



Consumers today have more choices than ever before for their Home Entertainment needs. As sources and technologies advance to offer higher performance, A/V components must also advance to deliver the benefits of these higher technologies to the consumer. Keeping up with these advances, Kenwood has completely re-designed our top components for the digital era.

KENWOOD'S 4000 SERIES

With Kenwood's exclusive All Channels Driven™, power is rated with all speakers driven at the same time. This insures that your amplifier is powerful enough to handle the load sent to five channels, not just two.

Universal Video™ makes connecting video through the receiver easy. Simply plug-in and play — no having to match video connection formats.

Kenwood's Ultrasonic Response™ Amplifier has an upper frequency response of 100 kHz, and will handle the software demands of today and tomorrow. This cutting edge technology passes all the digital information — sonic and ultrasonic — included in tomorrow's popular technologies, like DVD-Audio and SACD.

With other features like K-Ground™, 32-Bit D.R.I.V.E.™III, K-STAT™ output transistors, and RF system controllers, Kenwood is your best choice for performance, technology and convenience.



VR-4900

The Dream Custom Home Theater System Starts Here

The VR-4900 is the heart of your custom home theater system. With 100 watts x 5 of K-STAT™ strength, All Channels Driven™ Surround Power, Universal Video™, 32-Bit D.R.I.V.E.™ III, HDCD®, PowerTouch™ II, dual-source/dual-zone capability and Perfect Macro, the VR-4900 is where your dream system begins.

With 12v triggers to operate a variety of home automation equipment, the VR-4900 also remains true to the vision of custom installers (or the really ambitious A/V enthusiast) by offering total system integration.

- ▼ Stereo Power (FTC): 130 Watts per Channel RMS (Left/Right)
- ▼ All-Channels Driven™ Surround Power: 100 Watts per Channel (Left/Center/Right/LSurround/RSurround)
- ▼ DTS®, Dolby Digital® and Dolby® Pro Logic Surround
- ▼ 24-Bit/96kHz Sampling A/D and D/A Converters
- ▼ Kenwood 32-Bit D.R.I.V.E.™ III Distortion Reduction
- ▼ Built-In HDCD® Decoding
- ▼ DSP Processor: 32-Bit Sharc
- ▼ Digital Audio Input Connections: 14
- ▼ Kenwood Universal Video™ with Component Video Inputs and Outputs
- ▼ PowerTouch™ II RF/IR Pre-Programmed/Learning Touch Screen Controller with PointLess™ Technology
- ▼ Dual-Room/Dual-Source Operation: Audio and Video
- ▼ Kenwood Ultrasonic Response™ Amplifier with K-STAT™ Output Devices
- ▼ Sterling Finish with Black Lacquer Wood Side Panels



POWERTOUCH™ II

Kenwood's touchscreen graphical interface system controller PowerTouch II, is improved from last year, with Pointless™ RF capability and a more intuitive graphical interface added.

In addition, PowerTouch II is also 2-way, letting you know the status of your system

every time you use it. Up to 48 thirty-step macros may be programmed.

And all PowerTouch II macros can include Lutron, Makita, and X-10 home automation devices.

LUTRON®



Makita



With PowerTouch II you can close the curtains, dim the lights, turn on the TV, select the source and surround decoding, and start the movie playing with a single touch.

PowerTouch II is included with the VR-4900 and the VR-4700.

DUAL-SOURCE/DUAL-ZONE

Now you and your family can enjoy two different forms of entertainment in two different rooms with one receiver, the VR-4900.

Imagine ... One software library, two rooms. Two tastes in movies, two rooms. Kid's

request for The Little Mermaid on VHS in one room, while you watch The Matrix on DVD in another. All easily accomplished with the VR-4900. And all without sacrificing anyone's taste in entertainment.

VR-4700

Total Control is Not Overrated

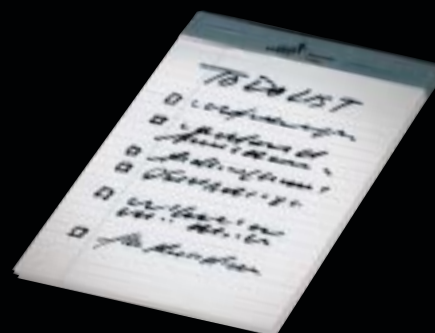
With the PowerTouch™ II (the touchscreen graphical interface system controller) and its PointLess™ RF technology, you can control the 120 watt Stereo Power VR-4700 with a touch of the finger from any room of the house. Featuring Universal Video™, All Channels Driven™ Surround Power and K-STAT™ transistors, the power of Kenwood is yours — You are the master of your domain.

