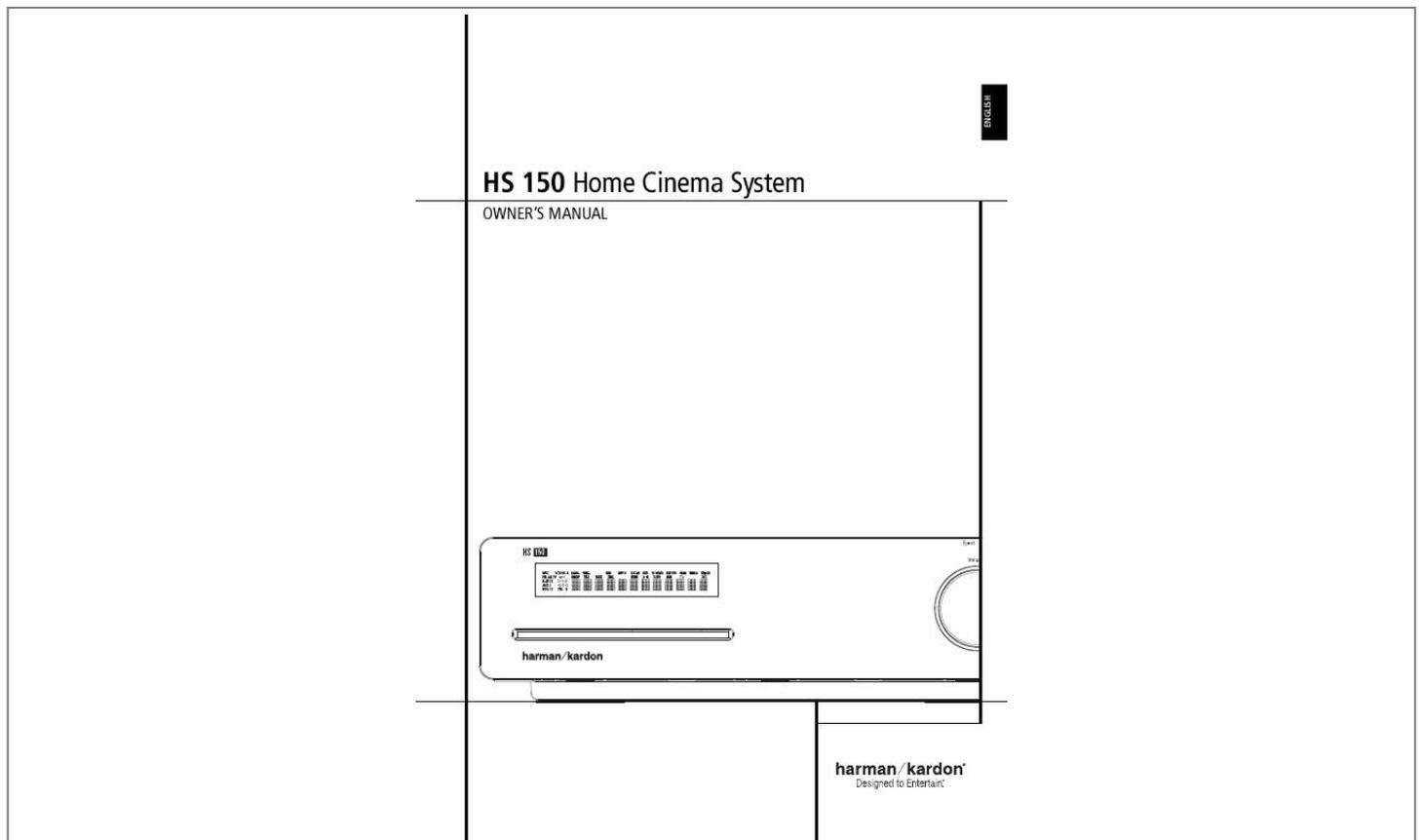You can read the recommendations in the user guide, the technical guide or the installation guide for HARMAN KARDON HS 150. You'll find the answers to all your questions on the HARMAN KARDON HS 150 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

**User manual HARMAN KARDON HS 150**
**User guide HARMAN KARDON HS 150**
**Operating instructions HARMAN KARDON HS 150**
**Instructions for use HARMAN KARDON HS 150**
**Instruction manual HARMAN KARDON HS 150**

ENGLISH

**HS 150** Home Cinema System
OWNER'S MANUAL

HS 150

harman/kardon

harman/kardon
Designed to Entertain

**Manual abstract:**

2 TABLE OF CONTENTS Introduction Thank you for choosing Harman Kardon! With the purchase of a Harman Kardon HS 150 you are about to begin many years of listening enjoyment. Designed to provide all the excitement and detail of movie soundtracks and every nuance of musical selections using only one pair of stereo loudspeakers and a subwoofer, the HS 150 is truly a multichannel system for the new millennium. The HS 150 has been engineered so that it is easy to take advantage of all the power of its digital technology. @@@@@@They are your best local sources of information. @@The Dolby® Virtual Speaker surround modes for Matrix surround-encoded or Stereo recordings is available for use with sources such as CD, VCR, TV broadcasts and the system's own FM tuner. To enable you to get the maximum quality from DVDs, the HS 150 is equipped with the latest in design techniques, including advanced 10-bit video digital-to-analog converters (DAC) and Video (composite), S-Video and RGB video (RGB via SCART) outputs, to ensure that you get all the quality inherent in today's DVD medium. For optimum playback of NTSC and PAL DVD with compatible high-definition display devices, the HS 150 is equipped with an HDMI output and progressive scan component video outputs. Along with conventional Video and CD audio discs, the HS 150 is also compatible with MP3, CD-R and CD-RW as well as DivX® and VCD discs. NOTE: This player is designed and manufactured for compatibility with Region Management Information that is encoded on most DVD discs. This player is designed only for playback of discs with Region Code 2, or for discs that do not contain Region Code information.

If there is any other Region Code on a disc, that disc will not play on the DVD. As portable USB devices increase in popularity, Harman Kardon's HS 150 is among the first integrated home theater system that allows mobile interconnectivity by playing compatible music or image files from portable devices via two USB On-The-Go inputs. A wide range of programming features makes it easy to program an evening's worth of entertainment. When playing DVDs, easy-to-understand on-screen menus and icons make it simple to change languages, soundtracks, subtitles or aspect ratio, while a parental-lock function enables you to control which discs may be viewed by younger members of the household. DVD players are among the fastest growing consumer electronics products ever brought to market, but this may, nevertheless, be the first DVD player you've owned.

