without re-equalization.

Parameter	Default Setting	Possible Settings
RE-EQUALIZER	ON	ON, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

DTS NEO:6 CIN & DTS NEO:6 MUSIC

MODE ADJUST ▶ DTS NEO:6 CIN OR DTS NEO:6 MUSIC

These modes are designed for playback of matrix encoded digital stereo film or music sources. DTS Neo:6 derives six channels when both side and rear speakers are present (rear channels will be in parallel). It derives five channels when only side or rear speakers are present.

Parameter	Setting
OUTPUT LEVELS	Refer to page 5-33
CUSTOM	Refer to page 5-34

See page 5-35 for detailed parameter descriptions.

Note the following:

- The DTS Neo:6 CIN or MUSIC listening modes cannot be assigned as preferred listening modes for 2-channel sources. However, when the 2-CH parameter is set to USE LAST, the SDP-40HD automatically activates the DTS Neo:6 CIN or MUSIC listening mode if the mode was active the last time a 2-channel source was present.
- The SDP-40HD will not automatically activate a DTS Neo:6 listening mode unless a 44.1kHz or 48kHz PCM digital source is present. The DTS Neo:6 listening modes are not available with 88.2kHz, 96kHz, or analog sources.
- The DTS Neo:6 MUSIC listening mode can be activated with the front panel or remote control Mode buttons. The DTS Neo:6 CIN listening mode can also activated with the remote control DTS button when a 2-channel input source is present.

NIGHTCLUB

MODE ADJUST ▶ NIGHTCLUB

The NIGHTCLUB mode is designed for playback of "dry" music sources that benefit from the addition of room reflections, especially music sources that lack ambience in the recording. The NIGHTCLUB mode generates early reflections and sends them to all speakers except for the LFE speaker.

The NIGHTCLUB mode is a superior room simulation listening mode because it uses a proprietary reverb algorithm that is relied upon by a majority of recording engineers to add ambience to recordings.

Parameter	Default Setting	Possible Settings
CENTER DEPTH	11	0 to 18
SPEECH DETECT	ON	ON, OFF
SIZE	5m	4 to 20m
LIVENESS	196ms	30ms to 20.2s
PRE-DELAY	5ms	OFF, 1 to 100ms
ROLLOFF	9.0kHz	500Hz to 20.0kHz, OFF
EFFECT LVL	+3dB	-12 to +6dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

CONCERT HALL

MODE ADJUST ▶ CONCERT HALL

The CONCERT HALL mode generates early reflections and sends them to all speakers except for the LFE speaker.

The CONCERT HALL mode is a superior room simulation listening mode because it uses a proprietary reverb algorithm that is relied upon by a majority of recording engineers to add ambience to recordings.

Parameter	Default Setting	Possible Settings
CENTER DEPTH	12	0 to 18
SPEECH DETECT	ON	ON, OFF
SIZE	20m	4 to 20m
LIVENESS	1.72s	30ms to 20.2s
PRE-DELAY	OFF	OFF, 1 to 100ms
ROLLOFF	2.4kHz	500Hz to 20.0kHz, OFF
EFFECT LVL	-2dB	-12 to +6dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

CHURCH

MODE ADJUST ▶ CHURCH

The CHURCH mode uses a reverb algorithm to emphasize the rich, smooth, reverberant decay characteristic of small and medium listening spaces with long reverberation time relative to their size, such as churches and chambers.

The CHURCH mode is a superior room simulation listening mode because it uses a proprietary reverb algorithm that is relied upon by a majority of recording engineers to add ambience to recordings.

Parameter	Default Setting	Possible Settings
CENTER DEPTH	5	0 to 18
SPEECH DETECT	ON	ON, OFF
SIZE*	20m	4 to 30m
MID RT*	1.56s	24ms to 24.3s
BASS RT*	1.87s	5ms to 48.6s
PRE-DELAY	24ms	OFF, 1 to 100ms
ROLLOFF	2.4kHz	500Hz to 20.0kHz, OFF
EFFECT LVL	-3dB	-12 to +6dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

** BASS RT, MID RT, and SIZE parameter settings are interdependent, meaning that the full parameter range might not be available depending on the other parameter settings.*

See page 5-35 for detailed parameter descriptions.

CATHEDRAL

MODE ADJUST ▶ CATHEDRAL

The CATHEDRAL mode is similar to the CHURCH listening mode. It uses a reverb algorithm to emphasize the rich, smooth, reverberant decay characteristic of large listening spaces with long reverberation time relative to their size, such as cathedrals.

The CATHEDRAL mode is a superior room simulation listening mode because it uses a proprietary reverb algorithm that is relied upon by a majority of recording engineers to add ambience to recordings.

Parameter	Default Setting	Possible Settings
CENTER DEPTH	12	0 to 18
SPEECH DETECT	ON	ON, OFF
SIZE*	30m	4 to 30m
MID RT*	3.72s	24ms to 24.3s
BASS RT*	4.47s	5ms to 48.6s
PRE-DELAY	23ms	OFF, 1 to 100ms
ROLLOFF	3.1kHz	500Hz to 20.0kHz, OFF
EFFECT LVL	-8dB	-12 to +6dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

** BASS RT, MID RT, and SIZE parameter settings are interdependent, meaning that the full parameter range might not be available depending on the other parameter settings.*

See page 5-35 for detailed parameter descriptions.

PANORAMA

MODE ADJUST ▶ PANORAMA

Parameter	Default Setting	Possible Settings
EFFECT LVL	+4dB	-12 to +6dB
BASS CONTENT	STEREO	BINAURL, MONO, STEREO
LOW FREQ WIDTH	+0	-25 to +25dB
SURR ROLLOFF	3.1kHz	500Hz to 20.0kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
INPUT BALANCE	<I>	L< to <I> to >R
CALIBRATION	Refer to page 5-13	
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

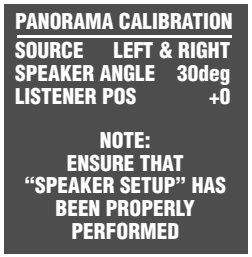
The PANORAMA mode is designed for playback of stereo and matrix encoded sources. PANORAMA uses proprietary Lexicon algorithms to move the stereo image outward from the front speakers, producing a wider stereo field with greater depth.

Sound quality depends on proper location of the listening position and front speakers. When the front speakers are positioned close to either side of the display device, the effect is produced over a wider area than when the front speakers are positioned at a large angle from the display device.

See page 5-35 for detailed parameter descriptions.

PANORAMA CALIBRATION

MODE ADJUST ▶ PANORAMA ▶ CALIBRATION



Select PANORAMA ▸ CALIBRATION to open the PANORAMA CALIBRATION menu shown to the left, to calibrate the PANORAMA listening mode. **This listening mode must be calibrated to take full advantage of its effects.**

For best results, you should center the primary listening position between the front left and right speakers as shown in the Center illustration at the top of the next page. Otherwise, the PANORAMA listening mode will be calibrated with varying results.

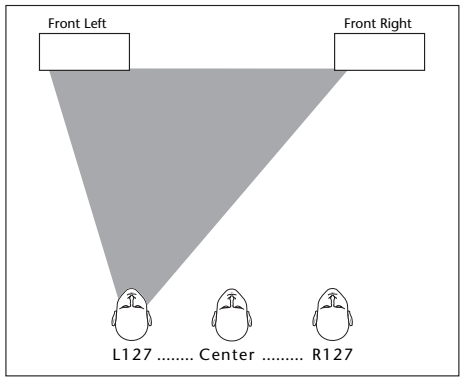
An external calibration source is required to calibrate the PANORAMA listening mode. You should select a familiar stereo source.

Parameter	Default Setting	Possible Settings
SOURCE	LEFT & RIGHT	RIGHT, LEFT & RIGHT, LEFT
SPEAKER ANGLE	30deg	10deg to 90deg
LISTENER POS	+0	-127 to +127

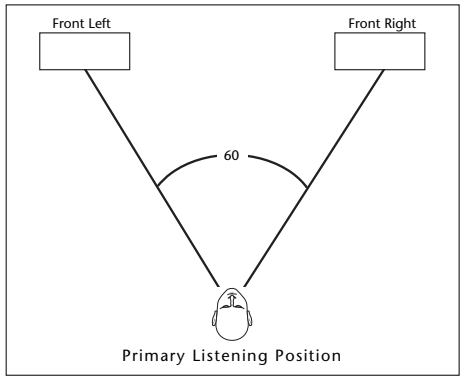
See page 5-35 for detailed parameter descriptions.

To calibrate the Panorama listening mode, refer to the instructions on the following page.

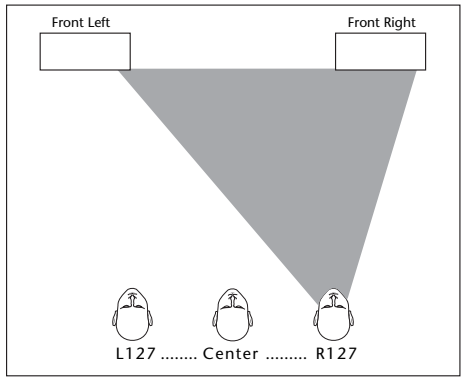
PANORAMA *(continued)*



Left



Center



Right

To calibrate the PANORAMA listening mode:

1. Remove all obstructions between the speakers and the primary listening position.
2. Make sure the distances between the speakers and the primary listening position are properly measured. To do this, perform the following procedure:

   Measure the distance between the primary listening position and the front baffle of each speaker. Then, set the corresponding SPEAKER DISTANCES menu parameters to the closest available value.

3. Sit in the primary listening position. If the primary listening position is not centered between the front left and right speakers as shown in the Center illustration (above), set the PANORAMA CALIBRATION ▸ LISTENER POS parameter to compensate for the difference using the remote control ▲ or ▼ arrow button. Each increment within the –127 to +127 parameter range represents about one-third of an inch. Adjusting the offset more to the left will make the value more negative; more to the right will make the value more positive. The Left illustration shows the left of center position. The Right illustration shows the right of center position.
4. Set the SOURCE parameter to RIGHT.
5. Begin playback of the external calibration source.
6. When playback of the external calibration source is in progress, set the SPEAKER ANGLE parameter so the sound is not heard in the right ear.
7. To confirm the LISTENER POS and SPEAKER ANGLE parameter settings, set the SOURCE parameter to LEFT & RIGHT. If the PANORAMA listening mode is properly calibrated, the sound should be perceived to come from all around the primary listening position. If not, go back to Step 1 and repeat the calibration procudure.

PARTY

MODE ADJUST ▶ PARTY

This mode, designed for playback of stereo sources, sends the left channel to Front, Side, and Rear Left channels and the right channel to Front, Side and Rear Right channels, and sums the Left and Right for the center. It is recommended for background music.

Parameter	Settings
OUTPUT LEVELS	Refer to page 5-33
CUSTOM	Refer to page 5-34

See page 5-35 for detailed parameter descriptions.

2-CHANNEL

MODE ADJUST ▶ 2-CHANNEL

This mode, designed for playback of stereo sources, sends the left and right channels to the Front L/R and Subwoofer channels. It is recommended for two-speaker playback with subwoofers and for comparison purposes with other listening modes.

Parameter	Default Setting	Possible Settings
SUB L/R LVL	+0dB	OFF, -30dB to +12dB
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

MONO LOGIC

MODE ADJUST ▶ MONO LOGIC

This mode, designed for playback of mono sources, uses proprietary Lexicon reverb algorithms to realistically expand mono sources to use all channels. This dramatically increases the perceived width and sense of envelopment of the listening space.

Parameter	Default Setting	Possible Settings
EFFECT LVL	-9dB	-12dB to +6dB
ACADEMY FILTER	ON	ON, OFF
SURR ROLLOFF	3.1kHz	500Hz to 20.0kHz, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

Note:

When the remote control Shift command bank is activated, pressing the TVL button activates the MONO LOGIC listening mode for 2-channel sources.

MONO SURROUND

MODE ADJUST ▶ MONO SURROUND

This mode, designed for playback of mono sources, sends the mono source to all channels.

Parameter	Settings
OUTPUT LEVELS	Refer to page 5-33
CUSTOM	Refer to page 5-34

See page 5-35 for detailed parameter descriptions.

MONO

MODE ADJUST ▶ MONO

This mode, designed for playback of mono sources, sends mono sources to the center channel.

Parameter	Default Setting	Possible Settings
SUB L/R LVL	+0dB	OFF, -30dB to +12dB
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1 L7 FILM

MODE ADJUST ▶ 5.1 L7 FILM

The 5.1 L7 FILM mode is a proprietary Lexicon listening mode designed for playback of 5.1-channel Dolby Digital encoded film sources, and provides remarkable improvement compared to other decoders.

It derives seven channels from 5.1-channel input sources with enhanced front steering. When both side and rear speakers are present, the 5.1 L7 FILM listening mode also increases the perceived length and sense of envelopment of the listening space.

Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
RE-EQUALIZER	ON	ON, OFF
SOUND STAGE	REAR	REAR, NEUTRAL, FRONT
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1ms to 30ms
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-10.0dB to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1 TV

MODE ADJUST ▶ 5.1 TV

This proprietary listening mode is designed for playback of 5.1-channel Dolby Digital encoded broadcast sources. Based on the 5.1 L7 FILM listening mode, 5.1 L7 TV derives seven channels from 5.1-channel input sources with enhanced front steering.

Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
FRONT STEERING	FILM	OFF, MSURR, MUSIC, FILM
RE-EQUALIZER	OFF	OFF, ON
SOUND STAGE	REAR	REAR, NEUTRAL, FRONT
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1ms to 30ms
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-10.0dB to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1 MUSIC

MODE ADJUST ▶ 5.1 MUSIC

This proprietary listening mode is designed for playback of 5.1-channel Dolby Digital encoded music sources. Based on the 5.1 L7 FILM listening mode, 5.1 L7 MUSIC derives seven channels from 5.1-channel input sources with enhanced front steering.

Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
FRONT STEERING	MUSIC	OFF, MSURR, MUSIC, FILM
RE-EQUALIZER	OFF	OFF, ON
SOUND STAGE	NEUTRAL	REAR, NEUTRAL, FRONT
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1ms to 30ms
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-10.0dB to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

THX, THX UL2Cin & THX SurEX

MODE ADJUST ▶ THX OR THX UL2Cin OR THX SurEX

These modes are designed for 7-channel playback of 5.1-channel Dolby Digital film sources. They apply THX re-equalization to simulate high frequency rolloffs that occur in movie theaters. Most films are mixed for movie theaters, and might sound too bright when played back in home theaters without re-equalization. THX timbre matching is applied to minimize timbre differences between the front and surround channels, which results in smoother sound movements between them. These modes are recommended for home theaters with THX certified speakers.

The listening mode name differs depending on the encoding present in the input source, the SURROUND EX parameter setting, and the speaker setup.

The table at the bottom of the page shows the conditions for the behavior of the THX Ultra2 and THX Surround EX modes when activated:

- The THX ULTRA2 listening mode is available when both the side and rear speakers are present and THX Ultra2 decoding is engaged. THX Ultra2 decoding is engaged when the SURROUND EX parameter is set to OFF or AUTO and a non-flagged 5.1-channel Dolby Digital source with or without THX Surround EX encoding is detected.
- The THX SurEX listening mode is available when both the side and rear speakers are present and THX Surround EX decoding is engaged. THX Surround EX decoding is engaged when the SURROUND EX parameter is set to ON or AUTO and a *flagged* 5.1-channel Dolby Digital source with THX Surround EX encoding is detected.
- The THX listening mode is available when both Ultra2 and THX Surround EX decoding are deactivated.

Note:

Some EX encoded sources are not flagged, and require manually setting the SURROUND EX parameter to ON for EX decoding.

When THX Ultra2 decoding is active:

- Adaptive de-correlation is applied to increase the perceived width of the listening space. De-correlation of the mono

	Input Source		
Parameter Setting	**5.1-Channel Dolby Digital**	**5.1-Channel THX Surround EX Dolby Digital (Flagged)**	**5.1-Channel THX Surround EX Dolby Digital (Non-Flagged)**
SURROUND EX: AUTO	THX ULTRA2	THX SurEX	THX ULTRA2
SURROUND EX: ON	THX SurEX	THX SurEX	THX SurEX
SURROUND EX: OFF	THX ULTRA2	THX ULTRA2	THX ULTRA2

surround channel increases the perceived width of the surround field in home theaters.

- ASA processing is applied to signals sent to the rear speakers. Refer to the ASA parameter description on page 3-37 for more information.

When THX Surround EX decoding is active:

Matrix decoding is applied to derive three surround channels from 5.1-channel Dolby Digital sources.

Parameter	Default Setting	Possible Settings
RE-EQUALIZER	ON	ON, OFF
SURROUND EX	AUTO	AUTO, ON, OFF
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

THX MUSIC

MODE ADJUST ▶ THX MUSIC

This listening mode is designed for playback of 5.1-channel Dolby Digital music sources, and cannot be activated unless side and rear speakers are present. ASA processing is applied to signals sent to the rear speakers. Refer to the ASA parameter description on page 3-37 for more information. For best results, place the rear speakers close together in your home theater.

Note:

The THX MUSIC listening mode can only be activated with the front panel or remote control Mode buttons.

Parameter	Default Setting	Possible Settings
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1 PLIIx MOV

MODE ADJUST ▸ **5.1 PLIIx MOV**

The 5.1 PLIIx MOV (MOVIE) listening mode is designed to playback 7.1 discrete channels decoded from 5.1-channel Dolby Digital film sources. (The 5.1 PLIIx MOVIE listening mode can also be used with other types of Dolby Digital sources with mixed results.) The seven main channels are full frequency. The .1 channel, often referred to as the LFE information, has a limited frequency range of up to 120Hz. The 5.1 PLIIx MOVIE listening mode does not appear in the list of available listening modes if either the side or rear speakers are missing from the configuration.

The 5.1 PLIIx MOV listening mode cannot be assigned as the preferred listening mode. However, the USE LAST parameter allows you to gain quick access to this mode.