- ▼ Stereo Power (FTC): 120 Watts per Channel RMS (Left/Right)
- ▼ All-Channels Driven™ Surround Power: 100 Watts per Channel (Left/Center/Right/LSurround/RSurround)
- ▼ DTS®, Dolby Digital® and Dolby® Pro Logic Surround
- ▼ 24-Bit/96kHz Sampling A/D and D/A Converters
- ▼ Kenwood 32-bit D.R.I.V.E.™ III Distortion Reduction
- ▼ Built-In HDCD® Decoding
- ▼ DSP Processor: 32-Bit Sharc
- ▼ Digital Audio Input Connections: 14
- ▼ Kenwood Universal Video™
- ▼ PowerTouch™ II RF/IR Pre-Programmed/Learning Touch Screen Controller with PointLess™ Technology
- ▼ Kenwood Ultrasonic Response Amplifier™ with K-STAT™ Output Devices
- ▼ Sterling Finish with Black Lacquer Wood Side Panels



MACROS

Unlike your datebook, the PowerTouch II will actually perform the functions on your system "to do" list. You can program 48 different macros, each with up to 30 steps — including home automation commands. PowerTouch II is preprogrammed to command Lutron®



Lighting, Makita® Drapery Controllers and X-10® Control Devices, in addition to learning and controlling all other IR devices.

Say you want to watch an action movie ... Press the button you've labeled "Action." The macro will take the following actions:

- 1) Start the popcorn maker (X-10)
- 2) Preprogrammed time delay
- 3) Turn on the receiver.
- 4) Change receiver input to DVD
- 5) Turn on TV
- 6) Change TV video input to component video

- 7) Turn on DVD player
- 8) Close drapes (Makita)
- 9) Open automatic cabinet doors (X-10) revealing speakers
- 10) Dim lights to theater level (Lutron)
- 11) Play DVD

(And you may program a wide variety of time delays in between macro commands.)



VR-4090

Proven Five Channel Strength

This receiver is rated at 100 watts x 5 with All Channels Driven™ Surround Power, and can command that surround explosion (the one where you're right in the middle) with power to spare. It's been tested to generate continuous equal power to all five channels at the same time.

The VR-4090 also features Universal Video™, Ultrasonic Response™ Amplifier, K-STAT™ transistors, HDCD® and 14 digital inputs.

- ▼ Stereo Power (FTC): 120 Watts per Channel RMS (Left/Right)
- ▼ All-Channels Driven™ Surround Power: 100 Watts per Channel (Left/Center/Right/LSurround/RSurround)
- ▼ DTS®, Dolby® Digital and Dolby® Pro Logic Surround
- ▼ 24-Bit/96kHz Sampling A/D and D/A Converters
- ▼ Kenwood 32-Bit DRIVE™ III Distortion Reduction
- ▼ Built-In HDCD® Decoding
- ▼ DSP Processor: 32-Bit Sharc
- ▼ Digital Audio Input Connections: 14
- ▼ Kenwood Universal Video™
- ▼ RC-R0911 2-Way RF/IR Pre-Programmed/Learning Remote with PointLess™ Technology
- ▼ Kenwood Ultrasonic Response™ Amplifier with K-STAT™ Output Devices



VR-4080

Sure Power. PointLess™ RF Control. (Something To Brag About.)

This is no empty boast — the feature packed VR-4080 is an affordable means to get the latest in audio technologies. With 110 watts per channel, K-STAT™ temperature sensitive transistors, Ultrasonic Response™ Amplifier with flat frequency response up past 100 kHz, a two-way RC-R0911 RF/IR remote with PointLess™ technology and five digital inputs, the VR-4080 makes a terrific core component for your thunderous sounding and easily controlled system. (You show-off you.)

- ▼ Stereo Power (FTC): 110 Watts per Channel RMS (Left/Right)
- ▼ Surround Power (Left/Right): 110 Watts + 110 Watts
- ▼ Surround Power (Center): 110 Watts
- ▼ Surround Power: (LSurround/RSurround): 110 Watts + 110 Watts
- ▼ DTS®, Dolby® Digital and Dolby® Pro Logic Surround
- ▼ 24-Bit/96kHz Sampling A/D and D/A Converters
- ▼ Kenwood 32-Bit DRIVE™ III Distortion Reduction
- ▼ Built-In HDCD® Decoding
- ▼ DSP Processor: 32-Bit Sharc
- ▼ Digital Audio Inputs: 5
- ▼ RC-R0911 2-Way RF/IR Pre-Programmed/Learning Remote with PointLess™ Technology
- ▼ Kenwood Ultrasonic Response Amplifier™ with K-STAT™ Output Devices

POINTLESS™ CONVENIENCE RC-R0911

Shoot from directly in front of your system. Or pointing upright. Or from the other room. The new RC-R0911 2-way remote with Pointless™ Technology from Kenwood does not require line-of-sight range like IR-only remotes. RC-R0911 is capable

of executing 3 macros, and the LCD screen displays system information including CD titles (when the receiver is connected to a compatible Kenwood CD player).

RC-R0911 is included with the VR-4090 and VR-4080 receivers.

RC-R0911
remote



FUTURE COMPATIBILITY

Kenwood designed its receivers to be forward compatible with new technologies such as DVD Audio and Super Audio CD (SACD) formats. The VR-4900, VR-4700, VR-4090, VR-4080 and the VR-410 all feature a 6-channel analog input path

that bypasses the input attenuator, DSP processing and the tone controls to help maintain the ultrasonic bandwidth of the original performance.

Kenwood plans for the unthinkable — the misplaced remote. Receiver functions are

easily accessible behind the flip-down front panel allowing easy access while maintaining the clean, industrial design. And on the VR-4900, the panel is motorized!

Functions are easily accessed on the VR-4900, VR-4700, VR-4090 and the VR-4080.

