YAMAHA

AV Receiver

RX-A3020
RX-A2020
Owner's Manual

Read the supplied booklet "Safety Brochure" before using the unit.

English

CONTENTS

APPENDIX 145

Accessories

Check that the following accessories are supplied with the product.

☐ Remote control
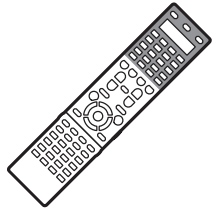
☐ Batteries (x4)
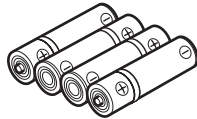
*RX-A3020: AAA, LR03, UM-4
RX-A2020: AAA, R03, UM-4
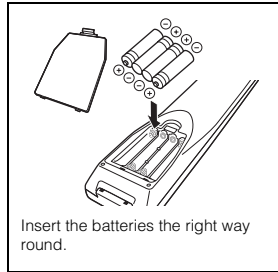
Insert the batteries the right way round.

☐ AM antenna
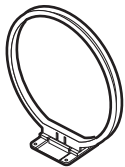
☐ FM antenna
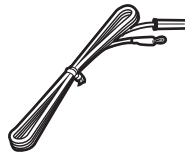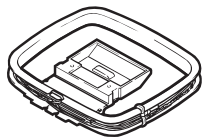
*One of the above is supplied depending on the region of purchase.

*One of the above is supplied depending on the region of purchase.

☐ YPAO microphone
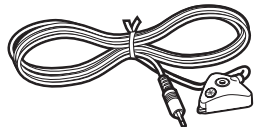
☐ Microphone base (RX-A3020 only)

☐ Power cable

*Using for angle measurement during YPAO.

*The supplied power cable varies depending on the region of purchase.

☐ CD-ROM (Owner's Manual)

☐ Easy Setup Guide

☐ Safety Brochure

Operating range of the remote control

• Point the remote control at the remote control sensor on the unit and remain within the operating range shown below.

Within 6 m (20 ft)

30°   30°
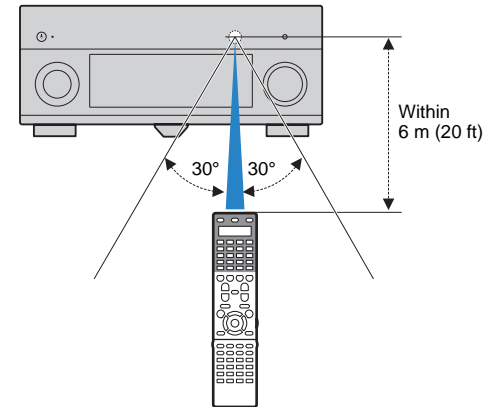
• The illustrations of the main unit and remote control used in this manual are of the RX-A3020 (U.S.A. model), unless otherwise specified.

• Some features are not available in certain regions.

• Due to product improvements, specifications and appearance are subject to change without notice.

• This manual explains operations using the supplied remote control.

• This manual describes all the "iPod", "iPhone" and "iPad" as the "iPod". "iPod" refers to "iPod", "iPhone" and "iPad", unless otherwise specified.

• ! indicates precautions for use of the unit and its feature limitations.

• indicates supplementary explanations for better use.

FEATURES

What you can do with the unit

Wide variety of supported content

- iPod/iPhone/iPad → **p.76**
- USB → **p.80**
- Media server (PC/NAS) → **p.83**
- Internet radio → **p.86**
- AirPlay → **p.88**

Network contents

iPod/iPhone/iPad

USB device

Audio

Speakers

Audio
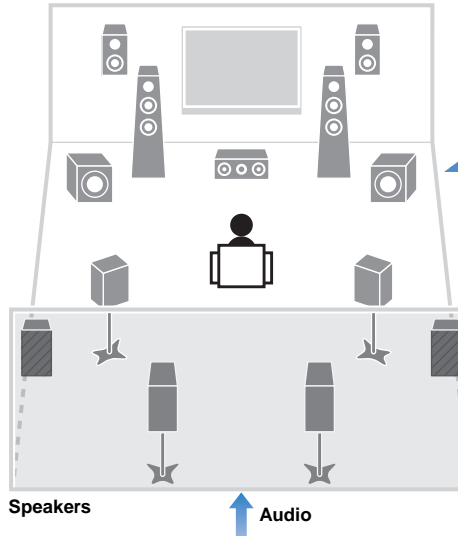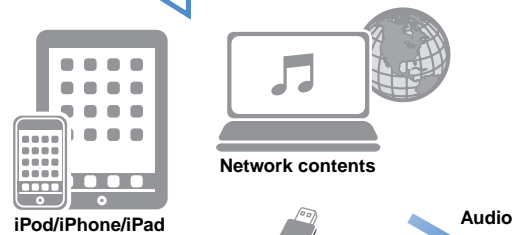
Supports 2- to 9-channel (plus rear presence) speaker system and up to 2 subwoofer connections. Allows you to enjoy favorite acoustic spaces in various styles.

- Automatically optimizing the speaker settings to suit your room (YPAO) → **p.50**
- Reproducing stereo or multichannel sounds with the sound fields like actual movie theaters and concert halls (CINEMA DSP) → **p.64**
- Enjoying compressed music with enhanced sound (Compressed Music Enhancer) → **p.68**
- Bi-amp connections, channel expansion (with external power-amp) and multi-zone configurations to enhance your system → **p.24**

3D and 4K signals supported

HDMI Control

Audio/Video

BD/DVD player

AV receiver (the unit)

HDMI Control

Audio

Video

TV

Operating external devices with the supplied remote control
→ **p.136**

The unit's remote control

Change the input source and favorite settings with one touch (SCENE)
→ **p.61**

TV remote control

Sequential operation of a TV, AV receiver, and BD/DVD player (HDMI Control)
→ **p.158**
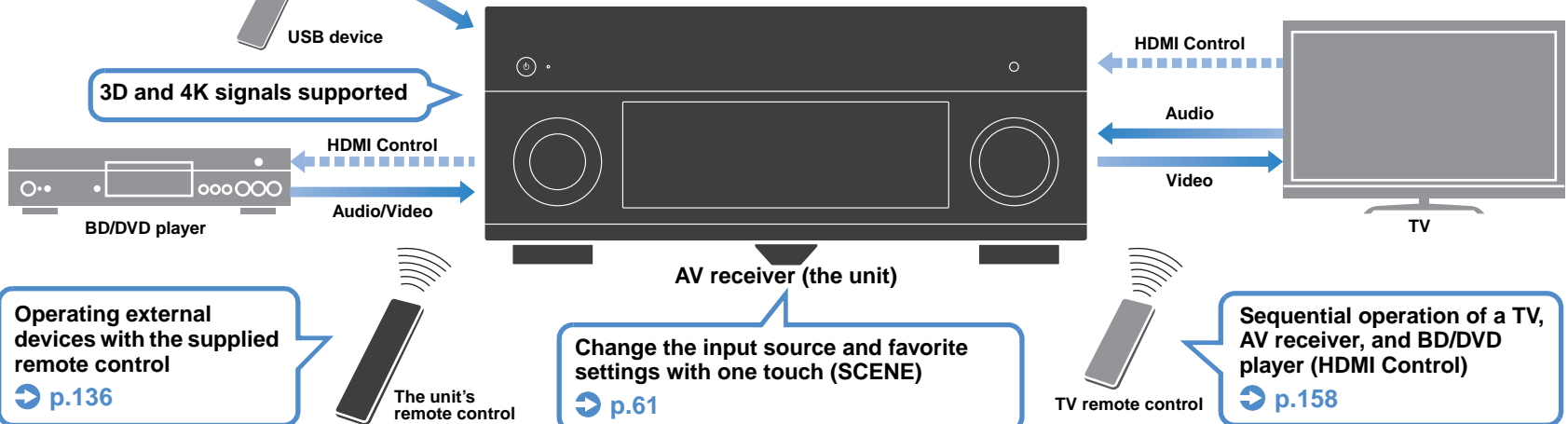
Full of useful functions!

❏ Connecting various devices (p.41)

A number of HDMI jacks and various input/output jacks on the unit allow you to connect video devices (such as BD/DVD players), audio devices (such as CD players), game consoles, camcorders, and other devices.

BD/DVD player

Game console

CD player

Camcorder

TV

Turntable
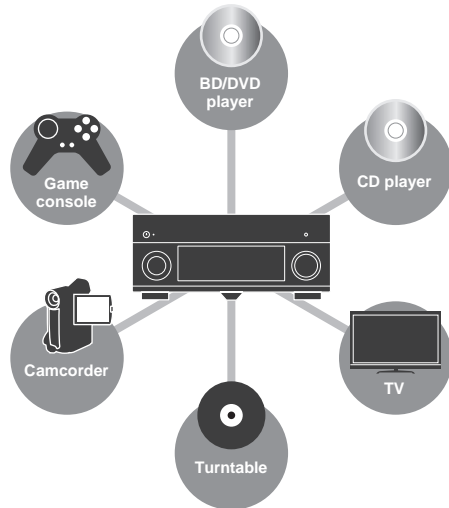
❏ Playing back TV audio in surround sound with a single HDMI cable connection (Audio Return Channel: ARC) (p.35)

When using an ARC -compatible TV, you only need one HDMI cable to enable video output to the TV, audio input from the TV, and the transmission of HDMI Control signals.