To set up USE LAST using the remote control:

1. Select Main Menu ▸ Setup ▸ Inputs ▸ DVD1 (or the desired input).
2. In the INPUT SETUP menu, select DD ▸ USE LAST.
3. Press the MENU button to leave the menu structure.
4. Play the source material, then press the DD button. This will load 5.1 PLIIx MOV for 5.1-CH Dolby encoded sources.

Parameter	Default Setting	Possible Settings
EX DECODING	AUTO	AUTO, ON, OFF
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1 PLIIx MUS

MODE ADJUST ▸ **5.1 PLIIx MUS**

The 5.1 PLIIx MUS (MUSIC) listening mode is designed to playback 7.1 discrete channels decoded from 5.1-channel Dolby Digital music sources. (The 5.1 PLIIx MUSIC listening mode can also be used with other types of Dolby Digital sources with mixed results.) The seven main channels are full frequency. The .1 channel, often referred to as the LFE information, has a limited frequency range of up to 120Hz. The 5.1 PLIIx MUSIC listening mode does not appear in the list of available listening modes if either the side or rear speakers are missing from the configuration.

The 5.1 PLIIx MUS listening mode cannot be assigned as the preferred listening mode. However, the USE LAST parameter allows you to gain quick access to this mode.

To set up USE LAST using the remote control:

1. Select Main Menu ▸ Setup ▸ Inputs ▸ DVD1 (or the desired input).
2. In the INPUT SETUP menu, select DD ▸ USE LAST.
3. Press the MENU button to leave the menu structure.

Parameter	Default Setting	Possible Settings
EX DECODING	AUTO	AUTO, ON, OFF
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

DIGITAL & DIGITAL EX

MODE ADJUST ▶ DIGITAL OR DIGITAL EX

These listening modes are designed to decode and playback 5.1 discrete channels from 5.1-channel Dolby Digital sources. The five main channels are full frequency. The .1 channel, often referred to as the LFE information, has a limited frequency range of 120Hz.

The mode name differs depending on the encoding present in the input source, the EX DECODING parameter setting, and the speaker setup.

The Dolby DIGITAL EX listening mode is recommended for Dolby Digital sources recorded with Dolby Digital Surround EX encoding. This listening mode can also be used with other types of 5.1-channel Dolby Digital sources with mixed results. The table at the bottom of the page shows the conditions for the behavior of the Dolby Digital EX mode when activated.

The Dolby DIGITAL EX listening mode is available when both the side and rear speakers are present and Dolby Digital Surround EX decoding is activated. Matrix decoding is then applied to derive a surround back channel from the other surround channels.

- Dolby Digital Surround EX decoding is activated when the EX DECODING parameter is set to ON or AUTO and a flagged 5.1-channel Dolby Digital source recorded with Dolby Digital Surround EX encoding is detected.
- Dolby Digital Surround EX decoding is not activated when the EX DECODING parameter is set to OFF or AUTO and a non-flagged 5.1-channel Dolby Digital source recorded with or without Dolby Digital Surround EX encoding is detected.

Note:

The SDP-40HD cannot detect Dolby Digital Surround EX encoding in non-flagged 5.1-channel Dolby Digital input sources because they do not include information in the input signal that identifies Dolby Digital Surround EX encoding.

The Dolby DIGITAL listening mode is available when both the side and rear speakers are present and Dolby Digital Surround EX decoding is not activated.

	Input Source		
Parameter Setting	**5.1-Channel Dolby Digital**	**5.1-Channel Surround EX (Flagged)**	**5.1-Channel Surround EX (Non-Flagged)**
EX DECODING: AUTO	DOLBY DIGITAL	DOLBY DIGITAL EX	DOLBY DIGITAL
EX DECODING: ON	DOLBY DIGITAL EX	DOLBY DIGITAL EX	DOLBY DIGITAL EX
EX DECODING: OFF	DOLBY DIGITAL	DOLBY DIGITAL	DOLBY DIGITAL

DIGITAL & DIGITAL EX *(continued)*

MODE ADJUST ▶ DIGITAL OR DIGITAL EX

Parameter	Default Setting	Possible Settings
EX DECODING	AUTO	AUTO, ON, OFF
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1 2-CHANNEL

MODE ADJUST ▶ 5.1 2-CHANNEL

This mode, recommended for recording purposes, is designed for converting 5.1-channel Dolby Digital encoded input sources into 2-channel Logic 7-encoded output signals.

The downmixed 5.1-channel Dolby Digital input signals are sent to the front speakers and subwoofer.

Parameter	Default Setting	Possible Settings
CENTER MIX	+0dB	-25 to +5dB
SURROUND MIX	+0dB	-5 to +5dB
CNTR DLY SAMPLES	+0	-127 to +127
MASTER LEVEL	+0dB	-5 to +5dB
COMPRESSION	OFF	AUTO, ON, OFF
LFE MIX	+0.0dB	-20.0 to +0.0dB
SUB L/R LVL	+0dB	OFF, -30 to +12dB
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1 MONO LOGIC

MODE ADJUST ▶ 5.1 MONO LOGIC

This listening mode, designed for playback of Dolby Digital Encoded mono sources, uses proprietary Lexicon reverb algorithms to realistically expand mono sources to use all channels. This dramatically increases the perceived width and sense of envelopment of the listening space.

Note that:

- When a 1.0 Dolby Digital source is present, the SDP-40HD automatically activates the 5.1 MONO LOGIC listening mode.
- When the Shift command bank is activated, pressing the TVL button activates the 5.1 MONO LOGIC listening mode for 5.1-channel sources.

Parameter	Default Setting	Possible Settings
EFFECT LVL	-9dB	-12 to +6dB
ACADEMY FILTER	ON	ON, OFF
SURR ROLLOFF	3.1kHz	500Hz to 20.0kHz, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1 MONO SURR

MODE ADJUST ▶ 5.1 MONO SURR

This listening mode, designed for playback of Dolby Digital Encoded mono sources, sends mono signals to all channels.

Parameter	Settings
OUTPUT LEVELS	Refer to page 5-33
CUSTOM	Refer to page 5-34

See page 5-35 for detailed parameter descriptions.

5.1 MONO

MODE ADJUST ▶ 5.1 MONO

This listening mode, designed for playback of Dolby Digital Encoded mono sources, sends mono signals to the center channel.

Parameter	Default Setting	Possible Settings
SUB L/R LVL	+0dB	OFF, -30 to +12dB
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

DTS ES DECODING

The DTS and DTS-ES listening modes are designed for, at a minimum, playback of 5.1-channel DTS, 5.1-channel matrix encoded DTS-ES, and 6.1-channel discrete encoded DTS-ES sources.

DTS and DTS-ES listening mode names differ depending on the encoding present in the input source, the DECODING parameter setting, and the speaker setup.

DTS-ES listening modes are available when DTS-ES decoding is activated. The table at the bottom of the page shows the conditions for the behavior of DTS-ES decoding when it is activated.

- DTS-ES decoding is activated when both the side and rear speakers are present, the ES DECODING parameter is set to ON or AUTO, and a 5.1-channel matrix encoded source is detected.
- DTS-ES Discrete decoding is activated when both the side and rear speakers are present, the ES DECODING parameter is set to ON or AUTO, and a 6.1-channel discrete encoded DTS-ES source is detected.
- DTS-ES and DTS(-ES) Discrete decoding is deactivated when the ES DECODING parameter is set to OFF or when the ES DECODING parameter is set to AUTO and a 5.1-channel DTS source is detected.

Note:

The table below is not applicable to the DTS-ES THX, DTS THX UL2Cin, and DTS THX MUSIC listening modes.

	Input Source		
Parameter Setting	**5.1-Channel DTS**	**5.1-Channel Matrix Encoded DTS-ES**	**6.1-Channel Discrete-Encoded DTS-ES**
ES DECODING: AUTO	DTS	DTS-ES	DTS-ES Discr
ES DECODING: ON	DTS-ES	DTS-ES	DTS-ES Discr
ES DECODING: OFF	DTS	DTS	DTS

dts ES L7 FILM & dts L7 FILM

MODE ADJUST ▶ dts ES L7 FILM OR dts L7 FILM

These proprietary listening modes use an advanced matrix to decode seven channels from 5.1 and 6.1-channel film sources with enhanced front steering. When both side and rear speakers are present, the DTS(-ES) L7 FILM listening mode also increases the perceived length and sense of envelopment of the listening space.

The listening modes are designed for enhanced playback of 5.1-channel DTS, 5.1-channel matrix encoded DTS-ES, or 6.1-channel discrete encoded DTS-ES film sources. The listening mode name differs depending on the encoding present in the input source, the ES DECODING parameter setting, and the speaker setup.

Option/Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
RE-EQUALIZER	ON	ON, OFF
SOUND STAGE	REAR	REAR, NEUTRAL, FRONT
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
LFE MIX	+0.0dB	-10.0 to +0.0dB
ES DECODING	OFF	AUTO, ON, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

dts ES L7 MUSIC & dts L7 MUSIC

MODE ADJUST ▶ dts ES L7 MUSIC OR dts L7 MUSIC

These proprietary listening modes, similar to the DTS(-ES) L7 FILM listening mode, use an advanced matrix to decode seven channels from 5.1- and 6.1-channel music sources with enhanced front steering to provide remarkable sound improvement compared to other decoders. They are designed for enhanced playback of 5.1-channel DTS, 5.1-channel matrix encoded DTS-ES, or 6.1-channel discrete encoded DTS-ES music sources.

The listening mode name differs depending on the encoding present in the input source, the ES DECODING parameter setting, and the speaker setup.

Option/Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
FRONT STEERING	MUSIC	OFF, MSURR, MUSIC, FILM
RE-EQUALIZER	OFF	ON, OFF
SOUND STAGE	NEUTRAL	REAR, NEUTRAL, FRONT
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
LFE MIX	+0.0dB	-10.0 to +0.0dB
ES DECODING	OFF	AUTO, ON, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

dts ES THX & dts THX UL2Cin

MODE ADJUST ▶ dts ES THX OR dts THX UL2Cin

The DTS THX UL2Cin (ULTRA2 CINEMA) and DTS-ES THX listening modes allow 7-channel playback of 5.1-channel DTS sources. They are designed for playback of 5.1-channel DTS, 5.1-channel matrix encoded DTS-ES, or 6.1-channel DTS-ES discrete encoded film sources. DTS THX UL2Cin and DTS-ES THX are recommended for home theaters with THX certified speakers. These modes apply:

- THX re-equalization to simulate high frequency rolloffs that occur in movie theaters. Most films are mixed for movie theaters, and might sound too bright when played back in home theaters without re-equalization.
- THX timbre matching to minimize timbre differences between the front and surround channels, which results in smoother sound movements between them.

The listening mode name differs depending on the encoding present in the input source, the ES DECODING parameter setting, and the speaker setup.

The DTS THX UL2Cin listening mode

The DTS THX UL2Cin listening mode is available when both side and rear speakers are present and THX Ultra2 decoding is activated.

To activate DTS THX UL2Cin decoding:

1. Press MODE ADJUST ▸ dts ES THX ▸ ES DECODING.
2. Use the ▲ or ▼ arrow to select either AUTO (the default) or OFF.

   When the ES DECODING parameter is set to OFF, the DTS THX ULTRA2 listening mode is always active. When the parameter is set to AUTO, the DTS THX ULTRA2 listening mode activates when a 5.1-channel DTS source is detected.

When THX UL2Cin decoding is activated:

- Adaptive de-correlation is applied to increase the perceived width of the listening space. De-correlation of the mono surround channel increases the perceived width of the surround field in home theaters.
- ASA processing is applied to signals sent to the rear speakers. Refer to the ASA parameter description on page 3-37 for more information.

The DTS-ES THX listening mode

The DTS-ES THX listening mode is available when both the side and rear speakers are present and DTS-ES decoding is active.

DTS-ES decoding is activated when the ES DECODING parameter is set to AUTO (the default) or ON and a 5.1-channel matrix encoded or 6.1-channel discrete-encoded DTS-ES source is detected.

The table on the next page shows the conditions for the behavior of the DTS THX UL2Cin and DTS-ES THX modes when activated:

Option/Parameter	Default Setting	Possible Settings
RE-EQUALIZER	ON	ON, OFF
LFE MIX	+0.0dB	-10.0 to +0.0dB
ES DECODING	AUTO	AUTO, ON, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

Parameter Setting	Input Source		
	5.1-Channel DTS	5.1-Channel Matrix Encoded DTS-ES	6.1-Channel Discrete-Encoded DTS-ES
ES DECODING: AUTO	DTS THX UL2Cin	DTS-ES THX	DTS-ES THX, DTS-ES Discr
ES DECODING: ON	DTS-ES THX	DTS-ES THX	DTS-ES THX, DTS-ES Discr
ES DECODING: OFF	DTS THX UL2Cin	DTS THX UL2Cin	DTS THX UL2Cin

dts THX MUSIC

MODE ADJUST ▶ dts THX MUSIC

The DTS THX MUSIC listening mode is designed for playback of 5.1-channel DTS music sources when the side and rear speakers are present. ASA processing is applied to signals sent to the rear speakers. Refer to the ASA parameter description on page 3-37 for more information. This mode is recommended for home theaters with THX certified speaker setups.

Option/Parameter	Default Setting	Possible Settings
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

Note:

The DTS THX MUSIC listening mode can only be activated with the front panel or remote control Mode buttons.

dts, dts ES, dts ES DISCR, & dts ES MATRIX

MODE ADJUST ▶ dts OR dts ES OR dts ES DISCR OR dts ES MATRIX

This mode decodes 5.1 matrix or 6.1 discrete channels from DTS-ES sources. It is designed for playback of 5.1-channel DTS, 5.1-channel matrix encoded DTS-ES, and 6.1-channel discrete encoded DTS-ES sources.

The listening mode name differs depending on the encoding present in the input source, the ES DECODING parameter setting, and the speaker setup. Refer to page 5-24 for more information.

Option/Parameter	Default Setting	Possible Settings
LFE MIX	+0.0dB	-10.0 to +0.0dB
ES DECODING	AUTO	AUTO, ON, OFF
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

dts ES 2-CHAN & dts 2-CHAN

MODE ADJUST ▶ dts ES 2-CHAN OR dts 2-CHAN

These modes, recommended for recording purposes, send downmixed 5.1-channel or 6.1-channel DTS-ES input signals to the front speakers and subwoofer as 2-channel Logic 7-encoded output signals.

Option/Parameter	Default Setting	Possible Settings
CENTER MIX	+0dB	-25 to +5dB
SURROUND MIX	+0dB	-5 to +5dB
CNTR DLY SAMPLES	+0	-127 to +127
MASTER LEVEL	+0dB	-5 to +5dB
LFE MIX	+0.0dB	-20.0 to +0.0dB
ES DECODING	AUTO	AUTO, ON, OFF
SUB L/R LVL	+0dB	OFF, -30 to +12dB
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1mc LOGIC 7 FILM

MODE ADJUST ▶ 5.1mc LOGIC 7 FILM

The 5.1mc LOGIC 7 FILM listening mode is a proprietary Lexicon listening mode that uses Logic 7 decoding to derive seven channels from 5.1-channel film sources with enhanced front steering.

This listening mode allows 5.1-channel sources to use bass management, speaker crossovers, speaker distance calibration, and audio controls (tone controls).

Option/Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
RE-EQUALIZER	ON	ON, OFF
SOUND STAGE	REAR	REAR, NEUTRAL, FRONT
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1mc MUSIC

MODE ADJUST ▶ 5.1mc MUSIC

The 5.1mc LOGIC 7 MUSIC listening mode is similar to the 5.1mc LOGIC 7 FILM listening mode, but specifically tailored for music sources. This mode is designed and recommended for playback of 5.1-channel music sources.

Option/Parameter	Default Setting	Possible Settings
VOCAL ENHANCE	+0.0dB	+6.0dB, +3.0dB, +0.0dB
FRONT STEERING	MUSIC	OFF, MSURR, MUSIC, FILM
RE-EQUALIZER	OFF	ON, OFF
SOUND STAGE	NEUTRAL	REAR, NEUTRAL, FRONT
5 SPKR ENHANCE	ON	ON, OFF
BASS ENHANCE	OFF	ON, OFF
SURR ROLLOFF	15.3kHz	500Hz to 20kHz, OFF
REAR DLY OFFSET	15ms	OFF, 1 to 30ms
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1mc THX, 5.1mc THX UL2Cin, & 5.1mc THX SurEX

MODE ADJUST ▶ 5.1mc THX OR 5.1mc THX UL2Cin OR 5.1mc THX SurEX

The 5.1mc THX, 5.1mc THX UL2Cin, and 5.1mc THX SurEX listening modes are designed to convert 5.1-channel film sources that lack THX Surround EX encoding into seven channel audio. The modes also allow 5.1-channel sources to use bass management, speaker crossovers, speaker distance calibration, and audio controls (tone controls). The 5.1mc THX, 5.1mc THX UL2Cin, and 5.1mc THX SurEX listening modes are recommended for home theaters with THX-certified speakers. These modes apply:

- THX re-equalization to simulate high frequency rolloffs that occur in movie theaters. Most films are mixed for movie theaters, and might sound too bright when played back in home theaters without re-equalization.
- THX timbre matching to minimize timbre differences between the front and surround channels, which results in smoother sound movements between them.

The listening mode name differs depending on the SURROUND EX parameter setting, and the speaker setup.

The table below indicates the conditions in which THX Ultra2 and THX Surround EX decoding are activated.

	Input Source		
Parameter Setting	**5.1-Channel**	**5.1-Channel THX Surround EX (Flagged)**	**5.1-Channel THX Surround EX (Non-Flagged)**
SURROUND EX: ON	5.1mc THX SurEX	5.1mc THX SurEX	5.1mc THX SurEX
SURROUND EX: OFF	5.1mc THX UL2Cin	5.1mc THX UL2Cin	5.1mc THX UL2Cin

5.1mc THX, 5.1mc THXUL2Cin, & 5.1mc THXSurEX *(continued)*

MODE ADJUST ▶ 5.1mc THX OR 5.1mc THXUL2Cin OR 5.1mc THXSurEX

The 5.1mc THX UL2Cin listening mode

The 5.1mc THX UL2Cin listening mode is available when both side and rear speakers are present and THX Ultra2 decoding is active. THX Ultra2 decoding is activated when the SURROUND EX parameter is set to OFF. When THX Ultra2 decoding is activated:

- Adaptive de-correlation is applied to increase the perceived width of the listening space. De-correlation of the mono surround channel increases the perceived width of the surround field in home theaters.
- ASA processing is applied to signals sent to the rear speakers. Refer to the ASA parameter description on page 3-37 for more information.

