


Yamaha takes AV amplifier evolution to a new peak with an enormous range of exciting capabilities.

 Brilliant Audio: Titanium


Unprecedented Audio Performance

- 7-channel 240W/ch + 4-channel 90W/ch powerful surround sound (max)
- Digital ToP-ART and High Current Amplification with high quality and custom-built audio-grade parts and devices used throughout
- Super Stable Chassis design

High Sound Quality

Preamplifier Stage

- New Pure Direct for lossless audio formats also
- Pure Ground DAC Concept
- High quality preamplifier block design
- Low-Jitter PLL and Digital Clock Circuits
- High quality headphone amplifier circuit

Power Amplifier Stage

- All-Channel Current Feedback Circuit
- Hybrid Low Noise Power Supply
- Symmetrical Layout and New Power Circuit Layout
- Low-impedance, minimum loop print pattern
- Thick aluminium panels and large, heavy feet

High Picture Quality

- Latest HDMI 1.3a specification supports Deep Color (30/36 bit) transmission, xvYCC color space, Refresh Rates of 100Hz/120Hz and 1080p/24Hz, and Auto Lip-Sync compensation
- Analogue and HDMI digital video signal upscaling to Full HD 1080p and downscaling to 480p/576p format

- Analogue video to HDMI digital video upconversion capability
 - 4 component video in and 2 monitor outs

Advanced Features

- Network Receiver Capabilities
 - Network port to connect a PC and Yamaha MCX-2000 or access the Internet Radio via LAN
 - Compatible with Windows Vista & Windows Media Player 11 as well as Windows Media Connect
 - PlaysForSure network device support
 - 2 USB ports (1 on front, 1 on rear) to connect USB memory devices or portable audio players
 - Supports MTP devices and Mass Storage Class devices
 - Supports 500mA power from USB port
 - Supports USB HDD (FAT32 format, up to 2TB)
- iPod compatibility via optional Yamaha Universal Dock YDS-10
- Advanced YPAO (Yamaha Parametric Room Acoustic Optimiser) for automatic speaker setup
 - Multiple point measurement feature for multiple listening positions
 - Specialised parametric equaliser for standing wave reduction
 - Speaker angle measurement feature for optimised CINEMA DSP
 - YPAO Easy Starter
- Multiple Subwoofer connection capability

- 6 or 8-channel additional input jacks for discrete multi-channel inputs
- 10 System Memories for Main Zone and 4 System Memories for other each Zone
- GUI on-screen display of six languages: English, French, German, Spanish, Russian and Japanese

Versatile Zone Control

- Intelligent assignable amplifiers: bi-amping and multi-zone control (Zone 2/Zone 3/Zone 4)
- Preamplifier Mode
- Zone 2 video output (component and composite) with OSD capability
- Zone 2 digital audio output (coaxial)
- Party Mode
- Display of song data and radio information on zone OSDs
- Sleep timer and mute level for all zones
- Zone Mono
- Flexible and assignable dual +12V trigger outs

Surround Realism

- New CINEMA DSP HD³ creates lush, dense, accurate sound field with 33 DSP programmes
- THX Ultra2 Plus surround modes with 7 THX programmes (Industry first)
- Improved Compressed Music Enhancer
- Adaptive DRC (Dynamic Range Control) and DSP effect level controlling capability
 - SILENT CINEMA and Virtual CINEMA DSP

For the HD Audio Era

Yamaha's main goal for the DSP-Z11 was to achieve the highest possible sound quality through lossless reproduction via HDMI signal transmission. We began with no preconceived notions, designing everything purely for the purpose of creating a new receiver standard for the HD audio era. We focused especially on the fact that not only analogue and digital signal transmission by coaxial or optical routes, but also transmission by the HDMI route will be a priority in the future.

Achieving our goal for the DSP-Z11 involved a huge number of design considerations, but five of the most important ones are as follows. We used the Pure Ground DAC concept to realise the best possible sound reproduction from HDMI transmitted signals. We employed two-stage jitter reduction, consisting of a low-jitter PLL circuit and VCXO processing that includes HDMI signal input for stable clock operation. An 11-channel current feedback circuit contributed to open and appealing sound quality. We opened a new era of sound field creation through the use of 7.2-channel plus 4-channel presence speaker setting and CINEMA DSP HD³. And we developed a New Pure Direct that controls the power supply and route according to the multi-channel and HD audio reproduction.

