Designed for Digital

The Ideal Receiver for Digital Home Theater Entertainment

Digital Home Theater Receiver

RX-V4600
The RX-V4600 is a receiver designed for the digital era. It sets the standard for a new generation of receivers that will increase home theater enjoyment with more vivid images and richly detailed sound, plus greater versatility and convenience. With CD-quality digital HD Radio, digital data links and advanced digital processing circuitry, it takes full advantage of the latest digital sources. It also has a new front panel design whose elegance matches its capabilities. For movies and music, multi-channel surround sound and stereo, the RX-V4600 will ensure that your entertainment is totally enjoyable.

Radio Goes Digital!
For maximum radio enjoyment, the RX-V4600 is capable of receiving HD Radio broadcasts. The only terrestrial digital broadcast system, HD Radio delivers crystal-clear sound via the normal AM/FM bands. This greatly improved digital quality means that FM broadcasts have CD-quality sound and AM is as good as present FM stereo, with no static hiss. It also provides a variety of program-associated data such as song titles and artist names, as well as the ability to tune to multiple programs at the same dial position. Already available from hundreds of stations, more than 2,500 stations are planning to upgrade to HD Radio. And because this is public broadcasting, it is completely free.

Designed for Digital

HDMI Interface for Video and Audio
The HDMI interface is the most advanced, highest quality connection for delivering video sources to your home theater system. Extremely high speed digital transmission of the video signal ensures that there is no deterioration in quality, so you can enjoy High Definition TV, DVD movies and satellite broadcasts with the best possible resolution. As an additional benefit, the RX-V4600 is compatible with the latest HDMI format, Ver. 1.1, meaning it can also handle digital audio signals, including DVD-Audio, CD, Dolby Digital and DTS. The RX-V4600 provides two-in/one-out HDMI switching, letting you connect two digital sources, with each connection requiring only a single cable! HDMI is compatible with copyright protection technology as well, and is expected to be the standard digital transmission format in the future.

* When connecting DVI compatible equipment, confirm HDCP compatibility.

Dual i.LINK Terminals
You can also select a second means of digital connection, called i.LINK. This is the name for the international IEEE1394 standard that provides high quality, two-way transmission of digital audio signals. It can handle the DVD-Audio, Super Audio CD, Dolby Digital and DTS formats, and offers full copyright protection. i.LINK provides greater convenience also, as only a single cable is required.

* i.LINK handles digital audio data only.

Just connect Yamaha’s digital cinema projector and DVD-S2500 via HDMI, you can fully enjoy highest quality video and audio.
Digital ToP-ART and High Current Amplification

Digital ToP-ART (Total Purity Audio Reproduction Technology) is Yamaha’s design philosophy whose goal is to maximize the sound quality and functionality of the digital section by directly connecting it to the wide-range power amplifier. The culmination of the best digital engineering and design possible today, it combines high performance digital circuitry, high density CINEMA DSP circuitry and a high quality, wide dynamic range power amplifier. You can be sure that this receiver will deliver the full impact and dynamism of movies, with generous amounts of power.

Yamaha’s High Current Amplification uses superior components to achieve low impedance, high current power from input (power supply circuit) to output (speaker terminals). This drives the speakers much more smoothly and dynamically, for better sound from all sources, including 2-channel audio.

Supporting all this are the Yamaha ToP-ART base and dual-bottom construction, which provide stability and further vibration damping.

**Design Focused on High Sound Quality**

All circuits employ carefully selected parts that are utilized in the best of thousands of possible combinations to achieve highest sound quality. Especially noteworthy is the power supply, which has a much larger capacity than previous units, for power output that is clean and stable down to the lowest bass frequencies.

**Pure Direct**

Pure Direct is a special Yamaha function that configures the receiver to achieve the highest possible sound quality for enjoying music from stereo analog, multi-channel and digital sources. Engaging the Pure Direct mode turns off the power to all noise-producing circuits that are not in use and makes the signal flow as direct as possible by bypassing certain circuitry, maximizing sound purity. As a result, this A/V receiver achieves better sound quality than many high-end stereo amplifiers.