DV-4900

Carousel of Performance

The DV-4900 five-disc DVD-Video & DVD-Audio changer features built-in DTS® and Dolby® Digital decoding, and is capable of 24-bit 96 kHz digital output. It also includes Component, S-Video and Composite video outputs, and two digital audio outputs. Quantization noise is reduced in all six channels with D.R.I.V.E.™ digital noise reduction.

Available Fall 2000

- ▼ Plays DVD-Audio Discs, DVD-Video Discs and CDs
- ▼ Disc Capacity: 5 Discs
- ▼ Built-In DTS® and Dolby® Digital Decoders
- ▼ Kenwood 24-Bit D.R.I.V.E.™ II Distortion Reduction (All Channels)
- ▼ Audio Digital to Analog Converter: 24-Bit, up to 196kHz Sampling (Left/Right Channels)
- ▼ Video Digital to Analog Converter: 10-Bit
- ▼ Component, S-Video and Composite Video Outputs
- ▼ Digital Audio Output: 2 (1 Coaxial, 1 TOS-link Optical)
- ▼ Full-Function 10-Key Remote Control: with Joystick Control
- ▼ Sterling Finish with Black Lacquer Wood Side Panels



DV-4070

Available Fall 2000

- ▼ Plays DVD-Audio Discs, DVD-Video Discs and CDs
- ▼ Disc Capacity: 5 Discs
- ▼ Built-In DTS® and Dolby® Digital Decoders
- ▼ Kenwood 24-Bit D.R.I.V.E.™ II Distortion Reduction (Left & Right Channels)
- ▼ Audio Digital to Analog Converter: 24-Bit, up to 196kHz Sampling (Left/Right Channels)
- ▼ Video Digital to Analog Converter: 10-Bit
- ▼ Component, S-Video and Composite Video Outputs
- ▼ Digital Audio Output: 2 (1 Coaxial, 1 TOS-link Optical)
- ▼ Full-Function 10-Key Remote Control: with Joystick Control
- ▼ Midnight Black Finish

DV-4050

Available Fall 2000

- ▼ Plays DVD-Video Discs and CDs
- ▼ Disc Capacity: 5 Discs
- ▼ Audio Digital to Analog Converter: 24-Bit, up to 96kHz Sampling
- ▼ Video Digital to Analog Converter: 10-Bit
- ▼ Component, S-Video and Composite Video Outputs
- ▼ Digital Audio Output: 2 (1 Coaxial, 1 TOS-link Optical)
- ▼ Full-Function 10-Key Remote Control
- ▼ Midnight Black Finish

DVD-AUDIO

If you thought CDs sounded good, wait until you hear DVD-Audio.

Each DVD-Audio disc can hold seven times more information than conventional CDs, which translates to 74 minutes of 2-channel sound at an impressive 24-bit/192kHz

resolution. This extra resolution and higher sampling rate far surpasses the 16-bit/44kHz resolution of the compact disc, increasing the dynamic range and musical resolution for more clarity and realism than ever before. Alternately, a DVD-Audio disc

could contain 74 minutes of 5.1-channel sound at the CD resolution, reproducing a musical performance in true surround-sound. For the first time, recordings of classical music could recreate the acoustics of a fine concert hall with startling realism. And producers of pop music could place the

musicians anywhere in the room, creating soundscapes not possible with 2-channel stereo.

A new audio coding technology called Meridian Lossless Packing (MLP) further increases disc capacity. This technology

removes redundancies in the signal and increases the space available for data, without any alteration of the original signal. MLP coding is included in the specifications of DVD-Audio.

The possibilities are incredible — spectacular sounding 2-channel recordings, fantastic

5.1-channel surround recordings. Plus video graphics, interactive menus, text, and in some cases full-motion video. With Kenwood DVD-Audio players, your music will be more breathtakingly lifelike than ever before imagined.

CD-4700

The 200 Disc Electronic Golden Retriever CD-4700 with PCLink NetNamer

This loyal, obedient 200 disc CD changer does more than list album titles and track titles for your listening convenience. It features PCLink NetNamer, powered by CDDb, which will actually fetch titles for you. The CD-4700 (using your internet connected PC with our free software application) will automatically access the extensive CDDb database, seek out and find any and all CD title info, and load the data into the changer's — even all 200 at once. (And it won't chew up your slippers.)

- ▼ Disc Capacity: 200 Discs
- ▼ PC Link NetNamer Automatic Title Downloading: via RS-232 Terminal
- ▼ Disc and Track Naming
- ▼ Music Type File
- ▼ CD Text
- ▼ Digital Audio Output: 1 (TOS-link Optical)
- ▼ IR Keyboard and Full-function 10-Key Remote Control
- ▼ Sterling Finish with Black Lacquer Wood Side Panels



Automatically downloading disc and track titles is a snap with PCLink NetNamer. After connecting the CD-4700M to your PC via its RS-232 connector, you use your Internet browser and go to the Kenwood USA Web site at www.kenwoodusa.com.

