

HK 990 Integrated Amplifier

OWNER'S MANUAL

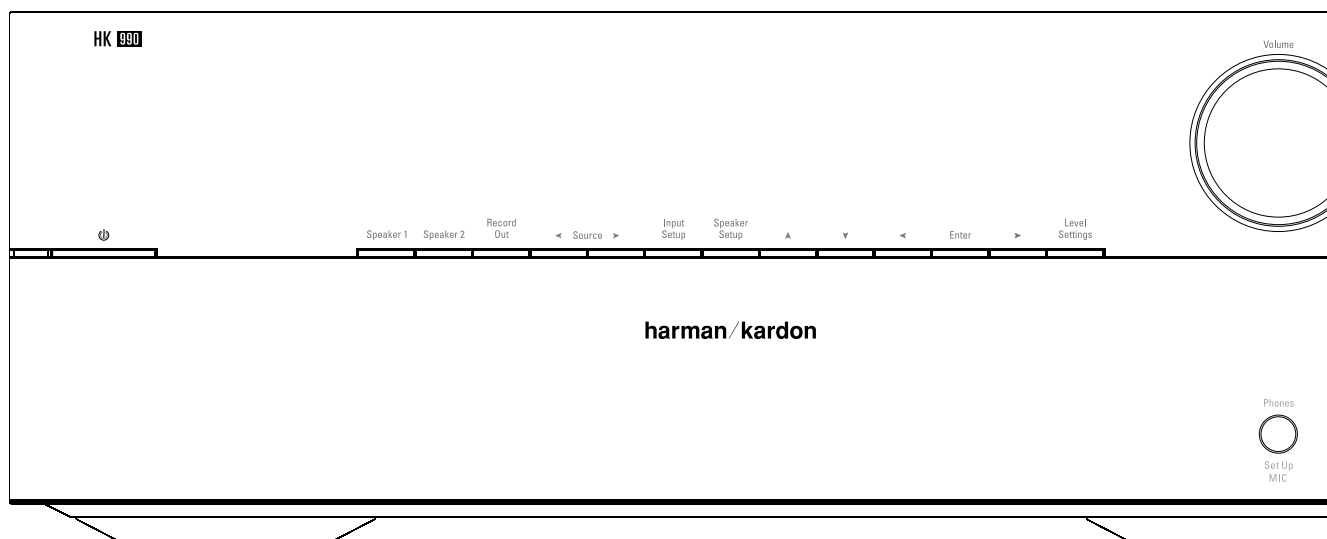


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DECLARATION OF CONFORMITY




We, Harman Consumer Group International
2, route de Tours
F-72500 Château-du-Loir
France

declare in own responsibility, that the
product described in this owners manual is
in compliance with technical standards:

EN 55013:2001 + A1:2003
EN 55020:2002 + A1:2003
EN 61000-3-2:2000
EN 61000-3-3:1995 + A1:2001
EN 60065:2002

Jurjen Amsterdam
Harman Consumer Group International
09/08

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 a 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. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
10. Only use attachments/accessories specified by the manufacturer.
11. 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. 
12. Unplug this apparatus during lightning storms or when unused for long periods of time.

13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as 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.

14. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.

15. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

16. The mains plug of the power supply cord shall remain readily operable.

17. Do not expose batteries to excessive heat such as sunshine, fire or the like.

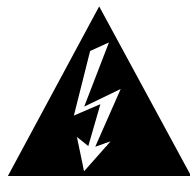


The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

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



CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Introduction

Congratulations on your choice of the Harman Kardon HK 990 Integrated Amplifier.

In order to obtain the best performance from this integrated amplifier, please be sure to read this owner's manual and use your integrated amplifier only in accordance with its instructions.

The special features, of this unit include:

In terms of raw power, the HK 990 is the most muscular amplifier ever to carry the harman/kardon® name, more than capable of driving the most demanding loudspeaker loads without breaking a sweat. But the HK 990's awesome power is nothing if not highly refined, extending beyond watts and amps. With a choice of discrete optical or coaxial inputs or an analog-only signal path, as well as fourth-generation Real-Time Linear Smoothing (RLS IV), 2.2-channel EzSet/EQ room optimization, dual subwoofer outputs and an audiophile-quality phono preamp section, the HK 990 offers a combination of features you will find irresistible. Others, of course, may simply hunger for all that power. We understand completely.