**Also Contributing to High Sound Quality**

- 192kHz/24-bit DACs for all channels
- Digital tone controls for front, center, surround and subwoofer

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Extra-large 11.9 lbs. transformer  
Custom-made 16,000 µF block electrolytic capacitors  
Highest quality parts, including custom-made parts, are used throughout. Top: power amp section. Bottom: power supply section.
More Convenience and Flexibility

YPAO Automatically Sets the Best Sound for Any Room, Any Speaker Placement
Yamaha's YPAO system uses a small microphone and sophisticated equalization techniques to automatically set the best sound for any room, no matter where the speakers are. All you do is place the microphone, hit a button and wait for three minutes. YPAO is faster and more accurate than other systems of this type, and it automatically optimizes settings that are very difficult to adjust manually. A Trim function lets you control three parameters to tailor the sound to your own preferences. You can store six YPAO settings in the memory, making it easy to switch input/output sources and listening positions.

On-Screen Display with GUI
Even though the receiver offers a wide selection of functions, operating it is easy and intuitive. You get clear menus and instructions via a GUI (Graphical User Interface) display that appears on your TV or monitor. Colorful and easy to navigate, the GUI lets you do everything from choosing inputs and surround programs to detailed sound adjustments. Menus can be displayed in English, French or German.

*On-screen display does not function with HDMI.

Component Video Up Conversion
One way of ensuring the highest video quality for your home theater system is to use the best possible video signal. The RX-V4600 automatically upgrades the input signal to the best one that your monitor or TV can accept (composite to S-Video or component, S-Video to component). You never have a problem if your monitor or TV doesn’t accept a certain signal, and even if it accepts all three, system connections are easier when conversion is handled inside the receiver. In short, you simply use the best possible cable between the receiver and the monitor/TV, and then whatever the source is, you are assured of getting the highest possible quality.

Subwoofer Crossover and Phase Selection
The RX-V4600 provides a choice of nine subwoofer crossover frequencies for maximum efficiency and performance, plus phase switching for best bass sound.

Direct Access Remote Control
The remote control can “learn” the functions of other components, so you can use it as a single remote for the entire system. You can also set Macro commands, enabling the remote to initialize a chain of functions at the touch of a single button. Input sources are shown in the LCD window, and you can change their names. Frequency used functions are easily accessible on the front, while others are located under the sliding panel. Main buttons are illuminated.

YPAO Acoustic Customization: 5 Tuning Factors

1) Speaker Connections
Checks for missing connections and subwoofer phase control (here the right surround speaker is not connected).

2) Speaker Distance
Measures speaker distances from the listening point and corrects for differences down to 5cm.

3) Speaker Size
Checks speaker sizes (large or small) and subwoofer crossover frequency.

4) Speaker Frequency Response
Measures and optimizes each speaker’s frequency response using the parametric equalizer.

5) Sound Pressure Level
Measures and aligns the sound pressure levels of all speakers.

YPAO provides frequency response compensation of all channels via a 7-band parametric equalizer.

Graphic equalizers adjust only the level, while parametric equalizers adjust gain, frequency and Q factor, thus providing more detailed and effective sound equalization.
**Extensive Flexibility for Multi-Zone Custom Installations**

The RX-V4600 provides an extensive range of functions that make it ideal for a multi-room, custom installation. It lets you select and enjoy three different sound sources in three rooms (called zones). In addition, people in Zone 2 can watch a different video than the one playing in the main zone. You can even have sound in a fourth room by using the Speaker B output for an additional set of speakers. When Speaker A is off in the main zone, the Zone B signal becomes Virtual CINEMA DSP.

**Dedicated Remote Control**

The receiver comes supplied with a dedicated Zone Remote Unit. You can use this in Zone 2 or 3 for power on/off, volume control, input source selection, preset radio station selection and mute. If you use it with an extended remote control receiving/emitter unit,* you can even command the RX-V4600 (located in the main zone) from another zone.

* Extended remote control receiving/emitter units are not available from Yamaha.

**Front Panel Controls**

You can turn the power to the Main Zone, Zone 2 and Zone 3 on and off via switches on the front panel. A Zone Control button is also provided on the front, which enables you to adjust the volume and select the sources for Zone 2 and Zone 3.

**Amplifier Assignability**

Although the amplifier has seven channels, it has speakers terminals for nine channels, so if you connect the Surround Back and Zone 2* speakers to separate terminals, you can easily switch between them. You can assign two channels of amplifier power to drive the speakers in Zone 2. As a result, you don't need a separate amplifier for the speakers in that zone, but it is fully independent with its own 2-channel power. At the same time, people in the main zone can still enjoy 5.1-channel sound.