Although many of the features of the DVD resemble those of standard CD players, there are a number of functions that you may be unfamiliar with. To ensure that you are able to take advantage of all the power and flexibility the DVD has to offer, we encourage you to review this quick setup manual. That small investment of your time will pay major dividends in the enjoyment you will get from proper use of the DVD. I Plays a Wide Range of Video and Audio Formats, Including DVD-Video Discs, VCD, Standard CD Audio Discs, CD-R/RW, DVD-R/RW, DVD-+R/RW, Audio Discs and MP3 Discs I HDMI Output for Digital Audio and Video Connection to an HD-Ready Screen I High-Quality Video Playback 10-Bit DACs, Progressive Scan and Component Video Outputs I Easy-to-Use On-Screen Navigation System I Playback of MP3 and Windows® WMA Audio Discs and JPEG image files I Simultaneous Playback of MP3 and JPEG files I Side- and rear-panel USB On-The-Go connections for playing compatible music or image files from portable devices. I Extensive Programming Capability for Audio and Video Discs I Parental Lock Controls Prevent Unauthorized Viewing of Restricted Movies I Playback of DivX compressed video files I Multiple Options for Language, Soundtrack and Subtitle Selection I Multiple-Angle Capabilities With Specially Encoded DVD Discs I Ergonomically Designed Remote Control I Multiple digital inputs and outputs I Multiple Analog Inputs and Outputs I High Definition On-screen menu and display system I Subwoofer Trigger to Control Subwoofer On/Off IMPORTANT NOTES: This manual should be read in conjunction with the owners manual of the accompanying loudspeaker system.

The instructions found therein should be followed with respect to loudspeaker operation and safety. Only use the HS 150 controller with the loudspeaker system supplied. Failure to do so may cause damage to either the controller or the loudspeakers and will invalidate any warranty. All of the optional system settings have been preset at our factory for correct operation of the system. All you have to do is insert a disc, sit back, and enjoy a great home theater experience. You may want to change some of the optional settings. A description of all the optional settings and instructions for changing them are found in the second half of the manual. ENGLISH CLASS 1 LASER PRODUCT 2 INTRODUCTION 3 Introduction / Safety Information This system was designed to provide you with many years of reliable operation with a minimum of care and maintenance. Every component in your system was in perfect working condition when it left our factory. If you experience any problems with the set-up or operation of this system, please review the Troubleshooting Guide at the end of this manual before you contact your authorized Harman Kardon dealer.

Installation Location I To assure proper operation and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the weight of the product. I Make certain that proper space is provided both above and below the unit for ventilation. If this product will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet. Under some circumstances a fan may be required. I Do not place the unit directly on a carpeted surface. I Avoid installation in extremely hot or cold locations, or an area that is exposed to direct sunlight or heating equipment. I Avoid moist or humid locations. I Do not obstruct the ventilation slots on the top of the unit, or place objects directly over them. Cleaning When the unit gets dirty, wipe it with a clean, soft, dry cloth.

If necessary, wipe it with a soft cloth dampened with mild soapy water, then a fresh cloth with clean water. Wipe dry immediately with a dry cloth. NEVER use benzene, aerosol cleaners, thinner, alcohol or any other volatile cleaning agent. Do not use abrasive cleaners, as they may damage the finish of metal parts. Avoid spraying insecticide near the unit.

Moving the Unit Before moving the unit, be certain to disconnect any interconnection cords with other components, and make certain that you disconnect the unit from the AC outlet. Unpacking The carton and shipping materials used to protect your new receiver during shipment were specially designed to cushion it from shock and vibration. We suggest that you save the carton and packing materials for use in shipping if you move, or should the unit ever need repair.

To minimize the size of the carton in storage, you may wish to flatten it. This is done by carefully slitting the tape seams on the bottom and collapsing the carton.

Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag. If you do not wish to save the packaging materials, please note that the carton and other sections of the shipping protection are recyclable. Please respect the environment and discard those materials at a local recycling center. Copyright Audio-visual material may consist of copyright works which must not be recorded without the permission of the owner of the copyright. Please refer to relevant laws covering copyright protection. Copy protection This DVD player supports Macrovision copy protection. On DVD discs that include a copy protection code, if the contents of the DVD disc are copied using a VCR, the copy protection code prevents the videotape copy from playing normally. For Optimum Performance The controller is a precision device that is constructed using extremely accurate technology. Soiling or friction affecting the pickup lens or disc drive can impair the image quality.

In the worst case, neither video nor audio will be played back. To obtain optimum picture quality, the player should be checked (cleaning and replacement of some parts) every 1,000 hours. Note that this period varies depending on the environment (temperature, humidity, dust) in which the player is used. Do not attempt to clean the pickup lens yourself. Important Safety Information Verify Line Voltage Before Use Your HS 150 has been designed for use with 220-240-Volt AC current. Connection to a line voltage other than that for which it is intended can create a safety and fire hazard and may damage the unit. If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contaco the individual tracks on an audio CD. RGB Video: This is a new form of video signal that eliminates many of the artifacts of traditional composite video signals by splitting the signal into the three fundamental colors Red, Green and Blue (RGB). With an RGB connection (via SCART), you will see greater picture resolution and eliminate many picture imperfections such as the moiré patterns often seen on checkered patterned cloths. However, in order to benefit from RGB video, you must have a video display with an RGB compatible SCART input.

Progressive scan: DVD offers progressive scan video outputs for use with compatible high-resolution televisions and projectors. Before DVD, no consumer medium could store, transmit or display video with full resolution. To conserve bandwidth, analog compression (interlacing) is employed: first the odd-numbered lines of a frame are displayed, followed by the even-numbered lines. The result is that only half of the video image is drawn at one time; the viewer's brain must reassemble the complete image. This is acceptable, if the monitor is not too large and if there is not too much motion in the image. Large displays and fast-moving images reveal the limitations of this system. Thanks to DVD's immense data capacity, images are now stored intact (progressively), so that all the lines in each frame (odd and even) are shown at the same time. But because most TV's cannot handle a progressive signal, all current DVD players generate an interlaced output for compatibility. Now, the Harman Kardon DVD is among the select few DVD players with true progressive scan video output (NTSC and PAL) for use with compatible TV's and CRT projectors and with all plasma, LCD and DLP display devices via the component video output. The result is 40% greater light output than a conventional TV and a stunningly detailed high definition image, along with an almost complete absence of visible scanlines and motion artifacts.

Of course, traditional Y/Pr/Pb component video, SCART, S-Video and composite video outputs are included for use with conventional televisions and projectors. Multiple Angle: DVDs have the capability to show up to four different views of the same scene in a program. When a disc is encoded with multiple-angle information, pressing the Angle button will enable you to switch between these different views. Note that at present, few discs take advantage of this capability and, when they do, the multiple-angle technology may only be present for short periods of time within the disc. Producers will usually insert some sort of icon or graphic in the picture to alert you to the availability of multiple viewing angles. Reading: This is a message that you will see after you´ve loaded the disc and the tray has closed. It refers to the fact that the player must first examine the contents of the disc to see if it is a CD or DVD, and then extract the information about the type of material on the disc, such as languages, aspect ratios, subtitles, number of titles and more. The slight delay while the contents of the disc are read is normal. Resume: The operation of the Stop Button on the DVD worksles be encoded at bit rates ranging between 32 kbps and 320 kbps. WMA files should be encoded at bit rates between 64kbps and 320 kbps.