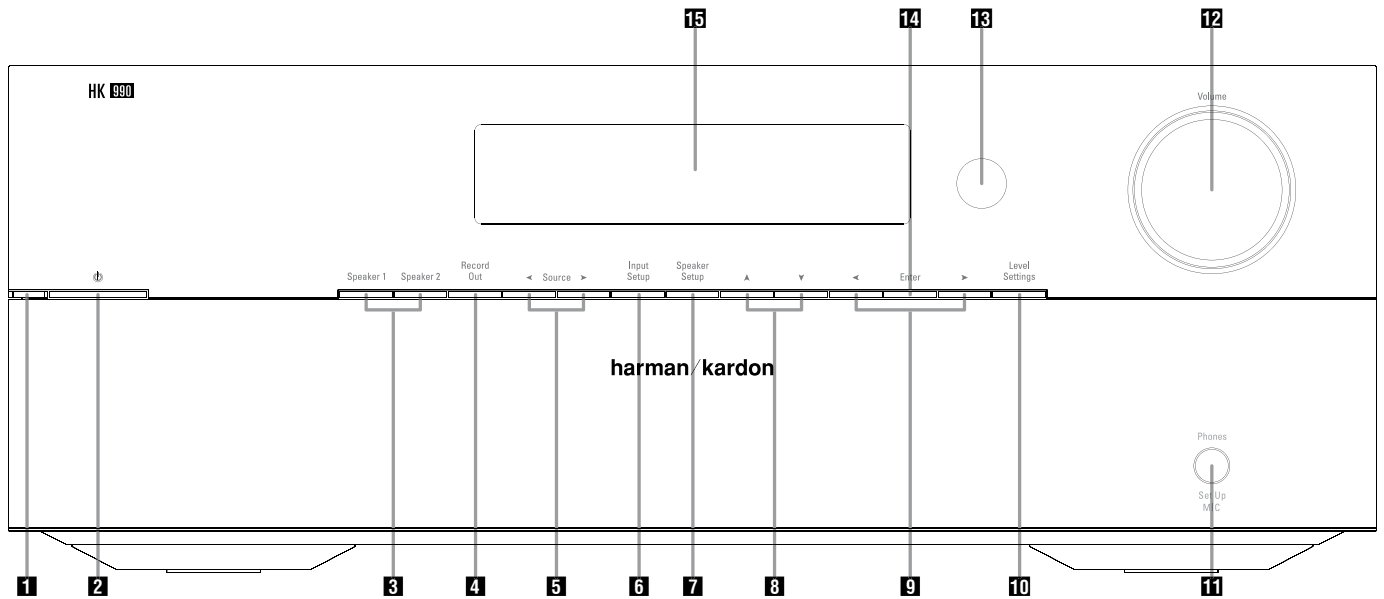
- High Current Capability provides the instantaneous current necessary to precisely drive and control nearly any loudspeaker system
- Ultrawide-bandwidth amplifier design for improved transient accuracy and phase linearity
- Low negative feedback for further improved dynamic accuracy
- Use of discrete electronic circuitry to provide the highest performance level
- Dual-path technology allows for pure analog or pure digital audio processing within the same product
- EzSet/EQ room optimization for quick and accurate system setup, optimized for two channels and two subwoofers
- Symmetric (balanced) XLR analog inputs offer lower noise levels and higher Signal-to-Noise performance
- RLS IV digital-to-analog conversion technology, with dual conversion using two stereo AD1955 high-grade DACs in Dual Mono configuration
- The HRS link allows Harman Kardon CD players to lock themselves to the external clock of the amplifier for a jitter-free connection, similar to having the CD playback inside the amplifier
- Dual differential input stages with their own high-voltage supply, resulting in high gain and low noise as well as high channel separation
- Cascoded predriver stage considerably reduces high-frequency distortion, allowing crystalclear high frequencies, free from any harsh sound
- Thermal Tracking Mechanism using ThermalTrak™ output stage transistors that include internal temperature sensors to bias the current of the output stage in real time
- Sophisticated electronic protection circuitry guards the amplifier from short-circuit or from damaged speakers and wires, without impairing sound quality, by using current limiting or output relays
- DC servo to ensure that the DC level of the amplifier output will stay within a contained limit at any condition
- Multiple protection circuits will switch the amplifier off in case overcurrent, overvoltage, overtemperature or DC protection is detected
- Dual toroidal transformers and up to 15.000µF of supply filtering per channel for high channel separation and tight bass control, even with low-impedance loads

- Dual-line dot-matrix display
- Record out available in both digital and analog domains (two analog outputs and one coaxial digital output)
- A/B speaker switching
- IR remote extension jacks for control of the amplifier when placed in a cabinet
- Harman Kardon system remote for control of compatible Harman Kardon CD players and tuners

Accessory list

- Owners Manual
- Remote Control + 4 AAA batteries
- EzSet Microphone
- Power cord

Controls and Functions



1 Power Indicator: This LED will illuminate in amber when the unit is in the Standby mode to signal that the unit is ready to be turned on. When the unit is in operation, the indicator will turn white.