The 5.1mc THX SurEX listening mode

The 5.1mc THX SurEX listening mode is available when both side and rear speakers are present and THX surround EX decoding is active. THX Surround EX decoding is activated when the SURROUND EX parameter is set to ON.

When THX Surround EX decoding is activated Matrix decoding is applied to derive three surround channels from 5.1-channel sources.

The 5.1mc THX listening mode

The 5.1mc THX listening mode is available when neither THX Ultra2 nor THX Surround EX decoding is active.

Parameter	Default Setting	Possible Settings
RE-EQUALIZER	ON	ON, OFF
SURROUND EX	OFF	ON, OFF
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1mc THXMUSIC

MODE ADJUST ▶ 5.1mc THXMUSIC

The 5.1mc THX MUSIC listening mode is designed for playback of 5.1-channel music sources. It cannot be activated unless side and rear speakers are present. This mode performs best in home theaters where the rear speakers are placed close together.

ASA processing is applied to signals sent to the rear speakers. Refer to the ASA parameter description on page 3-37 for more information.

Option/Parameter	Default Setting	Possible Settings
LFE MIX	+0.0dB	-10.0 to +0.0dB
OUTPUT LEVELS	Refer to page 5-33	
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

Note:

The 5.1mc THX MUSIC listening mode can only be activated with the front panel or remote control Mode buttons.

5.1mc STANDARD

MODE ADJUST ▶ 5.1mc STANDARD

This mode allows 5.1-channel sources to use bass management, speaker crossovers, speaker distance calibration, and audio controls (tone controls). When these features are not used, the 5.1mc STANDARD listening mode is similar to the 5.1a BYPASS listening mode. The 5.1mc STANDARD mode sends identical signals (with appropriate time delays) to the Main Zone audio output connectors labeled Side L and Rear L, as well as Side R and Rear R.

Parameter	
OUTPUT LEVELS	Refer to page 5-33
CUSTOM	Refer to page 5-34

See page 5-35 for detailed parameter descriptions.

5.1mc 2-CHAN

MODE ADJUST ▶ **5.1mc 2-CHAN**

This mode downmixes 5.1-channel input signals into 2-channel Logic 7-encoded output signals. It sends these signals to the front speakers and the subwoofer. It is recommended for recording purposes, particularly for recording from a DVD-A or multi-channel SACD player to a CD-R or another 2-channel recording format.

Parameter	Default Setting	Possible Settings
CENTER MIX	+0dB	-25 to +5dB
SURROUND MIX	+0dB	-5 to +5dB
CNTR DLY SAMPLES	+0	-127 to +127
MASTER LEVEL	+0dB	-5 to +5dB
LFE MIX	+0.0dB	-20.0 to +0.0dB
SUB L/R LVL	+0dB	OFF, -30 to +12dB
CUSTOM	Refer to page 5-34	

See page 5-35 for detailed parameter descriptions.

5.1a BYPASS

MODE ADJUST ▶ **5.1a BYPASS**

- Designed for playback of 5.1-channel sources, such as DVD-A or SACD players.
- Sends the 5.1-channel audio input connector directly to the Main Zone volume control and audio output connectors as shown on page 1-5 and page 3-47. These signals receive no internal processing.
- When both side and rear speakers are present, surround channel signals are sent in parallel to the side and rear speakers. To configure a 5-channel speaker setup, set the OUTPUT LEVELS menu SIDE L/R or REAR L/R parameter to OFF to deactivate the associated surround speakers.
- The 5.1a BYPASS listening mode is automatically activated whenever a 5.1-channel analog source is present and the MAIN ADV menu ANALOG BYPASS parameter is set to ON. The 5.1a BYPASS listening mode is only available for 5.1-channel analog sources.
- Pressing the remote control SHIFT then 2CH buttons toggles the MAIN ADV menu ANALOG BYPASS parameter between ON and OFF.

Option/Parameter	
OUTPUT LEVELS	Refer to page 5-33
CUSTOM	Refer to page 5-34

See page 5-35 for detailed parameter descriptions.

Note:

Speaker crossover settings, speaker distances, and audio controls (tone) are not available when the 5.1a BYPASS listening mode is activated.

2CH BYPASS

MODE ADJUST ▶ 2CH BYPASS

This listening mode sends 2-channel analog audio input signals to the Main Zone audio output connectors labeled Front L/R with no internal processing.

The 2CH BYPASS listening mode is automatically activated whenever a 2-channel analog source is present and the MAIN ADV menu ANALOG BYPASS parameter is set to ON. The 2CH BYPASS listening mode is not available when a digital source is present and the MAIN ADV menu INPUT SELECT parameter is set to AUTO.

Pressing the remote control SHIFT then 2CH buttons toggles the MAIN ADV menu ANALOG BYPASS parameter between ON and OFF.

Note:

Speaker crossover settings, speaker distances, and audio controls (tone) are not available when the 2CH BYPASS listening mode is activated.

OUTPUT LEVELS

MODE ADJUST ▶ Listening Mode ▶ OUTPUT LEVELS

OUTPUT LEVELS	
CENTER	+0dB
SIDE L/R	+0dB
REAR L/R	+0dB
SUB L/R	+0dB
LFE	+0dB

Opens the OUTPUT LEVELS menu, which is used to adjust output levels for the Main Zone audio output connectors labeled Center, Subwoofer L/R, LFE, Side L/R, and Rear L/R.

The OUTPUT LEVELS option does not appear on listening mode menus when the selected listening mode does not accommodate multichannel output signals. Instead, an output-specific parameter appears. For example, the MONO listening mode OUTPUT LEVELS menu includes a SUB L/R LVL parameter.

Parameter	Default Setting	Possible Settings
CENTER	+0dB	OFF, -30 to +12dB
SIDE L/R	+0dB	OFF, -30 to +12dB
REAR L/R	+0dB	OFF, -30 to +12dB
SUB L/R (LVL)	+0dB	OFF, -30 to +12dB
LFE	+0dB	OFF, -30 to +12dB

See page 5-35 for detailed parameter descriptions.

CUSTOM

MODE ADJUST ▶ Listening Mode ▶ CUSTOM

Opens the CUSTOM menu shown below, which can be used to compare custom and factory default versions of the selected listening mode and to restore the factory default version of the selected listening mode.

CUSTOM VS PRESET

MODE ADJUST ▶ Listening Mode ▶ CUSTOM ▶ CUSTOM VS PRESET

Allows comparison listening between the custom and factory default versions of the selected listening mode. When PRESET is selected, the listening mode is heard in its factory default condition, as if all listening mode menu parameters were set to their factory default settings.

When CUSTOM is selected, the listening mode is heard in its custom condition, including all current listening mode menu parameter settings. The PRESET and CUSTOM versions of the selected listening mode will sound identical when all listening mode menu parameters are set to their factory default settings.

Note:

The CUSTOM VS PRESET option does not affect current listening mode menu parameter settings.

To toggle between the custom and factory default versions of the selected listening mode:

1. Follow the CUSTOM VS PRESET menu path to open the CUSTOM VS PRESET drop-down menu.
2. When the CUSTOM VS PRESET option drop-down menu is open, press the remote control ▲ or ▼ arrow button to toggle between the PRESET (factory default) and CUSTOM versions of the selected listening mode.
3. When finished, press the ◀ arrow button to close the CUSTOM VS PRESET drop down menu.

RESET MODE

MODE ADJUST ▶ Listening Mode ▶ CUSTOM ▶ RESET MODE

Restores the factory default version of the selected listening mode, restoring all listening mode menu parameters to their factory default settings.

To restore the factory default version of the selected listening mode:

1. Follow the RESET MODE menu path to select the RESET MODE option. The PRESS RIGHT → TO RESTORE MODE message appears on the on-screen display.

2. Press the ▶ arrow button to restore the factory default version of the selected listening mode. Press the ◀ arrow button to close the message without restoring the factory default.

Note:

When the CUSTOM menu RESET MODE option is selected to restore the factory default version of the selected listening mode, the corresponding TRIGGER SETUP menu listening mode parameter is automatically set to its initial factory default setting.

LISTENING MODE MENU OPTION & PARAMETER DESCRIPTIONS

5 SPKR ENHANCE ON, OFF

Simulates 7-channel playback in 5-channel speaker configurations. When set to ON, the SDP-40HD provides an increased sense of spaciousness and envelopment through the surround speakers. This enhancement is most noticeable when the surround speakers are positioned to the sides of the primary listening position, or when the primary listening position is located against the rear wall. The effectiveness of this parameter varies within the listening space. For best results, place the surround speakers to the left and right of the primary listening position. Available in all Logic 7 modes.

ACADEMY FILTER ON, OFF

Restores the proper tonal balance of older mono film sources that have much narrower frequency responses than more recent mono film sources. Available in MONO LOGIC and 5.1 MONO LOGIC modes.

AUTO AZIMUTH ON, OFF

Maximizes matrix steering accuracy. When set to ON, the SDP-40HD continually monitors the 2-channel input signal and automatically adjusts the relative level and time offset of the input channels to ensure that signals are sent to the appropriate channels with maximum separation. When set to OFF, the accuracy of the selected listening mode varies among sources. Set this parameter to ON for film and broadcast sources and to OFF for music sources. Available in L7 FILM and L7 TV modes.

BASS CONTENT BINAURAL, MONO, STEREO

Adjusts the bass content of binaural, mono and stereo recordings. When set to BINAURAL, low frequency compensation is activated. Select this setting for true binaural sources recorded with dummy head microphones. Select the MONO setting for sources recorded with mono bass. Select the STEREO setting for sources recorded with stereo bass. Available in PANORAMA mode.

BASS ENHANCE ON, OFF

Enhances stereo bass, which results in low frequency reproduction that is less localized and more realistic in the listening space. The effectiveness of the BASS ENHANCE parameter varies depending on room acoustics and the ability of the surround speakers to reproduce low frequencies. For best results, use front, side or rear speakers that are capable of reproducing frequencies of 40Hz or lower. Available in all Logic 7 modes.

BASS RT 5ms to 48.6s

Works with the MID RT and SIZE parameters to adjust the amount of time required for low frequency information to decay below 60dB in level. In smaller listening spaces, the BASS RT parameter setting should match the MID RT parameter setting for more natural effects. Available in CHURCH and CATHEDRAL modes.

CAUTION!

Setting the BASS RT, MID RT and SIZE parameters to a high value may produce undesirable or damaging audio.

CALIBRATION

Opens the PANORAMA listening mode CALIBRATION menu, which is used to calibrate the PANORAMA listening mode. Refer to “PANORAMA” on page 5-12 for more information. Available in PANORAMA mode.

LISTENING MODE MENU OPTION & PARAMETER DESCRIPTIONS *(continued)*

CENTER OFF, -30 to +12dB

Controls the output level of the audio output connector labeled Center. Available in all except 2 CH modes (2-CHANNEL, 2 CH BYPASS, DTS(-ES) 2-CHAN, 5.1 2-CHANNEL, 5.1mc 2-CHAN), MONO and 5.1 MONO modes.

CENTER DEPTH 0 to 18

Adjusts the amount of processing applied to the center channel, changing the perceived distance of the center speaker. Higher settings increase and lower settings decrease the perceived distance of the center speaker from the listening position. Available in NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL modes.

CENTER MIX -25 to +5dB

Indicates the relative center channel level for downmixing. Set this parameter to +0dB for film sources and -5dB for music sources. Available in 5.1 2-CHANNEL, DTS(-ES) 2-CHAN, and 5.1mc 2-CHAN modes.

CNTR DLY SAMPLES -127 to +127

Controls the relative time offset of the center channel. Set this parameter to +0 unless the center channel is not properly timed and the value of the error is known. Available in 5.1 2-CHANNEL, DTS(-ES) 2-CHAN, and 5.1mc 2-CHAN modes.

COMPRESSION AUTO, ON, OFF

Reduces wide volume level changes and increases dialog intelligibility at lower listening levels for Dolby Digital input sources. When ON, full compression is applied regardless of volume level. When OFF, compression is not applied. Set this parameter to AUTO or ON for Dolby Digital input sources that are listened to at lower volume levels, especially for nighttime viewing to avoid disturbing others. Available in all 5.1 Dolby Digital modes, except for 5.1 MONO LOGIC, 5.1 MONO SURR, and 5.1 MONO.

CTR WIDTH MIN, 1 to 6, MAX

Adjusts the center image. When set to MIN, the center image is heard from just the center speaker. When set to MAX, the center image is heard as a "phantom" center image from the front left and right speakers. When set on the 1 to 6 scale, the center image is heard in various combinations of the front and center speakers. Available in Dolby PLII MUSIC and Dolby PLIIx MUSIC modes.

CUSTOM

Opens the CUSTOM menu, which is used to compare custom and factory default versions of the selected listening mode and to restore the factory default version of the selected listening mode. Available in all modes.

CUSTOM VS PRESET

Allows comparison listening to the custom and factory default versions of the selected listening mode. Refer to page 5-34 for information. Available in all modes.

DIMENSION FRONT, NEUTRAL, REAR

Controls the relative balance of the sound field, which is useful with certain recordings to achieve a more suitable balance among all speakers. When set to FRONT, the sound field is balanced towards the front of the listening space. When set to NEUTRAL, the sound field is balanced at the center of the listening space. When set to REAR, the sound field is balanced towards the rear of the listening space. Available in Dolby PLII MUSIC and Dolby PLIIx MUSIC modes.

EFFECT LVL -12 to +6dB

Adjusts the amount of effect applied to the listening mode. Available in NIGHTCLUB, CONCERT HALL, CHURCH, CATHEDRAL, PANORAMA, MONO LOGIC, and 5.1 MONO LOGIC modes.

ES DECODING AUTO, ON, OFF

Controls DTS-ES decoding, which extracts a rear channel from 5.1-channel DTS, 5.1-channel matrix encoded DTS-ES, and 6.1-channel discrete encoded DTS-ES sources. When ON is selected, DTS-ES decoding is activated for all DTS-ES sources. When OFF is selected, DTS-ES decoding is deactivated for all DTS-ES sources.

When AUTO is selected, DTS-ES decoding is activated when a 5.1-channel matrix encoded or a 6.1-channel discrete encoded DTS-ES source is detected. DTS-ES decoding is deactivated when a 5.1-channel DTS source is detected.

DTS-ES listening modes are available when DTS-ES decoding is engaged. DTS listening modes are available when DTS-ES decoding is not engaged. Refer to the DTS-ES Decoding section that begins on page 5-24 for more information.

Note the following:

- DTS-ES decoding cannot be engaged unless both side and rear speakers are present.
- When the Shift command bank is activated, pressing the remote control DTS button while a DTS(-ES) source is present adjusts the ES DECODING parameter, cycling through the AUTO, ON, and OFF settings.
- The DTS-ES STATUS menu includes an SB level meter when the ES DECODING parameter is set to ON and a 5.1-channel DTS source is present or when the ES DECODING parameter is set to AUTO and a 5.1-channel matrix encoded or 6.1-channel discrete-encoded DTS-ES source is present.

This parameter is available in all DTS modes except for dts THX MUSIC.

EX DECODING AUTO, ON, OFF

Controls Dolby Digital Surround EX decoding, which extracts a rear channel from 5.1-channel Dolby Digital sources recorded with or without Dolby Digital Surround EX. When ON, Dolby Digital Surround EX decoding is engaged for all 5.1-channel Dolby Digital sources. When OFF, Dolby Digital Surround EX decoding is disengaged for all 5.1-channel Dolby Digital sources.

When AUTO is selected, Dolby Digital Surround EX decoding is engaged when a flagged 5.1-channel Dolby Digital source recorded with Dolby Digital Surround EX encoding is detected. Dolby Digital Surround EX decoding is not engaged when a non-flagged 5.1-channel Dolby Digital source recorded with or without Dolby Digital Surround EX encoding is detected.

Note:

The SDP-40HD cannot automatically detect Dolby Digital Surround EX encoding in non-flagged 5.1-channel Dolby Digital sources. A non-flagged input source does not identify Dolby Digital Surround EX encoding in the input signal.

The Dolby DIGITAL EX listening mode is available when Dolby Digital Surround EX decoding is engaged. The Dolby DIGITAL listening mode is available when Dolby Digital Surround EX decoding is not engaged. Refer to the Dolby DIGITAL EX & Dolby DIGITAL listening mode descriptions that begin on page 5-21 for more information.

LISTENING MODE MENU OPTION & PARAMETER DESCRIPTIONS *(continued)*

Note the following:

- Dolby Digital Surround EX decoding cannot be engaged unless both side and rear speakers are present.
- When the Shift command bank is activated, pressing the remote control DOLBY button while a 5.1-channel Dolby Digital source is present activates the Dolby DIGITAL EX or Dolby DIGITAL listening mode. Subsequent presses adjust the EX DECODING parameter, cycling through the AUTO, ON, and OFF settings.

This parameter is available in 5.1 PLIIx MOV, 5.1 PLIIx MUS, and DOLBY DIGITAL (EX) modes.

FRONT STEERING

OFF, MSURR, MUSIC, FILM

Adjusts front steering between the front left, front right, and center speakers. When set to FILM, maximum front steering is applied to the center channel. When set to MUSIC, moderate front steering is applied. When set to MSURR, minimum front steering is applied. When set to OFF, no front steering is applied. You should set this parameter to FILM for film and broadcast sources and to MUSIC, MSURR or OFF for music sources. Available in L7 TV, L7 MUSIC, L7 MUSIC SURR, 5.1 L7 TV, 5.1 L7 MUSIC, dts L7 MUSIC, , and 5.1mc L7 MUSIC modes.

INPUT BALANCE

L< to <I> to >R

Controls the balance of the selected stereo analog audio input connectors, compensating for audio input sources with audible channel imbalance. Available in PANORAMA mode.