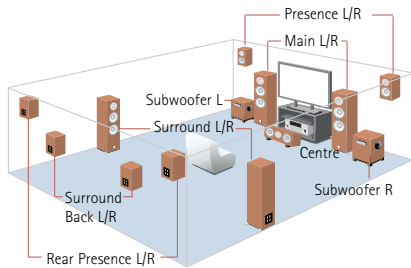
The result is a truly impressive reference receiver for realising all the possibilities of the HD audio era.

Unprecedented Audio Performance

11.2-Channel High Density Surround Sound (7-Channel 240W/ch + 4-Channel 90W/ch, Max)

The DSP-Z11 delivers 240W x 7 channels plus 90W to the four presence and rear presence channels. It also allows the simultaneous use of two subwoofers (hence 11.2 channels). In addition to Yamaha's latest CINEMA DSP HD³ technology for high density, incredibly detailed surround sound, it provides extensive zone customisation functions, enabling the 11 amp channels to be allocated to zones 2, 3 and 4 in various configurations.

DSP-Z11 11.2-Channel Speaker Configuration



Digital ToP-ART and High Current Amplification

Yamaha's Digital ToP-ART design concept ensures that the receiver is fully capable of handling the transmission of high volume digital sound data at speeds up to 192kHz. The interior layout thoroughly isolates the digital, analogue and video sections and provides



- 1 Custom-made 27,000µF block capacitors
- 2 Extra-large 10kg power transformer
- 3 High efficiency heat sink
- 4 Large-size speaker terminals
- 5 Volume IC JRC NJM1194 (left), Burr Brown audio DAC (DSD1796, centre) and Op amp LM4562 (right)
- 6 Schottky barrier diodes

the shortest possible signal routes. To achieve the quality demanded by the latest lossless compression formats received via HDMI bitstream transmission, circuit board designs were radically revised and parts selection was reevaluated. The DSP-Z11's superior parts include Burr-Brown DSD1796 DACs, an op amp, custom-made 27,000µF block capacitors and Schottky barrier diodes. A Variable Volume Control helps provide the best possible S/N ratio. High Current Amplification circuitry achieves high current power with low impedance for superior amplifier performance.

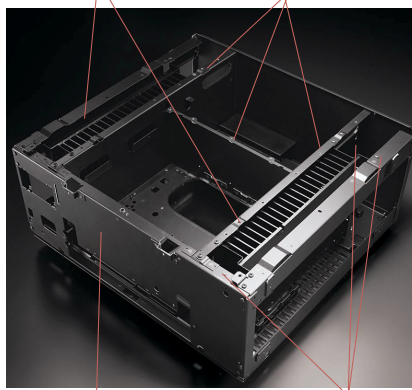


Super Stable Chassis Design

The internal chassis design uses an ultra-rigid Rahmen structure, which is a series of H-shaped frames. This rectangular structure secures and isolates the parts sections, while reducing vibration to a negligible amount. The external chassis walls are thick (1.6mm) and heavy.

High efficiency heat sinks

H-shape frames to hold heavy and big power transformer



1.6mm super stable chassis

Rahmen structure (series of rectangle frames)

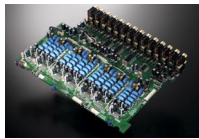
High Sound Quality: Preamp Stage

New Pure Direct Concept

For the DSP-Z11, Yamaha has upgraded its popular Pure Direct feature. It now provides higher sound quality from lossless audio formats digitally transmitted via HDMI, while still ensuring optimum quality from CD and analogue audio sources. It allows the enjoyment of two-channel CD output, multi-channel Super Audio CD and DVD-Audio output, and even Blu-ray, HD-DVD and other HD sources.

Pure Ground DAC Concept

The DACs, vital determinants of digital audio quality, are placed on the analogue circuit board, preventing the large ground potential differences that can occur when the digital and analogue sections are far apart. Furthermore, the DACs are connected directly to the power supply to avoid degradation of low level signals. This helps to maximise both two-channel and multi-channel audio performance.



Preamp Circuit Board

High Quality Preamp Block Design

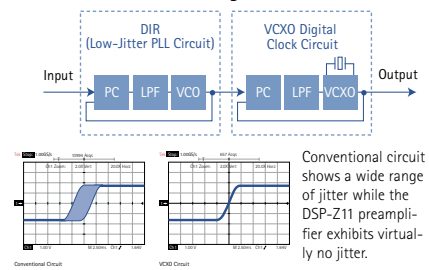
The printed circuit boards are located very close to each other. This has the advantages of minimising signal paths, shortening signal loops and improving noise isolation from other circuits.