* Cannot be used at the same time as the Presence speakers.

**Dual Remote Ports, Dual Trigger Outputs and RS-232C Interface**

The RX-V4600 offers dual remote input/output ports for remote control capability in Zone 2 and 3, and dual +12V trigger outputs for automatic power-on of Zone 2/3 amps. In the Main Zone, a projector, curtains, etc. can also be controlled. An RS-232C interface provides a link to a Crestron or AMX touch panel controller.

**Other Advanced Functionalities**

- Rec Out/Zone 2 selector
- Speaker A, B, A+B selection via remote unit and front panel

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**Custom Zone Control**

MainZone Zone 2 Zone 3 Power On/Off and Zone Control buttons are located on the front panel of the receiver, and a Zone B (speaker B) can be set up.

**Zone 2**

- You can enjoy video plus 2-channel audio from the same or a different source than that in the main zone.

**Zone 3**

- You can hear 2-channel audio from the same source as in Main Zone.

**Zone B**

- You can hear 2-channel audio (same source as in Main Zone).

**Main Zone**

- You can enjoy 7.1-channel home theater, or 5.1-channel home theater when using two channels for zones 2/3.

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The RX-V4600 makes it possible to enjoy watching a DVD in the living room, watching satellite TV in the kitchen and listening to the radio in the bedroom all at the same time, each with its own volume and status control.
You have the extremely enjoyable choice of 22 surround programs in three categories: CINEMA DSP, HiFi DSP and THX. The movie programs include Spectacle, SciFi and Adventure, while the music programs feature the sound fields of actual venues, without the need for precise speaker placement. CINEMA DSP brings out the full potential of all movie sound formats, including the newest ones. Extensive listening tests have confirmed that it is simply the best system for enjoying home theater sound.

**Yamaha’s Unique CINEMA DSP**
The RX-V4600 delivers a surround sound experience that is not only theater-like, it actually sounds better than many theaters. The reason is CINEMA DSP, a unique technology that enables movies to be heard with the same degree of realism and impact that the directors and sound engineers intended. It creates a deep, expansive and rich surround sound field, directors use, stored and processed by powerful and sophisticated LSIs. Therefore, listeners can hear movies as the director intended them to be heard, and music as it would sound in famous places like the Bottom Line or in locations like churches and stadiums.

**Use of Actual Sound Field Data**
The sensational sound that CINEMA DSP provides is due in great part to Yamaha’s advanced sound field data and processing techniques. The overwhelming sense of realism is made possible by the use of data from actual acoustic venues around the world including dubbing stages in film studios where sound effects are created. Yamaha’s CINEMA DSP then uses this data to create a virtual sound field that is as realistic as possible. The result is a surround sound experience that is truly cinematic.

**Quad-Field CINEMA DSP**
Quad-Field CINEMA DSP projects four sound fields into the home theater: a presence sound field in the front, two surround sound fields on the sides, and a surround back sound field. This results in a surround sound environment with highly accurate localization, smooth movement, exceptional clarity and richness, and startlingly realistic presence.

**22 Surround Programs and Latest Surround Format Compatibility**
You have the extremely enjoyable choice of 22 surround programs in three categories: CINEMA DSP, HiFi DSP and THX. The movie programs include Spectacle, SciFi and Adventure, while the music programs feature the sound fields of actual venues. The RX-V4600 is capable of decoding all of the Dolby and DTS formats, including Dolby Digital EX, DTS-ES, Dolby Pro Logic IIX and DTS Neo:6. It also offers latest THX Select2 processing.

**Circle Surround II**
The RX-V4600 offers full function of Circle Surround II, a matrix surround sound decoder (from SRS Lab) that provides up to 6.1 multi-channel surround sound playback from mono, stereo, Dolby Surround and Circle Surround II-encoded sources such as HD Radio and cable/satellite TV programs.