HDMI Control
TV audio

Video from external device
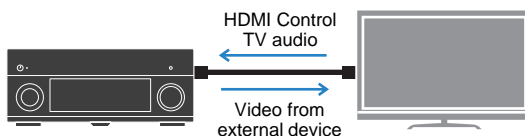
❏ Listening to FM/AM radio (p.69)

The unit is equipped with a built-in FM/AM tuner. You can register up to 40 favorite radio stations as presets.

❏ Enjoying pure high fidelity sound (p.68)

When the Pure Direct mode is enabled, the unit plays back the selected source with the least circuitry, which lets you to enjoy Hi-Fi sound quality.

❏ Easy operation with a TV screen

You can navigate through different types of content (such as iPod, USB, and network), view information, or easily configure the settings using the on-screen menu.

❏ Low power consumption

The ECO mode (power saving function) reduces the unit's power consumption (p.130).

❏ Backlight illumination remote control

RX-A3020

The backlight illumination allows you to easily operate the remote control even in a dark home theater room.

Useful tips

I want to connect a playback device using HDMI for video and non-HDMI for audio...

Use "Audio Select" in the "Option" menu to specify the type of an audio input jack to be used for the corresponding input source (p.101).

Video and audio are not synchronized...

Use "Lipsync" in the "Setup" menu to adjust the delay between video and audio output (p.118).

I want to hear audio from the TV speakers...

Use "Audio Output" in the "Setup" menu to select the output destination of signals input into the unit (p.122). Your TV speakers may be selected as an output destination.

I want to change the on-screen menu language...

Use "Language" in the "Setup" menu to select a language from English, Japanese, French, German, Spanish, Russian and Chinese (p.49).

I want to update the firmware...

Use "FIRM UPDATE" in the "ADVANCED SETUP" menu to update the unit's firmware (p.135). If the unit is connected to the Internet, a message will be displayed on the TV when a firmware update is available (p.144).

Many other settings are available that let you to customize the unit. For details, see the following pages.

• Input settings (p.103)

• Scene settings (p.106)

• Sound program and surround decoder settings (p.109)

• Various function settings (p.112)

• Information view (such as audio signal and video signal) (p.131)

• System settings (p.133)

CINEMA DSP

The excitement of a concert hall and the powerful sense of being inside a movie - we all want to enjoy these experiences in our own living room. Yamaha has pursued the fulfillment of these desires for more than 20 years, and this fulfillment has now taken shape as the Yamaha AV receivers.

What is a sound field?

We perceive sound from a voice or an instrument not only as the sounds that are heard directly but also as the "reflected" or "reverberant" sound that has been reflected by the walls or ceiling of the building. The character of the reflected and reverberant sound is affected by the shape, size, and material of the building, and all of these sounds taken together are what give us the auditory sensation of being in that specific place.

This unique acoustical character of a specific space is what we call the "sound field".

Conceptual diagram of a concert hall's sound field
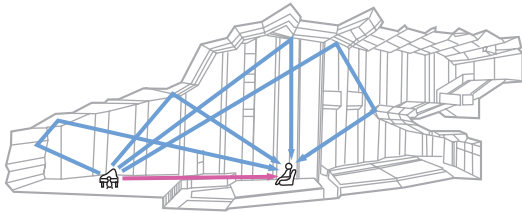
Conceptual diagram of a sound field created by the unit
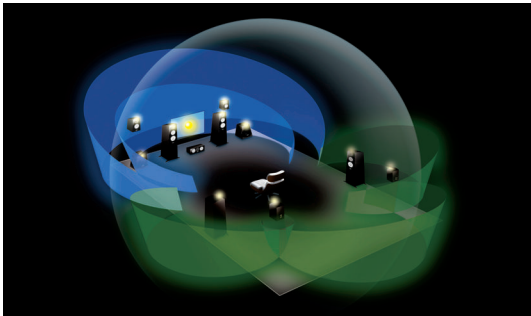
CINEMA DSP/CINEMA DSP 3D

Yamaha has accumulated a massive amount of acoustical data by analyzing the actual sound fields of concert halls and performance spaces around the world. "CINEMA DSP" allows this data to be applied to create sound fields. This unit contains a wide variety of sound programs using CINEMA DSP.

By selecting a sound program that is appropriate to the content of the playback source such as movies, music, or games, you can maximize the acoustical effectiveness of that specific content. (For example, a sound program designed for movies can give you the sensation of actually being in that scene.)

In addition, the "CINEMA DSP 3D" function uses 3-dimensional sound field data that includes the axis of height, generating an even more realistic sound field with a spatial sense.

CINEMA DSP HD³   RX-A3020

"CINEMA DSP HD³" is Yamaha's flagship 3D sound field playback technology that takes full advantage of the massive amount of acoustic reflection data included in the sound field data. With support for rear presence speaker output, it delivers more than twice as much capability for generating acoustic reflections as conventional CINEMA DSP 3D, in addition to high-frequency playback capability, delivering an utterly natural and powerful spatial sound field.

Capability for reproducing reflections (when the sound program "Hall in Munich" is selected)
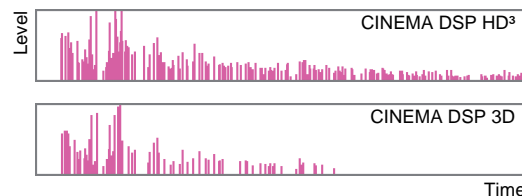
Optimizing speaker settings for the environment (YPAO)

The included YPAO microphone can be used to analyze the environment so that this information can be used to automatically adjust various settings for the speakers and the sound field. This allows the distinctive character of the content you are hearing to be maximized, and optimizes the effectiveness of Yamaha's sound field generating technology for your specific listening environment.

YPAO-R.S.C.

In rooms that have not been designed or constructed with acoustics in mind, reflections from the walls or ceiling can cause problems such as a blurred low-frequency range or a smearing of the acoustical image. "YPAO-R.S.C." is technology that reduces only the unwanted reflections that can be difficult to avoid in a typical home. This corrects the tonal changes and inconsistencies in the sound field that can occur due to speaker placement, thus creating a listening environment comparable to that of a room specifically designed for acoustic perfection.
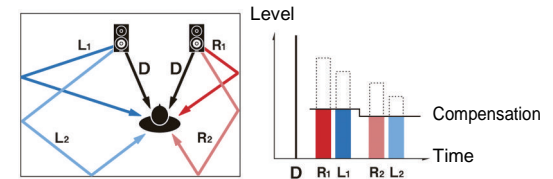
Angle measurement   RX-A3020

The direction (angle) of the front speakers, surround speakers, and presence speakers as seen from the listening position is measured, and compensation is applied to the sound field in order to maximize the effectiveness of the CINEMA DSP sound field.

Microphone base
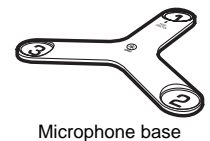
Unrivaled audio and video quality

High-resolution music enhancer

Hi-bit high-sampling extension up to 96 kHz / 24-bit can be applied to lossless 44.1/48 kHz content such as from a CD (2-channel PCM) or a FLAC file for further heightening of the musicality in the original content (p.101)

Before processing

Playback bandwidth of a 44.1/48 kHz signal (such as a CD)

Loudness / Frequency

After processing

Playback bandwidth of a 88.2/96 kHz signal

Loudness / Frequency
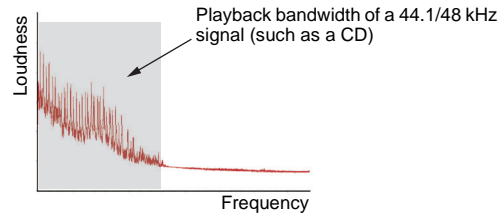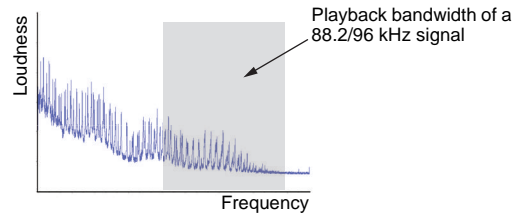
High-quality video processing

From low-quality digital video to BD (Blu-ray disc) images, any content can be played back as a high-quality image (p.119).

- High-performance I/P conversion, high-performance scaling
- Powerful noise reduction
- Resolution enhancement adds more detail

The RX-A3020 can also apply fine touches such as noise reduction and resolution enhancement.