Once you fill-out a registration form, you then download the free PCLink NetNamer software into your computer. When you run PCLink NetNamer, it will connect you to the CDDb Internet database, which contains more than 500,000 disc

titles (and is growing daily). PCLink NetNamer will automatically find-out what CDs are loaded in your CD-4700M, search the CDDb database for their disc and track title information, and automatically download it into the

CD-4700M. From then on, when you play the discs, the disc and track titles will automatically appear on the player's display. And if you're using the CD-4700M along with a compatible Kenwood receiver, the titles can also be displayed

on the remote's LCD screen, allowing you to select discs and tracks by title via remote control.



VR-410

- ▼ Stereo Power (FTC): 100 Watts per Channel RMS (Left/Right)
- ▼ Surround Power (Left/Right): 100 Watts + 100 Watts
- ▼ Surround Power (Center): 100 Watts
- ▼ Surround Power: (LSurround/RSurround): 100 Watts + 100 Watts
- ▼ DTS®, Dolby® Digital and Dolby® Pro Logic Surround
- ▼ 3 Audio DSP Modes
- ▼ CS Circle Surround 5.1
- ▼ Digital Audio Input Connections: 4
- ▼ 6-Channel Analog Input
- ▼ S-Video Inputs and Outputs
- ▼ RC-R0810 RF/IR Pre-Programmed/Learning Remote with PointLess™ Technology
- ▼ KAM-1 Power Amplifier Circuitry



CD-425M

- ▼ Disc Capacity: 200 Discs
- ▼ PC Link NetNamer Automatic Title Downloading: via RS-232 Terminal
- ▼ Disc and Track Naming
- ▼ Music Type File
- ▼ CD Text
- ▼ Digital Audio Output: 1 (TOS-link Optical)
- ▼ IR Keyboard and Full-function 10-Key Remote Control



EASY CONTROL RC-R0810
REMOTE BY KENWOOD

Typically, remote control operation consists of three steps:

- 1) Find the button.
- 2) Repoint the remote control to correctly orient the IR emitter for optimum line-of-sight positioning.
- 3) Press the button.

We've eliminated Step 2 with our RC-R0810 remote. PointLess™ RF technology makes it possible. And makes things easier for you. RC-R0810 remote is included with the VR-410.

RECEIVER PERFORMANCE SPECIFICATIONS

	VR-4900	VR-4700	VR-4090	VR-4080	VR-410
Power Output					
Stereo Power (20Hz - 20kHz, 0.03% THD, 6 ohms, FTC)	130 Watts x 2	120 Watts x 2	120 Watts x 2	110 Watts x 2	100 Watts x 2*
All Channels-Driven ^a Surround Power (1kHz, 0.06% THD, 6 ohms)	100 Watts x 5	100 Watts x 5	100 Watts x 5	—	—
Surround Power (Left & Right, 20Hz - 20kHz, 0.06% THD, 6 ohms)	—	—	—	110 Watts x 2	100 Watts x 2*
Surround Power (Center, 20Hz - 20kHz, 0.06% THD, 6 ohms)	—	—	—	110 Watts	100 Watts*
Surround Power (LSurround/RSurround, 20Hz - 20kHz, 0.06% THD, 6 ohms)	—	—	—	110 Watts x 2	100 Watts x 2*
Frequency Response					
6-Channel Input	7Hz - 100kHz (+0, -3dB)	7Hz - 100kHz (+0, -3dB)	7Hz - 100kHz (+0, -3dB)	7Hz - 100kHz (+0, -3dB)	—
CD Input	7Hz - 90kHz (+0, -3dB)	7Hz - 90kHz (+0, -3dB)	7Hz - 90kHz (+0, -3dB)	7Hz - 90kHz (+0, -3dB)	10Hz - 53kHz (+0, -3dB)
Signal-to-Noise Ratio					
Phono (MM)	74dB	74dB	74dB	74dB	74dB
Line (CD)	97dB	97dB	97dB	97dB	97dB
Tone Control Characteristics					
Bass (100Hz)	±7dB	±7dB	±7dB	±7dB	±10dB
Treble (10kHz)	±7dB	±7dB	±7dB	±7dB	±10dB
FM Tuner					
Useable Sensitivity (Mono, 75kHz dev. SINAD 30dB, 75 ohms)	1.6µV, 15.2dBf	1.6µV, 15.2dBf	1.6µV, 15.2dBf	1.6µV, 15.2dBf	1.6µV, 15.2dBf
50dB Quieting Sensitivity (Stereo, 75 ohms)	31.6µv, 41.2dBf	31.6µv, 41.2dBf	31.6µv, 41.2dBf	31.6µv, 41.2dBf	31.6µv, 41.2dBf
THD (1kHz, Mono/Stereo)	0.3% / 0.7%	0.3% / 0.7%	0.3% / 0.7%	0.3% / 0.7%	0.3% / 0.7%
Signal-to-Noise Ratio (1kHz, 75 kHz dev., Mono/Stereo)	75dB / 68dB	75dB / 68dB	75dB / 68dB	75dB / 68dB	75dB / 68dB
Stereo Separation (1kHz)	38dB	38dB	38dB	38dB	38dB
Selectivity (±400kHz)	70dB	70dB	70dB	70dB	70dB