**9-Channel Output and Dialogue Lift**
The presence speakers in the upper front provide the front sound field with an overwhelming sense of solidity. With 6.1-channel or 7.1-channel decoding, a surround back sound field with smoother and
more natural expansion can be obtained from the surround back speaker. Yamaha utilizes both benefits to provide speaker terminals for nine channels so that nine speakers can be used. The amplifier has seven channels, but it is possible to selectively use the presence speakers and the surround back speaker according to the sound source and the surround program without changing the wiring. In addition, the presence speakers allow use of a Dialogue Lift function.

When the center speaker is below a large screen, the sound image of the dialogue is oriented below the picture, which sounds strange. Dialogue Lift performs signal processing on the center channel signal and presence channels signals (located higher than the center channel), orienting the sound image of the dialogue to the proper position. This ensures natural reproduction that matches the location of the dialogue to the screen image.

Night Listening Enhancer and SILENT CINEMA

During low-volume listening, such as late at night, dynamic range suffers and you may miss some sounds. The Night Listening Enhancer offers two modes, Cinema and Music, with three-level selectability, which will ensure that you don’t miss movie dialogue or quiet passages, or lose overall surround spaciousness. It works for all surround programs, including Dolby Pro Logic Ix.

The SILENT CINEMA mode allows private listening enjoyment of multi-channel music or movies, with an accurate simulation of surround sound, through ordinary headphones.

Audio/Video Synchronization

The latest display devices perform complex internal processing, causing a slight time lag to occur between the time the video signal is received and when it is output to the screen. The sound thus arrives a fraction of a second sooner, which can be perceptible enough to cause a strange sensation. The Audio Delay function (0-240ms) matches the audio to the timing of the output of the video on the screen, correcting the audio—video time lag.

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RX-V4600 Main Specifications

**AUDIO SECTION**

- **Minimum RMS Output Power (8 ohms, 20 Hz–20 kHz, 0.04% THD)**
  - Front Channels: 130 W + 130 W
  - Center Channel: 130 W
  - Surround Channels: 130 W + 130 W
  - Surround Back Channel: 130 W + 130 W

- **High Dynamic Power, Low-Impedance Drive Capability**: Yes
  - Dynamic Power/Channel: 8 ohms
    - 165 W
  - 6 ohms
    - 205 W
  - 4 ohms
    - 260 W
  - 2 ohms
    - 340 W

- **Linear Damping**: Yes
  - Damping Factor (8 ohms, 20 Hz–20 kHz) 140 (speaker A)

- **Frequency Response**: 10 Hz–100 kHz +0, -3 dB

- **Total Harmonic Distortion (20 Hz–20 kHz)**
  - CD (Front Sp Out): 0.04%

- **Signal-to-Noise Ratio**: 100 dB

- **Filter Characteristics**
  - Front, Center, Surround, Surround Back (Small, fc=)
    - 40, 60, 80, 90, 100, 110, 120,
  - [High Pass Filter, Variable Crossover]
    - 160 and 200 Hz (12 dB/oct.)
  - Subwoofer (fc=)
    - 40, 60, 80, 90, 100, 110, 120,
  - [Low Pass Filter, Variable Crossover]
    - 160 and 200 Hz (24 dB/oct.)

**VIDEO SECTION**

- **Video Signal Level**: 1 Vp-p/75 ohms

- **S-Video Signal Level**
  - Y: 1 Vp-p/75 ohms
  - C: 0.286 Vp-p/75 ohms

- **Component Video Signal Level**
  - Y: 1 Vp-p/75 ohms
  - Pb/Cb, Pr/Cr: 0.7 Vp-p/75 ohms

- **Signal-to-Noise Ratio**: 60 dB

**TUNER SECTION**

- **FM 50dB Quieting Sensitivity (1 kHz, 100% Modulation)**
  - Mono: 2 µV (17.3 dBf)
  - Stereo: 25 µV (39.2 dBf)

- **FM Selectivity**: 400 kHz
  - Mono: 70 dB

- **FM Harmonic Distortion (1 kHz)**
  - Mono: 0.2%
  - Stereo: 0.3%

- **FM Frequency Response**
  - Mono/Stereo 20 Hz–15 kHz +0.5/–2 dB
  - HD Radio 20 Hz–18 kHz +0.5/–3 dB

**GENERAL**

- **Standby Power Consumption**: Less than 0.2 W
- **Dimensions**
  - (W x H x D): 17-1/8” x 6-3/4” x 17-1/4”
- **Weight**: 39.7 lbs.

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For details please contact:

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