Expandable to meet diverse needs

Support for bi-amp connections and external power amp expansion

To obtain even high audio quality, you can connect front speakers that support power amp expansion, or expand your system by adding an external power amp (such as a Hi-Fi amp).

For details, refer to "Advanced speaker configuration" (p.24).

The best expandability in Yamaha   `RX-A3020`

By connecting an external power amp, you can enjoy the highest peak of CINEMA DSP - an 11.2-channel 3-dimensional sound field.

(Example)

External power amp
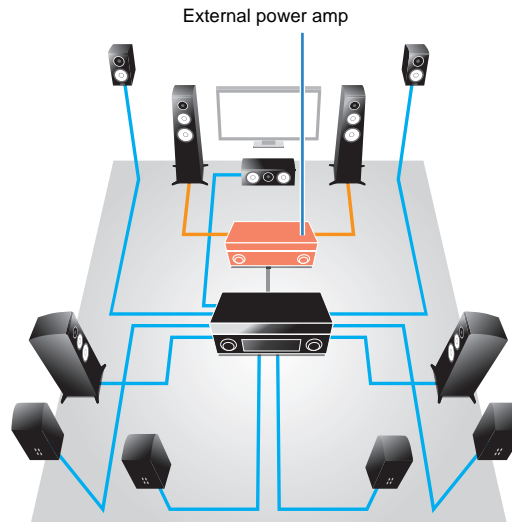
Multi-zone function

The multi-zone function (p.90) allows you to play back different input sources in the room where the unit is installed (main zone) and in other rooms (such as Zone2).

(The following shows examples of use.)

Enjoying music using speakers in another room

While enjoying multi-channel playback in your living room, you can listen to music through the speakers of a different room.

Study room (such as Zone2)

Living room (main zone)
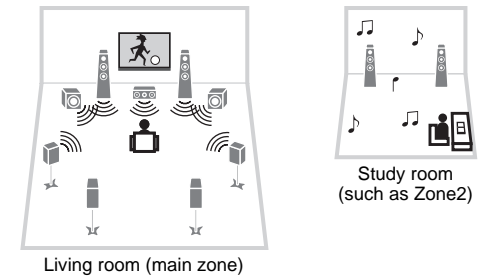
Enjoying videos using a TV in another room (HDMI connection)   `RX-A3020`

While enjoying multi-channel playback in your living room, you can enjoy videos and music being input via HDMI on a TV in a different room.

Kitchen (such as Zone4)

Living room (main zone)
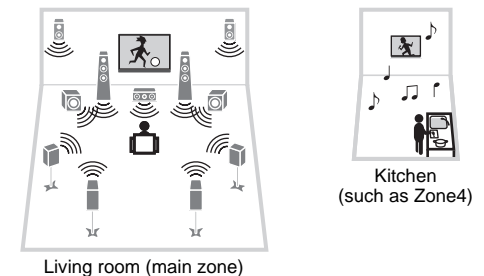
Part names and functions

Front panel
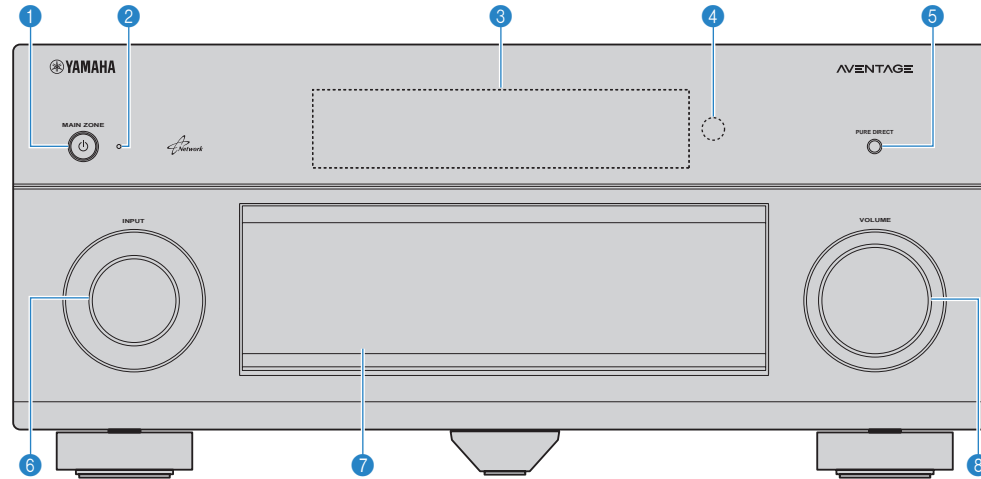
① MAIN ZONE ⏻ key
Turns on/off (standby) the unit.

② Standby indicator
Lights up when the unit is in standby mode under any of the following conditions.
- HDMI Control is enabled (p.122)
- Standby Through is enabled (p.123)
- Network Standby is enabled (p.124)
- An iPod is being charged (p.76)

③ Front display
Displays information (p.12).

④ Remote control sensor
Receives remote control signals (p.5).

⑤ PURE DIRECT key
Enables/disables Pure Direct (p.68).

⑥ INPUT knob
Selects an input source.

⑦ Front panel door
For protecting controls and jacks (p.11)

⑧ VOLUME knob
Adjusts the volume.

Opening the front panel door

- To use controls or jacks behind the front panel door, gently press the bottom of the door to open it. Keep the door closed when not using controls or jacks behind the front panel door. (Be careful not to trap your fingers.)
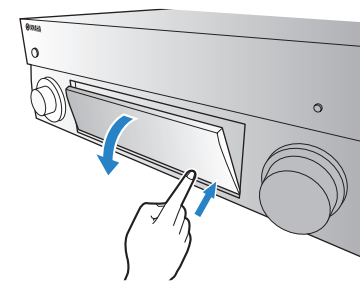
■ Inside of the front panel door

(RX-A3020)
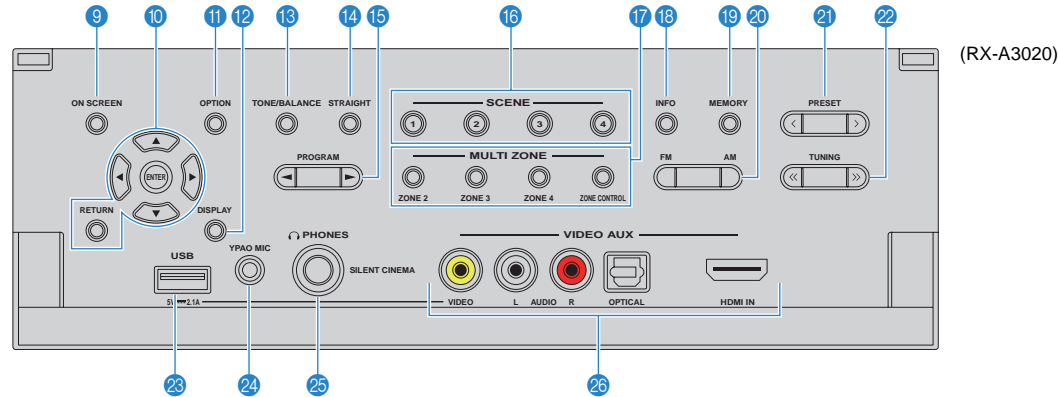
⑨ ON SCREEN key

Displays the on-screen menu on the TV.

⑩ Menu operations keys

Cursor keys   Select a menu or a parameter.
ENTER   Confirms a selected item.
RETURN   Returns to the previous screen.

⑪ OPTION key

Displays the option menu (p.98).

⑫ DISPLAY key

Displays status information on the TV (p.97).

⑬ TONE/BALANCE key

Adjusts the high-frequency range and low-frequency range of output sounds (p.99).
Adjusts the right/left channel volume balance for Zone2 or Zone3 (p.96).

⑭ STRAIGHT key

Enables/disables the straight decode mode (p.67).

⑮ PROGRAM keys

Select a sound program or a surround decoder (p.63).

⑯ SCENE keys

Select the registered input source, sound program, and various settings with one touch. Also, turns on the unit when it is in standby mode (p.61).

⑰ MULTI ZONE keys

ZONE 2–4   (ZONE 4: RX-A3020 only)
                Enables/disables the audio output to each zone (p.95).
ZONE CONTROL   Changes the zone that is controlled by the keys and knobs on the front panel (p.95).

⑱ INFO key

Selects the information displayed on the front display (p.97).

⑲ MEMORY key

Registers FM/AM radio stations as preset stations (p.70).

⑳ FM and AM keys

Switch between FM and AM (p.69).

㉑ PRESET keys

Select a preset FM/AM radio station (p.70).

㉒ TUNING keys

Select the radio frequency (p.69).

㉓ USB jack

For connecting a USB storage device (p.80) or an iPod (p.76).

㉔ YPAO MIC jack

For connecting the supplied YPAO microphone (p.50).