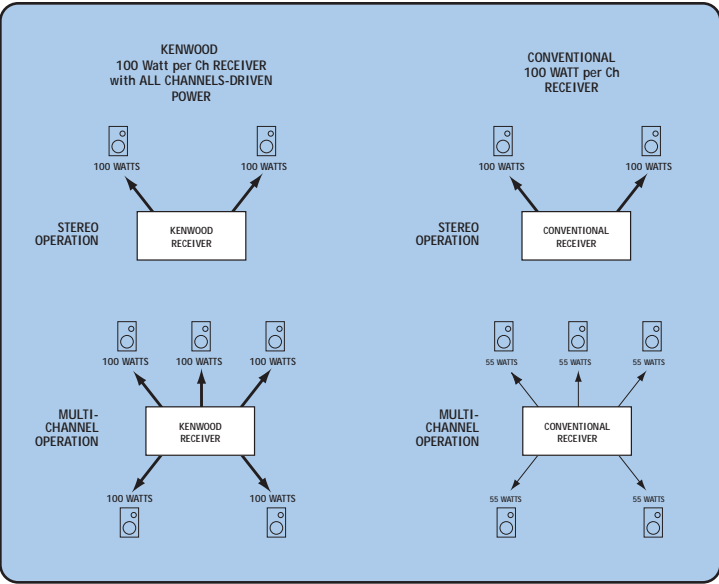
*20Hz - 20kHz, 0.7% THD, 8 ohms, FTC

CD PLAYER PERFORMANCE SPECIFICATIONS

	CD-4700M	CD-425M
Audio Specifications		
Frequency Response	4Hz - 20kHz (+0, -3dB)	4Hz - 20kHz (+0, -3dB)
Signal-to-Noise Ratio	105dB	103dB
Dynamic Range	95dB	95dB
THD + N (1kHz)	0.005%	0.005%
Channel Separation (1kHz)	95dB	95dB

All Channels Driven™ Surround Power
A True Measure of Power

Most major manufacturers have rated their amplifier wattage based on the demands of 2-channel stereo, or video, which tends to have significant audio in only a couple of channels at a time. With the introduction of DVD-Audio and SACD, that is all about to change.



Above: Comparison of All Channels Driven and conventional receivers. All Channels Driven power lets Kenwood receive and deliver full power in stereo and to all 5 channels simultaneously. Conventional receivers cannot deliver full stereo power to all 5 channels at the same time, limiting the sounds dynamic impact.

Kenwood introduces All Channels Driven™, our commitment to surround power capability. In addition to the traditional 2-channel FTC power ratings, Kenwood receivers with All Channels Driven™ surround power earn ratings that are achieved with all five channels driven at the same time, establishing a new benchmark in power standards. Kenwood receivers with All Channels Driven™ Surround Power ratings deliver more power to all channels simultaneously than other receivers, sounding more dynamic, and effortlessly reproducing all of the music's impact.

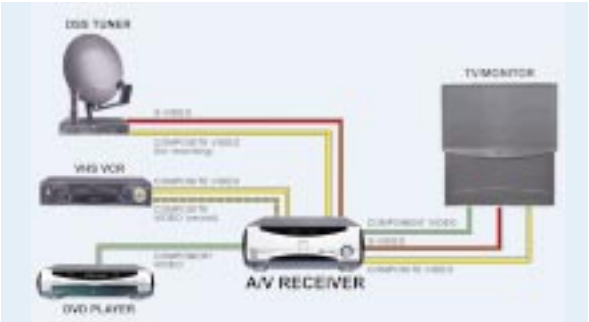
All Channels Driven™ Surround Power is available on the VR-4900, VR-4700 and the VR-4090.

Universal Video™
A Universal Translator for Video

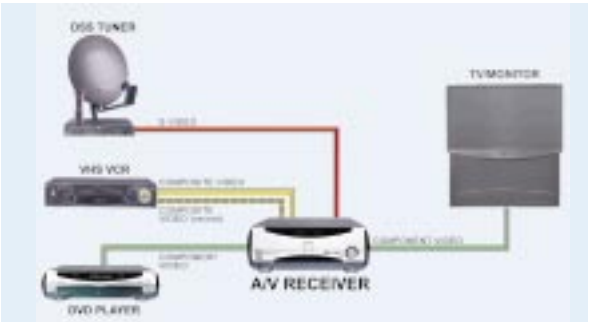
With three different video connection types common to consumer products — component, S-video, and composite — connecting video used to be a complicated hassle. But Kenwood's commitment to simplicity makes connecting easy and worry-free.

Without Universal Video™, an A/V receiver maintains separate internal signal paths for each type of video connection, so you are required to have a matching output connection to the video monitor for each connection type used by a source component — S-video to S-video, composite to composite, component to component. This severely complicates system wiring.

When you choose to watch a movie, if you change the video source at the receiver, you also need to change the input at the monitor — making the system harder to use. Also, because video signals don't mix inside the receiver, recording between components with different types of connections requires still more connections — further complicating an already complex setup. Whew!



Above: Conventional home theater video connections. Note multiple connections between receiver and monitor.



Above: Video connections in home theater with Kenwood Universal Video. Single connection between receiver and monitor simplifies system wiring and operation.

Universal Video™ makes video connection easy. Only a single connection from receiver to monitor is required, and the monitor's video input does not need to be changed when the video source is switched at the receiver. Universal Video™ minimizes extra connections for recording, and will maintain the quality of the highest-quality source component. (See illustration above.)