LFE

OFF, -30.0 to +12dB

Controls the output level of the Main Zone audio output connector labeled LFE. The OUTPUT LEVELS menu does not include the LFE parameter unless an LFE subwoofer is present. Available in all 5.1 Dolby Digital modes, except 5.1 2-CHANNEL, 5.1 MONO LOGIC, 5.1 MONO SURR, and 5.1 MONO. Also available in 5.1mc L7 FILM, 5.1mc L7 MUSIC, 5.1mc THX, 5.1mc THX MUSIC, 5.1mc STANDARD, 5.1a BYPASS, DTS L7 FILM, DTS L7 MUSIC, DTS THX, DTS THX MUSIC, and DTS modes.

LFE MIX

-20.0 or -10.0 to +0.0dB

Controls the output level of LFE information – the .1 channel in a 5.1-channel or 6.1-channel input source – that is sent to the audio output labeled Subwoofer. Low frequencies from up to seven other channels may be combined with the LFE information to create the subwoofer output signal, which significantly increases subwoofer output levels.

Careful adjustment of this parameter allows achievement of proper tonal balance and reduces the risk of subwoofer overload. When the speaker setup does not include a subwoofer, LFE information is mixed into speakers for which the corresponding CUSTOM SETUP menu parameter is set to FULL or to the lowest crossover points. Available in all DTS and all Dolby Digital modes except MONO modes (5.1 MONO LOGIC, 5.1 MONO SURR, 5.1 MONO), and all 5.1mc modes except 5.1mc STANDARD and 5.1a BYPASS modes.

LISTENER POS

-127 to +127

Compensates for primary listening positions that are not centered between the front left and right speakers. Each increment within the -127 to +127 parameter range represents about one-third of an inch.

Refer to the Panorama Calibration section that begins on page 5-12 for more information. Available in PANORAMA CALIBRATION mode.

Note:

The LISTENER POS parameter range might extend past the location of the front left and right speakers.

LIVENESS 30ms to 20.2s

Depends on the SIZE parameter setting. The LIVENESS parameter adjusts the amount of effect recirculation. Higher settings mimic more reflective surfaces and increase decay time. Available in NIGHTCLUB and CONCERT HALL modes.

LOW FREQ WIDTH -25 to +25

Applies low frequency spatial correction to the input signal. This correction is applied to uncorrelated input signals below 60Hz. Available in PANORAMA mode.

MASTER LEVEL -5 to +5dB

Adjusts the output level of the current mode. Available in 5.1 2-CHANNEL, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN modes.

MID RT 24ms to 24.3s

Works with the BASS RT and SIZE parameters to adjust the amount of time required for mid-frequency information to decay below 60dB in level. The full parameter range might not be available depending on the SIZE parameter setting. Available in CHURCH and CATHEDRAL modes.

CAUTION!

Setting the BASS RT, MID RT or SIZE parameters to a high value may produce undesirable or damaging audio.

OUTPUT LEVELS

Opens the OUTPUT LEVELS menu, which is used to adjust output levels for the Main Zone audio output connectors labeled Center, Subwoofer L/R, LFE, Side L/R, and Rear L/R. Refer to page 5-33 for more information. Available in all except 2-CHANNEL, MONO, 5.1 2-CHANNEL, 5.1 MONO, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN, and 2CH BYPASS modes.

PANORAMA ON, OFF

When set to ON, Dolby PLII MUSIC and Dolby PLIIx MUSIC listening modes extend the front stereo image to include surround channel signals, which creates a “wraparound” effect with side wall imaging. Available in Dolby PLII MUSIC and Dolby PLIIx MUSIC modes.

Note:

The PANORAMA parameter within the Dolby PLII MUSIC and Dolby PLIIx MUSIC listening modes should not be confused with the separate PANORAMA listening mode found on page 5-12.

PRE-DELAY 1 to 100ms, OFF

Adjusts delay time between the direct sound and the onset of reverberation. Higher settings make the simulated space sound larger. Because some pre-delay is inherent in all source material, you should begin with the parameter set to the lowest setting, then make adjustments accordingly. Available in NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL modes.

LISTENING MODE MENU OPTION & PARAMETER DESCRIPTIONS *(continued)*

RE-EQUALIZER ON, OFF

Simulates high frequency rolloffs that occur in movie theaters. When set to ON, the SDP-40HD applies a high frequency filter. When set to OFF, the SDP-40HD does not apply a high frequency filter. You should set this parameter to ON for film sources, as many films are mixed for movie theaters and might sound too bright when played back in home theaters without re-equalization. Available in L7 FILM, L7 TV, Dolby PLII + THX, Dolby PLIIx + THX, 5.1 L7 FILM, 5.1 L7 TV, THX ULTRA2, THX SurEX, THX, DTS(-ES) L7 FILM, 5.1 L7 MUSIC, DTS(-ES) L7 MUSIC, DTS THX ULTRA2, DTS(-ES) THX, 5.1mc L7 FILM, 5.1mc L7 MUSIC, 5.1mc THX ULTRA2, 5.1mc THX SurEX, and 5.1mc THX modes.

REAR DLY OFFSET OFF, 1 to 30ms

Increases the perceived depth of the listening space by delaying the arrival time of rear speaker signals. You should increase the setting when using side and rear speakers that are located close together or when a greater sense of depth is desired in the listening space. Available in All Logic 7 modes and PANORAMA mode.

REAR L/R -30 to +12dB, OFF

Controls the output level of the audio output connector labeled Rear L/R. Available in all except 2-CHANNEL, MONO, 5.1 2-CHANNEL, 5.1 MONO, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN, and 2CH BYPASS modes.

RESET MODE

Restores the factory default version of the selected listening mode, restoring all listening mode menu parameters to their factory default settings. Available in all modes.

ROLLOFF 500Hz to 20.0kHz, OFF

Simulates the absorption of high frequencies in a real space. You should begin with a low setting to simulate high frequency absorptive spaces. Available in NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL modes.

SIDE L/R -30 to +12dB, OFF

Controls the level of the Side L/R audio output connectors in the Main Zone. Available in all except 2-CHANNEL, MONO, 5.1 2-CHANNEL, 5.1 MONO, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN, and 2CH BYPASS modes.

SIZE 4 to 20 or 30m

Adjusts the length of the listening space within a 4m to 20m or 30m range (depending on the listening mode). Increase the size of the space to increase the reverb effect. Available in NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL modes.

CAUTION!

Setting the BASS RT, MID RT and SIZE parameters to a high value may produce undesirable or damaging audio.

SOUND STAGE FRONT, NEUTRAL, REAR

Dynamically controls the relative balance of the audio output connectors. When set to FRONT, the Side L/R and Rear L/R output levels are attenuated by 6dB, shifting the perceived balance of the sound field to the front of the listening space. When set to NEUTRAL, the Side L/R and Rear L/R output levels are slightly attenuated by 3dB, shifting the perceived balance of the sound field to the center of the

listening space. When set to REAR, the Side L/R and Rear L/R output levels are not attenuated, preserving the intended balance of the sound field. Available in all Logic 7 modes.

SOURCE

RIGHT, LEFT & RIGHT, LEFT

Controls the perceived direction of the PANORAMA listening mode external calibration source signal. When RIGHT is selected, the sound is perceived to come from the right of the primary listening position. When LEFT is selected, the sound is perceived to come from the left of the primary listening position. When LEFT & RIGHT is selected, the sound is perceived to come from all around the primary listening position. Refer to the Calibration section that begins on page 5-13 for more information about the SOURCE parameter. Available in PANORAMA CALIBRATION.

Note:

The SOURCE parameter controls the perceived direction of the sound, although both the front left and right speakers generate the external calibration source signal.

SPEAKER ANGLE

10 to 90deg

Compensates for a wide or narrow speaker angle relative to the primary listening position. Select the setting closest to the angle between the front left and right speakers and the primary listening position. Refer to the Calibration section that begins on page 5-13 for more information about the SPEAKER ANGLE parameter. Available in PANORAMA CALIBRATION.

SPEECH DETECT

ON, OFF

Distinguishes monaural speech from other input sources. When set to ON, effects are lowered to minimize interference and unnatural echo in monaural speech. When stereo input sources are present, the front left and right channels are independently used as inputs for ambience synthesis. When strong monaural speech is present in the input source, the monaural component of the ambience effect is reduced and the stereo component of the effect is increased. When set to OFF, the amount of ambience synthesis is dynamically controlled. Available in NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL modes.

SUB L/R & SUB L/R LVL

OFF, -30 to +12dB

Controls the output level of the Main Zone audio output connectors labeled Subwoofer L/R. The SUB L/R parameter appears on the listening mode OUTPUT LEVELS menu. The SUB L/R LVL parameter appears on listening mode menus when the listening mode does not accommodate multi-channel output signals. Available in all modes.

SURR ROLLOFF

500Hz to 20.0kHz, OFF

Applies high frequency attenuation control to the audio output connectors labeled Side L/R and Rear L/R. This filter is only applied to output signals generated by the SDP-40HD. Available in all Logic 7, PANORAMA, MONO LOGIC, and 5.1 MONO LOGIC modes.

SURROUND DLY

0 to 15ms

Increases the perceived depth of the listening space by delaying the arrival time of signals from the side and rear speakers. It is recommended that you increase the setting when a greater sense of depth is desired in the listening space. Available in Dolby PLII MUSIC and Dolby PLIIx MUSIC modes.

LISTENING MODE MENU OPTION & PARAMETER DESCRIPTIONS *(continued)*

SURROUND EX AUTO, ON, OFF

Controls the THX Surround EX decoding feature, which can be used to extract a rear channel from 5.1-channel Dolby Digital sources. When ON is selected, THX Surround EX decoding is engaged for all 5.1-channel Dolby Digital sources. When OFF is selected, THX Surround EX decoding is not engaged for all 5.1-channel Dolby Digital sources. Available in THX ULTRA2, THX SurEX, and THX modes.

When AUTO is selected, THX Surround EX decoding is engaged when a flagged 5.1-channel Dolby Digital source with THX Surround EX encoding is detected. THX Surround EX decoding is not engaged when a non-flagged 5.1-channel Dolby Digital source with or without THX Surround EX encoding is detected.

Note:

The SDP-40HD cannot automatically detect THX Surround EX encoding in non-flagged 5.1-channel Dolby Digital sources. A non-flagged input source does not include information in the input signal that identifies THX Surround EX encoding.

THX Surround EX listening modes are available when Dolby Digital Surround EX decoding is engaged. THX or THX ULTRA2 listening modes are available when THX Surround EX decoding is not engaged. Refer to the THX ULTRA2, THX SurEX, & THX listening mode descriptions that begin on page 5-18 or the 5.1mc THX ULTRA2, 5.1mc THX SurEX, & 5.1mc THX listening mode descriptions that begin on page 5-29 for more information.

Note the following:

- The SURROUND EX parameter AUTO setting is not available for the 5.1mc THX listening modes.
- Toggling the SURROUND EX parameter setting produces low level clicks in the front speakers.
- THX Surround EX decoding cannot be engaged unless both side and rear speakers are present.
- When the Shift command bank is activated, pressing the remote control THX button while a 5.1-channel Dolby Digital source is present activates the THX ULTRA2, THX SurEX, or THX listening mode. Subsequent presses adjust the SURROUND EX parameter, cycling through the AUTO, ON, and OFF settings.
- When the Shift command bank is activated, pressing the remote control THX button while a 5.1-channel PCM source is present activates the 5.1mc THX ULTRA2, 5.1mc THX SurEX, or 5.1mc THX listening mode. Subsequent presses toggle the SURROUND EX parameter between the ON and OFF settings.

SURROUND MIX -5 to +5dB

Controls the relative level of surround channel information sent to the audio output connectors labeled Front L/R. It is recommended that you set this parameter to +2dB or +3dB for all input sources. Available in 5.1 2-CHANNEL, DTS(-ES) 2-CHAN, and 5.1mc 2-CHAN modes.

VOCAL ENHANCE +6.0dB, +3.0dB, +0.0dB

Controls the level of dialog boost in the audio output connector labeled Center. Increase this setting to improve dialog intelligibility, particularly at lower volume levels. Available in all Logic 7 modes.

MODE – PARAMETER RELATIONSHIPS

The following table lists each parameter and the modes in which it is used.

The parameter...	Is used in these modes
5 SPKR ENHANCE	All L7 modes
ACADEMY FILTER	MONO LOGIC and 5.1 MONO LOGIC
AUTO AZIMUTH	L7 FILM and L7 TV
BASS CONTENT	PANORAMA
BASS ENHANCE	All L7 modes
BASS RT	CHURCH and CATHEDRAL modes
CALIBRATION	PANORAMA
CENTER	All except 2 CH modes (2-CHANNEL, 2 CH BYPASS, DTS(-ES) 2-CHAN, 5.1 2-CHANNEL, 5.1mc 2-CHAN), MONO, and 5.1 MONO modes
CENTER DEPTH	NIGHTCLUB, CONCERT HALL, CHURCH, CATHEDRAL
CENTER MIX	5.1 2-CHANNEL, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN
CNTR DLY SAMPLES	5.1 2-CHANNEL, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN
COMPRESSION	All 5.1DD modes, except for 5.1 MONO LOGIC, 5.1 MONO SURR, and 5.1 MONO.
CTR WIDTH	Dolby PLII MUSIC and Dolby PLIIx MUSIC
CUSTOM	All modes
CUSTOM VS PRESET	All modes

The parameter...	Is used in these modes
DIMENSION	Dolby PLII MUSIC and Dolby PLIIx MUSIC
EFFECT LVL	NIGHTCLUB, CONCERT HALL, CHURCH, CATHEDRAL, PANORAMA, MONO LOGIC, and 5.1 MONO LOGIC
ES DECODING	All DTS modes, except for DTS THX MUSIC
EX DECODING	5.1 PLIIx MOV, 5.1 PLIIx MUS, and DOLBY DIGITAL (EX).
FRONT STEERING	L7 TV, L7 MUSIC, L7 MUSIC SURR, 5.1 L7 TV, 5.1 L7 MUSIC, DTS L7 MUSIC, and 5.1mc L7 MUSIC
INPUT BALANCE	PANORAMA
LFE	All 5.1 Dolby Digital modes except 5.1 2-CHANNEL, 5.1 MONO LOGIC, 5.1 MONO SURR, and 5.1 MONO. 5.1mc L7 FILM, 5.1mc L7 MUSIC, 5.1mc THX, 5.1mc THX MUSIC, 5.1mc STANDARD, 5.1a BYPASS, DTS L7 FILM, DTS L7 MUSIC, DTS THX, DTS THX MUSIC, and DTS
LFE MIX	All DTS and Dolby Digital modes except MONO modes (5.1 MONO LOGIC, 5.1 MONO SURR, 5.1 MONO), and all 5.1mc modes except 5.1mc STANDARD and 5.1a BYPASS
LISTENER POS	PANORAMA CALIBRATION
LIVENESS	NIGHTCLUB, CONCERT HALL
LOW FREQ WIDTH	PANORAMA
MASTER LEVEL	5.1 2-CHANNEL, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN
MID RT	CHURCH and CATHEDRAL modes
OUTPUT LEVELS	All except 2-CHANNEL, MONO, 5.1 2-CHANNEL, 5.1 MONO, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN, and 2CH BYPASS modes
PANORAMA	Dolby PLII MUSIC and Dolby PLIIx MUSIC
PRE-DELAY	NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL modes

The parameter...	Is used in these modes
RE-EQUALIZER	L7 FILM, L7 TV, Dolby PLII + THX, Dolby PLIIx + THX, 5.1 L7 FILM, 5.1 L7 MUSIC, 5.1 L7 TV, THX ULTRA2, THX SurEX, THX, DTS(-ES) L7 FILM, DTS(-ES) L7 MUSIC, DTS THX ULTRA2, DTS(-ES) THX, 5.1mc L7 FILM, 5.1mc L7 MUSIC, 5.1mc THX ULTRA2, 5.1mc THX SurEX, and 5.1mc THX
REAR DLY OFFSET	All L7 modes and PANORAMA
REAR L/R	All except 2-CHANNEL, MONO, 5.1 2-CHANNEL, 5.1 MONO, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN, and 2CH BYPASS modes
RESET MODE	All modes
ROLLOFF	NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL modes
SIDE L/R	All except 2-CHANNEL, MONO, 5.1 2-CHANNEL, 5.1 MONO, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN, and 2CH BYPASS modes
SIZE	NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL modes
SOUND STAGE	All L7 modes
SOURCE	PANORAMA CALIBRATION
SPEAKER ANGLE	PANORAMA CALIBRATION
SPEECH DETECT	NIGHTCLUB, CONCERT HALL, CHURCH, and CATHEDRAL
SUB L/R & SUB L/R LVL	All modes
SURR ROLLOFF	All L7 modes, PANORAMA, MONO LOGIC, and 5.1 MONO LOGIC modes
SURROUND DLY	Dolby PLII MUSIC and Dolby PLIIx MUSIC
SURROUND EX	THX ULTRA2, THX SurEX, THX, 5.1mc THX ULTRA2, 5.1mc THX SurEX, and 5.1mc THX
SURROUND MIX	5.1 2-CHANNEL, DTS(-ES) 2-CHAN, 5.1mc 2-CHAN
VOCAL ENHANCE	All L7 modes

6

Troubleshooting & Maintenance

TROUBLESHOOTING

The SDP-40HD does not power on.

1. Make sure the rear panel power switch is set to the I ("on") position.
2. Attempt to power on the SDP-40HD with the front panel Standby button and remote control On button.
3. Examine the power cord to ensure a good connection between the rear panel AC input connector and the wall outlet.
4. Check the electrical circuit and breaker.

The remote control does not work.

1. Eliminate obstructions between the remote control and the front panel IR receiver. When the SDP-40HD is not using the rear panel IR IN connector, the remote control must be in line of sight with the front panel IR receiver for proper operation. The remote control might also become unreliable if strong sunlight or fluorescent light is shining on the IR receiver.
2. Make sure the remote control batteries are correctly inserted with the proper polarity.
3. Replace the remote control batteries. When the batteries are low on power, the remote control enters a low-voltage condition that prevents it from operating the SDP-40HD.

The SDP-40HD is powered on, but there is no audio.