2 System Power Control: Press this button to turn on the HK 990; press it again to turn the unit off (to Standby). Entering Standby also saves all Setup parameters.

3 Speaker 1/2 Selectors: Press to select speaker pair 1 or 2, or both, or neither (headphone output only).

4 Record Out Selector: First press shows the record source presently selected in the display. Pressing on the the Source selectors **5** within a few seconds after pressing **4** changes the record source. Exit this function by pressing **4** again, or wait for a few seconds until exit takes place automatically.

5 Input Source Selector: Select input source for listening by pressing one of the "Source" buttons repeatedly to scroll through all the Inputs either forwards or backwards, until the display shows the desired source.

6 Input Setup Button: Press this Button to enter/exit the Input Setup Mode. Here you can select the physical connection for each source (Analog/Digital etc.) as well as Gain, Bass/Treble etc. Refer to the Setup section of this manual.

7 Speaker Setup Selector: Press this Button to enter the Speaker Setup Menu, where you can switch subwoofers on and off, select crossover frequency, run automatic speaker setup (EzSet/EQ) etc. Refer to the Setup section of this manual.

8 Up/Down Arrow Buttons: Press to scroll through various options for adjustment in a menu.

9 Left/Right Arrow Buttons: Press to increase/decrease a parameter or to select between parameters after selecting a menu for adjustment with the Up/Down Arrow Buttons.

10 Level Settings Button: Press to enter/exit the Balance left/right adjustment for the speakers as well as subwoofer level.

11 Headphone Jack/Setup Microphone Input: Plug in headphones if desired. With both "Speaker 1" and "2" selectors in the Off position, output is supplied only to headphones. When using the automatic loudspeaker setup and calibration system (EzSet/EQ), plug the microphone in here.

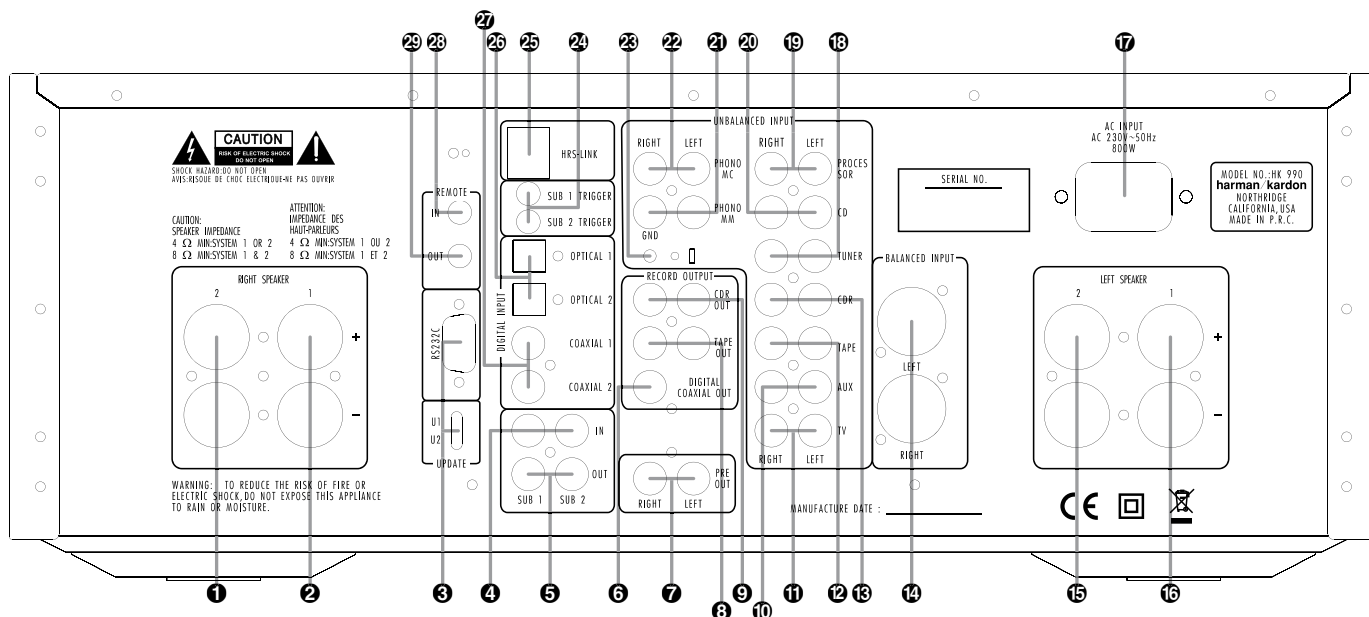
12 Volume Control: Turn to raise or lower output volume.