㉕ PHONES jack

For connecting headphones.

㉖ VIDEO AUX jacks

For connecting devices, such as camcorders and game consoles (p.44).

Front display (indicators)

(RX-A3020 U.S.A. model)
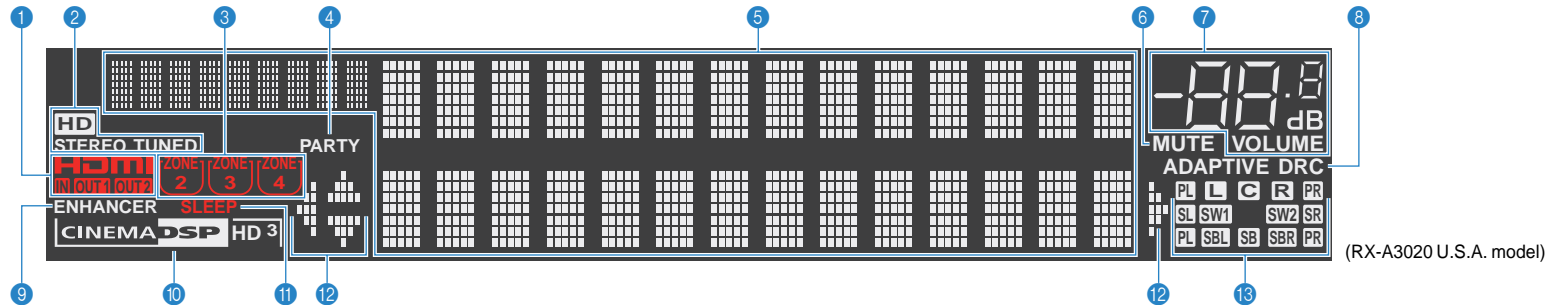
① HDMI
Lights up when HDMI signals are being input or output.

IN
Lights up when HDMI signals are being input.

OUT1/OUT2
Indicates the HDMI OUT jacks currently outputting an HDMI signal.

② STEREO
Lights up when the unit is receiving a stereo FM radio signal.

TUNED
Lights up when the unit is receiving an FM/AM radio station signal.

HD
(U.S.A. model only)
Lights up when the unit is receiving an HD Radio station signal.

③ ZONE indicators
Lights up when Zone2, Zone3 or Zone4 (RX-A3020 only) is enabled (p.95).

④ PARTY
Lights up when the unit is in the party mode. (p.96)

⑤ Information display
Displays the current status (such as input name and sound mode name). You can switch the information by pressing INFO (p.97).

⑥ MUTE
Blinks when audio is muted.

⑦ Volume indicator
Indicates the current volume.

⑧ ADAPTIVE DRC
Lights up when Adaptive DRC (p.99) is working.

⑨ ENHANCER
Lights up when Compressed Music Enhancer (p.68) is working.

⑩ CINEMA DSP indicator
(RX-A3020)
"CINEMA DSP HD" lights up when CINEMA DSP (p.64) is working. "CINEMA DSP $\overline{HD\,3}$" lights up when CINEMA DSP HD³ is activated.

(RX-A2020)
"CINEMA DSP" lights up when CINEMA DSP (p.64) is working. "CINEMA DSP $\overline{3}$" lights up when CINEMA DSP 3D is activated.

⑪ SLEEP
Lights up when the sleep timer is on.

⑫ Cursor indicators
Indicate the remote control cursor keys currently operational.

⑬ Speaker indicators
Indicate speaker terminals from which signals are output.
L Front speaker (L)
R Front speaker (R)
C Center speaker
SL Surround speaker (L)
SR Surround speaker (R)
SBL Surround back speaker (L)
SBR Surround back speaker (R)
SB Surround back speaker
PL Front/rear presence speakers (L)
PR Front/rear presence speakers (R)
SW1 Subwoofer (1)
SW2 Subwoofer (2)

Rear panel
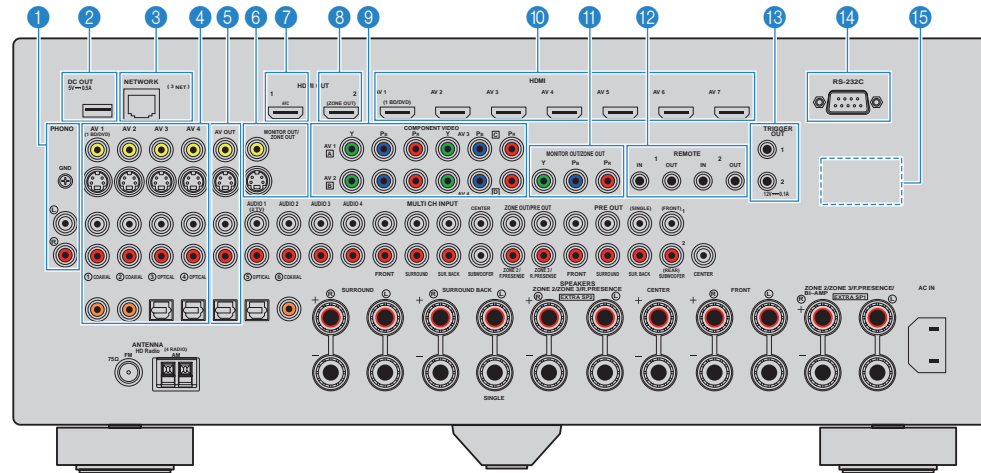
(RX-A3020 U.S.A. model)

* The area around the video/audio output jacks is marked in white on the actual product to prevent improper connections.

❶ **PHONO jacks**
For connecting to a turntable (p.43).

❷ **DC OUT jack**
For connecting to an optional accessory.

❸ **NETWORK jack**
For connecting to a network (p.45).

❹ **AV 1–4 jacks**
For connecting to video/audio playback devices and inputting video/audio signals (p.41).

❺ **AV OUT jacks**
For outputting video/audio to a recording device (such as a VCR) (p.46).

❻ **MONITOR OUT/ZONE OUT (composite video/S-video) jacks**
For connecting to a TV that supports composite video or S-video and outputting video signals (p.39) or for connecting to a zone video monitor used in Zone2 or Zone3 (p.92).

❼ **HDMI OUT 1 jack**
For connecting to an HDMI-compatible TV and outputting video/audio signals (p.35). When using ARC, TV audio signal can also be input through the HDMI OUT 1 jack.

❽ **HDMI OUT 2 (ZONE OUT) jack (RX-A3020)**
For connecting to an HDMI-compatible TV and outputting video/audio signals (p.40), or for connecting to an HDMI-compatible device used in Zone2 or Zone4 (p.93).

HDMI OUT 2 jack (RX-A2020)
For connecting to an HDMI-compatible TV and outputting video/audio signals (p.40).

❾ **COMPONENT VIDEO (AV 1–4) jacks**
For connecting to video playback devices that support component video and inputting video signals (p.41).

❿ **HDMI (AV 1–7) jacks**
For connecting to HDMI-compatible playback devices and inputting video/audio signals (p.41).

⓫ **MONITOR OUT/ZONE OUT (component video) jacks**
For connecting to a TV that supports component video and outputting video signals (p.39) or for connecting to a zone video monitor used in Zone2 or Zone3 (p.92).

⓬ **REMOTE IN/OUT 1–2 jacks**
For connecting to a Yamaha product that supports SCENE link playback (p.47) or for connecting to an infrared signal receiver/emitter that allows you to operate the unit and other devices from another room (p.94).

⓭ **TRIGGER OUT 1–2 jacks**
For connecting to devices that support the trigger function (p.47).

⓮ **RS-232C terminal**
This is a control expansion terminal for custom installation. Consult your dealer for details.

⓯ **VOLTAGE SELECTOR**
(General model only)
Selects the switch position according to your local voltage (p.48).
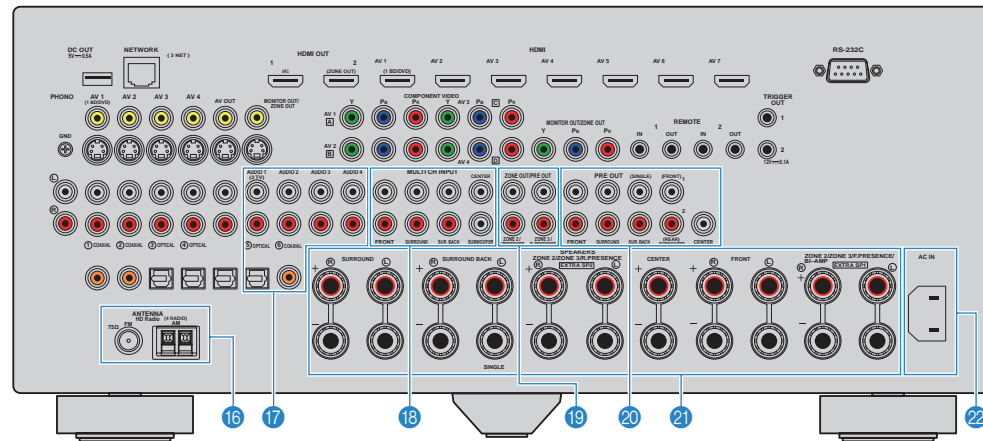
(RX-A3020 U.S.A. model)

* The area around the video/audio output jacks is marked in white on the actual product to prevent improper connections.