Although the HS systems is capable of playing some WMA 9 files, not all features of version 9 are supported. JPEG files should contain no more than 5 megapixels, and the file size should be no larger than 5 Mb. Upgradeability via Internet The "firmware" controlling the functionality of the Harman Kardon HS system is fully upgradeable. In the event of future improvements to its operations and features, it will be possible to download firmware upgrades from www.harmankardon.com/International/ All you have to do is create a CD-R with the data and insert it in the DVD for an automatic upgrade. High quality digital audio · High quality 2.1 digital surround sound from DTS or Dolby Digital discs. · With linear PCM audio at 16-24 bits and 44-96 kHz, audio quality exceeding that of CD becomes possible. · Coaxial digital audio output.

Packing List 1 Harman Kardon HS 150 DVD Player/Controller 1 Harman Kardon HKTS 2 Home Theater Speaker System 1 Harman Kardon HTFS 2 Loudspeaker stands 1 Remote control 3 AAA batteries 1 A/V cable for stereo analog audio and composite video 1 S-Video cable 1 remote extension cable 1 owner's manual Many convenient features · On-Screen Menu lcons for disc information or player information and access to many major functions of this unit. · Thumbnails for easy search of image files. · Subtitles may be displayed in one of numerous languages*. · The multi-angle function allows you to choose the viewing angle of scenes which were shot from a number of different angles (Limited to DVD's recorded with multiple camera angles.) · Multiple options for dialog language and soundtrack selection (limited to DVD's recorded with multiple dialog languages or soundtracks).

· Intuitive menu operating system. · 4 step Zoom during play and pause. · Backlit, ergonomically designed remote control. · Future software upgrades accessible via Internet. (See information below.

) * The number of languages recorded depends on the software. 6 FEATURES Front Panel Controls ENGLISH 0 Main Information Display 1 Power On/Off (Standby) 2 Eject 3 USB On-The-Go Input 4 Headphone Jack 5 Volume Control 6 Slot Loader 0 Main Information Display: This display delivers messages and status indications to help you operate the HS 150 Controller. 1 Power On/Off (Standby): Press the button once to turn the HS 150 Controller on, press it again to put the unit in the Standby mode. Note that when the HS 150 Controller is switched on, the Power Indicator around the button turns blue. 2 Eject: Press this button to release a disc from the loader. 3 USB On-The-Go Input: This input may be used to temporarily connect a USB thumb device or portable hard disk for direct playback of audio, image of video files or a USB hub. The USB inputs are designed to power a single USB device at a time. If additional hard disks are connected through a hub it is necessary that additional external power supplies are used to power the hub and hard disks. 4 Headphone Jack: This jack may be used to listen to the system's output through a pair of headphones. Be certain that the headphones have a standard 3.

5 mm stereo phone plug. Note that the main room speakers will automatically be turned off when the headphone jack is in use. 5 Volume Control: Turn this knob clockwise to increase the volume, counterclockwise to decrease the volume. If the system is muted, adjusting volume control will automatically release the unit from the silenced condition. 6 Slot loader: Gently insert a CD or DVD into this slot, with the printed side of the disc facing up. Note there is no drawer. Press the Eject Button 2 to release the disc. FRONT PANEL CONTROLS 7 Front Panel Display A Disc Type Indicators B Playback-Mode Indicators C Progressive Scan Indicator D Parental Lock Indicator E Time Indicators F Video Format Indicators G Source Indicators H Repeat Indicators I VCD Playback Control Indicator J Random Indicator K A-B Repeat Indicator L Program Indicator M Angle Indicator N Title Indicators O Chapter/Track Number Indicators P Video Output Indicators A Disc Type Indicators: The CD or DVD indicator will illuminate to show the type of disc currently being played. B Playback-Mode Indicators: These indicators light to show the current playback mode: Lights when a disc is playing in the normal mode N H Lights when the disc is in the Fast Search Forward mode. The on-screen banner display indicates the selected speed (2x, 8x, 16x, 100x).

1 E Time Indicators: These positions in the indicator will show the running time of a DVD in play. When a CD is playing, these indicators will show the current track time, time remaining in the current track, or the total remaining time on the disc. NOTE: The Indicators NOE will also display text messages about the DVD's status, including Reading when a disc is loading, STANDBY when the unit is turned off, and Disc Error when a disc not compatible with the DVD is put into the play position. F Video Format Indicators: These indicators will represent the video format currently playing. G Source Indicators: These indicators will light to show which source is currently selected.

H Repeat Indicators: These indicators light when any of the Repeat functions are in use. I VCD Playback Control Indicator: This indicator lights when the playback control function is turned on with VCDs. J Random Indicator: This indicator lights when the unit is in the Random Play mode. K A-B Repeat Indicator: This indicator lights when a specific passage for repeat playback has been selected. L Program Indicator: This indicator lights when the programming functions are in use.

M Angle Indicator: This indicator blinks when alternative viewing angles are available on the DVD currently playing. N Title Indicators: These two positions in the display will show the current title number when a DVD disc is playing. O Chapter/Track Number Indicators: When a DVD disc is playing, these two positions in the display will show the current chapter. When a CD disc is playing they will show the current track number. P Video Output Indicators: These indicators will represent the active video output. Lights when the disc is paused. G Lights when the disc is in the Fast Search Reverse mode. The on-screen banner display indicates the selected speed (2x, 8x, 16x, 100x). C Progressive Scan Indicator: This indicator lights when the unit sends out a progressive scan signal. D Parental Lock Indicator: This indicator lights when the parental-lock system is engaged in order to prevent anyone from changing the rating level without a code.

8 FRONT PANEL DISPLAY Rear Panel Connections ENGLISH 0 Composite Video Output 1 S-Video Output 2 Component Video Outputs 3 Scart TV Output 4 AC Power Cord 5 FM Antenna 6 Audio In 0 Composite Video Output: Connect this jack to the video input on a television or video projector. 1 S-Video Output: Connect this jack to the SVideo input on a television or video projector. 2 Component Video Outputs: These outputs carry the component video signals for connection to display monitors with component video inputs. For standard analog TV's or projectors with inputs marked Y/Pr/Pb or Y/Cr/Cb, connect these outputs to the corresponding inputs. If you have a high-definition television or projector that is compatible with high scan rate progressive video, connect these jacks to the "HD Component" inputs. Note that if you are using a progressive scan display device, then "Progressive" must be selected in the Video Set-up Menu in order to take advantage of the progressive scan circuitry. See page 20 for more information on progressive scan video. IMPORTANT: These jacks should NOT be connected to standard composite video inputs. 3 SCART OUT (TV): If your TV has a SCART socket, you can connect a SCART cable to your TV and to your DVD Player for improved video quality. The SCART cable carries both audio and video. You can select Composite Video or RGB video for that SCART connector's video output signal. 7 Subwoofer Output 8 Coaxial Digital Input 9 Optical Digital Input A Analog Audio Outputs B Front Speaker Outputs C Remote IR Input D TV Audio In 4 AC Power Cord: Connect this plug to an AC outlet. If the outlet is controlled by a switch, make certain that it is in the ON position. 5 FM Antenna: Connect to the supplied FM antenna. 6 Audio In: Connect to a line-level analog audio source: TV, tape player, Minidisc, PC, etc.