13 Remote Sensor Window: The sensor behind this window receives infrared signals from the remote control. Aim the remote at this area and do not block or cover it unless an external remote sensor is installed.

14 Enter Button: Press to select a parameter for adjustment and to confirm.

15 Main Information Display: This display delivers messages and status indications to help you operate the amplifier.

Connections



- 1 Right Loudspeaker output, System 2.
- 2 Right Loudspeaker output, System 1.
- 3 RS-232 connector for possible future PC update. Update Switch.
- 4 Input jacks for one or two subwoofer signals from external surround processor.
- 5 Output jacks for two subwoofers.
- 6 Digital coaxial output jack for digital recording. Also permits digital recording of analog sources.
- 7 Preamp output jacks.
- 8 Analog output jacks for tape recording.
- 9 Analog output jacks for CD Recorder analog recording.
- 10 AUX input jacks, suitable for analog signals from video games, video recorders etc.
- 11 TV input jacks for analog sound input from your TV.
- 12 TAPE input jacks for analog tape replay.
- 13 CDR input jacks, for CD Recorder analog replay.
- 14 Balanced analog inputs (XLR), for use with all signal sources that output balanced signals. Available via the CD Input function only, as an alternative to the unbalanced RCA jacks (Input 20). Pin configuration for the XLR Inputs: Pin 1 is Ground, Pin 2 is Plus/Hot, Pin 3 is Minus/Cold.
- 15 Left Loudspeaker output, System 2.
- 16 Left Loudspeaker output, System 1.
- 17 Power lead AC input.
- 18 TUNER analog Input jacks.
- 19 PROCESSOR Analog Inputs. These Inputs go directly to the power amplifier section of the HK 990, bypassing the Volume and Tone Control. Here you can connect the Front Channel Pre Out L+R signals from an external surround processor, to benefit from the superior power of the HK 990 and control volume from the processor. **NOTE:** Only use the Processor Input with a device that has its own volume control!
- 20 CD analog Input jacks. You can select either this Input or the Balanced Input as analog Input in the CD Input Setup Mode.
- 21 Phono Input for record player with Moving Magnet (high output and high impedance) or High-Output Moving Coil cartridge.
- 22 Phono Input for record player with Moving Coil (low output and low impedance) cartridge.
- 23 If your record player has a separate Ground wire, attach it here to avoid hum noise.
- 24 Connect the trigger Input (if available) on one or two subwoofers to these trigger ON/OFF output jacks. When you switch ON the HK 990, it sends a trigger signal, which switches ON the subwoofer. When switching OFF the HK 990, the subwoofer also switches OFF.
- 25 HRS (High-Resolution Synchronization) Input. Use the included HRS-cable to connect the HD 990 CD player (or other similarly equipped player) for optimum sound quality.
- 26 Optical Digital Inputs (TOS-Link). Connect any digital device with Optical Digital Output to one of these Inputs. Push the Optical Jack through the hinged door that covers the Input until it clicks into place.
- 27 Coaxial Digital Inputs. Connect any digital device with Coaxial Digital Output to one of these Inputs. Usually, Coaxial Digital transmission is preferred to Optical, given a choice.
- 28 Remote IN. To control your HK 990 with an external infrared remote sensor, connect the wire from the remote sensor here.
- 29 Remote OUT. Connect other Harman Kardon devices (you may also experiment with other brands) that you wish to control with the HK 990 Remote Control to this Output.

Connections

Connecting Other Components

1. Make sure your amplifier and other components are turned off.
2. Connect each component's Output/Play jacks to the corresponding Input jacks on the back of your amplifier and, if available, the component's Input/Record jacks to the Output jacks of the HK 990. Use the white, black or gray plugs to connect Left channel jacks; use the red plugs for Right channel jacks.