Low-Jitter PLL and Digital Clock Circuits

The preamplifier stage incorporates both a low-jitter PLL circuit and a VCXO digital clock circuit, significantly reducing jitter from digital inputs so sound processing can be accomplished without being affected by jitter. This is particularly effective in improving the sound quality of digital signals that are input via HDMI.

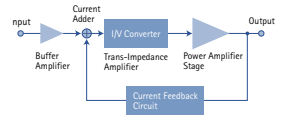
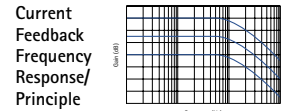
Low-Jitter PLL and VCXO Digital Clock Circuits



High Sound Quality: Power Amplifier Stage

All Channel Current Feedback Circuit

The power amplifier uses current rather than voltage for feedback in all channels. Because there is virtually no phase shift, phase compensation can be kept to a minimum. This contributes to the DSP-Z11's excellent transient response, allows frequency response to remain unchanged even when the gain changes, and creates a warmer, texture-rich sound.



Hybrid Low Noise Power Supply

A highly efficient DC-DC converter and extra-large transformer is used for the digital circuit, which requires high current input, and a low noise power supply circuit for the analog audio circuit. An independent current power path is provided for the speaker relays and display.



Digital power circuit board (top) and analog power board (bottom)

Symmetrical Layout and New Power Circuit Layout

The heavy power transformer is in the centre with the heat sinks on either side to ensure equal weight distribution. The power circuit layout separates the video and digital audio section from the analogue audio section to eliminate adverse influences, and distances between circuits and power supplies were shortened to avoid high current loop problems.



Thick Aluminium Panels and Large, Heavy Feet

Thick aluminium panels are used throughout to prevent vibration and maintain high performance audio reproduction. The large, heavy feet also serve to dampen external vibrations.

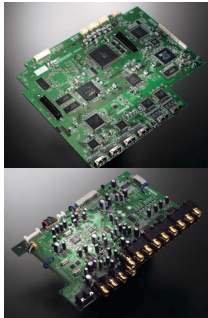


Ultra rigid feet and large twin-fan (92mm) cooling system

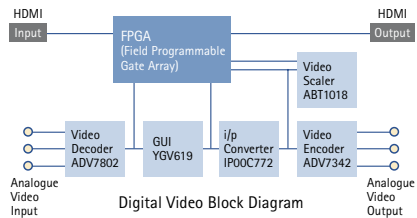
High Picture Quality

HDMI 1.3a Compatibility

The DSP-Z11 is compatible with the newest version of the HDMI standard, 1.3a, providing the benefits of Deep Color (30/36bit) and the xvYCC colour standard. Digital video and audio signals can be transmitted via a single HDMI cable and it accepts the lossless audio formats Dolby TrueHD and DTS Master Audio. There are five HDMI inputs, one of which is on the front panel, as well as two HDMI outputs that allow images to be displayed on two devices, such as a flat panel monitor and a projector. HDMI 1.3a means the DSP-Z11 can handle the high 1080p/24Hz resolution of Blu-ray Discs, and also provides an Auto Lip-Sync function that automatically adjusts the lag between video and audio and a double speed Refresh Rate of 100Hz/120Hz.

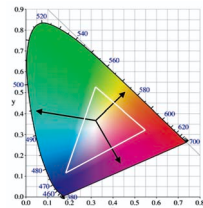


Digital video circuit board (top) and analog UE video board (bottom)



xvYCC Colour Space

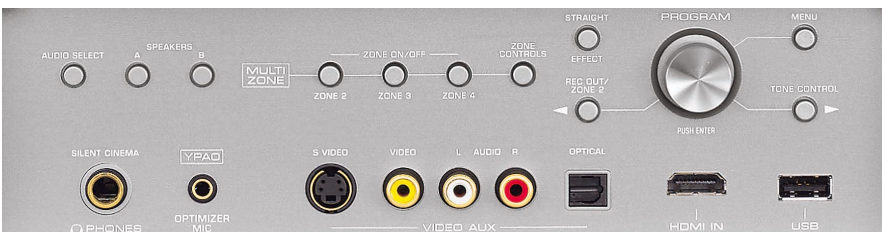
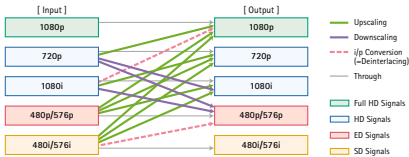
When you use the DSP-Z11's HDMI outputs to transmit video signals, you enjoy spectacular color performance. One reason is that HDMI 1.3a uses a new colour standard called xvYCC, which supports 1.8 times as many colours as previous HDTV signals. This expanded range of colours means that HDTVs can display images with colours that are far more natural and vivid than ever before.