7 Subwoofer Output: Connect to the SUB/LFE input on the subwoofer. 8 Coaxial Digital Input: Connect the coax digital output from a DVD player, HDTV receiver, LD player, MD player, satellite receiver or CD player to this jack. The signal may be either a Dolby Digital signal, DTS signal or a standard PCM digital source.

Do not connect the RF digital output of an LD player to these jacks. 9 Optical Digital Input: Connect the optical digital output from a DVD player, HDTV receiver, LD player, MD player, satellite receiver or CD player to this jack.

The signal may be either a Dolby Digital signal, DTS signal or a standard PCM digital source. A Analog Audio Outputs: Connect these jacks to the analog audio input on a TV set or external audio system for analog audio playback or to the RECORD/INPUT jacks of an audio recorder for recording. B Front Speaker Outputs: Connect these outputs to the matching + or  terminals on your left and right speakers. In conformance with the new CEA color code specification, the White terminal is the positive, or "+" terminal that should be connected to the red (+) terminal on Front Left speaker with the older color coding, while the Red terminal is the positive, or "+" terminal that should be connected to the red (+) terminal on Front Right speaker. Connect the black () terminals on the HS to the black () terminals on the speakers. See page 14 for more information on speaker polarity. C Remote IR Input: If the HS 150's frontpanel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to this jack. E Coaxial Digital Output F Subwoofer Trigger Output G USB On-The-Go Input H HDMI Output I Remote IR Output REAR PANEL CONNECTIONS 9 Rear Panel Connections D TV Audio Input: If your screen is connected to the HS by an HDMI, Component, S-Video or Composite cable, connect the analog output of your TV to this input. If you have your TV connected to the HS with a Scart cable, an audio connection to the TV Input is not necessary.

Note: You'll find more details about all Audio/Video connections under Setup and Connections on the following pages. E Coaxial Digital Output: Connect this jack to the matching digital input connector on a digital recorder such as a CD-R or MiniDisc recorder. F Subwoofer Trigger Output: Connect this trigger output to the trigger input of the Harman Kardon subwoofer, so that the subwoofer will switch on and off at the same time as the rest of the system. G USB On-The-Go Input: This input may be used to temporarily connect a USB thumb device or portable hard disk for direct playback of audio, image of video files, a digital photo camera or a USB hub. H HDMI Output: Connect this output to the HDMI input of high-definition LCD, Plasma or video projector for the best possible picture quality. I Remote IR Output: This connection permits the IR sensor in the receiver to serve other remote controlled devices. Connect this jack to the "IR IN" jack on Harman Kardon or other compatible equipment. 10 REAR PANEL CONNECTIONS Remote Control 0 Power On/Source Selection Button 1 Power Off Button 2 Subtitle Button 3 Title Button 4 Angle Button 5 Audio Button 6 Enter Button 7 Open Button 8 Set-Up/OSD Button 9 Arrows Button A Mute Button B Menu Button C Pause Button D Status Button E Skip/Step (Previous) Button F Skip/Step (Next) Button G Play Button H Search/Slow Reverse Button I STOP Button J Search/Slow Forward Button K Macro Buttons L Pic +/Pic - Button M Zoom Button N Playlist Button O Random Button P A-B Repeat Button Q Volume up/down Button R Numeric Keys Button S Repeat Button T Clear Button U Video output Button V Video format Button W Learn Button X Screen Power Buttons Y Info Button Z Teletext Buttons a Picture in Picture Button b Screen Format Button c IR Transmitter Window d Program Indicator e Mode Button d 1 c X 0 Y L 2 8 9 D N O K R Z V E H I 3 e A Q 5 B 6 8 S 4 T M P a b W F G J C U 7 REMOTE CONTROL 11 ENGLISH Remote Control 0 Power On/Source Selector Buttons: Pressing one of these buttons will perform three actions at the same time. First, if the HS System is not turned on, this will power up the unit. Next, it will select the source shown on the button as the input to the HS System.

Finally, it will change the remote control so that it controls the device selected. 1 Power Off Button: Turns off the HS system to standby mode. 2 Subtitle Button: When a DVD is playing, press to select a subtitle language or to turn subtitles off. 3 Title Button: When a disc is playing, press to make the player go back to the first section of the disc. 4 Angle Button: Press to access various camera angles on a DVD (If the DVD contains multiple camera angles) or to rotate JPEG images.

5 Audio Button: Press to access various audio languages on a DVD (If the DVD contains multiple audio streams). 6 Enter Button: Press this button to activate a setting or option. 7 Open Button: Press to release the disc from the loader. 8 Set-up/OSD: Press to access the On Screen Display Menu. 9 Arrow buttons (M / N /K/L) Buttons: Use to move the cursor in the OSD.

A Mute Button: Mutes the sound. B Menu Button: Displays the actual DVD Disc Menu on the TV screen in play mode. When playing discs with JPEG images, pressing this button will access the thumbnails. C Pause Button: Freezes a picture (with DVD/VCD) and pauses the playback signal (CD) when a disc is playing. Press again for normal playback. D Status Button: Press while a disc is playing to view banner display. Use the ARROW buttons to move through the different features in the Banner Display. When a symbol is highlighted, press ENTER on the remote to select it. E Skip/Step (Previous) Button: Press to go to beginning of current track. Press again quickly to go to beginning of previous track.

After pressing the PAUSE button, each press of this button will move the image in reverse frame by frame. F Skip/Step (Next) Button: Press to go to beginning of next track. After pressing the PAUSE button, each press of this button will move the image forwards frame by frame. G Play Button: Begins to play disc (closes disc tray first, if it is open). H Search/Slow (Rev.) Button: Allows you to search in reverse through a disc while it is in play mode. Each time you press this button, the search speed changes as indicated by a number of arrows on the right top of your screen. After pressing the PAUSE button, each press of this button will change the slow down speed indicated by a number of arrows in the right top of the screen. I Stop Button: Stops playing a disc. When a disc is playing, if you press STOP and PLAY, the disc will resume play, i.

e. it will start from the same point on the disc where the unit was stopped. If you press STOP twice and the PLAY button, the disc will start play from the beginning. J Search/Slow (Fwd.) Button: Allows you to search forward through a disc while it is in play mode.

Each time you press this button, the search speed changes as indicated by a number of arrows on the right top of your screen. After pressing the PAUSE button, each press of this button will change the slow down speed as indicated by a number of arrows in the right top of the screen. K Macro Buttons: Press these buttons to store or recall a "Macro", which is a pre-programmed sequence of commands stored in the remote.