Wired Remote Control

To control your amplifier with an external infrared remote sensor, connect the wire from the remote sensor to the REMOTE IN jack on the back panel. Or, if another stereo component has a built-in infrared remote sensor and a Remote Output jack, it may be possible to connect this jack to the REMOTE IN jack of your amplifier. All Harman Kardon products with »Remote In« and »Remote Out« jacks are compatible with one another, except for the Citation 22, 24 and 25.

Other manufacturers' remote sensors and components may not be compatible, but it will not hurt to experiment. A second wire may be used to connect your amplifier's REMOTE OUT jack to the Remote Input of another stereo component. Continue this process to include additional components (if compatible).

Connecting Speakers

1. For best performance, use high quality speaker cables. However, ordinary copper wire can be used if the gauge meets the following requirements:

Wire Length	Min. Diameter
Up to 2.5 meter	1 mm
Up to 4 meter	1.25 mm
Up to 6 meter	1.6 mm
Above 6 meter	2-2.5 mm

2. Avoid rolling excess wire with or near signal interconnects.

IMPORTANT: When connecting two pairs of speakers, determine the impedance of each pair by looking on the back of the speakers, in your owner's manual, or by contacting your dealer or manufacturer.

You can listen to two pairs of speakers at the same time ONLY if the impedance of EACH speaker is NOT LESS THAN 8 Ohms.

WARNING: Do not play sets of speakers simultaneously except as recommended above. Amplifier may overheat.

AC Power

Plug the cord into a 230 VAC wall socket.

Power indicator will light up to indicate power ON. To completely disconnect the power input, the main plug must be disconnected from the mains.

Remote Control

Independent Remote Control

The system remote of the HK 990 can control the amplifier and compatible Tuners, CD Players and CD Recorders. The remote In jack of units without an integrated IR receiver must be connected to the amplifier's remote control output jack so that the system remote control can operate them.

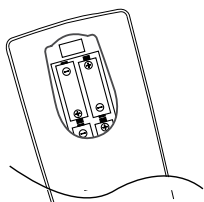
Important Notes:

- To remote control a tuner, CD Recorder or CD Player, the appropriate input ("TUNER", "CDR" or "CD") must have been selected with the source buttons of the remote control (selecting on the front panel is not sufficient).
- Note that DVD players cannot be controlled by the remote.

Operating Conditions

The control unit operates effectively within a distance of 7 meters and an angle of 30° from the amplifier. Using the control near fluorescent lights may shorten this range, as will any dust or dirt that accumulates on the front of the remote control or the remote sensor area of the amplifier. Also avoid blocking the line of sight between amplifier and remote.

Install the four 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.



When you replace weak batteries, replace all at the same time. When the remote is to be unused for an extended period, remove the batteries to prevent damage from corrosion.

Instructions for users on removal and disposal of used batteries.



Specification of included battery types.

These symbols shown on the product, the packaging or in the manual or separate information sheet mean that the product itself, as well as the batteries included or built into the product, should never be thrown away with general household waste. Take them to applicable collection points, where proper treatment, recycling and recovery takes place, in accordance with national or local legislation, or European Directives 2002/96/EC and 2006/66/EC.

Correct handling of the product and batteries to be disposed helps saving resources and prevents possible negative effects on the environment or human health.

The batteries included with your equipment may be Alkaline, Carbon Zink/Manganese or Lithium (button cells) type. All types should be disposed of according to the above instructions.

To remove the batteries from your equipment or remote control, reverse the procedure described for inserting batteries in the Owners Manual.

For products with a built-in battery that lasts for the lifetime of the product, removal may not be possible for the user. In this case, recycling or recovery centers handle the dismantling of the product and the removal of the battery. If, for any reason, it becomes necessary to replace such a battery, this procedure must be performed by authorized service centers.

HK 990 Remote Control functions

(Please refer to the illustration of the Remote Control on the next page).

Device ON/OFF: These two Buttons switch ON and OFF a (Harman Kardon) device selected with the MODE Button or selected by pressing its System On source Button (in both cases, the System ON Device Button lights up).

System OFF: Switches the entire system off. (The HK 990 and other Harman Kardon products that have a Remote Sensor or are connected to the Remote Jacks on the HK 990 back panel).

System ON: This group of 9 Buttons switches the HK 990 ON, as well as the (Harman Kardon) device written on the Button that you press (AMP, CD, TUNER, CD Recorder, TAPE). Also switches the remote's frequencies to control the device indicated on the active Button and selects this device to be Input on the HK 990. Please note that while a number of remote functions are switched to control the device selected, some of the amplifier's main functions always remain active, such as Volume. Please refer to the Remote Control Function List for information on which functions can be remote controlled for each type of device and which buttons always control the HK 990.