⑯ ANTENNA jacks

For connecting to FM and AM antennas (p.44).

⑰ AUDIO 1–4 jacks

For connecting to audio playback devices and inputting audio signals (p.43).

⑱ MULTI CH INPUT jacks

For connecting to a device that supports multi-channel output and inputting audio signals (p.46).

⑲ ZONE OUT/PRE OUT jacks (RX-A3020)

For connecting to an external amplifier used in Zone2 or Zone3 and outputting audio (p.91), or for connecting to an external power amplifier for front presence or rear presence channels (p.33).

ZONE OUT jacks (RX-A2020)

For connecting to an external amplifier used in Zone2 or Zone3 and outputting audio (p.91).

⑳ PRE OUT jacks

For connecting to a subwoofer with built-in amplifier (p.22) or to an external power amplifier (p.33).

㉑ SPEAKERS terminals

For connecting to speakers (p.18).

㉒ AC IN jack

For connecting the supplied power cable (p.48).

Remote control
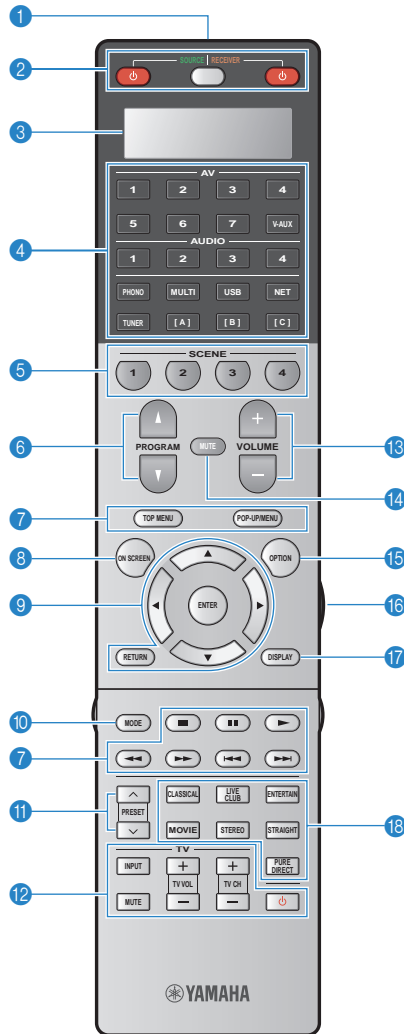
(RX-A3020)

1 Remote control signal transmitter
Transmits infrared signals.

2 SOURCE ⏻ key
Turns on/off an external device.

SOURCE/RECEIVER key
Changes the device (the unit or external device) that is operated with the remote control (p.138). You can operate the unit when this key lights up in orange, and an external device when this key lights up in green.

RECEIVER ⏻ key
Turns on/off (standby) the unit.

3 Display window
Displays remote control information.

4 Input selection keys
Select an input source for playback.

AV 1–7	AV 1–7 jacks
V-AUX	VIDEO AUX jacks (on the front panel)
AUDIO 1–4	AUDIO 1–4 jacks
PHONO	PHONO jacks
MULTI	MULTI CH INPUT jacks
USB	USB jack (on the front panel)
NET	NETWORK jack (press repeatedly to select a desired network source)
TUNER	FM/AM radio
[A], [B], [C]	Change the external device to operate with the remote control without switching the input source.

5 SCENE keys
Select the registered input source, sound program, and various settings with one touch. Also, turns on the unit when it is in standby mode (p.61).

6 PROGRAM keys
Select a sound program (p.63).

7 External device operation keys
Let you play back and perform other operations for external devices (p.138).

8 ON SCREEN key
Displays the on-screen menu on the TV.

9 Menu operation keys

Cursor keys	Select a menu or a parameter.
ENTER	Confirms a selected item.
RETURN	Returns to the previous screen.

10 MODE key
Switches the iPod operation modes (p.78).
(U.S.A. model only) Selects an HD Radio audio program (p.71).

11 PRESET keys
Select a preset FM/AM radio station (p.70).

12 TV operation keys
Let you select TV input and volume, and perform other TV operations (p.137).

13 VOLUME keys
Adjust the volume.

14 MUTE key
Mutes the audio output.

15 OPTION key
Displays the option menu (p.98).

16 LIGHT key (RX-A3020 only)
Turns on the backlight of the remote control keys for about 10 seconds.

17 DISPLAY key
Displays status information on the TV (p.97).

18 Sound mode keys
Select a sound mode (p.63).

■ Inside of the remote control cover

(RX-A3020)
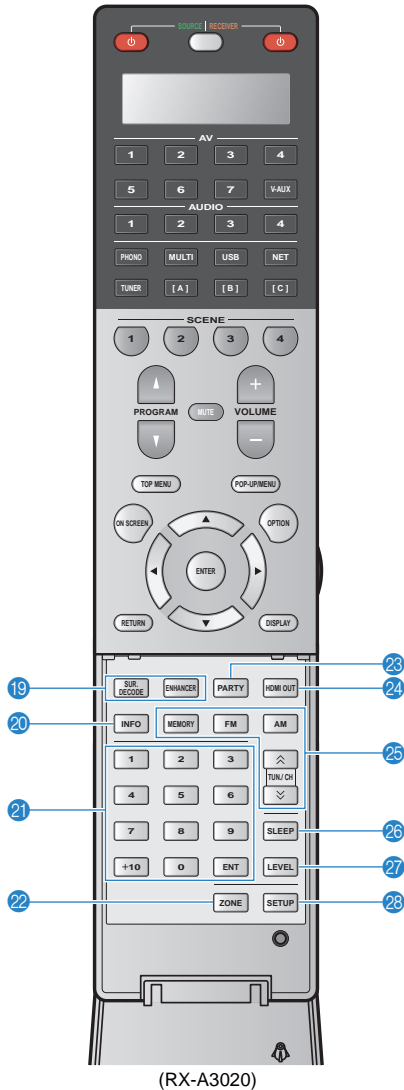
⑲ Sound mode keys

Select a sound mode (p.63).

⑳ INFO key

Selects the information displayed on the front display (p.97).

㉑ Numeric keys

Let you enter numerical values, such as radio frequencies.

㉒ ZONE key

Changes the zone that is controlled by the remote control (p.95).

㉓ PARTY key

Turns on/off the party mode (p.96).

㉔ HDMI OUT key

Selects HDMI OUT jacks to be used for video/audio output (p.60).

㉕ Radio keys

Operate the FM/AM radio (p.69).

MEMORY	Registers FM/AM radio stations as presets.
FM	Switches to FM radio.
AM	Switches to AM radio.
TUN./CH	Select the radio frequency.

㉖ SLEEP key

Switches the unit to standby mode automatically after a specified period of time has elapsed (sleep timer). Press repeatedly to set the time (120 min, 90 min, 60 min, 30 min, off).

㉗ LEVEL key

Adjusts the volume of each speaker (p.117).

㉘ SETUP key

Switches the remote control to the setup mode (p.136).

• To operate external devices with the remote control, register a remote control code for each device before using (p.136).

PREPARATIONS

General setup procedure

1 Connecting speakers (p.18)

Basic speaker configuration (p.19)
Select the speaker layout and connect the speakers to the unit.

Advanced speaker configuration (p.24)
Apply bi-amp connections, channel expansion (using an external power amplifier) or multi-zone configurations to enhance the system.

2 Connecting a TV (p.35)

Connect a TV to the unit.

3 Connecting playback devices (p.41)

Connect video devices (such as BD/DVD players) and audio devices (such as CD players) to the unit.

4 Connecting the FM/AM antennas (p.44)

Connect the supplied FM/AM antennas to the unit.

5 Connecting to a network (p.45)

Connect the unit to a network.

6 Connecting other devices (p.46)

Connect external devices such as recording devices.

7 Connecting the power cable (p.48)

After all the connections are complete, plug in the power cable.

8 Selecting an on-screen menu language (p.49)

Select the desired on-screen menu language.

9 Optimizing the speaker settings automatically (YPAO) (p.50)

Optimize the speaker settings, such as volume balance and acoustic parameters, to suit your room (YPAO).

This completes all the preparations. Enjoy playing movies, music, radio and other content with the unit!

1 Connecting speakers

The unit has 9 built-in amplifiers. You can connect 2 to 11 speakers and up to 2 subwoofers to create the favorite acoustic space in your room.