You can depend on Kenwood to make things easier. Universal Video™ is available on the VR-4900, VR-4700 and VR-4090 receivers.

PointLess™ RF Technology

All three of Kenwood's new 2-way system controllers — the PowerTouch II™ graphical touch panel controller, and the new RC-R0911 and RC-R0810, feature PointLess™ RF technology, and are both IR and RF functional.

Most remotes communicate to their receivers exclusively via infrared (IR) signals. IR communication requires line-of sight orientation with the IR receiver port — the user needs to be nearby and point the remote in the correct direction. PointLess™ RF (radio frequency) signals do not require line-of-sight operation, accurate pointing, specific orientation, or even necessarily being in the same room.

No longer are you confined to line-of-sight, or to one room. (Or strategically placed mirrors.) With PointLess™ technology, all three system controllers can be used from rooms away, and PowerTouch™ II is perfect for multi-zone applications.



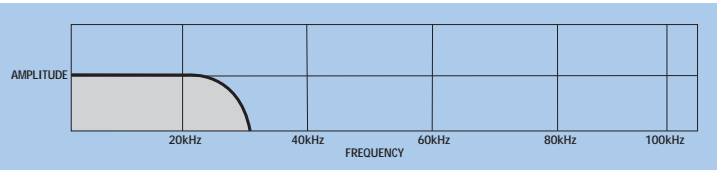
But why do we keep IR? So you can control all your other 3rd party components. After all, PowerTouch™ II, RC-R0911 and RC-R0810 are all preprogrammed and learning capable.

PowerTouch™ II is included with the VR-4900 and the VR-4700. RC-R0911 is included with the VR-4090 and VR-4080, and RC-R0810 is included with the VR-410.

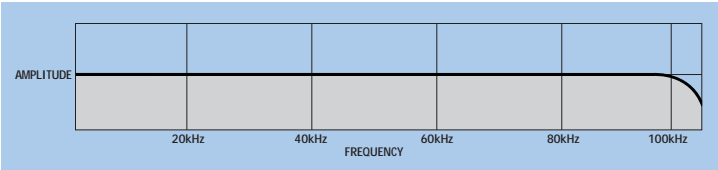
Ultrasonic Response Amplifier™

DVD Audio and Super Audio CD (SACD) promise a musical experience way beyond that of conventional CD's.

However, these new formats make new demands on amplifiers – like frequency response up to 96kHz. Such frequencies add rich overtones and spacious aural beauty to all different genres of music. Additionally, the more extended the frequency range, the fewer irregularities there will be in the audible range.



Above: Conventional receiver power amplifier frequency response. High-frequencies do not extend far into ultrasonic region.



Above: Kenwood Ultrasonic Response Amplifier™ frequency response. High frequencies extend out to nearly 100kHz.

“Certain musical sounds need frequency response well beyond 20k to allow them to breathe. A cymbal for instance, which is high frequency intensive, can sound hard and brash instead of smooth and silky, if it is not reproduced with frequency response well beyond 20k.”
— Richard Dashut, Producer/VP A&R at 5.1 Entertainment Group

Although there has been much discussion about the benefits of ultrasonic frequency response, our philosophy is this: Let all audio information pass through as unaltered as possible. If the artist records it with ultrasonic frequencies, we reproduce it – transparently.

Kenwood engineers designed the Ultrasonic Response Amplifier™ with precise feedback and gain structures, enabling a flat frequency response beyond 100kHz. In addition, the signal path for the 6-channel input is as short as possible maintaining the extended response of the original signal.

The Ultrasonic Response Amplifier™ is available on the VR-4900, VR-4700, VR-4090 and VR-4080.

32-Bit D.R.I.V.E. III
Eliminating Digital Distortion

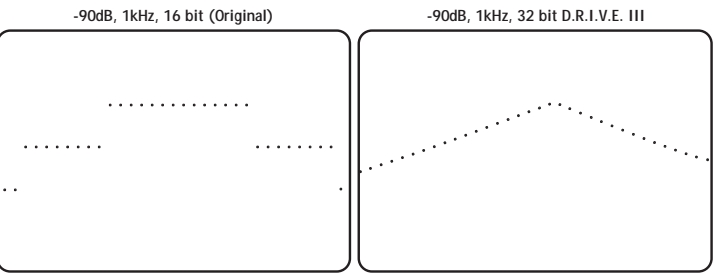
Kenwood improved its Dynamic Resolution Intensive Vector Enhancement (D.R.I.V.E.) from 24-bit resolution to 32-bit floating point resolution to provide the most accurate reproduction of the original recording.

The analog-to-digital conversion process adds a distortion called quantization noise, which is represented as stair-stepped graduations on the digital waveform. This distortion is at its most prominent at low listening levels. The lost detail and nuance robs the music of what makes it sound real – like the sound a bow makes across a violin's strings, the touch of a drumstick on a cymbal, or the distinctive presence of the acoustic space the music was originally performed in.