MODE: Scrolls through the nine System On Buttons, each Button lighting up in turn. This feature allows you to control the device you select, without changing the Input of the HK 990. Note that a number of Remote Functions are always active for the HK 990 no matter which device you select with the Mode Button. Refer to the Remote Control Function List.

Info/RDS: Selects information for a CD player, such as CD-Text if available on the CD. Selects RDS function for a tuner.

Time: Selects time information for a CD player or a CD recorder.

Display: Switches the display brightness of the HK 990 and other HK units in steps of Full brightness, Reduced brightness and Display Off.

Numeric Buttons (0-9): Used to enter track numbers on CD or CDR units or to enter preset numbers/frequency digits on a Tuner. You may begin play of a CD with the Numeric Buttons by entering the digits of the track directly. Press "5" to initiate play from track 5. Press "1" immediately followed by "4" to initiate play from track 14 and "2" immediately followed by "7" to initiate play from track 27.

Remote Control

Band: Switches between frequency bands on a Tuner.

FM Mode: Switches between Stereo and Mono on a Tuner.

Auto: Switches between Automatic and Manual tuning on a Tuner.

Mem: For memorizing a radio station in the Pre-set Memory of a Tuner.

Clear: Clears the memory of a CD/CDR or clears a preset from Tuner station list.

Check: Press this button to check the order of tracks programmed into a CD player's memory.

Prog: Press this button to begin the process of programming a CD player to play the tracks of a disc in a specific order.

Speaker Setup: Press to enter the HK 990 Speaker Setup functions. See below for explanation of the Speaker Setup process.

Input Setup: Press to enter the HK 990 Input Setup functions. See below for explanation of the Input Setup process.

Arrow Buttons (> < ^ v): This round button is used to navigate within the menus of the HK 990.

EQ Preset: Press to enter the HK 990 Equalizer Preset functions. See below for explanation of the EQ Presets.

Level Settings: Press to enter the HK 990 Level Setting functions. See below for explanation of the Level Setting process.

Enter: Press to confirm a selection within a HK 990 setup procedure or to switch between selections. See under each Setup process for further explanations.

Scroll +/-: When listening to a Tuner, press + to tune to higher frequency stations and – to tune to lower frequency stations. Also see the Owners Manual for your harman/kardon tuner.

Volume +/-: Press to adjust the HK 990 volume up or down.

Select: When listening to a tuner, press this button to alternate between Auto Tune, Manual Tune or Preset Tune.

Pause: When playing a CD, press this button to momentarily pause the disc. Press again to resume play.



Mute: Press this button to momentarily silence the HK 990. "Muted" flashes in the front panel display. Press again to re-activate sound output.

<< and >> (Search Buttons): Press one of these buttons to search fast forward or backward on a CD or Tape. You can hear intermittent sounds from the CD while searching. Normal playback resumes when you release the button.

|<< and >>| (Skip Buttons): Press one of these buttons to move to the next track or to the previous track on a CD or Tape. Repeatedly pressing one of the buttons skips more tracks. On a CD, pressing Skip Forward while playing the last track skips to track 1, and pressing Skip Back while playing track 1 skips to the last track.

Stop: Press this button to stop play of a CD or Tape.

Play: Press this button to start playback of a CD or Tape. If the CD drawer is open, the drawer closes and play begins. Pressing the Play Button again pauses play momentarily, same as the Pause Button.

+10 and -10: When playing a CD, press the +10 Button to skip 10 tracks forward and the -10 Button to skip 10 tracks backward from the track you are playing. More presses again skips 10 more tracks. If there are less than 10 tracks to the end or start of the CD, the last or first track is played.

Folder + and Folder - : When playing a CD with MP3 files, these buttons move to the next or the previous folder with MP3 material.

Repeat: When playing a CD, pressing this button once repeats the current track, shown as "Rep 1" in the CD player's display. Pressing once more repeats the entire CD, shown as "Rep All" in the CD player's display. Third press exits repeat play.

Repeat A-B: When playing a CD, press once to establish a starting point (shown as "Rep A" in the CD player's display) and a second time to establish an end point (shown as Rep A-B in the CD player's display). The music between these two points is repeated as a loop until you press the button a third time, returning to normal play.

Open/Close: Opens the CD drawer when it is closed and closes it when it is open. The drawer may also be closed by pressing Play.

Random: When playing a CD, press this button to play all tracks in random order.