1. Examine the audio cables to ensure a good connection between the source and the SDP-40HD, and the SDP-40HD and all associated power amplifiers.
2. Make sure all associated power amplifiers are powered on.
3. Make sure the SDP-40HD is receiving an audio signal. To do this, follow the instructions that begin on page 1-21 to open the STATUS menu for the current input source.
4. Make sure the audio is not muted. The message "MUTE ON" or "FULL MUTE ON" appears in the on-screen and front panel displays when the audio is muted. To deactivate mute, press the Mute button or adjust the volume level.
5. Check the INPUT SETUP menu HDMI IN, DIGITAL IN, and ANALOG IN parameters to ensure the appropriate audio connector is assigned to the selected input.

   The relationship between the HDMI inputs and analog and digital outputs depends on the settings of the DIGITAL IN parameter and the HDMI IN parameter. Refer to the table on page 3-7 for assigning HDMI audio.

   - When HDMI IN is set to NONE and DIGITAL IN is set to HDMI AUDIO, then the COAX-1 connector is automatically assigned to DIGITAL IN. This is in place of any previously assigned HDMI connector. Neither audio nor video will be available on the HDMI output.
   - When HDMI IN is set to one of the HDMI connectors and DIGITAL IN is set to a parameter other than HDMI AUDIO, then both HDMI audio and video are active on the HDMI output connector.
6. The associated source device may not incorporate HDCP (High-bandwidth Digital Content Protection) encryption. HDCP is a copy protection technology incorporating an encryption and authentication scheme to protect certain digital audio and video content from being copied as it travels across DVI or HDMI connections. Since the SDP-40HD supports HDCP, associated equipment connected via HDMI or DVI (Digital Visual Interface) must also support HDCP. Check your manufacturer user guide to confirm HDCP compatibility.

7. Make sure volume level is audible. Volume level can be increased with the front panel volume knob or the remote control VOL + and – buttons.

No audio when using a HDMI to DVI cable or adaptor between the SDP-40HD and the display.

Because DVI does not carry an audio signal, no audio will be heard. Use the SDP-40HD analog or digital output connectors for audio.

Dialog sounds muffled.

If the speaker setup does not include a center speaker, make sure a custom – as opposed to a THX – speaker setup is selected. Then, make sure the CUSTOM SETUP menu CENTER parameter is set to NONE.

A humming sound is present in the audio.

1. If a cable TV connection is present, disconnect the cable from the wall outlet. If this eliminates the humming sound, a ground loop isolation device is required. Contact your dealer or the cable provider for assistance.
2. Disconnect components one at a time to isolate the problem. Once the problem is identified, make sure the associated component is properly grounded and connected to the same electrical circuit as the SDP-40HD.

The SDP-40HD is powered on, but there is no video.

1. Examine the video cables – particularly the HDMI cables – to ensure a good connection to the associated component.
2. Check the INPUT SETUP menu HDMI IN, VIDEO IN and COMPONENT IN parameters to ensure the appropriate video connector is assigned to the selected input.
3. The currently selected source, or the high-definition display device may incorporate HDCP (High-bandwidth Digital Content Protection) encryption. HDCP is a copy protection technology inccorporating an encryption and authentication scheme to protect certain digital audio and video content from being copied as it travels across DVI or HDMI connections.
   - If your display device is not compatible with HDCP, use an analog video connection from the source device, through the SDP-40HD, to the display. Analog video connectors are not copy protected. (The resolution through these connectors may not be the same as it would through the HDMI connector.)
   - If using a video switcher or scaler, be sure it is HDCP compliant.

The picture on the display screen includes video artifacts and looks incorrect.

The loaded disc may include an analog video copy-prevention signal, such as Macrovision. Check the manufacturer user guide that came with your display device to find out whether it is compatible with Macrovision.

RF interference is present in the audio or video.

1. Make sure the SDP-40HD is not positioned near unshielded TV or FM antennas, cable TV decoders, and other devices that emit radio frequencies (RF).
2. Replace unshielded cables with shielded cables wherever possible.

The SDP-40HD is exhibiting erratic behavior.

1. Set the rear panel power switch to the ○ ("off") position. Wait 10 seconds. Then, set the rear panel power switch to the I ("on") position.
2. Use the SDP-40HD configuration tool to download the current SDP-40HD configuration to a personal computer (PC) or document all of your current settings on the installation worksheet that begins on page A-19. Then, follow the instructions on the next page to restore factory default settings.

If all else fails. . .

1. Contact an authorized JBL dealer.
2. Contact JBL Customer Service at 818-830-8757.

Note:

Visit http://www.jbl.com for additional troubleshooting information.

ROUTINE MAINTENANCE

The bulleted items below describe routine maintenance that should be performed on a periodic basis.

- Clean the SDP-40HD exterior surface with a soft, lint-free cloth. Do not use alcohol, benzene, acetone-based cleaners, or strong commercial cleaners. Do not use a cloth made with steel wool or metal polish. If the SDP-40HD is exposed to a dusty environment, a low-pressure blower can be used to remove dust from its exterior surface.
- Replace the remote control batteries as needed. The remote control requires two AA batteries. When these batteries are low on power, the remote control enters a low-voltage condition that prevents it from operating the SDP-40HD. Normal operation will resume when new batteries are installed.

RESTORING FACTORY-DEFAULT SETTINGS

When factory-default settings are restored, all parameters and values that the owner has defined are restored to their factory-default settings. Before restoring factory-default settings, you should record all of your current settings.

To restore factory-default settings:

1. Select one of the following options to record user defined settings:
   - Use the Configuration Tool to download current SDP-40HD settings to a personal computer (PC). The configuration tool is available at www.jblsynthesis.com
   - Record the settings you have defined on the installation worksheet that begins on page A-19.
2. If the SDP-40HD is not in standby mode, press the Standby Button.
3. When standby mode is activated, press the Standby Button again, then quickly press and hold the Mute button until the FACTORY SETTINGS menu shown above opens on the on-screen and front panel displays.

   Note:

   The Mute button must be pressed within 2 seconds of deactivating standby mode. Otherwise, the "MUTE ON" message will appear on the on-screen and front panel displays. If this occurs, too much time has passed. Press the Standby button and begin again at step 3.

4. Press the remote control ▲ or ▼ arrow button to highlight RESTORE DEFAULTS, then press the ▶ arrow button. (To close the FACTORY SETTINGS menu without restoring factory default settings, highlight EXIT, then press the ▶ arrow button.)

   The FACTORY SETTINGS message appears on the front panel and on-screen displays. When this message appears, press a front panel or remote control button to restart the SDP-40HD.

A

Appendix

SPECIFICATIONS

HDMI Input & Output Connectors	
HDMI Inputs	• 6 HDMI Type A (19-pin) connectors
HDMI Output	• 1 HDMI Type A (19-pin) connector

HDMI Performance mmmmm	
Video Resolutions	• 480i, 480p, 720p, 1080i (resolutions dependent on the capability of the HDMI display connected to the SDP-40HD HDMI output connector)
Audio Sample Rates	• 44.1kHz, 48kHz, 88.2kHz, 96kHz

Audio Input & Output Connectors	
Analog Audio Inputs	• 8 stereo (RCA) *or* 5 stereo and one 5.1-channel connectors
Digital Audio Inputs	• 6 S/PDIF coaxial (RCA), 6 S/PDIF optical, and 1 AES/EBU (XLR) connectors • Coaxial and optical input connectors conform to IEC-958, S/PDIF standards • Accepts 44.1, 48, 88.2 and 96kHz sample rates • Accepts 16-24 bits PCM audio, Dolby Digital, DTS and DTS-ES discrete data formats
Main Zone Audio Outputs	• 12 unbalanced (RCA) and 12 balanced (XLR, SDP-40HD Balanced only) connectors for Front L/R, Center, LFE, Subwoofer L/R, Side L/R, and Rear L/R, and Auxiliary L/R
Zone 2 Audio Outputs	• 2 unbalanced (RCA, 1 fixed and 1 variable output level) stereo connectors and 1 balanced stereo connector (XLR, variable output level, SDP-40HD Balanced only)
Record Zone Audio Outputs	• 2 unbalanced (RCA, 1 fixed and 1 variable output level) stereo connectors • 1 S/PDIF coaxial (RCA) and 1 S/PDIF optical connector (in parallel)

Main Zone Audio Performance	
A/D Conversion	• 24-bit, 96kHz, dual-bit ΔΣ architecture
D/A Conversion	• 24-bit, 44.1 to 192kHz, multi-bit ΔΣ architecture
Frequency Response	• 10Hz to 20kHz, +0.1dB/-0.25dB, -0.75dB at 40kHz, reference 1kHz
THD + Noise	• Below 0.003% at 1kHz, maximum output level
Dynamic Range	• 108dB minimum, 111dB typical, 22kHz bandwidth
Signal-to-Noise Ratio	• 108dB minimum, 111dB typical, 22kHz bandwidth
Input Sensitivity	• 200mVrms (2Vrms for maximum output level) at 0dB input gain
Input Impedance	• 100kΩ in parallel with 150pF
Output Level	• 150mVrms typical, 6Vrms maximum (RCA connectors) • 300mVrms typical, 12Vrms maximum • Maximum value with full-scale input signal and volume at +12dB
Output Impedance	• 100Ω in parallel with 150pF (RCA connectors) • 50Ω in parallel with 150pF (XLR connectors, SDP-40HD Balanced only)

Zone 2 & Record Zone Audio Performance	
A/D Conversion	• 24-bit, 44.1 to 96kHz, dual-bit ΔΣ architecture (Record Zone only)
D/A Conversion	• 24-bit, 44.1 to 192kHz, multi-bit ΔΣ architecture
Frequency Response	• 10Hz to 20kHz, +0.1dB/-0.25dB, -0.75dB at 40kHz, reference 1kHz
THD + Noise	• Below 0.005% at 1kHz, maximum output level
Dynamic Range	• 105dB minimum, 108dB typical, 22kHz bandwidth
Signal-to-Noise Ratio	• 105dB minimum, 108dB typical, 22kHz bandwidth
Input Sensitivity	• 200mVrms (4Vrms for maximum output level)
Input Impedance	• 100kΩ in parallel with 150pF

Zone 2 & Record Zone Audio Performance	
Output Level	• 200mVrms typical, 4Vrms maximum (RCA connectors) • 400mVrms typical, 8Vrms maximum (XLR connectors, Zone 2 only) • Maximum value with full-scale input signal and volume at 0dB
Output Impedance	• 100Ω in parallel with 150pF (RCA connectors) • 50Ω in parallel with 150pF (XLR connectors, Zone 2 only)

Video Input & Output Connectors	
Video Inputs	• 2 composite (RCA), 3 S-video, and 4 component video (3 RCA and 1 BNC))
Video Outputs	• 4 composite (RCA, 2 main and 2 Record Zone), 2 S-video (2 monitor and 2 Record Zone), and 1 component (BNC)

Composite & S-video Performance	
Compatibility	• NTSC, PAL, and SECAM
Switching	• Active
Output Level	• 1.0V peak-to-peak
Impedance	• 75Ω
Input Return Loss	• >40dB
Differential Gain	• <0.3%
Differential Phase	• <0.3°
Bandwidth	• >25MHz
K Factor	• <0.3%
Gain	• ±0.15dB
Signal-to-Noise Ratio	• >70dB
Frequency Response	• 10Hz to 8MHz + 0.2dB/-0.3dB

Component Video Performance	
Compatibility	• 3-channel (Y, Pr, Pb), format-independent

Component Video Performance	
Switching	• Passive
Impedance	• 75Ω
Insertion Loss	• <3dB
Bandwidth	• >250MHz

Microphone Input Connectors	
Inputs	• 4 3.5 miniature phone jacks
Input Sensitivity	• 10mVrms (400mV maximum input level)
Input Impedance	• 20kΩ (accepts balanced or unbalanced input signals)

Other	
Trigger Outputs	• 1 power on/off and 2 programmable connectors on detachable screw terminals (+12 VDC, 0.5 amps each)
RS-232 Serial Input/ Output	• 2 9-pin D-sub connectors
Power Requirements	• 90-250 VAC, 50-60Hz, 120W (universal line input), detachable power cord
SDP-40HD Dimensions & Weight	• Height (with feet): 6.63 inches (169mm) • Width: 17.3 inches (440mm) • Depth: 14.85 inches (377mm) • Weight: 45lbs (20.5kg)
Rack Mounting	• Optional brackets are available for installation in a standard 19" equipment rack (4 rack units required)
Environment	• Operating Temperature: 0° to 35°C (32° to 95°F) • Storage Temperature: -30° to 75°C (-22° to 167°F) • Relative Humidity: 95% maximum without condensation
Remote Control	• Hand-held, backlit infrared remote control unit • Requires 2 AA batteries (Alkaline batteries recommended)

Specifications are subject to change without notice.

DECLARATION OF CONFORMITY

Application of Council Directive(s):
89/336/EEC and 93/68/EEC

Standard(s) to Which Conformity is Declared:
EN55013:2001, EN55020:2002, EN61000-3-2:2000, EN61000-3-3:2001, and EN60065:2002

Manufacturer: Harman Specialty Group
3 Oak Park
Bedford, MA 01730-1413 USA

The equipment identified here conforms to the Directive(s) and Standard(s) specified above.

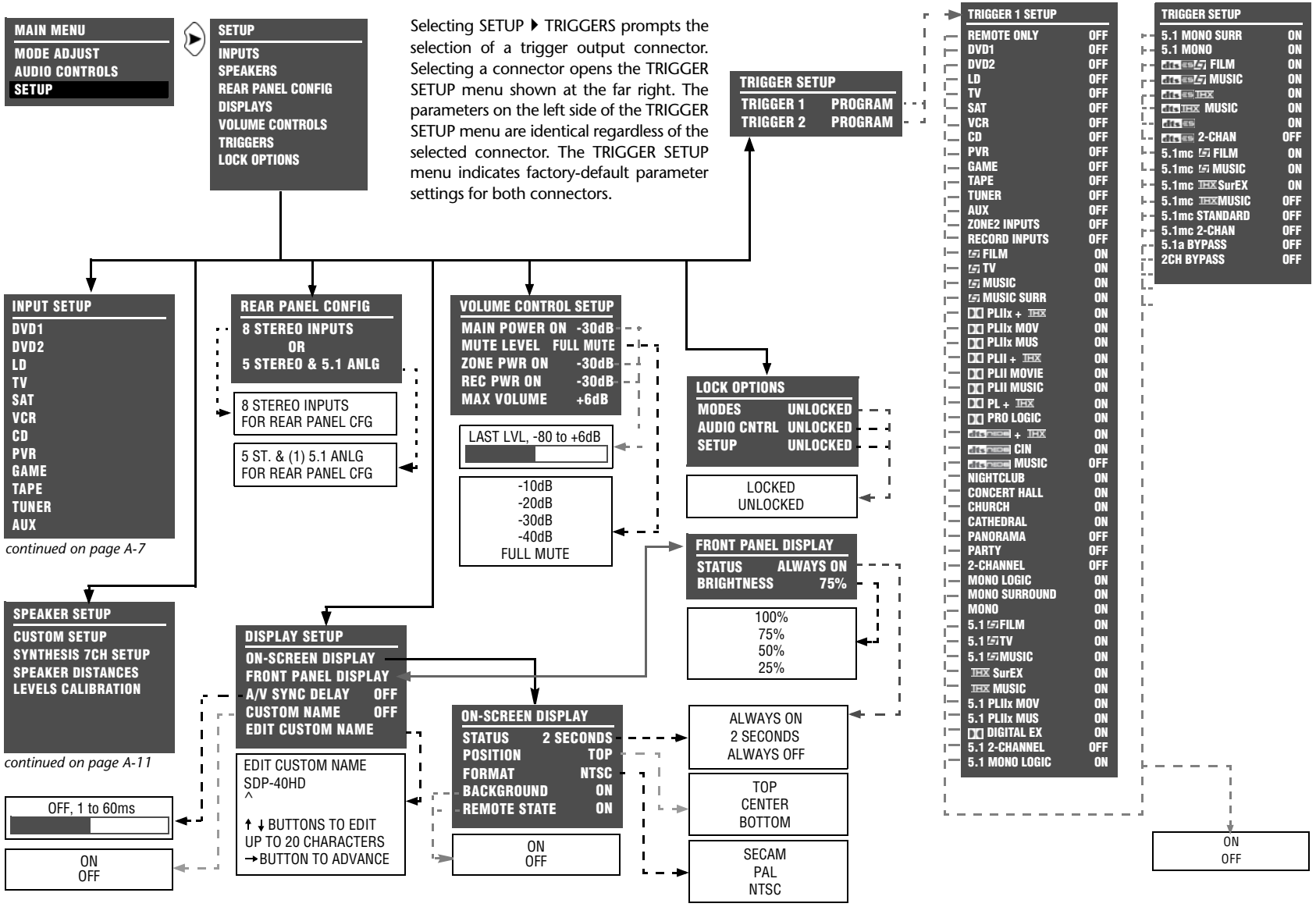
Type of Equipment: Digital Controller

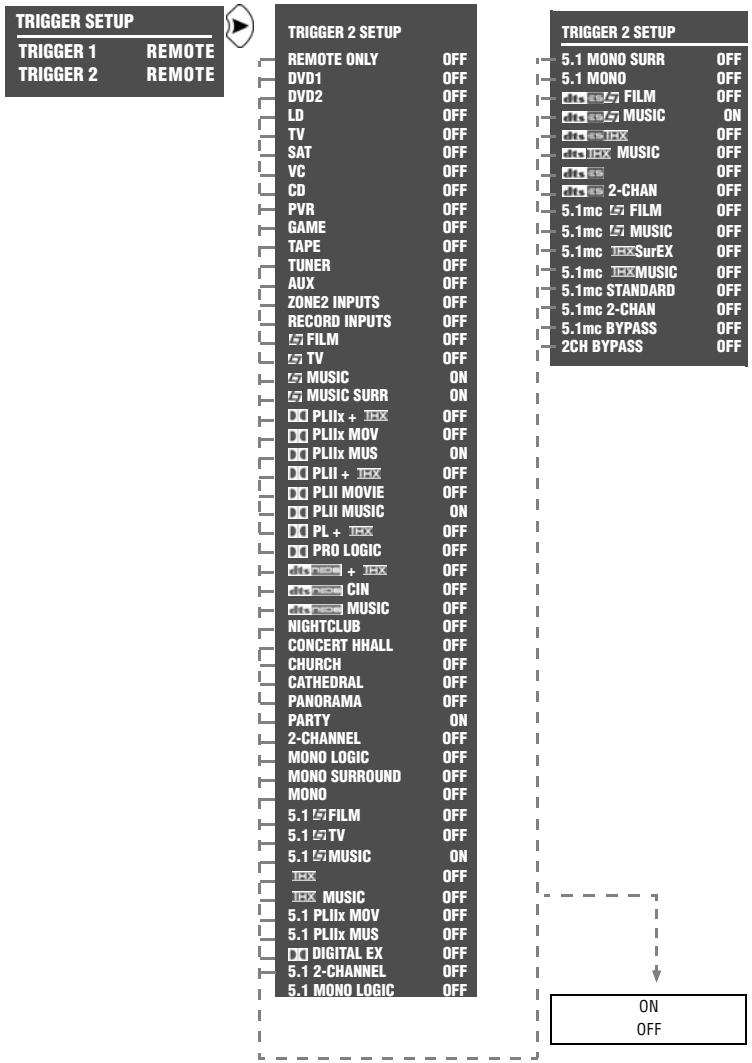
Model: JBL SDP-40HD

Date: October 2005

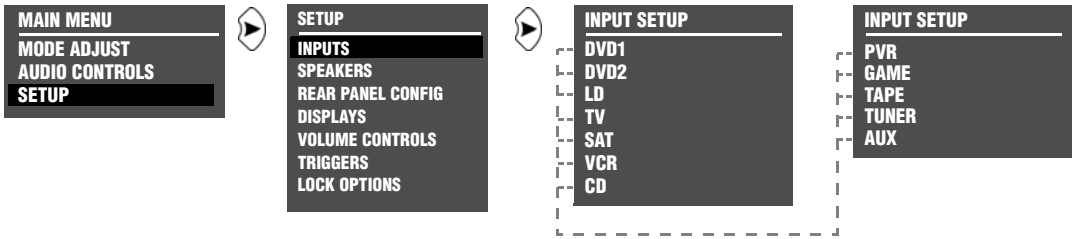
Harman Specialty Group
Vice President of Engineering
3 Oak Park
Bedford, MA 01730-1413 USA
Tel: 781-280-0300
Fax: 781-280-0490