*(See page 26 for more information on storing and recalling macros.).*

*L Pic +/Pic - Button: Pressing these buttons in JPEG mode will move to the previous or next image. M Zoom Button: When a DVD or VCD is playing, press this button to zoom the picture so that it is enlarged. There are 4 steps to the zoom function, each progressively larger. Press through each of the zoom stages to return to a normal picture. The Zoom function is not available when watching High Definition material. N Playlist Button: Press this button to change the playback order of the disc. O Random Button: Press for RANDOM playback in random order. P A-B Button: Press to select section A-B and to play repeatedly. Q Volume Up/Down: Increase/decrease the master volume level. R Numeric Keys Button: Select numbers by pressing these buttons.*

*S Repeat Button: Press to go to the Repeat menu. You can repeat a chapter, track or the entire disc. T Clear Button: Press to remove the Banner menu from the screen. U Video output Button: Press to toggle between the S-Video, Component Video Outputs and SCART RGB video output of the HS Sysrem player. Note that the Composite and SCART Composite Video Outputs on the player are always active, which could help you make your initial setup. V Video format Button: Press this button to change the resolution of the Component Video Output between standard definition and progressive definition (PAL interlaced and PAL progressive; NTSC interlaced and NTSC progressive). W Learn Button: Press this button to begin the process of "learning" the codes from another product's remote into the HS System's remote. (See page 26 for more information on using the remote's learning function.) X to b These buttons do not have a direct function with the HS 150, but can be programmed to control some of the functions of your TV using the Learning function of the remote control. c IR Transmitter Window: Point this window towards the HS when pressing buttons on the remote to make certain that infrared commands are properly received. d Program Indicator: This three-color indicator is used to guide you through the process of learning commands from a remote into the HS's remote code memory. (See page 26 for more information on programming the remote.) e Mode Button: This button enables you to switch the remote to another mode so that it operates another device without selecting it as the source. Each press of the Mode button changes the remote's mode in this order: TV, DVD, CD, RADIO, AUX, D-IN, USB 1 and USB 2, and then back to TV again. The corresponding Source Selector will light to indicate the mode.*

*12 REMOTE CONTROL Basic Information About This Manual · The types of functions and operations that can be used for a particular disc vary depending on the features of that disc. In some cases, these functions and operations may differ from the descriptions given in this manual. In this event, follow the instructions given on the screen. This manual only covers basic disc operations. · For some operations, the icon may appear on the screen. This indicates that the operation described in this manual is not available on the disc in the player. · On-screen and front panel display illustrations in this manual are purely for the purposes of explanation. The actual displays may differ slightly from these illustrations. Disc handling precautions · To keep the disc clean, handle the disc by its edge. Do not touch the surface. · Do not stick paper or tape on the disc. If there is glue (or a similar substance) on the disc, remove the glue completely before using the disc. Disc cleaning precautions · Before playing, clean the disc with a cleaning cloth. Wipe the disc from the center out. · Do not use solvents such as benzine, thinner, commercially available cleaners or anti-static spray intended for vinyl LPs.*

*Disc installing precautions · Do not install more than 1 disc into the loader. · Do not place the disc up-side down. · Hold the disc horizontally when loading, and do not press extensively. The disc loading mechanism should take the disc and slide it into the unit. Regional Coding DVD players and discs are designed with regional restrictions which dictate the regions in which a disc can be played. If the region number on the disc you want to play does not match the region number of your DVD player, you will not be able to play the disc. The message "REGION ERR" will appear in the front panel display. The region code of this player is indicated on the rear and on the external packaging. · Do not expose the disc to direct sunlight or sources such as hot air ducts, or leave it in a car parked in direct sunlight as there can be a considerable rise in temperature inside the car. · After playing, store the disc in its case. · Do not write on the label side with a ball-point pen or other writing utensils. · Be careful not to drop or bend the disc. BASIC INFORMATION 13 ENGLISH Installation and Connections After unpacking the unit, and placing it on a solid surface capable of supporting its weight, you will need to make the connections to your audio and video equipment. Video Equipment Connections Video equipment is connected in the same manner as audio components. Again, the use of highquality interconnect cables is recommended to preserve signal quality.*

*Audio Equipment Connections We recommend that you use high-quality interconnect cables when making connections to source equipment and recorders to preserve the integrity of the signals. When making connections to audio source equipment or speakers it is always a good practice to unplug the unit from the AC wall outlet. This prevents any possibility of accidentally sending audio or transient signals to the speakers that may damage them. 1. Connect the front speaker outputs B to the respective speakers.*

*Cables that are run inside walls should have the appropriate markings to indicate listing with any appropriate testing agency standards. Questions about running cables inside walls should be referred to your installer or a licensed electrician who is familiar with the applicable local building codes in your area. When connecting wires to the speakers, be certain to observe proper polarity. Note that the positive (+) terminal of each speaker connection now carries a specific color code. However, most speakers will still use a red terminal for the postive (+) connection. Connect the "negative" or "black" wire to the same terminal on both the receiver and the speaker. We also recommend that the length of cable used to connect speaker pairs be identical. For example, use the same length piece of cable to connect the front-left and front-right speakers, even if the speakers are a different distance from the HS controller. 2. Connections to the subwoofer are made via a line level audio connection from the Subwoofer Output 7 to the line-level SUB input (purple) of the subwoofer.*

*Connect at the same time the Subwoofer Trigger Output F to the Trigger Input of the subwoofer. 3. Connect the supplied FM antenna to the FM (75 ohm) connection 5. The FM antenna may be an external roof antenna, an inside powered or wire lead antenna or a connection from a cable system. Note that if the antenna or connection uses 300-ohm twin-lead cable, you should use a 300-ohm-to-75-ohm adapter to make the connection. Connecting the TV and optional components NOTE: To be able to listen to the sound of a live TV show through the loudspeakers of your HS system you need a connection between the audio output of your TV and the HS controller: to achieve this when using the supplied SCART cable, you don't need to connect any additional wires  the SCART cable transports audio and video signals in both directions. But when using the HDMI, Component, S-Video or composite jacks you need to connect the audio output of your TV set with the TV AUDIO IN K on the back of your HS controller. If your TV has a digital audio output, it is recommended to use that one over the analog audio output. Connect the digital output of your TV to the DIGITAL IN 89 on the back of your HS Controller. HDMI Connection If your TV set is equipped with an HDMI input, we suggest you use the HDMI connection to connect your HS system and your TV.*

*It will allow you to watch your DVD's in the best possible picture quality. Most LCD, Plasma and video projectors have such an HDMI input nowadays. Connect the HDMI Output H to the HDMI Input of your video device. The HDMI wire does not transport audio signals from the TV to the HS, thus you need an additional audio connection (see note above). TV Connection (method 1)  using SCART cable (included) To view the video from DVD discs on your TV set, connect the SCART TV Out jack 3 of the HS system to the SCART In jack of your TV set.*