The Best-Balanced Video Processing Configuration

After an extensive evaluation of video processing configurations, Yamaha found that there is no single chip solution that can achieve optimum

HDMI Video Upscaling (both analogue and digital inputs)



Oil-Damped Hidden Control Panel includes HDMI interface, USB port, Aux input terminals with S-Video and optical digital, Zone 2/Zone 3/Zone 4 power on/off switches, rec out/Zone 2 selector, YPAO optimised microphone jack, and more.

system performance for the DSP-Z11 in both the SD and HD domains. Therefore Yamaha decided to use a dedicated i/p converter and a dedicated video scaler. The i/p converter (480i/576i to 480p/576p) features a 10-bit processing Motion Adaptive Deinterlacing Engine with Enhanced Motion Detection Filter, Diagonal Processing and 2:2/2:3 Pull-Down Detection. The video scaler is the Anchor Bay ABT1018, featuring a 10-bit Precision Video Scaling™ engine that can independently scale images horizontally and vertically to achieve outstanding picture quality. The result is a very stable picture with no jaggies and no flicker with HD deinterlacing.

Advanced Features

Network Receiver Capabilities

Like other Yamaha network receivers, the DSP-Z11 can be connected to a PC or Yamaha MCX-2000, and can access Internet Radio via a LAN. It supports the LAN standby mode, allowing an external controller to send commands via an ethernet link. Two USB ports are provided, on the front and rear, with 500mA power support. It is compatible with PlaysForSure devices, Windows Vista, Yamaha Music CAST and various audio Codecs such as MP3, WMA, WAV and MPEG4 AAC.



Advanced YPAO Sound Optimisation Auto Setup

Yamaha's YPAO Sound Optimisation system analyses the room acoustics and various system factors, then makes adjustments to provide optimum sound quality. In addition to the previous adjustments for speaker size, distance and wiring, plus equalisation and level, this Advanced YPAO has four new capabilities. The first is measurement at multiple locations (up to eight). It does not average the results but performs analysis weighted in accordance with the state of each location to calculate compensation values. This results in a larger "sweet spot" at the listening position. The second is the use of parametric equalisation to cancel the effects of standing waves, which degrade low range response. The third is speaker angle measurements to optimise CINEMA DSP effects. And the fourth is an Easy Starter feature that activates YPAO when the microphone is inserted and the Enter button is pressed, with information shown on the display.



40 Surround (33 DSP) Programmes

Compatible Decoder Straight

- Dolby Digital
- Dolby Digital EX
- Dolby Digital Plus
- Dolby Digital TrueHD
- DTS Digital Surround
- DTS 96/24
- DTS-ES Matrix 6.1
- DTS-ES Discrete 6.1
- DTS-HD High Resolution Audio
- DTS-HD Master Audio
- Dolby Pro Logic
- Dolby Pro Logic II Music
- Dolby Pro Logic II Movie
- Dolby Pro Logic II Game
- Dolby Pro Logic IIx Music
- Dolby Pro Logic IIx Movie
- Dolby Pro Logic IIx Game
- DTS Neo:6 Music
- DTS Neo:6 Cinema

HiFi DSP Programmes 20

CLASSICAL1	Hall in Munich A
	Hall in Munich B
	Hall in Frankfurt
	Hall in Stuttgart
	Hall in Vienna
CLASSICAL2	Hall in Amsterdam
	Hall in USA A
	Hall in USA B
	Chamber
	Church in Tokyo
LIVE/CLUB	Church in Freiburg
	Church in Royaumont
	Village Gate
	Village Vanguard
	The Bottom Line
STEREO	Cellar Club
	The Roxy Theatre
	Warehouse Loft
	Arena
	11 Channel Stereo

CINEMA DSP Programmes 13

MOVIE	Standard
	Spectacle
	Sci-Fi
	Adventure
	Drama
ENTERTAINMENT	Mono Movie
	Sports
	Music Video
	Recital/Opera
	Pavilion
DSP Programme Total 33	Disco
	Action Game
	Roleplaying Game

THX Programmes 7

THX	Surround EX
	Ultra2 Cinema
	Cinema
Surround Program Total 40	Ultra2 Music
	Music
	Ultra2 Games
	Games

YDS-10 Universal Dock for iPod

The optional YDS-10 Universal Dock lets you connect your iPod to the amplifier.

iPod not included



Main Remote Unit

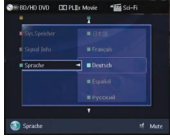
The remote unit has shock-sensor illuminated keys for easy operation in dim lighting — just pick it up and the keys light up. It features an improved key layout and an LCD window: the layout setup buttons (zone selector, macro mode, remote ID, remote setup and input select) are grouped around the LCD window. It also provides easy access to the System Memory.