MENU TREE





MENU TREE *(continued)*



Selecting SETUP ▸ INPUTS prompts the selection of the desired input (for example, DVD1). Selecting an input opens the corresponding INPUT SETUP menu shown below. The parameters on the left side of the INPUT SETUP menus are identical regardless of which input is selected. The parameter settings on the right side are adjustable. Default parameter settings differ from input to input. The INPUT SETUP menus shown below indicate default parameter settings for each input.

DVD1 INPUT SETUP	
NAME	DVD1
HDMI IN	1
DIGITAL IN	HDMI
ANALOG IN	NONE
ANLG IN LVL	+0dB
VIDEO IN	NONE
COMPONENT IN	1
2-CH	FILM
D	5.1 FILM
dts ES	dts ES FILM
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	DMIX
RECORD IN	DMIX
RECORD ADVANCED	

LD INPUT SETUP	
NAME	LD
HDMI IN	NONE
DIGITAL IN	COAX-1
ANALOG IN	ANALOG-1
ANLG IN LVL	+0dB
VIDEO IN	S-VIDEO-1
COMPONENT IN	VIDEO
2-CH	FILM
D	5.1 FILM
dts ES	dts ES FILM
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	ANLG
RECORD IN	ANLG
RECORD ADVANCED	

SAT INPUT SETUP	
NAME	SAT
HDMI IN	3
DIGITAL IN	OPTICAL-2
ANALOG IN	ANALOG-3
ANLG IN LVL	+0dB
VIDEO IN	NONE
COMPONENT IN	4
2-CH	TV
D	5.1 TV
dts ES	dts ES FILM
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	DMIX
RECORD IN	DMIX
RECORD ADVANCED	

CD INPUT SETUP	
NAME	CD
HDMI IN	NONE
DIGITAL IN	COAX-2
ANALOG IN	NONE
ANLG IN LVL	+0dB
VIDEO IN	NONE
COMPONENT IN	NONE
2-CH	MUSIC
D	5.1 MUSIC
dts ES	dts ES MUSIC
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	DIGITAL
RECORD IN	DIGITAL
RECORD ADVANCED	

GAME INPUT SETUP	
NAME	GAME
HDMI IN	5
DIGITAL IN	HDMI
ANALOG IN	ANALOG-6
ANLG IN LVL	+0dB
VIDEO IN	COMPOSITE-1
COMPONENT IN	1
2-CH	FILM
D	5.1 FILM
dts ES	dts ES FILM
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	DMIX
RECORD IN	DMIX
RECORD ADVANCED	

TUNER INPUT SETUP	
NAME	TUNER
HDMI IN	6
DIGITAL IN	HDMI
ANALOG IN	ANALOG-8
ANLG IN LVL	+0dB
VIDEO IN	NONE
COMPONENT IN	NONE
2-CH	MUSIC
D	5.1 MUSIC
dts ES	dts ES MUSIC
5.1mc	5.1mc MUSIC
MAIN ADVANCED	
ZONE2 IN	DMIX
RECORD IN	DMIX
RECORD ADVANCED	

DVD2 INPUT SETUP	
NAME	DVD2
HDMI IN	2
DIGITAL IN	HDMI
ANALOG IN	NONE
ANLG IN LVL	+0dB
VIDEO IN	NONE
COMPONENT IN	2
2-CH	FILM
D	5.1 FILM
dts ES	dts ES FILM
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	DMIX
RECORD IN	DMIX
RECORD ADVANCED	

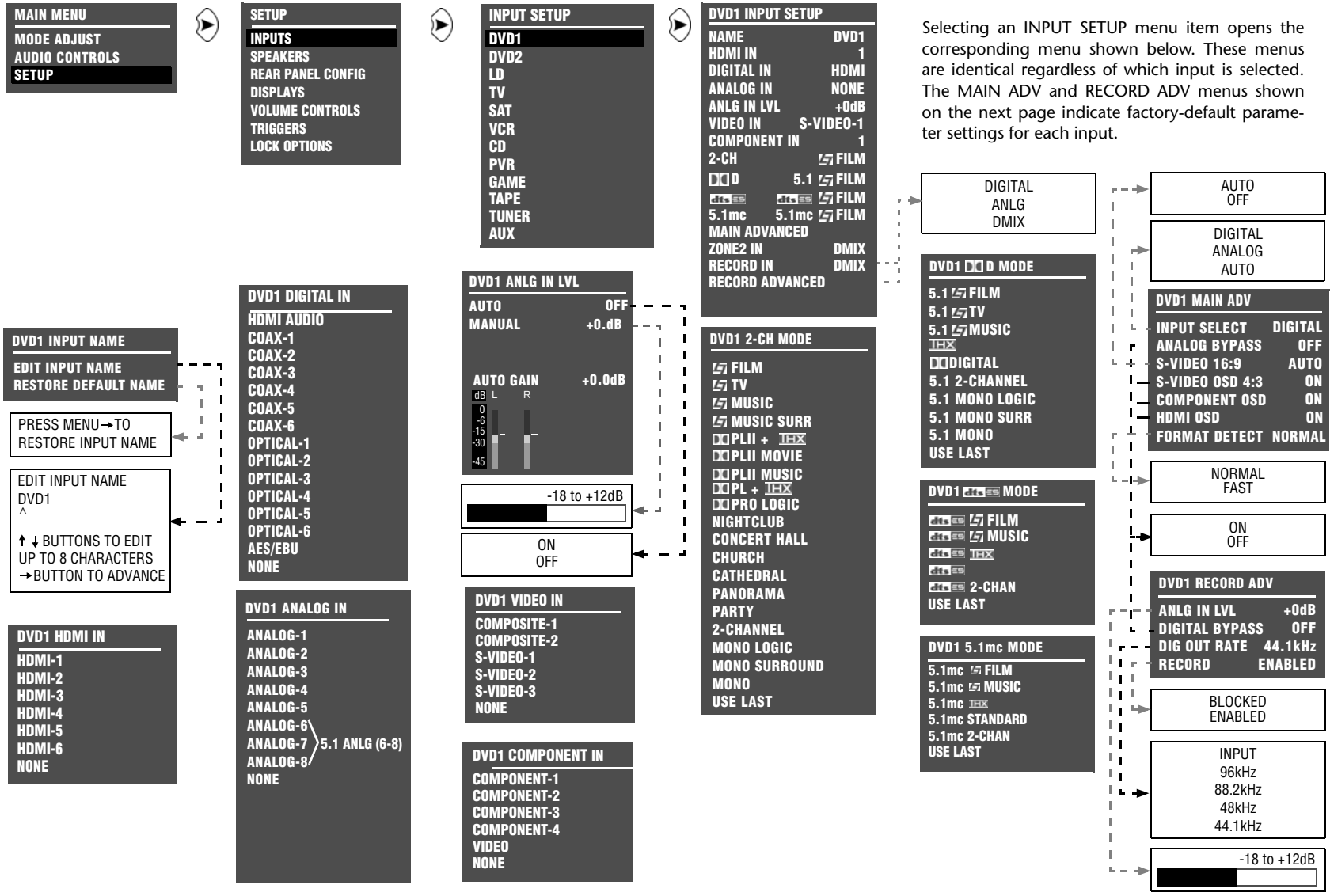
TV INPUT SETUP	
NAME	TV
HDMI IN	NONE
DIGITAL IN	OPTICAL-1
ANALOG IN	ANALOG-2
ANLG IN LVL	+0dB
VIDEO IN	S-VIDEO-2
COMPONENT IN	3
2-CH	TV
D	5.1 TV
dts ES	dts ES FILM
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	ANLG
RECORD IN	ANLG
RECORD ADVANCED	

VCR INPUT SETUP	
NAME	VCR
HDMI IN	NONE
DIGITAL IN	NONE
ANALOG IN	ANALOG-4
ANLG IN LVL	+0dB
VIDEO IN	S-VIDEO-3
COMPONENT IN	VIDEO
2-CH	FILM
D	5.1 FILM
dts ES	dts ES FILM
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	ANLG
RECORD IN	ANLG
RECORD ADVANCED	

PVR INPUT SETUP	
NAME	PVR
HDMI IN	4
DIGITAL IN	HDMI
ANALOG IN	ANALOG-5
ANLG IN LVL	+0dB
VIDEO IN	NONE
COMPONENT IN	1
2-CH	TV
D	5.1 TV
dts ES	dts ES FILM
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	DMIX
RECORD IN	DMIX
RECORD ADVANCED	

TAPE INPUT SETUP	
NAME	TAPE
HDMI IN	NONE
DIGITAL IN	NONE
ANALOG IN	ANALOG-1
ANLG IN LVL	+0dB
VIDEO IN	NONE
COMPONENT IN	NONE
2-CH	PRO LOGIC
D	5.1 MUSIC
dts ES	dts ES MUSIC
5.1mc	5.1mc MUSIC
MAIN ADVANCED	
ZONE2 IN	ANLG
RECORD IN	ANLG
RECORD ADVANCED	

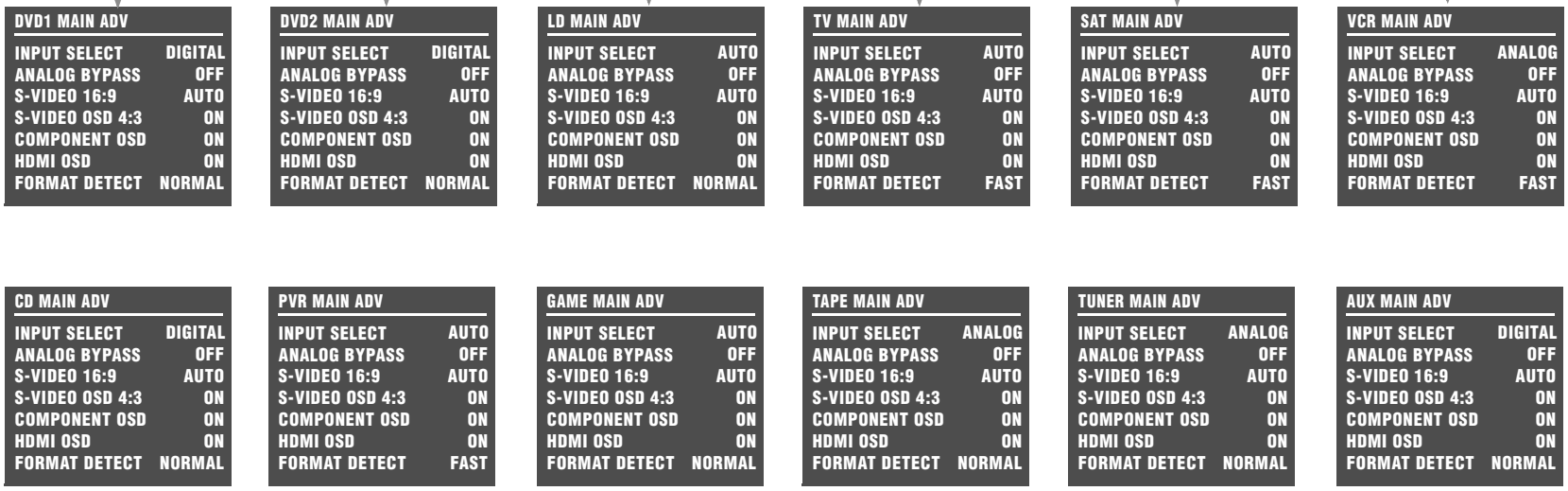
AUX INPUT SETUP	
NAME	AUX
HDMI IN	NONE
DIGITAL IN	OPTICAL-3
ANALOG IN	NONE
ANLG IN LVL	+0dB
VIDEO IN	COMPOSITE-2
COMPONENT IN	1
2-CH	MUSIC
D	5.1 MUSIC
dts ES	dts ES MUSIC
5.1mc	5.1mc FILM
MAIN ADVANCED	
ZONE2 IN	DIGITAL
RECORD IN	DIGITAL
RECORD ADVANCED	

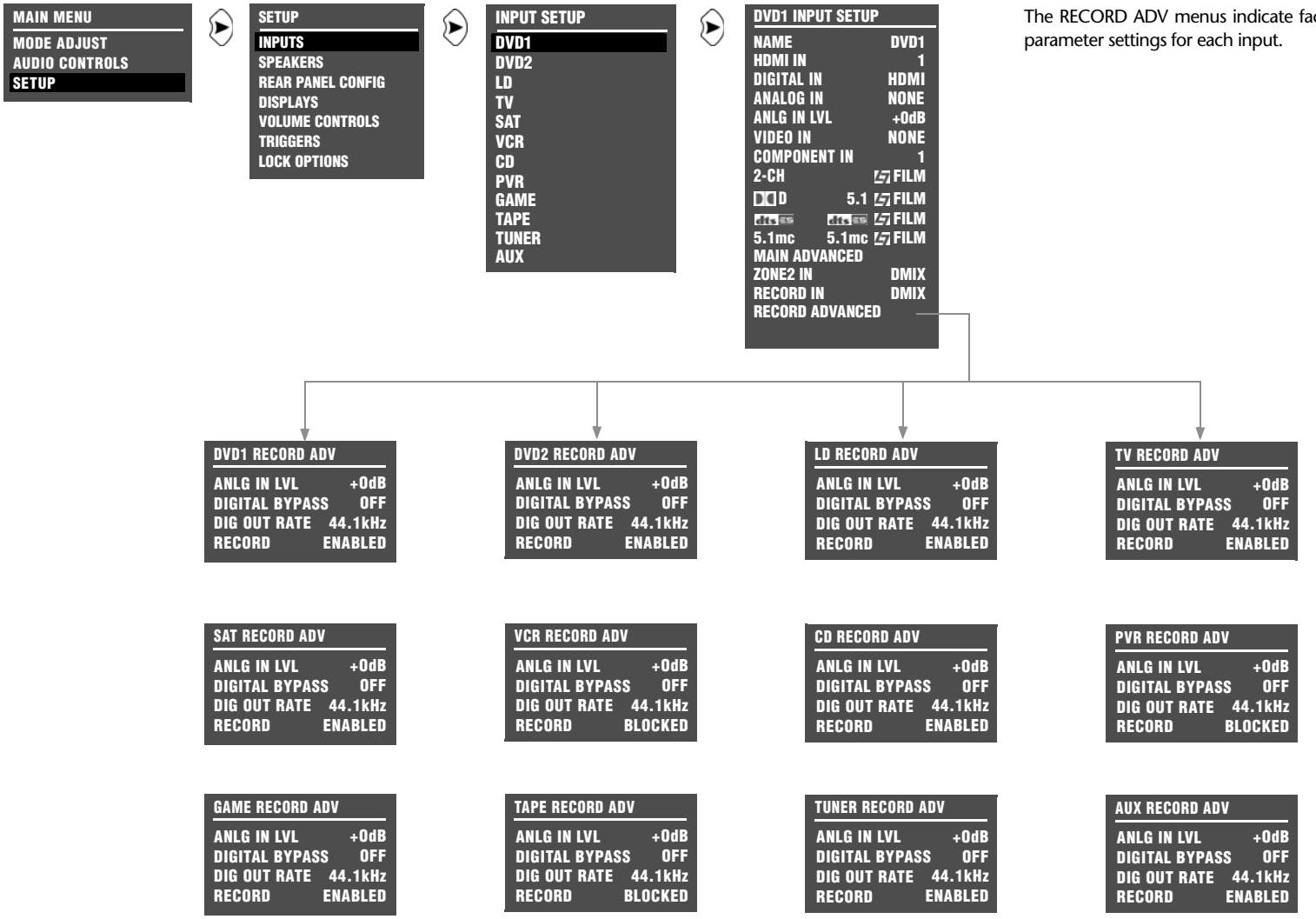


Selecting an INPUT SETUP menu item opens the corresponding menu shown below. These menus are identical regardless of which input is selected. The MAIN ADV and RECORD ADV menus shown on the next page indicate factory-default parameter settings for each input.