You can also apply bi-amp connections, channel expansion (using an external power amplifier) or multi-zone configurations to enhance your system (p.24).

> **Caution**
>
> • Under its default settings, the unit is configured for 8-ohm speakers. When connecting 6-ohm speakers, set the unit's speaker impedance to "6 Ω MIN". In this case, you can also use 4-ohm speakers as the front speakers. For details, see "Setting the speaker impedance" (p.21).

Functions of each speaker

Speaker type	Abbr.	Function
Front (L)	FL	Produce front right/left channel sounds (stereo sounds).
Front (R)	FR	
Center	C	Produces center channel sounds (such as movie dialogues and vocals).
Surround (L)	SL	Produce surround right/left channel sounds. Surround speakers also produce surround back channel sounds when no surround back speakers are connected.
Surround (R)	SR	
Surround back (L)	SBL	Produce surround back right/left channel sounds.
Surround back (R)	SBR	
Front presence (L)	FPL	Produce CINEMA DSP effect sounds. In combination with CINEMA DSP HD[3] (RX-A3020) or CINEMA DSP 3D (RX-A2020) (p.64), the presence speakers create a natural 3-dimensional sound field in your room.
Front presence (R)	FPR	
Rear presence (L)	RPL	
Rear presence (R)	RPR	
Subwoofer	SW	Produces LFE (low-frequency effect) channel sounds and reinforces bass parts of other channels. This channel is counted as "0.1". You can connect 2 subwoofers to the unit and place them on the right/left (or front/rear) sides of the room.

💡
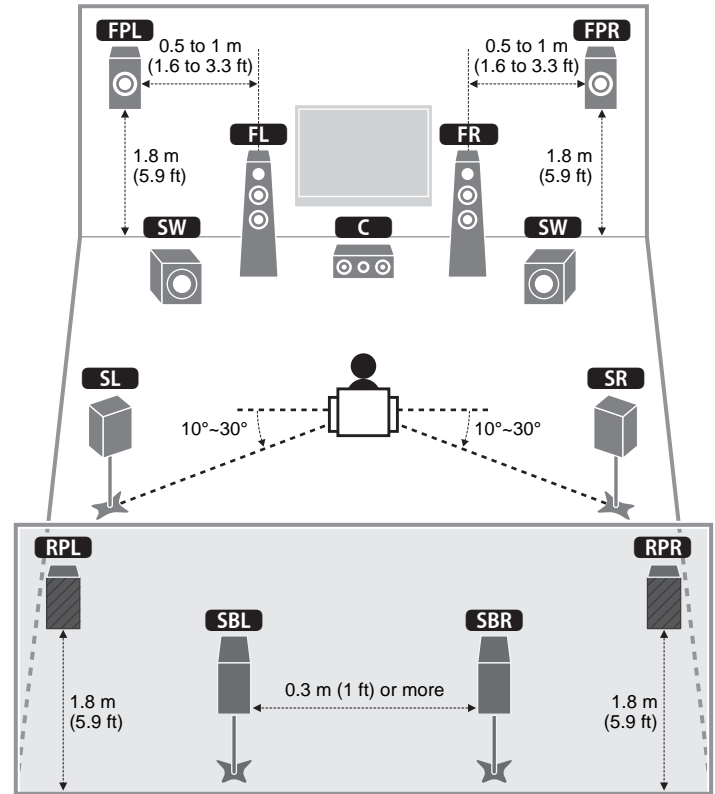
- We recommend using presence speakers to have a full effect of the 3-dimensional sound fields. However, the unit creates Virtual Presence Speaker (VPS) using the front, center and surround speakers to produce 3-dimensional sound fields even when no presence speakers are connected (p.64).
- Use "Ideal speaker layout" (diagram on the right) as reference. You do not need to exactly adjust the speaker layout to this diagram since the YPAO function of the unit will automatically optimize the speaker settings (such as distances) to suit the speaker layout.
- When using only one surround back speaker, place it straight behind the listening position (middle of "SBL" and "SBR" in the diagram).

Ideal speaker layout

Basic speaker configuration

■ Placing speakers in your room

Depending on the number of speakers, place the speakers and subwoofer in your room. This section describes the representative speaker layout examples.

❏ **9.2+2-channel system (using both surround back and rear presence speakers)**
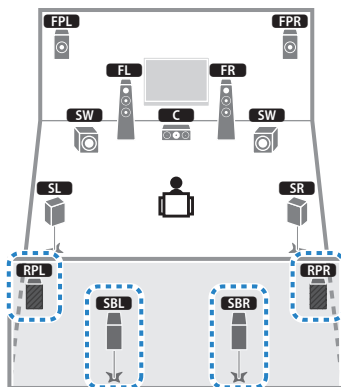
This speaker system brings out the full performance of the unit and allows you to enjoy a highly-natural 3-dimensional sound field with any contents.

💡

• The surround back speakers and rear presence speakers do not produce sounds simultaneously. The unit automatically changes the speakers to be used, depending on the selected sound program (p.64).

• (RX-A3020 only)
You can make an 11-channel system by using an external power amplifier (p.25).

❏ **9.2-channel system (using rear presence speakers)**
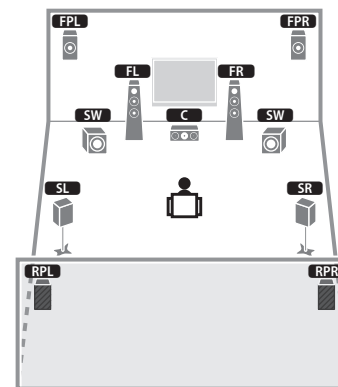
This speaker system uses the front and rear presence speakers to produce a highly-natural 3-dimensional sound field, and is suited for enjoying 5.1-channel contents.

❏ **9.2-channel system (using surround back speakers)**
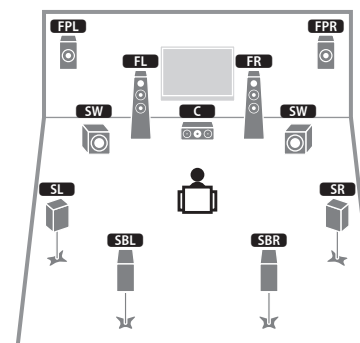
This speaker system uses the front presence speakers to produce a natural 3-dimensional sound field, and also allows you to enjoy extended surround sounds using the surround back speakers.

❏ **7.1-channel system (using front presence speakers)**
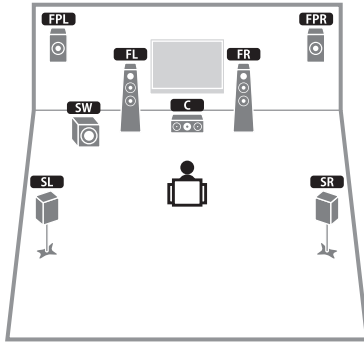
This speaker system uses the front presence speakers to produce a natural 3-dimensional sound field, and is suited for enjoying 5.1-channel contents.

❏ **7.1-channel system (using surround back speakers)**
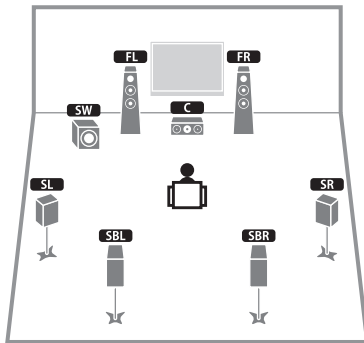
This speaker system creates Virtual Presence Speaker (VPS) using the front, center and surround speakers to produce a 3-dimensional sound field, and also allows you to enjoy extended surround sounds using the surround back speakers.

❏ **5.1-channel system**
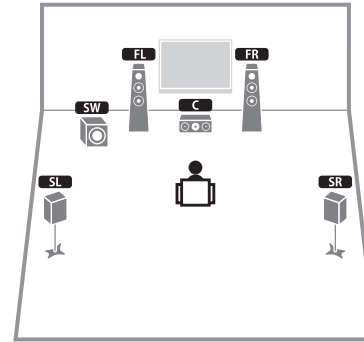
This speaker system creates Virtual Presence Speaker (VPS) using the front, center and surround speakers to produce a 3-dimensional sound field, and is suited for enjoying 5.1-channel contents.

❏ **2.1-channel system**
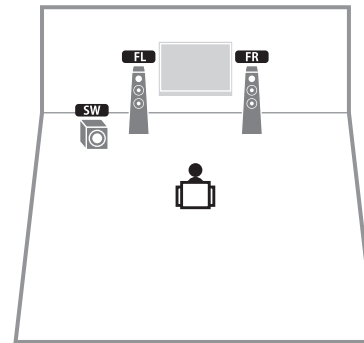
Even when no surround speakers are connected, the unit creates the virtual surround speakers using the front speakers to allow you to enjoy multi-channel surround sound (Virtual CINEMA DSP).

• Add the center speaker to configure a 3.1-channel system.