*The audio connection runs through the same cable (see note above). AUDIO OUT TV SET TV Connection (method 2)  using S-Video cable (not included) If your TV set has an S-Video input jack you can connect your TV to the S-Video out jack 1 on the back of the HS controller. S-Video wires don't transport audio signals, thus you need an additional audio connection (see note above). S-VIDEO IN DIGITAL OUT AUDIO OUT TV SET TV connection (method 3)  using composite video (cable not included) If your TV set has neither S-Video nor SCART input jacks, connect the Video Out jack 0 of the HS to the Video In jack of your TV set. The composite wire also doesn't transport audio signals, thus you need to make additional connections (see earlier note).*

*Component Video Connection (method 4) If the video display has component video inputs, connect the Component Video Outputs 2 on the HS 150 to the corresponding input jacks on your television. If you are using a progressive scan television or projector, you must also change the Scan Type in the DVD player's Video Set-Up Menu from "Interlaced" to "Progressive". AUDIO OUT HDMI IN DIGITAL OUT If your TV set does not have an HDMI Input, please follow one of the steps below to connect it to your HS system or other video components. COMPONENTS IN 14 INSTALLATION AND CONNECTIONS Installation and Connections Connecting VCR and Sat Decoder (method 5 and 6) Diagrams 5 and 6 show possible connection methods for common system configurations. These are intended as guidelines only. Due to differences in equipment specifications, the method of connection of your equipment may be different to that shown. Please consult the Owner's Manual of your equipment for further guidance. Aux Output for Recording To record the sound of the HS system with your VCR or any audio recording device (tape deck, MD, CDR and some others.) the Audio Out jacks A should be connected to the analog Record In jacks of the appropriate device. They can also be connected to any audio input on your TV to listen to the sound of your HS controller through the speakers of your TV only, when the amp in your subwoofer is turned off and the volume of the HS controller has been turned down completely.*

*If the speakers of your HS system are active, the volume on your TV should be turned down. Digital In- and Outputs Connect the digital output of any digital sources such as an optional CD or DVD changer or player, advanced video game, a digital satellite receiver, HDTV tuner or digital cable set-top box or the output of a compatible computer sound card to the Optical and Coaxial Digital Inputs 89. Connect the Coaxial Digital Output E on the rear panel of the HS to the matching digital input connections on a CD-R or MiniDisc recorder. ENGLISH Left Front Speaker Right Front Speaker A) Front Channel Speaker Installation with Direct-View TV Sets or Rear-Screen Projectors. TV or Projection Screen AUDIO OUT AUDIO OUT TV SET VCR SATELLITE DECODER Left Front Speaker Right Front Speaker Connecting Set-top Box or Digital Satellite Receiver (method 7) - using coaxial digital cable To listen to the digital multichannel signal or downmix from Set-top boxes or digital satellite receivers, connect the Coaxial Digital Out of your device to the Coaxial Digital In 8 on the HS controller. Notes when connecting the optical digital audio cable (optional) I Gently push the cable plug through the builtin shutter that covers the optical digital audio output and connect the cable firmly so that the configurations of both the cable and the connector match. Speaker Placement The placement of speakers in a 2.1 audio/home theater system can have a noticeable impact on the quality of sound reproduced. Position the left-front and right-front speakers so that they are as far away from one another as from the preferred listening position. If possible, adjust all front loudspeakers so that they are aimed at ear height when you are seated in the listening position.*

*This will give you the best result for enjoying Dolby Virtual Surround by using only front left and right speakers. Using these guidelines, you'll find that it takes some experimentation to find the correct location for the front speakers in your particular installation. Don't be afraid to move things around until the system sounds correct. Optimize your speakers so that audio transitions across the front of the room sound smooth. B) The distance between the left and right speakers should be equal to the distance from the seating position to the viewing screen.*

*DIGITAL OUT Optional Audio Connections Aux Input for External Source You may connect a line-level stereo analog audio source such as a Sat receiver, tape deck, phono preamp of a record player, etc. to the controller's rear panel AUDIO IN Input 6 sockets to enjoy the benefits of your HS system with other source components. · VCR Connection-Audio (Cables Not Included). To listen to the sound from your stereo VCR through the speakers of this system, connect the Left/Right audio output jacks of your stereo VCR to the Left/Right audio input jacks AUDIO IN 6 of this system.*

Subwoofers produce largely nondirectional sound, so they may be placed almost anywhere in a room. Actual placement should be based on room size. One method of finding the optimal location for a subwoofer is to begin by placing it in the front of the room, about 15cm from a wall, or near the front corner of the room. Another method is to temporarily place the subwoofer in the spot where you will normally sit, and then walk around the room until you find a spot where the subwoofer sounds best. Place the subwoofer in that spot. INSTALLATION AND CONNECTIONS 15 Installation and Connections Connecting the AC Power Notes · The Power Requirement is: AC 230V, 50 Hz. · Connecting to power other than the one listed above may damage the system or cause abnormal operation. · Before connecting the AC power cord of this system to a wall outlet, connect the speakers and other component cables to the system. · Connect the AC power cord of the active subwoofer. · Connect the AC power cords of your TV and any optional components to a wall outlet. Once the speakers have been placed in the room and connected, the remaining steps are to program the system configuration memories.

Basic Play Preparation 1. Switch the TV ON and select its video input connected to the HS Controller. 2. When you switch on the HS system controller, a Harman Kardon HS welcome image should appear on the screen. If that screen appears distorted or without color, change the appropriate settings at the Video Setting Submenu according to your TV set and to the connection used between the HS Controller and your TV. 3. If there is no picture at all, not even the Harman Kardon screen, check the setting of the video input used on your TV (most SCART inputs on TVs can be configured in the TV´s menu). If this doesn't work, connect your TV with different cables to the HS Controller, e.g. via Composite (yellow jacks) or S-Video cables, rather than SCART to view the setup menus until all appropriate "Video menu" settings are made properly.
4. Insert a disc into the Slot Loader 6. Hold the disc without touching either of its surfaces, position it with the side you wish to play facing down, align it with the guides, and place it in its proper position. · 3" (8 cm) discs or 5" (12 cm) discs can be used. 5.
After the discs slides into the loader, it will start playing automatically. · With most DVD's, a Disc Menu appears on the screen. Select specific menu item by using ARROW 9 buttons on the remote, then press ENTER 6. Disc Playback Features Skipping tracks or titles/chapters To move forward or backward through the tracks on a CD or the titles or chapters on a DVD, press Previous/Next EF. Fast Motion Playback/Fast Search 1.
To move forward or backward through the DVD or CD disc being played at fast speed, press Search HJ on the remote. Once one of these buttons is pressed, the fast search will continue until Play is pressed. There are four fast-play speeds. Each press of the Search Buttons will cycle to the next speed in the following order: 2x, 4x, 16x, 100x, indicated by a number of arrow indicators on the right top of the screen. 2. Press PLAY G at any time to resume normal playback. Note that there will be no audio playback during fast-forward or -reverse play of DVD discs. This is normal for DVD, as surround processors cannot process the digital audio streams during fast-play modes; audio will be heard during fast-play of conventional CD's. Freeze Frame and Frame Advance (with DVD only) 1. Press PAUSE C when a DVD is playing to freeze the picture.