MENU TREE *(continued)*

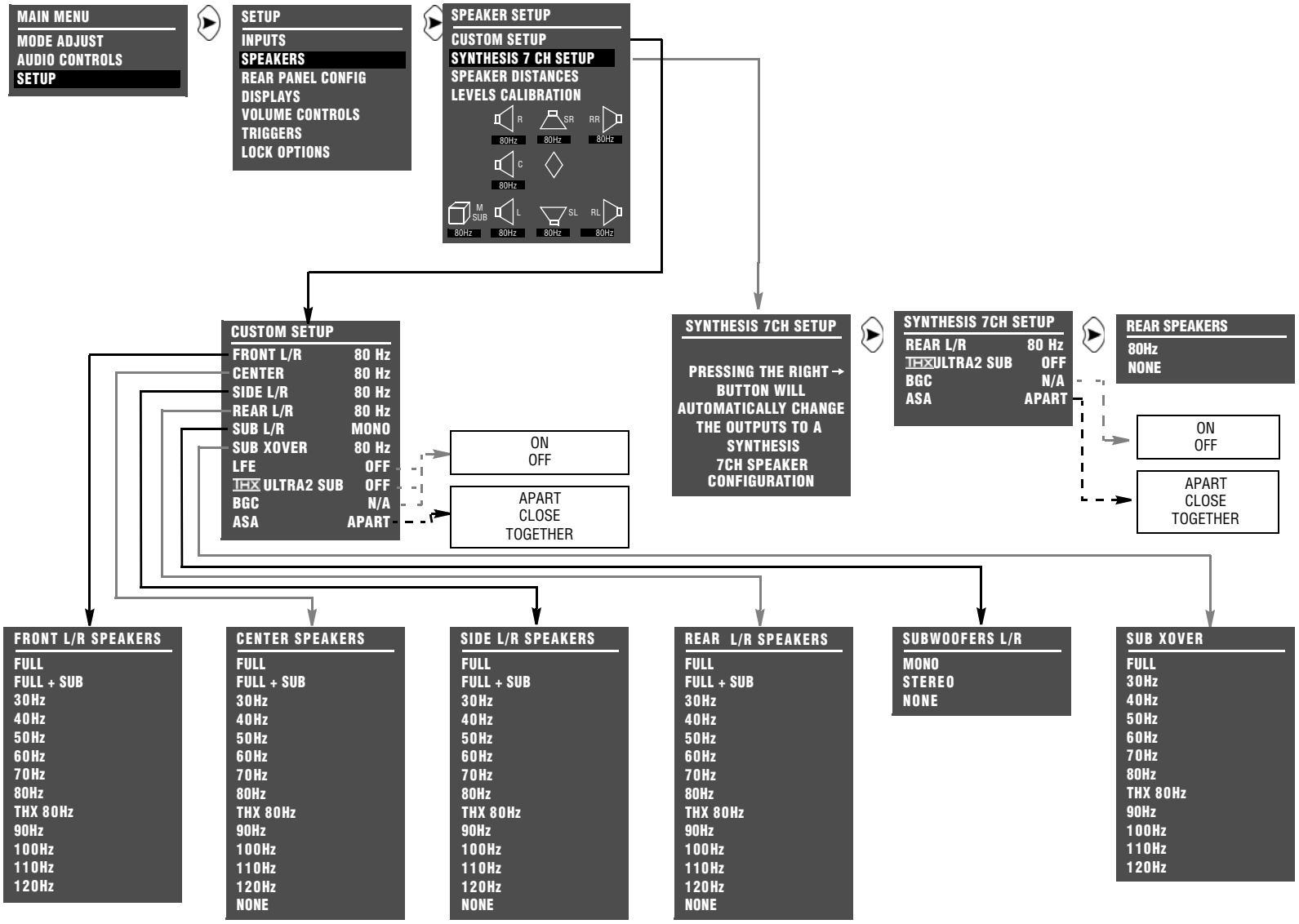
The MAIN ADV menus indicate factory-default parameter settings for each input.



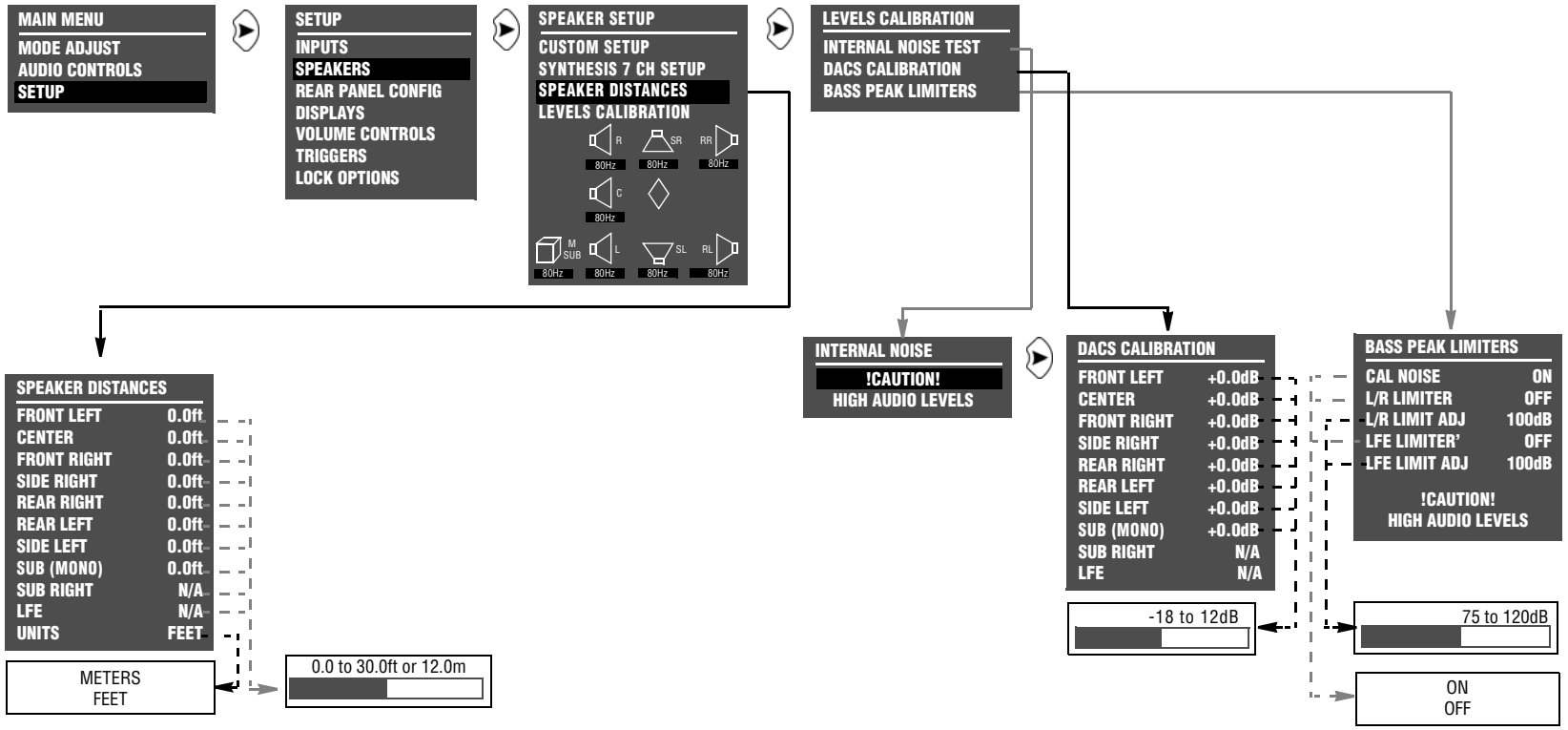


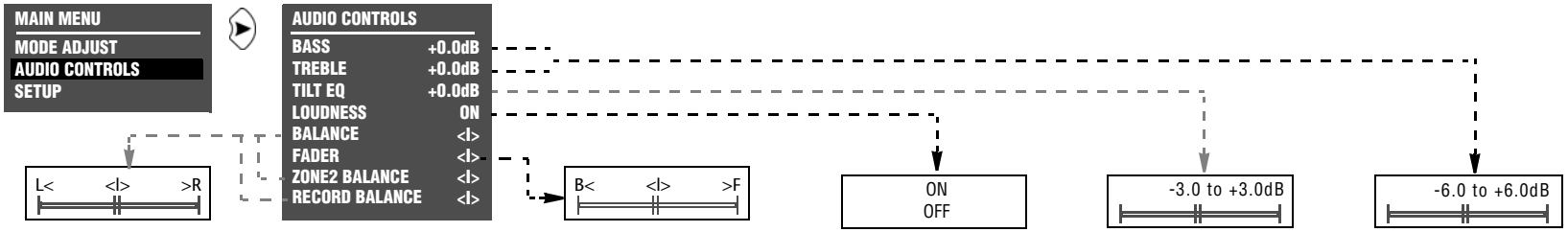
The RECORD ADV menus indicate factory-default parameter settings for each input.

MENU TREE *(continued)*

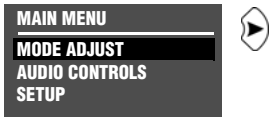


MENU TREE *(continued)*

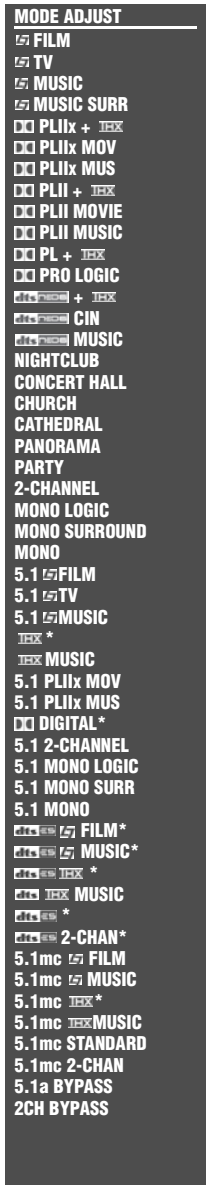


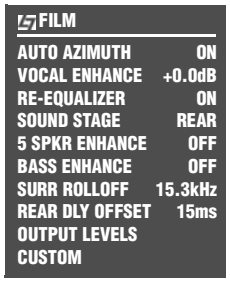


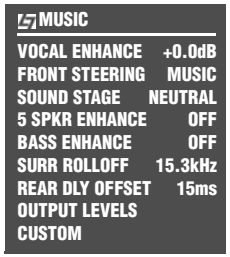
MENU TREE *(continued)*

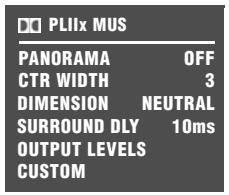


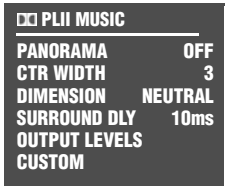
Selecting a listening mode opens the corresponding listening mode menu (pages A-14 to A-16). The parameters on the left side of the listening mode menus differ from mode to mode. The parameter settings on the right side are adjustable. The listening mode menus shown here indicate factory-default parameter settings for each listening mode. Listening mode menu parameter drop-down menus are shown on pages A-16 to A-17.