■ **Setting the speaker impedance**

Under its default settings, the unit is configured for 8-ohm speakers. When connecting 6-ohm speakers, set the speaker impedance to "6 Ω MIN". In this case, you can also use 4-ohm speakers as the front speakers.

1 **Before connecting speakers, connect the power cable to an AC wall outlet.**

2 **While holding down STRAIGHT on the front panel, press MAIN ZONE ⏻.**
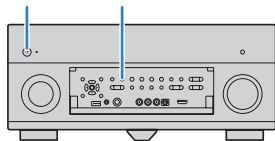
MAIN ZONE ⏻   STRAIGHT

3 **Check that "SPEAKER IMP." is displayed on the front display.**

SPEAKER IMP.
8ΩMIN

4 **Press STRAIGHT to select "6 Ω MIN".**

5 **Press MAIN ZONE ⏻ to set the unit to standby mode and remove the power cable from the AC wall outlet.**

You are now ready to connect the speakers.

■ Connecting speakers

Connect the speakers placed in your room to the unit.

> **Caution**
> - Remove the unit's power cable from an AC wall outlet and turn off the subwoofer before connecting the speakers.
> - Ensure that the core wires of the speaker cable do not touch one another or come into contact with the unit's metal parts. Doing so may damage the unit or the speakers. If the speaker cables short circuit, "Check SP Wires" will appear on the front display when the unit is turned on.

Speakers to be connected

Room	Speaker type	Abbr.	Speaker system (the number of channels)					Power Amp Assign (p.114)
			9+2	9	7	5	2	
Main zone	Front (L)	FL	●	●	●	●	●	Basic (default)
	Front (R)	FR	●	●	●	●	●	
	Center	C	●	●	●	●		
	Surround (L)	SL	●	●	●	●		
	Surround (R)	SR	●	●	●	●		
	Surround back (L)	SBL	●	O*1	O*3			
	Surround back (R)	SBR	●	O*1	O*3			
	Front presence (L)	FPL	●	●	O*4			
	Front presence (R)	FPR	●	●	O*4			
	Rear presence (L)	RPL	●	O*2				
	Rear presence (R)	RPR	●	O*2				

If you have nine speakers, use two of them as surround back speakers (*1) or rear presence speakers (*2). If you have seven speakers, use two of them as surround back speakers (*3) or front presence speakers (*4).

> 🔅
> - You can also connect up to 2 subwoofers (with built-in amplifier) to the unit. When using 2 subwoofers, configure the "SWFR Layout" setting (p.116) in the "Setup" menu after connecting the power cable to an AC wall outlet.
> - To use an external power amplifier (Hi-Fi amplifier, etc.) to enhance speaker output, see "Connecting an external power amplifier" (p.33).

Cables necessary for connection (commercially available)

Speaker cables (x the number of speakers)

Audio pin cable (two for connecting two subwoofers)

Connection diagram

Refer to the following diagram and connect the speakers to the unit.
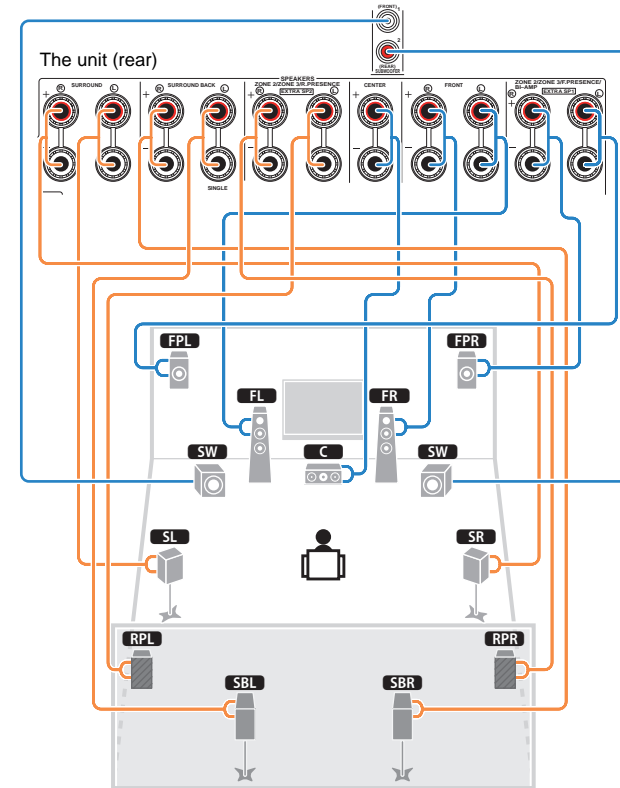
> ❗
> - When using only one surround back speaker, connect it to the SINGLE jack (L side).

❑ **Connecting speaker cables**

Speaker cables have two wires. One is for connecting the negative (-) terminal of the unit and the speaker, and the other is for the positive (+) terminal. If the wires are colored to prevent confusion, connect the black wire to the negative and the other wire to the positive terminal.

① Remove approximately 10 mm (3/8") of insulation from the ends of the speaker cable, and twist the bare wires of the cable firmly together.

② Loosen the speaker terminal.

③ Insert the bare wires of the cable into the gap on the side (upper right or bottom left) of the terminal.

④ Tighten the terminal.
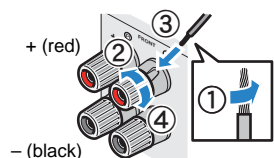
Using a banana plug

(U.S.A., Canada, China, Australia and General models only)

① Tighten the speaker terminal.

② Insert a banana plug into the end of the terminal.
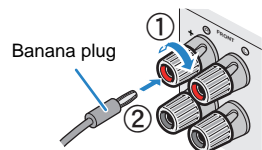
❑ **Connecting the subwoofer (with built-in amplifier)**

Use an audio pin cable to connect the subwoofer.
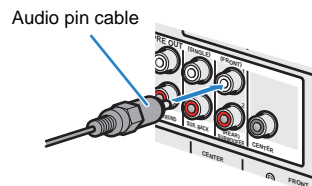
Advanced speaker configuration

In addition to the basic speaker configuration (p.19), the unit also allows you to apply the following speaker configurations to enhance your system.

Using the four internal amplifiers for front speakers to have more high-quality sounds

Combining with an external power amplifier (Hi-Fi amplifier, etc.) to build an extended system

Using the excess internal amplifiers for stereo speakers in another room

Bi-amp connection

(Example)

Bi-amp connection

Power-amp channel expansion

(Example)

External power amplifier

Multi-zone configuration

(Example)

Zone2
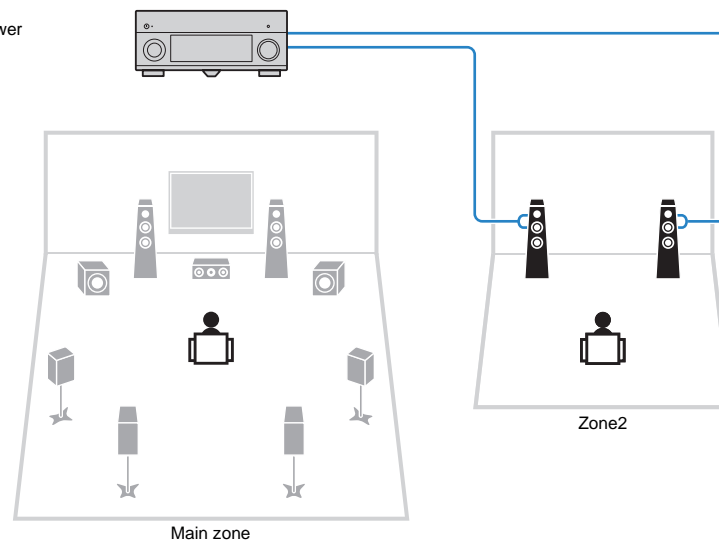
Main zone

■ Available speaker configurations

(RX-A3020)

Speaker configuration	Main zone			Multi-zone	Power Amp Assign (p.114)	Page
	Output channel (max)	Bi-amp	External power amplifier (required)			
Using a bi-amp connection in the main zone	7	○			7ch BI-AMP	26
Using a bi-amp connection in the main zone and power-amp channel expansion (for presence channels)	9	○	Front presence		7ch BI-AMP +FP	26
	11	○	Front presence Rear presence		7ch BI-AMP +FP+RP	27
Using power-amp channel expansion (for front and/or presence channels)	11		Rear Presence		9ch +RP	27
	11		Front		9ch +FRONT	28
	11		Front presence Rear presence		7ch +FP+RP	28
Using power-amp channel expansion (for front channels) and multi-zone speakers	9		Front	+1 room	7ch +FRONT+1ZONE	29
	7		Front	+2 rooms	5ch +FRONT+2ZONE	29
Using multi-zone speakers	7			+1 room	7ch +1ZONE	30
	9			+1 room	9ch +1ZONE	30
	7			+2 rooms	7ch +2ZONE	31

(RX-A2020)

Speaker configuration	Main zone			Multi-zone	Power Amp Assign (p.114)	Page
	Output channel (max)	Bi-amp	External power amplifier (required)			
Using a bi-amp connection in the main zone	7	○			7ch BI-AMP	26
Using power-amp channel expansion (for front channels) and multi-zone speakers	9		Front	+1 room	7ch +FRONT+1ZONE	29
	7		Front	+2 rooms	5ch +FRONT+2ZONE	29
Using multi-zone speakers	7			+1 room	7ch +1ZONE	30
	9			+1 room	9ch +1ZONE	30
	7			+2 rooms	7ch +2ZONE	31

• When applying one of these configurations, you need to configure the "Power Amp Assign" setting (p.114) in the "Setup" menu.