Remote Function List

Button name	HK 990	CD player	TUNER	CDR	Tape	TV, Processor, Phono, AUX
Device ON (Selected device ON)	On	On	On	On	On	-
Device OFF (Selected device OFF)	Off	Off	Off	Off	Off	-
System OFF (All devices OFF)	Off	Off	Off	Off	Off	Off
AMP	Amp select	Amp select	Amp select	Amp select	Amp select	Amp select
Processor	Processor Input Select	Processor Input Select	Processor Input Select	Processor Input Select	Processor Input Select	Processor Input Select
CD	CD Input Select	CD Input Select	CD Input Select	CD Input Select	CD Input Select	CD Input Select
Tuner	Tuner Input Select	Tuner Input Select	Tuner Input Select	Tuner Input Select	Tuner Input Select	Tuner Input Select
Phono	Phono Input Select	Phono Input Select	Phono Input Select	Phono Input Select	Phono Input Select	Phono Input Select
TV	TV Input Select	TV Input Select	TV Input Select	TV Input Select	TV Input Select	TV Input Select
Tape	Tape Input Select	Tape Input Select	Tape Input Select	Tape Input Select	Tape Input Select	Tape Input Select
Aux	Aux Input Select	Aux Input Select	Aux Input Select	Aux Input Select	Aux Input Select	Aux Input Select
CDR	CDR Input Select	CDR Input Select	CDR Input Select	CDR Input Select	CDR Input Select	CDR Input Select
MODE (no remote signal)	Switch between Devices	Switch between Devices	Switch between Devices	Switch between Devices	Switch between Devices	Switch between Devices
Info/RDS	-	Info/RDS	Info/RDS	-	-	-
Time	-	Time	-	Time	-	-
Display	Display	Display	Display	Display	Display	Display
Band	-	-	Band	-	-	-
FM Mode	-	-	FM Mode	-	-	-
Auto	-	-	Auto	-	-	-
0-9	-	Track Select	Preset Select	Track Select	-	-
Mem	-	-	Mem	-	-	-
Clear	-	Clear	Clear	Clear	-	-
Check	-	Check	-	Check	-	-
Prog	-	Prog	-	Prog	-	-
Speaker Setup	Speaker Setup	Speaker Setup	Speaker Setup	Speaker Setup	Speaker Setup	Speaker Setup
Input Setup	Input Setup	Input Setup	Input Setup	Input Setup	Input Setup	Input Setup
> < ^ v	Menu navigation	Menu navigation	Menu navigation	Menu navigation	Menu navigation	Menu navigation
EQ Preset	EQ Preset	EQ Preset	EQ Preset	EQ Preset	EQ Preset	EQ Preset
Enter	Enter	Enter	Enter	Enter	Enter	Enter
Level Settings	Level Settings	Level Settings	Level Settings	Level Settings	Level Settings	Level Settings
Scroll + (repeating button)	-	-	Scroll +	-	-	-
Vol + (repeating button)	Vol +	Vol +	Vol +	Vol +	Vol +	Vol +
Scroll - (repeating button)	-	-	Scroll -	-	-	-
Vol - (repeating button)	Vol -	Vol -	Vol -	Vol -	Vol -	Vol -
Select	-	-	Select	-	-	-
Pause	-	Pause	-	Pause	-	-
Mute	Mute	Mute	Mute	Mute	Mute	Mute
<<(repeating button)	-	Search Back	-	Search Back	Search Back	-
>>(repeating button)	-	Search Fwd	-	Search Fwd	Search Fwd	-
<<(repeating button)	-	Skip Back	-	Skip Back	Skip Back	-
Stop	-	Stop	-	Stop	Stop	-
>	-	Play	-	Play	Play	-
>> (repeating button)	-	Skip Fwd	-	Skip Fwd	Skip Fwd	-
+10 (repeating button)	-	+10	-	-	-	-
Folder + (repeating button)	-	Folder +	-	-	-	-
Repeat	-	Repeat	-	Repeat	-	-
Open / Close	-	Open / Close	-	Open / Close	-	-
-10 (repeating button)	-	-10	-	-	-	-
Folder - (repeating button)	-	Folder -	-	-	-	-
Rep A-B	-	Rep A-B	-	Rep A-B	-	-
Random	-	Random	-	Random	-	-

This Function List shows all functions of the HK 990 and external devices that can be controlled by the HK 990 remote.