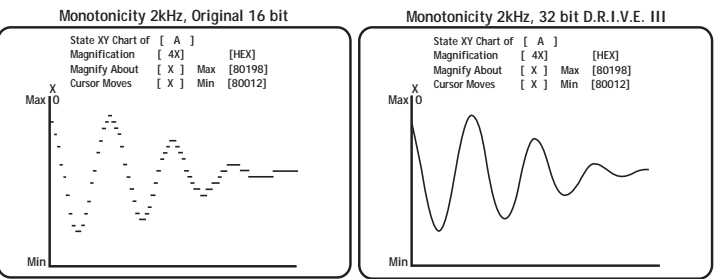
Earlier versions of D.R.I.V.E.™ used an ultra high-speed switching comparator and a series of adaptable digital low-pass filters, and increased resolution up to 24-bits.

However, 32-Bit D.R.I.V.E.™ III is software based, and the characteristics of the low-pass filters are not fixed, enabling more complete removal of the quantization noise. This enables accurate reproduction of the ambience, space and musical detail of the original performance. Kenwood's D.R.I.V.E.™ III's technology enables more lifelike, two-channel music reproduction.

32-Bit D.R.I.V.E.™ III is available on the VR-4900, VR-4700, VR-4090 and the VR-4080.



Above: Detail of a low-level signal before D.R.I.V.E.™ processing (left) and after (right). The D.R.I.V.E.™ processed signal more closely resembles a smooth analog waveform.



Above: Detail of a dynamic signal before D.R.I.V.E.™ processing (left) and after (right). Note that 32-Bit D.R.I.V.E.™ III has a profound effect on the lower-amplitude portion of the signal.

K-STAT™
K-STAT with Thermal Compensation

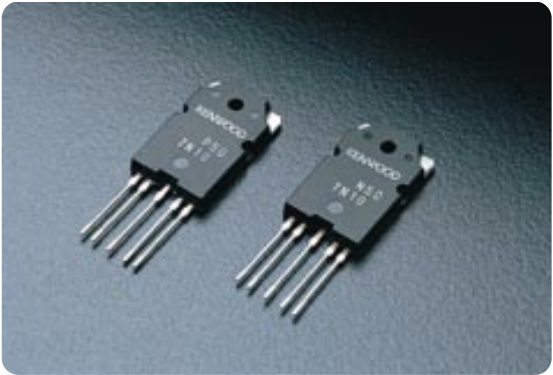
In the audiophile world, one truism for amplifier operation was to turn it on hours before you wanted to do some serious listening so the electronics could reach the optimum, steady temperature, thereby reducing distortion. (Some audiophiles never turn off their amplifiers so they can maintain a constant internal temperature.)

Kenwood eliminated operating temperature problems with the K-STAT transistor – the only output device with a built-in temperature sensor.

Temperature fluctuations inside the transistor (like those caused by a particularly demanding audio passage) are automatically and instantaneously compensated for. For instance, the power demands of the thundering explosion of planet Zizz won't effect the sound quality of the tender reconciliation between Princess Moub and her now-reformed father, Victor the Demon. (Or whatever else you play that has wide dynamics.)

With K-STAT you get great sound, when you want it, on your schedule, because K-STAT is the only transistor designed specifically as an audio amplification device.

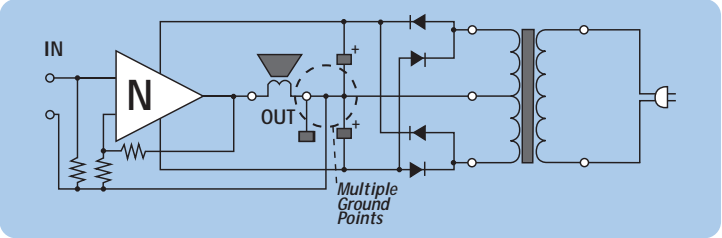
K-STAT is featured on the VR-4900, VR-4700, VR-4090 and the VR-4080.



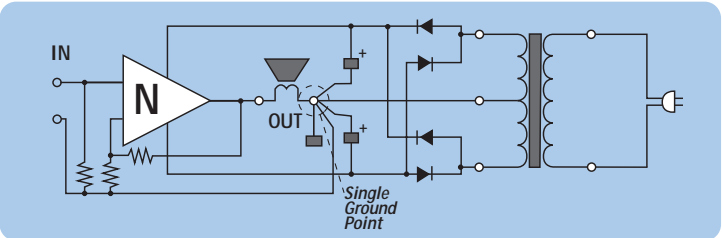
Above: K-STAT Audio Transistors. While conventional transistors have 3 "legs", note that K-STAT has 5. The two extra "legs" are for K-STAT's internal temperature sensor. The internal sensor is able to precisely monitor the actual temperature inside the transistor, allowing K-STAT to attain optimal performance under all operating conditions. Conventional transistors must use external temperature sensors that cannot precisely monitor the actual temperature inside the transistor, and can therefore never reach optimal performance.

K-Ground™

Preventing the sonic pollution caused by renegade current flow along a traditional grounding path that has multiple ground points, Kenwood designed an amplifier with a single ground point. (Now this isn't as simple as the illustration suggests. The whole internal organization has to be redesigned and large internal structures have to be carefully rearranged.)



Above: Schematic of conventional power amplifier. The multiple ground points used by the speaker, output stage and smoothing capacitors can create noise and stray current flow that degrade amplifier performance.