Direct-access (macro-command, learning and preset capable) remote unit with shock sensor illuminated buttons (top) and simplified remote unit (bottom)

On-Screen Display with GUI

An on-screen GUI (Graphical User Interface) display makes operating the amplifier easy and intuitive. It is compatible with iPod, internet radio, PC and USB displays. Six display languages can be selected: English, Spanish, French, German, Russian and Japanese.



Versatile Zone Control

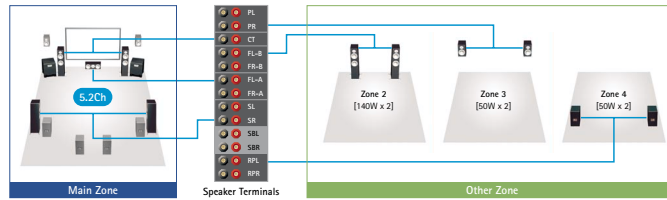
Super-Versatile Zone Control

The DSP-Z11 has extensive zone control capabilities, which are too numerous to explain here. The most important point is that the 11.2 channels can be assigned in a wide variety of configurations to Main/Zone 2/Zone 3/Zone 4. The presence, rear presence and EXT-D (by surround back amp) speaker terminals can be assigned to each zone. It provides Intelligent Power Amplifier Assignability (surround back amp assignment) and Independent Zone Amplifier Assignment with 7.2-channel main zone playback.

Also important is that Zone 2 can accept bitstream signals and also offers component video output and upconversion of composite and S-Video signals.

Some other convenient zone functions include: a Party Mode that permits audio BGM and video BGV play of the same input source in the main room and other three zones with one-button operation, a Zone OSD function that lets you browse information about the songs or PC/Tuner contents that are playing, Zone Mono that provides compatibility with one-speaker or

Super-Versatile Zone Control Example (5.2-Channel Main Zone + 3 Other Zone)

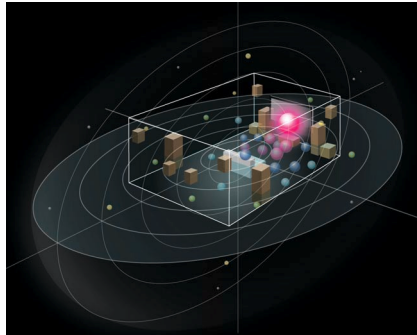


three-speaker installation environments, and a Pre-amplifier Mode that permits the entire 11-channel amplifier to be allotted for three-zone use (main zone powered by an external amp).

Surround Realism

CINEMA DSP HD³

The DSP-Z11 introduces Yamaha's latest digital sound field processing refinement: CINEMA DSP HD³. As amazing as the systems on the DSP-Z9 and RX-V3800 were, this system marks a further evolution of CINEMA DSP. It utilises four Quad CINEMA DSP engines and permits lossless decoding of 192kHz signals, while providing 3D processing that gives the sound field an extra vertical dimension. In its full 11-channel configuration setting it adds two presence and two rear presence speakers, offering the enjoyment of a completely new sound stage.



Adaptive DRC

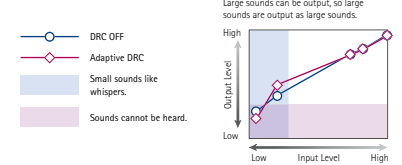
Adaptive DRC (Dynamic Range Control) is a new volume control technology that is effective for low-volume listening, such as at night or with headphones. It applies DRC processing to eliminate the volume differences between loud



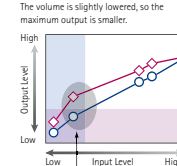
DSP board

commercials and ordinary programming and to take into account our ears' loss of sensitivity as volume decreases. The compensation is performed automatically, so all dialogue is heard clearly even at low levels, and there are no sudden loud bursts of sound.