2. Each time you press one of the STEP (FWD or REV EF) buttons, the picture advances one frame in the selected direction. 3. Press PLAY G to resume normal playback. First Turn On You are now ready to power up the HS 150 Controller to begin final adjustments. 1. Plug the Power Cable 4 into an unswitched AC outlet. Note that the Power Indicator 1 will turn orange, indicating that the unit is in the Standby mode. 2. Remove the protective plastic film from the main front-panel lens.
If left in place, the film may affect the performance of your remote control. 3. Install the three supplied AAA batteries in the remote as shown. Be certain to follow the (+) and () polarity indicators that are on the top of the battery compartment. 4.
Turn the HS 150 on either by pressing the Power On/Off 1 or the Input Source Selectors 0 on the remote control. The Power Indicator 1 will turn blue to confirm that the unit is on, and the Main Information Display 0 will also light up. 16 INSTALLATION AND CONNECTIONS Installation and Connections Slow Motion Playback (with DVD only) 1. When a DVD disc is in pause or freeze frame mode, you may move slowly forward or backward through the program being played at one of four speeds by pressing the SEARCH Buttons HJ on the remote. Each press of the buttons will move to the next speed, indicated by a number of arrow indicators on the right top of the screen.
2. Press PLAY G to resume normal playback. Note that there will be no audio playback during slow-forward or -reverse play of DVD discs. This is normal for DVD, as surround processors cannot process the digital audio streams during slow modes. Slow play is not available for CD. Notes: Playback features may not be available during the opening credits of a movie. This is intended by the disc author and is not a failure of the HS Controller. Playback of a DVD with 96 kHz/24-bit audio requires the use of circuitry normally used for other features. Accordingly, Slow Play Reverse and Step Advance features are not available with these discs. Depending on the structure of a VCD disc, the functions Slow Reverse and Step Reverse may be prohibited or have no function and Fast Playback (Search) may not function.

Fast Playback (Search) will not function with CD's containing MP3 data. About DivX Movie Files The DivX disc compatibility of this DVD player is limited by the following: · the available resolution size of the DivX file should be below 720x576 (W x H) pixels. · the total number of files and folders on the disc should be less than 999. · the number of screen frames per second should be below 29.97 frames per second. · the video and audio structure of recorded file should be interleaved. The player is capable of playing DivX files with the extensions ".avi". The player is capable of playing subtitle files with the extensions ".smi", ".
srt", ".sub (Micro DVD format only)" or "ssa". Other subtitle files won't be displayed. Subtitle files need to carry the same name as the movie file (but with either one of the above extensions) and should be located in the same directory. Playing a DivX Movie Disc Before playing DivX movie discs, please note the following: · multi session DVD containing Windows Media Audio files may not be supported.
· open session discs are not supported. · the DVD player does not support PC data.

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· this DVD player does not support an unfinalized disc with a closed session. 1. Insert a disc into the Slot Loader 6. 2. Press the OSD button of the remote control and select a folder by pressing the up/down cursor buttons and press ENTER. A list of files in the folder appears. If you are in a file list and want to return to the Folder list, use the up/down buttons on the remote to highlight and press ENTER. 3. If you want to view a particular file, press the up/down buttons to highlight a file and press PLAY. When playing back a DivX movie you can use variable playback functions like fast and slow backward and forward, as well as step forward and step backward. 4. Press STOP to stop the playback. The DVD player's playback functionalities of DivX video discs will vary depending on the DivX version used for creating your movies.

Surround Mode One of the most important features of the HS 150 Controller is its ability to reproduce a full multichannel surround sound field from digital sources, analog matrix surround encoded programs and standard stereo programs by using only a pair of stereo loudspeakers and a subwoofer. Selection of a surround mode is based on personal taste, as well as the type of program source material being used. For example, motion pictures or TV programs bearing the logo of one of the major surround encoding processes, such as Dolby Surround should be played in the Dolby Virtual Speaker mode. CD's and other stereo sources should be played in Stereo, without the virtual surround processing. Surround modes and audio formats are selected using the remote. Press the AUDIO button 5 to toggle between the surround modes/audio formats available on the DVD disc. As you press the button, the Surround mode/audio format name will appear on your video display. When a digital source is present, the HS Controller will automatically select and switch to the correct mode (Dolby Virtual Speaker), regardless of the mode that has been previously selected. To listen to a DVD-program in traditional two channel stereo, using the front left and front right speakers only (plus the subwoofer if installed and configured), follow the instructions shown in the chapter DVD Sound Mode, in the Audio Settings Menu. INSTALLATION AND CONNECTIONS 17 ENGLISH System Setup System Defaults The final step of the installation is to establish the system's defaults.

It is helpful to take a few minutes to familiarize yourself with these settings, as they may require change before the first use and later from time to time. General Functionality of the OSD Menu The complete setup and control of the HS 150 takes place in an advanced user-guided On Screen Display (OSD) menu system. The OSD can be activated by pressing the OSD button 8 on the remote control. Pressing this button again de-activates the OSD. The main menu consists of a PLAYER Menu, RADIO Menu, TV Menu, AUX Menu, DIGITAL Menu, USB Menu and a SET-UP Menu.

The PLAYER Menu will show all information and options available for the disc currently playing. The RADIO Menu will show radio and RDS options. The TV, AUX and DIGITAL Menus show the surround options for these specific audio inputs. The USB Menu will show all information and options available when USB thumb devices or portable hard disks are connected. The SET-UP Menu will help you configure all audio and video settings which are normally only made once.

Depending on how your HS system is connected to your TV set, two different On Screen Displays are available. When the HS is connected via any of the standard definition connections (SCART, S-Video, Composite Video or standard Component Video) the OSD will be icon-based. When the HS is connected via any of the highdefinition connections (HDMI or high definition Component Video), the OSD will be text based. In the next chapters we will show both the standard definition version and the high definition version to make the initial setup as easy as possible. Many Menu's contain Submenus or text lines. These submenus are shown as icons on the left side of the menu, depending on whether you are watching the standard definition OSD or highdefinition OSD. They can be highlighted by a white square around the icon or text by moving the cursor with the ARROW 9 buttons. Icons or text can be activated by pressing ENTER 6 when they are highlighted. When ENTER 6 has been pressed, the color of the icon or the circle behind the text will change to dark blue and you will see that the current settings of this submenu will appear on the right side of the menu. Although some Menus have various Submenus and Settings, they are all navigated in the same way.

All submenus, settings and options can be accessed with the help of the ARROW (KLNM 9) and ENTER 6 buttons on the remote control. To change a setting, simply move the cursor to the setting you wish to change. This setting will be highlighted in a white square, and a brief explanation will appear in the Upper Menu Line on the bottom of your screen, together with the 18 SYSTEM SETUP available options for this setting on the Lower Menu Line. Once the setting is highlighted, pressing ENTER will show an M and N icon next to the current setting to indicate that the setting can be changed by pressing the left or right ARROW Button 9. Press the ARROW Buttons 9 until the requested setting is shown, and confirm this setting by pressing ENTER 6. Note that when you cycle though the options for this setting, the cursor cycles though the options on the Lower Menu Line, and the rest of the Display fades out. To access the SET-UP Menu, press the OSD button 8, and move the cursor to the right until SET-UP is highlighted. Press ENTER 6 to activate the SYSTEM Settings: System Settings (A) (B) (C) (E) (A) (D) (B) (C) The System Setting Submenu contains the following settings. Follow the explanations in the Upper Menu Line on the bottom of your screen to change the settings. Display Language: Sets the language in which the OSD menus are shown on your screen.