Setup Instructions

When first powered on, here are the factory settings of the HK 990 stereo integrated amplifier:

- Source listen: CD
- Source record: CD
- Processor input: analog unbalanced
- CD input: analog unbalanced
- Tuner input: analog unbalanced
- Aux input: analog unbalanced
- CDR input: digital coaxial 1
- Tape input: analog unbalanced
- TV input: digital coaxial 2
- Phono (turntable) input: analog MM (moving magnet)

HK 990 – Setup

Speaker 1 & 2 (Front panel only)

When pressing the buttons Speaker 1 or Speaker 2, you will first see the current status setting, then pressing one more time within 5s on Speaker 1 and/or Speaker 2 will change the settings ON or OFF. Up to two speaker pairs can be connected and amplified at the same time. NOTE the minimum load warning above.

Source < and > (Front panel only)

The Source Buttons can be used in 2 ways:

- Directly, giving access to the Playback Source, switched with immediate effect.
- After having entered the Record Out mode to select the Source to be routed to the Record path.

Record Out (Front panel only)

When pressing the Record Out Button, you will have access to the selection of the Source you would like to get directed to the Record Outputs. Scroll through the list of record sources with the < and > Buttons: CD, TUNER, AUX, CD-R, TAPE, TV and PHONO until the desired source appears in the display.

Whether the source is Analog or Digital, the HK 990 will deliver the Record signal in both domains simultaneously through both the Analog (CD-R and Tape) and the Digital (Coaxial) Outputs. This means that any Analog Input can be recorded digitally without addition of an external Analog/Digital converter.

Input Setup (Front panel and remote control)

Each Input of the HK 990 can be configured to match the system and your personal taste. In the following you can read a description of the Input Setup settings in detail, followed by the options available for each Input. Pressing the Input Setup Button on the Front panel or the remote control enters and exits the Input Setup menu.

Note that the selection and navigation through the setup menus is made using the Arrow Buttons Up, Down, Left and Right and the ENTER Button.

Input Type

Each Input can be configured to the following connections on the rear panel:

CD	<ul style="list-style-type: none">• Unbalanced Analog• Balanced Analog• Coaxial 1• Coaxial 2• Optical 1• Optical 2• HRS-Link
TUNER	<ul style="list-style-type: none">• Unbalanced Analog• Coaxial 1• Coaxial 2• Optical 1• Optical 2
PHONO	<ul style="list-style-type: none">• Moving Magnet Analog• Moving Coil Analog
TV	<ul style="list-style-type: none">• Unbalanced Analog• Coaxial 1• Coaxial 2• Optical 1• Optical 2
AUX	<ul style="list-style-type: none">• Unbalanced Analog• Coaxial 1• Coaxial 2• Optical 1• Optical 2
CDR	<ul style="list-style-type: none">• Unbalanced Analog• Coaxial 1• Coaxial 2• Optical 1• Optical 2
TAPE	<ul style="list-style-type: none">• Unbalanced Analog• Coaxial 1• Coaxial 2• Optical 1• Optical 2
PROCESSOR	<ul style="list-style-type: none">• Unbalanced Analog

The physical rear panel connection that you have associated with each Input in the Input Setup Procedure also determines the recording signal source when you select that device in the Record Out menu.

Audio mode

The HK 990 can handle Analog as well as Digital signals. It can process any Input in the Digital Domain to equalize the signal and tailor the sound to the loudspeakers and room acoustics, once either the EzSet/EQ or the Manual Bass Management has been set up (see below).

You choose the method and the processing according to your preference within the Input Setup menu.

The five Audio Modes are as follows:

1. **Direct Path:** Selection of the Direct Path is an Analog-Input only option. It bypasses all digital processing (ADC, DSP and DAC) to reduce the signal path to an absolute minimum, consisting of volume control only. Being an Analog-only option, if you select an Input to be associated with a Digital source, the Direct Path setting is not available.
2. **DSP Path:** Selecting the DSP Path opens access to the Tone Control circuits. In this mode, the Analog signals are routed to the A/D Converter, the Digital Sound Processor and D/A Converter path prior to Volume adjustment.
3. **EQ1 LF (Low Frequency correction):** This Mode should be selected once the EzSet/EQ Setup has been carried out (see below). If selected before the EzSet/EQ Setup, it will simply provide the same result as the DSP Path, being a flat response with access to the Tone Controls. The EQ1 LF Mode is the first Preset available after the EzSet/EQ Calibration has been carried out. This Preset processes the subwoofer channels only, correcting the acoustics of the room in the low frequency range while keeping the response curve of the main speakers unchanged.