Effect of Adaptive DRC

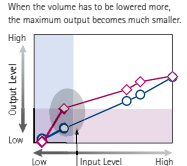


Volume at Lower Level



When DRC is off, whispered sounds are submerged in the area where sounds cannot be heard.

Volume at Considerably Lower Level



When DRC is off, the area where sounds cannot be heard is fairly large.

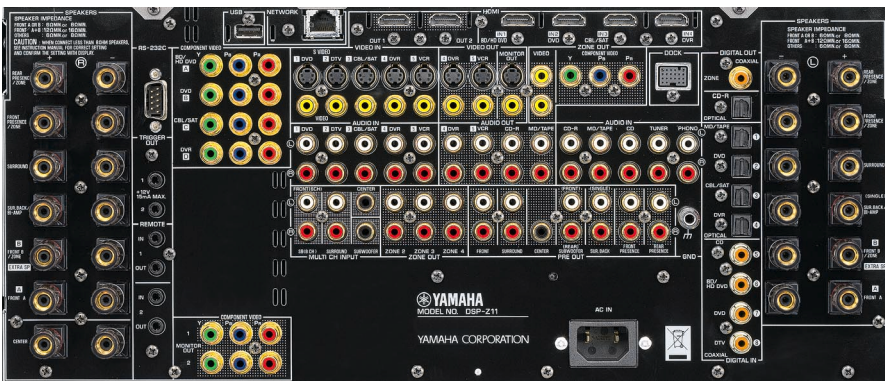
THX Ultra2 Plus Surround Mode

THX Ultra2 Plus includes the newest THX Loudness Plus technology. It lets you enjoy five THX programmes in the optimum condition, delivering a more accurate listening experience at any volume level.



Improved Compressed Music Enhancer

This popular feature restores the sound of the original music from digitally compressed formats such as MP3. The DSP-Z11 offers an improved version that processes multi-channel signals with a DSP algorithm, so all channels (rather than just two) are enhanced, for more accurate reproduction and a more expansive sound.



Inputs	HDMI*	5	Outputs	HDMI	2
	USB*	2		Optical Digital (Fixed and Assignable)	1
	Dock Terminal for YDS-10	1		Coaxial Digital (Fixed and Assignable)	1
	Optical Digital (Fixed and Assignable)*	5		Analogue A/V / Audio	2 / 2
	Coaxial Digital (Fixed and Assignable)	4		S-Video	2
	S-Video*	6		Component Video Monitor	2
	Analogue A/V / Audio*	6 / 5		S-Video / Composite Monitor	1 / 1
Component Video (Fixed and Assignable)	4	Speaker (Without Subwoofer)	11ch / 13 ter.		
Multi-Channel External Decoder	8ch	Subwoofer	2		
Others			Zone 2 Video Out (Component/Composite)	1 / 2	
			Zone 2 Audio Out (Optical/Coaxial)	1 / 1	
			Zone 3 Audio Out	1 / 1	
			Zone 4 Audio Out	1 / 1	
			Remote In/Out	2 / 2	
		Trigger Out	2		
		RS-232C	1		

* Including front panel terminals.

• Banana-plug compatible speaker terminals are not available in some areas.

Main Specifications

Maximum Output Power per Channel [for Europe]	
(4 ohms Load/8 ohms Position, 1 kHz, 0.7% THD)	
Front Channels	240 W + 240 W
Centre Channel	240 W
Surround Channels	240 W + 240 W
Surround Back Channels	240 W + 240 W
Presence Channels	90 W + 90 W
Rear Presence Channels	90 W + 90 W
Min. RMS Output Power	
(8 ohms, 20 Hz-20 kHz, 0.04% THD)	
Front Channels	140 W + 140 W
Centre Channel	140 W
Surround Channels	140 W + 140 W
Surround Back Channels	140 W + 140 W
Presence Channels	50 W + 50 W
Rear Presence Channels	50 W + 50 W
Dynamic Power (8/6/4/2 ohms)	185/230/290/385 W
Damping Factor (8 ohms)	150 (1 kHz, speaker A)
Total Harmonic Distortion (Sp out Front L/R)	
(CD, etc.; 20 Hz-20 kHz) 0.02% (70 W/8 ohms)	
Signal-to-Noise Ratio (CD, etc.)	100 dB (250 mV)
Dimensions (W x H x D)	435 x 210 x 497 mm
Weight	34 kg



Black finish available in some areas.

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d-cinema™ "d-cinema" is the slogan of Yamaha A/V products and technology, reflecting our focus on digital technology and our leadership in creating and refining digital home theatre.