(A) Main Menu Line (B) Submenus (C) Current Settings (D) Upper Menu Line with Brief Explanation (E) Lower Menu Line with Possible Options Set Up Menu The first step in checking or changing the system defaults is to access the Setup Menu. First, make certain that the HS Controller is properly connected to a video display, and that power is connected. For this process, however, you do not need to load a disc into the unit. During STOP, PAUSE or PLAY mode, if you press OSD on the remote, the Main Menu appears on the screen. This Main Menu and all menus in the following section may look different, listing the settings with different languages, depending on the settings made previously.

With the factory default setting all languages are set to "English", that´s why with all menus the English version is shown in the manual. @@@@@@You can also set the preferred subtitle language to OFF. In that case no subtitles will be shown. @@After the selected time, the display will dim completely.

@@@@The default password is 8888.
@@@@@@@@@Level 1: DVDs for children can be played; DVDs for adults/general audiences are prohibited. Follow the explanations on the screen to set a new password. @@The memory can contain information of the last 100 discs played. PBC Support: Activates PBC (Play Back Control) Support for VCD discs. @@@@@@@@@@@@@@@@@@@@Feel free to experiment with the settings at any time. Tone Control: Activates or De-activates the Bass and Treble settings. @@Bass Level: Sets the level of low frequencies. Treble Level: Sets the level of high frequencies. @@@@@@@@@@@@The default settings of the DVD player is 0 dB for all channels. @@@@@@@@@@Follow the explanations in the Upper Menu Line on the bottom of your screen to change the settings.

Preferred Audio Language: Defines your preferred audio language. Every time a disc is played that contains this audio language, it will be activated automatically. SYSTEM SETUP 19 ENGLISH System Setup Video Settings Video Mode: This setting affects only the Component Video Outputs, and it controls how the video signals are optimized for progressive scan display. In most cases, the "automatic" mode is your best choice, as it senses whether the disc being played was originally recorded on video or shot on film. However, in some cases you may wish to compensate for errors in the disc authoring that occur when the frame rate is not properly maintained when films are converted to video. Three choices are available: · Auto: This is the recommended setting, as it lets the HS System analyze the signals from the DVD and adjust the output accordingly. · Movie: Choose this option for optimal playback of material that was shot on film, even though you are viewing it on video via a DVD. · Video: Choose this option for optimal playback of material that was shot directly to video, such as concerts and sports programming. The Video Setting Submenu contains the following settings. Follow the explanations in the Upper Menu Line on the bottom of your screen to change the settings.

Aspect Ratio: This step selects the TV aspect ratio, conventional screen shape (4:3) or widescreen (16:9), according to your TV. If you have a conventional 4:3 TV that can (automatically) switch to show a 16:9 format, you should select 16:9 rather than 4:3. TV Standard: Sets the output video format i.e. NTSC or PAL, of the HS Controller.

If you have a multi standard TV, we recommend the AUTO setting for optimal picture quality. Scan Type: Sets the component video output to Interlace or Progressive. Before changing the setting to Progressive, make sure that your video display connected to the component output is capable of handling progressive scan signals. As soon as you select progressive scan the scan type, the Video Output will automatically change to Component. All other outputs, composite video on cinch, SCART and S-Video, will be kept Interlaced.

The interlaced composite and S-Video outputs remain active for connection to a second (interlaced) video display. Video Output: Sets the video output type to Scart or Component. Scart will be used for most TV's. Component will be used for most LCD, Plasma and projectors. Scart Output: Selects which kind of video output signals will be routed over the scart. RGB will be used for most TV's as it provides the best picture quality. Video Resolution: Selects the resolution of the video output. When the HS system is connected to either one of the Composite, S-Video or SCART connectors, this setting should be left in Standard. When you connect your HS system via a digital HDMI or Component Video connection, the preferred setting is either 720p (progressive scan with 720 lines) or 1080i (interlaced with 1080 lines). @@@@@@@@The Video Adjustment Submenu contains access to the Test Screen.

@@@@@@@@@@@@For more information, visit www.divx.com/vod. @@Note that all the downloaded videos from DivX VOD can only be played back on this unit. Once the DivX icon is highlighted, press ENTER to access your personal DivX VOD code. 20 SYSTEM SETUP Test Screen Test Screen When you activate the Test Screen via the OSD you can activate a still image to test all settings and the video performance of your TV. With the vertical color bars you can test the following: I proper color intensity setting on your TV, I the proper color of each bar, showing if the proper video standard is turned on: the colors should be (left to right): black, white, yellow, cyan (turquoise), green, magenta (purple), red, blue, black. I proper color transition, seen as sharp separation of the bars, S-Video will be better than Video, RGB best of all. I the performance of the color filter in your TV (with "Video" signals), bar edges should show no vertical crawling dots. Here S-Video and RGB formats usually give no problems.

With the grey scale and the black/white fields below the color bars the brightness and contrast of your screen can be adjusted optimally, see chapter "TV Picture Adjustment" below. 2. If the brightness of the white bar will no more increase while turning up the contrast or when the borders of the white "harman/kardon" text letters on top will bloom (overlight) into the black areas, what drastically will decrease the sharpness of the script, then the Contrast has been turned up too much. Reduce the contrast until these effects will disappear and the video still looks realistic. 3.

If you are watching TV with a usual surrounding daylight, adjust the Contrast so that a normal video picture has about the same looking as the surroundings in your room. By that way the eye is relazed when watching the TV picture. This contrast setting may be reduced when the surrounding light is dimmed, usually improving the sharpness of a video a lot thereby. 4. The grey scale in the middle line needs to have the same clear difference between each bar as before the contrast adjustment.

If not, go back to the brightness adjustment and repeat step 3 and then the contrast adjustments, making only minor adjustments each time for optimisation. Color adjustment. 1. When the Brightness and the Contrast are set optimally, turn up the color control to the level of your perference. Adjust to the level where the colors look strong but still natural, not overdone. If the color level is too high, depending from the TV used some of the bars will seem wider or the color intensity will not increase while the control is turned up. Then the color control must be reduced again. At the end you should test the color intensity also with a video, e.g. pictures of natural faces, flowers, fruit and vegetables and other well known natural articles of our life most usefull for an optimal setting of the color intensity.

2. If your TV has a Tint option (with most European TVs this is available or effective only with NTSC signals, not with PAL), use the large white bar below the Greyscale to tweak the warmth of the picture. Every viewer has a difference in preference as how the glow of the picture should be.