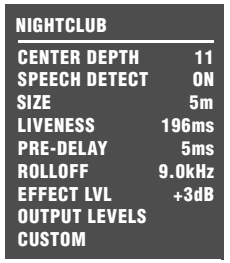


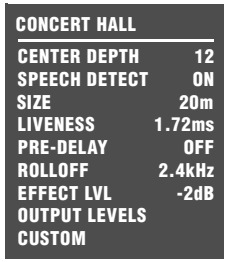


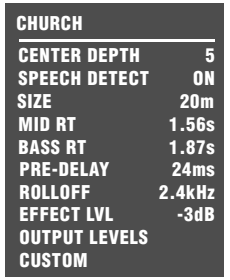


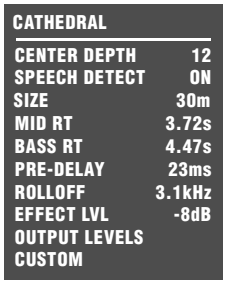


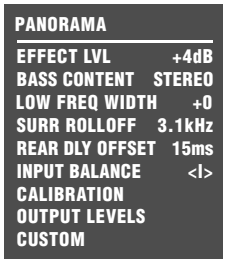


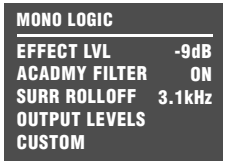


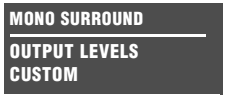


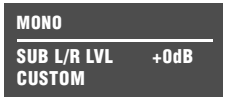


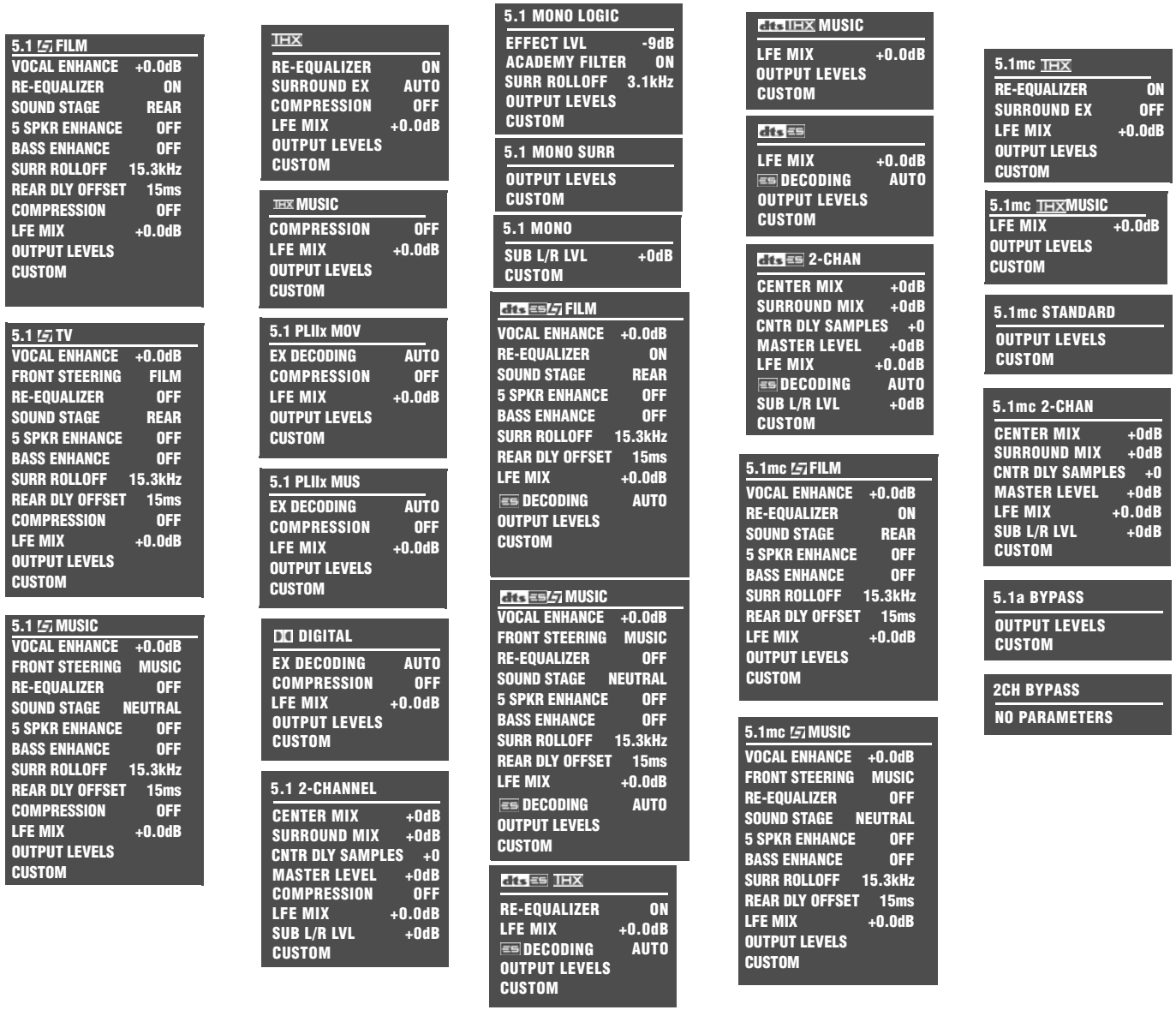






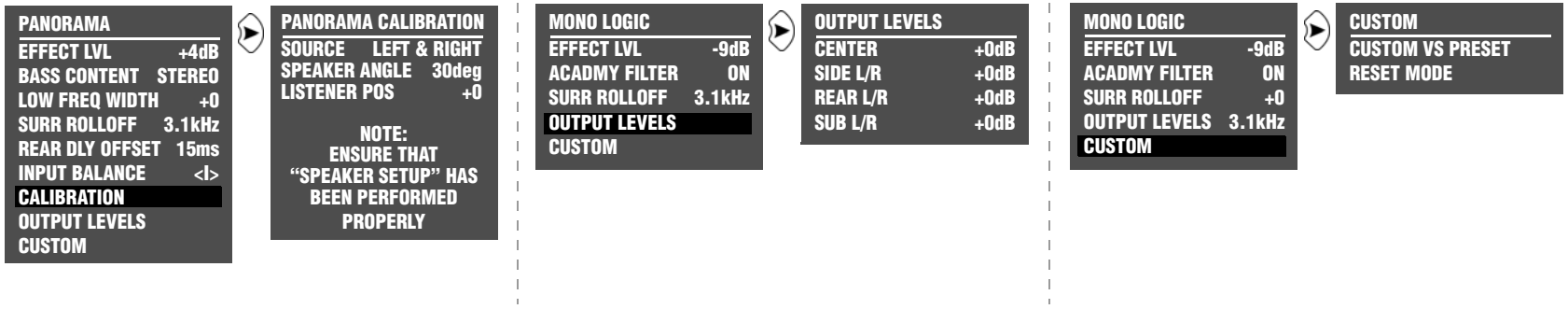




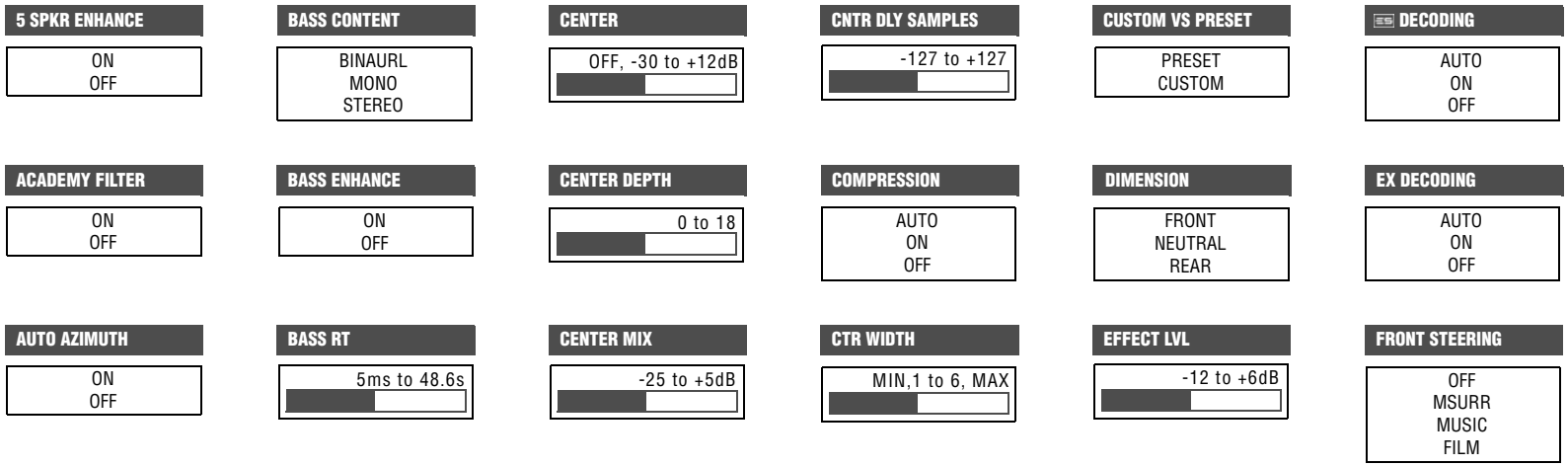


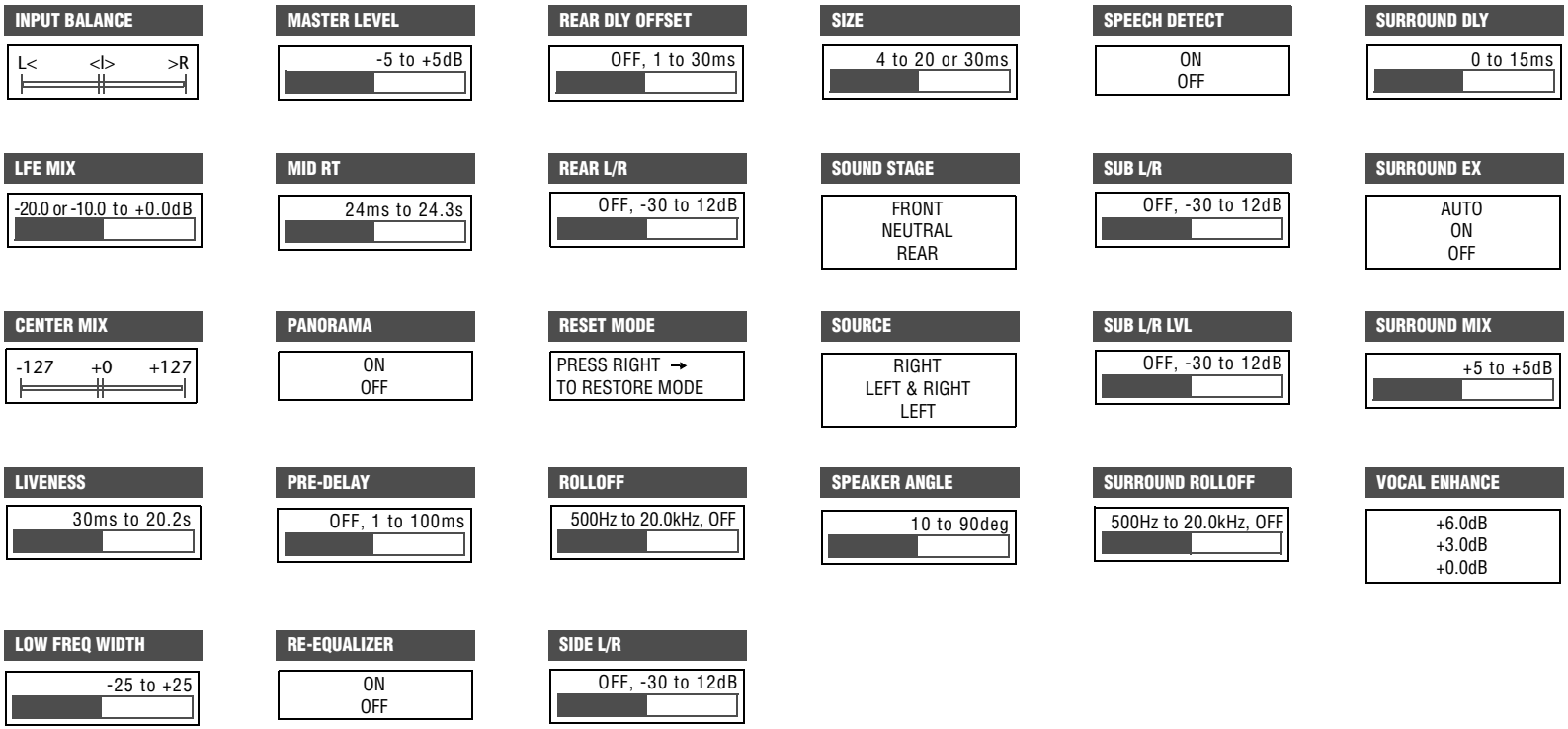
MENU TREE *(continued)*

Selecting the listening mode menu CALIBRATION, OUTPUT LEVELS, or CUSTOM option opens the corresponding menu path shown below. The CALIBRATION option is available for the PANORAMA listening mode. The OUTPUT LEVELS and CUSTOM options are available for most listening modes. These menus are identical regardless of which listening mode is selected. Listening mode menu parameter drop-down menus are shown below and on the next page.

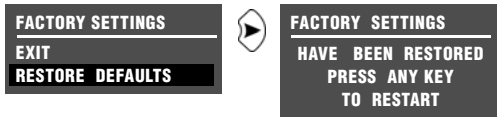


Selecting a listening mode menu parameter opens the corresponding parameter drop-down menu shown below and on the next page. These drop-down menus are identical regardless of which listening mode is selected. However, certain parameter ranges differ from listening mode to listening mode.



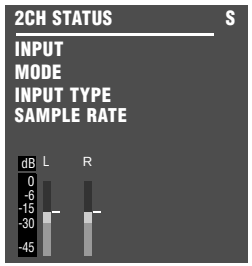


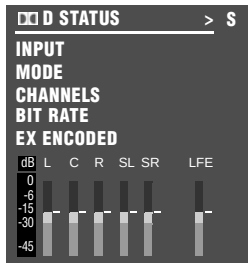
MENU TREE *(continued)*

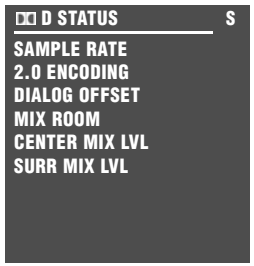


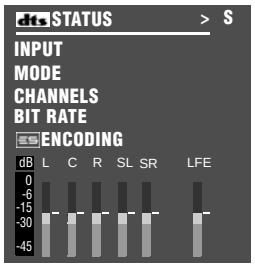
Refer to the Restoring Factory-Default Settings section that begins on page 6-5 for more information.

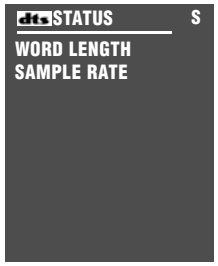
Refer to the Status Menus section that begins on page 1-21 for more information.

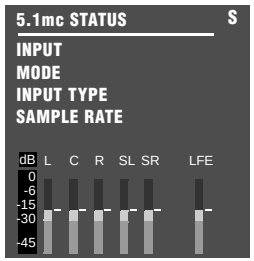


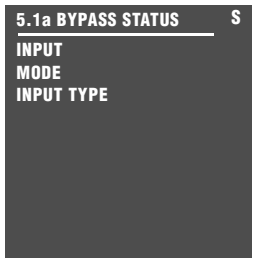


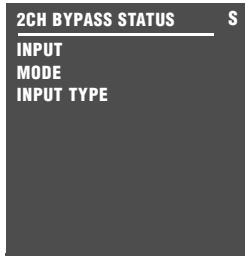


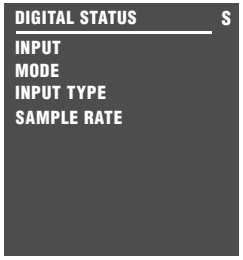


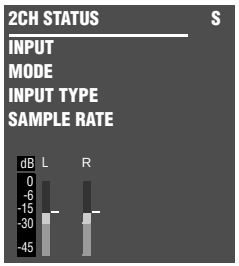


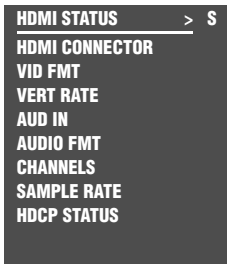












INSTALLATION WORKSHEET

INPUT SETUP	DVD1	DVD2	LD	TV	SAT	VCR	CD	PVR	GAME	TAPE	TUNER	AUX
NAME												
HDMI IN												
DIGITAL IN												
ANALOG IN												
ANLG IN LVL												
VIDEO IN												
COMPONENT IN												
2-CH												
DD												
dts ES												
5.1mc												
MAIN ADVANCED												
INPUT SELECT												
ANALOG BYPASS												
S-VIDEO 16:9												
S-VIDEO 4:3 OSD												
COMPONENT OSD												
HDMI OSD												
FORMAT DETECT												
ZONE2 IN												
RECORD IN												
RECORD ADVANCED												
ANLG IN LVL												
DIGITAL BYPASS												
DIG OUT RATE												
RECORD												

INSTALLATION WORKSHEET *(continued)*

SPEAKER SETUP		
	CUSTOM SETUP	**SYNTHESIS 7 CH SETUP**
FRONT LEFT/RIGHT		80Hz
CENTER		80Hz
SIDE LEFT/RIGHT		80Hz
REAR LEFT/RIGHT		80Hz
SUB LEFT/RIGHT		MONO
SUB XOVER		80Hz
LFE		OFF
THX ULTRA2SUB		
BGC		
ASA		
	OUTPUT LEVEL	**DISTANCE**
FRONT LEFT		
CENTER		
FRONT RIGHT		
SIDE RIGHT		
REAR RIGHT		
REAR LEFT		
SIDE LEFT		
SUB LEFT		
SUB RIGHT		
LFE		
	SETTING	
BASS PEAK LIMITER:		
CAL NOISE		
L/R LIMITER		
L/R LIMIT ADJ		
LFE LIMITER		
LFE LIMIT ADJ		

REAR PANEL CONFIG	
Circle one: 8 STEREO INPUTS 5 STEREO & 5.1 ANLG	
VOLUME CONTROL SETUP	
MAIN PWR ON	
MUTE LEVEL	
ZONE PWR ON	
REC PWR ON	
MAX VOLUME	
LOCK OPTIONS	
MODES	
AUDIO CONTROL	
SETUP	

DISPLAY SETUP	
ON-SCREEN DISPLAY	
STATUS	
POSITION	
FORMAT	
BACKGROUND	
REMOTE STATE	
FRONT PANEL DISPLAY	
STATUS	
BRIGHTNESS	
A/V SYNC DELAY	
CUSTOM NAME	
EDIT CUSTOM NAME	
AUDIO CONTROLS	
BASS	
TREBLE	
TILT EQ	
LOUDNESS	
BALANCE	
FADER	
ZONE2 BALANCE	
RECORD BALANCE	

TRIGGER 1 SETUP	
Circle all parameters set to ON.	
REMOTE ONLY	PARTY
DVD1	2-CHANNEL
DVD2	MONO LOGIC
LD	MONO SURROUND
TV	MONO
SAT	5.1 FILM
VCR	5.1 TV
CD	5.1 MUSIC
PVR	THX
GAME	THX MUSIC
TAPE	5.1 PLIIx MOV
TUNER	5.1 PLIIx MUS
AUX	DIGITAL EX
ZONE2 INPUTS	5.1 2-CHANNEL
RECORD INPUTS	5.1 MONO LOGIC
FILM	5.1 MONO SURR
TV	5.1 MONO
MUSIC	dts ES FILM
MUSIC SURR	dts ES MUSIC
PLIIx + THX	dts ES THX
PLIIx MOV	dts ES THX MUSIC
PLIIx MUS	dts ES
PLII + THX	dts ES 2-CHAN
PLII MOVIE	5.1mc FILM
PLII MUSIC	5.1mc MUSIC
PL + THX	5.1mc THX SurEX
PRO LOGIC	5.1mc THX MUSIC
dts neo:6 + THX	5.1mc STANDARD
dts neo:6 CIN	5.1mc 2-CHAN
dts neo:6 MUSIC	5.1a BYPASS
NIGHTCLUB	2CH BYPASS
CONCERT HALL	
CHURCH	
CATHEDRAL	
PANORAMA	

TRIGGER 2 SETUP	
Circle all parameters set to ON.	
REMOTE ONLY	PARTY
DVD1	2-CHANNEL
DVD2	MONO LOGIC
LD	MONO SURROUND
TV	MONO
SAT	5.1 FILM
VCR	5.1 TV
CD	5.1 MUSIC
PVR	THX
GAME	THX MUSIC
TAPE	5.1 PLIIx MOV
TUNER	5.1 PLIIx MUS
AUX	DIGITAL EX
ZONE2 INPUTS	5.1 2-CHANNEL
RECORD INPUTS	5.1 MONO LOGIC
FILM	5.1 MONO SURR
TV	5.1 MONO
MUSIC	dts ES FILM
MUSIC SURR	dts ES MUSIC
PLIIx + THX	dts ES THX
PLIIx MOV	dts ES THX MUSIC
PLIIx MUS	dts ES
PLII + THX	dts ES 2-CHAN
PLII MOVIE	5.1mc FILM
PLII MUSIC	5.1mc MUSIC
PL + THX	5.1mc THX SurEX
PRO LOGIC	5.1mc THX MUSIC
dts neo:6 + THX	5.1mc STANDARD
dts neo:6 CIN	5.1mc 2-CHAN
dts neo:6 MUSIC	5.1a BYPASS
NIGHTCLUB	2CH BYPASS
CONCERT HALL	
CHURCH	
CATHEDRAL	
PANORAMA	

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SYNTHESIS LIMITED WARRANTY

The JBL Synthesis products listed below are warranted for the period stated from the date of original purchase:

Amplifiers, Equalizers, and Surround Sound Processors – two (2) year warranty.

Who is protected by this warranty?

Your JBL warranty protects the original owner and all subsequent owners, so long as the original bill of sale is presented when warranty service is requested.

What is covered by the JBL warranty?

Your JBL warranty covers all defects in the material and workmanship with the following specified exceptions:

1. Damage caused by accident, unreasonable use, or neglect (including the lack of reasonable and necessary maintenance.
2. Damage caused by improper installation or adjustment.
3. Damage occurring during shipment (claims must be presented to the carrier).
4. Damage to or deterioration of any accessory or decorative surface.
5. Damage resulting from failure to follow instructions contained in your user guide.
6. Damage resulting from the performance of repairs by someone other than an authorized JBL warranty station
7. Any JBL unit on which the serial number has been effaced, modified, or removed.
8. Units which have been altered or modified in design, appearance, or construction.
9. Products sold on an "as-is" or final sale basis.

This warranty covers only the actual defects within the product itself, and does not cover the costs of installation or removal from a fixed installation, normal set-up, or adjustments, claims based on any misrepresentation by the seller, or performance variations resulting from installation related circumstances such as program source quality or AC power.

How to obtain warranty service

If your JBL product ever needs service, we may direct you to an Authorized JBL Warranty Station, or ask you to send your unit to the factory for repair, in which case we'll also supply a Service Return Authorization and complete shipping instructions. If the product was purchased in a country other than the USA, it is necessary to return the product to the distributor or selling location in the same country. Either way, you'll need to present the original bill of sale to establish the date of purchase. Please do not ship your JBL product to the factory without our prior authorization. In the United States, please call 1-818-830-8757 for the location of the authorized warranty station nearest you.

If service under this warranty is not necessary, but you have questions regarding the Installation or operation of this unit, please contact your authorized JBL dealer or call 1-818-830-8757 for further assistance.

Who pays for what?

JBL will be happy to pay all labor and material expenses for all repairs covered by this warranty. If necessary repairs are not covered by this warranty or if a unit is examined which is not in need of repair, you will be charged for the repairs or the examination.

Although you must pay any shipping charges incurred in getting your JBL product to an Authorized Warranty Station or to the factory, we will pay return shipping charges within the United States if the repairs are covered by the warranty. Please be sure to save the original shipping cartons because a nominal charge will be made for additional cartons.

Limitation on implied warranties

Implied warranties of merchantability and fitness for particular purpose are limited in duration to the length of this warranty, unless otherwise provided by state law.

Exclusion of certain damages

JBL's liability is limited to the repair or replacement at our option, of any defective product and shall in no event include incidental or consequential commercial damages of any kind.

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion of incidental or consequential damages, so they above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

We sincerely thank you for your expression of confidence in JBL products. This equipment has been painstakingly assembled by highly trained craftspeople. It should give you many years of musical enjoyment.

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250 Crossways Park
Woodbury, NY 11797
516-255-4JBL
www.jbl.com

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