Above: Schematic of power amplifier with K-Ground™. The single ground point eliminates ground noise and stray current flow, improving amplifier performance.

Current flow through the ground path can cause the ground's electrical potential to oscillate, destabilizing the transformer and disrupting its ability to supply power to the rectifier stage. K-Ground™ is an innovative design that drastically reduces any stray current flow through the ground path which can cause noticeable distortion — especially if the selection is loud, complex or otherwise demanding.

K-Ground™ is available on the VR-4900, VR-4700, VR-4090 and the VR-4080.

Advanced Power Supply Technology

Kenwood receivers incorporate new power supply technology that improves audio performance over conventional power supply components.

Kenwood is the first audio company to use the latest grade of audio capacitor from Elna–Tonorex. Elna's new Tonorex audio grade filter capacitors feature a strengthened foil core dielectric element.

The anodized dielectric coating is etched to improve consistency and reduce vibration. This coating is also more consistent, with imperfections reduced 30-40% compared with conventional capacitors. This improves sound quality by providing more consistent signal transmission, which significantly reduces molecular level distortion. These improvements also reduce current leakage by 20%, allowing the capacitors to be physically smaller without compromising audio performance in any way.

Kenwood is also the first audio company to incorporate a newly-designed power transformer in its receivers. This new transformer design has a high-grade steel core that reduces magnetic leakage, improving efficiency and making more power available to the amplifier circuits, which improves audio dynamic range. The transformer also uses a revolutionary varnish with improved viscosity that permeates all the way to the center of the core and adheres to the plates more effectively, reducing vibration noise. Combined with a special construction that uses vibration damping material between the core and the case, this transformer produces far less noise than conventional transformers, improving audio quality.

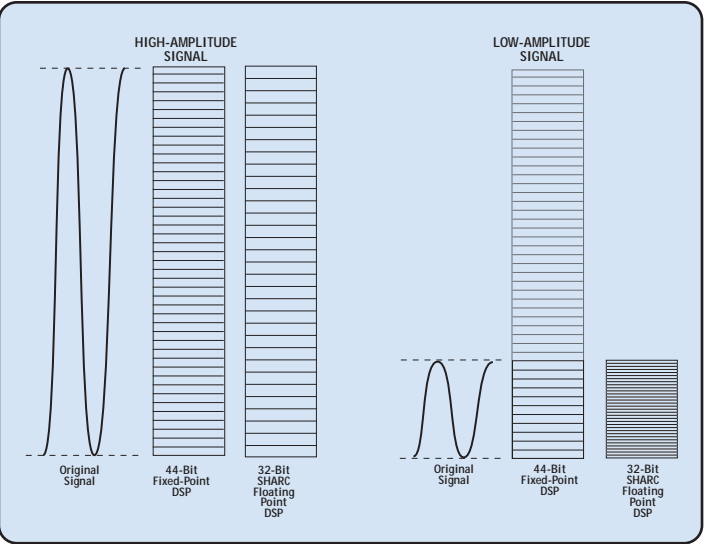
SHARC Digital Signal Processor

Why Floating Point Digital Processing Is Better

Second generation SHARC floating-point processors don't get stingy with bits during quiet passages. The full dynamic of digital processing is available no matter what the volume of the program material. Kenwood uses the latest SHARC digital processor to perform the software processes for DSP (digital signal processing) functions like surround decoding, bass management, and 32-Bit D.R.I.V.E.™

Floating point processing uses all available bits no matter what the signal level, unlike fixed-point processors that only use all available bits at full volume. So when you read about some 40-odd bit processor being touted as being the best available, listen closer. The key comparison is "floating" or "fixed."

SHARC floating point digital processing is available on the VR-4900, VR-4700, VR-4090 and the VR-4080.



Above: Comparison of 32-Bit SHARC floating-point DSP performance and high-bit fixed-point DSP performance. With high-amplitude signals (left), both DSPs have plenty of bits available to describe the signal with high resolution. With low-amplitude signals (right), the 32-Bit SHARC floating-point DSP uses more bits to describe the signal, providing significantly higher resolution.

HDCCD

High Definition Compatible Digital (HDCCD®) is an encoding/decoding process that puts 20 bits of information on a compact disc, instead of the usual 16, while remaining compatible with conventional CD players. When a CD or DVD player is connected digitally to a Kenwood receiver with HDCCD® decoding circuitry, the receiver will immediately recognize and decode HDCCD® discs. And you enjoy spacious 20-bit sound.



Simply put, any HDCCD® disc played on a Kenwood HDCCD®-enabled receiver will sound better. And there's lots of HDCCD® software available, some that are not even labeled. You'll recognize it two ways — the blue light on the front of the receiver, and the wide 20-bit sound.

HDCCD® is available on the VR-4900, VR-4700, VR-4090 and the VR-4080.

D/A A/D Converters

Kenwood's analog-to-digital and digital-to-analog signal converters are 24-Bit 96kHz enabled. This produces the best quality audio from DVD-Video and DVD-Audio sources. (And the high resolution of our 24-bit converters enables our D.R.I.V.E.™ III distortion-reduction technology to work flawlessly.) The enhanced resolution even improves Dolby® Pro-Logic reproduction.

High resolution converters are available on the VR-4900, VR-4700, VR-4090 and the VR-4080.



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