• When applying a multi-zone configuration, you can select a zone (Zone2 or Zone3) to be assigned to the EXTRA SP 1–2 jacks in "Power Amp Assign" (p.114) in the "Setup" menu. By default, Zone2 is assigned to the EXTRA SP 1 jacks and Zone3 is assigned to the EXTRA SP 2 jacks. The following explanation is based on the assumption that you have not changed the default zone assignments.

❑ 7ch BI-AMP

Bi-amp

Speaker	Connect to
FL **FR**	FRONT and EXTRA SP 1 (bi-amp connection)
C	CENTER
SL **SR**	SURROUND
SBL **SBR**	SURROUND BACK
FPL **FPR**	(not used)
RPL **RPR**	(not used)
SW	SUBWOOFER 1–2
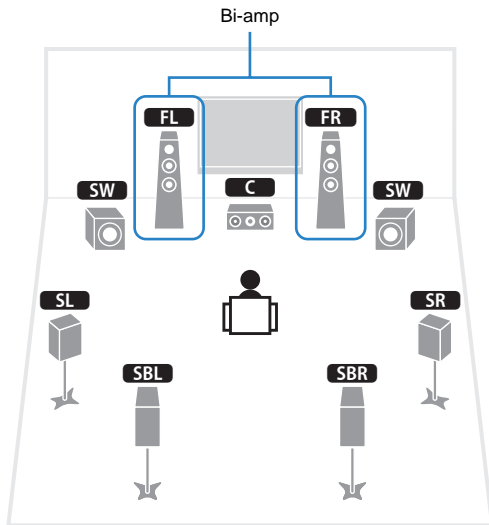
❑ 7ch BI-AMP +FP (RX-A3020 only)

Bi-amp

via external amp   via external amp

Speaker	Connect to
FL **FR**	FRONT and EXTRA SP 1 (bi-amp connection)
C	CENTER
SL **SR**	SURROUND
SBL **SBR**	SURROUND BACK
FPL **FPR**	F.PRESENCE (PRE OUT) via external power amplifier
RPL **RPR**	(not used)
SW	SUBWOOFER 1–2

!

• When this configuration is applied, you cannot utilize the ZONE OUT/PRE OUT jacks for connecting an external amplifier for Zone2 (p.91).

❏ **7ch BI-AMP +FP+RP (RX-A3020 only)**

Bi-amp

via external amp

via external amp

via external amp

via external amp

Speaker	Connect to
FL **FR**	FRONT and EXTRA SP 1 (bi-amp connection)
C	CENTER
SL **SR**	SURROUND
SBL **SBR**	SURROUND BACK
FPL **FPR**	F.PRESENCE (PRE OUT) via external power amplifier
RPL **RPR**	R.PRESENCE (PRE OUT) via external power amplifier
SW	SUBWOOFER 1–2

!

• When this configuration is applied, you cannot utilize the ZONE OUT/PRE OUT jacks for connecting external amplifiers for Zone2 and Zone3 (p.91).

❏ **9ch +RP (RX-A3020 only)**
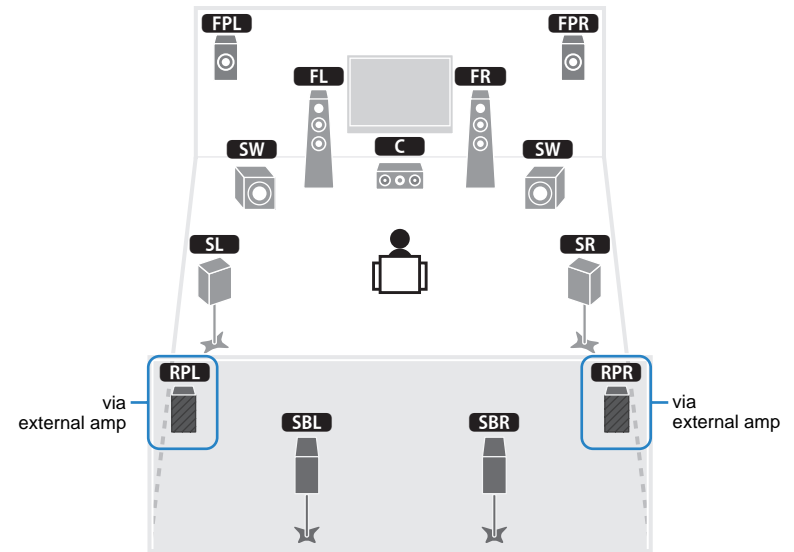
via external amp

via external amp

Speaker	Connect to
FL **FR**	FRONT
C	CENTER
SL **SR**	SURROUND
SBL **SBR**	SURROUND BACK
FPL **FPR**	EXTRA SP 1
RPL **RPR**	R.PRESENCE (PRE OUT) via external power amplifier
SW	SUBWOOFER 1–2

!

• When this configuration is applied, you cannot utilize the ZONE OUT/PRE OUT jacks for connecting an external amplifier for Zone3 (p.91).

❑ 9ch +FRONT (RX-A3020 only)
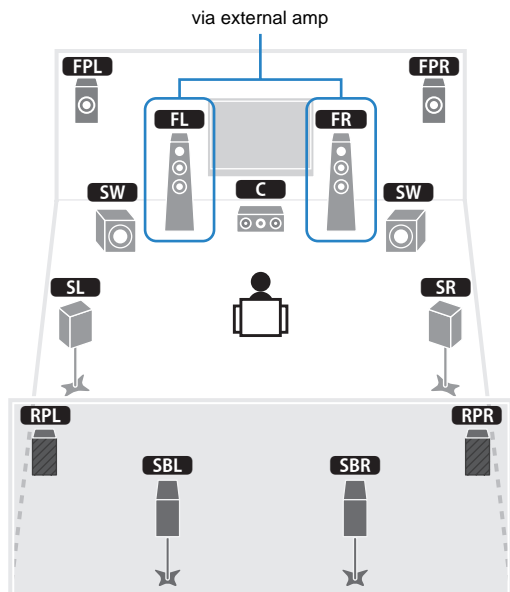
via external amp

Speaker	Connect to
FL **FR**	FRONT (PRE OUT) via external power amplifier
C	CENTER
SL **SR**	SURROUND
SBL **SBR**	SURROUND BACK
FPL **FPR**	EXTRA SP 1
RPL **RPR**	EXTRA SP 2
SW	SUBWOOFER 1–2

!
- When this configuration is applied, you cannot utilize the ZONE OUT/PRE OUT jacks for connecting an external amplifier for Zone3 (p.91).

❑ 7ch +FP+RP (RX-A3020 only)

via external amp   via external amp

via external amp   via external amp

via external amp   via external amp

Speaker	Connect to
FL **FR**	FRONT
C	CENTER
SL **SR**	SURROUND
SBL **SBR**	SURROUND BACK
FPL **FPR**	F.PRESENCE (PRE OUT) via external power amplifier
RPL **RPR**	R.PRESENCE (PRE OUT) via external power amplifier
SW	SUBWOOFER 1–2

!
- When this configuration is applied, you cannot utilize the ZONE OUT/PRE OUT jacks for connecting external amplifiers for Zone2 and Zone3 (p.91).

❏ 7ch +FRONT+1ZONE

via external amp

Main zone

Zone3

Speaker	Connect to
FL FR	FRONT (PRE OUT) via external power amplifier
C	CENTER
SL SR	SURROUND
SBL SBR	SURROUND BACK
FPL FPR	EXTRA SP 1
RPL RPR	(not used)
SW	SUBWOOFER 1–2
Zone3 speakers	EXTRA SP 2

❏ 5ch +FRONT+2ZONE

via external amp

Main zone

Zone2

Zone3

Speaker	Connect to
FL FR	FRONT (PRE OUT) via external power amplifier
C	CENTER
SL SR	SURROUND
SBL SBR	SURROUND BACK
FPL FPR	(not used)
RPL RPR	(not used)
SW	SUBWOOFER 1–2
Zone2 speakers	EXTRA SP 1
Zone3 speakers	EXTRA SP 2

❏ 7ch +1ZONE
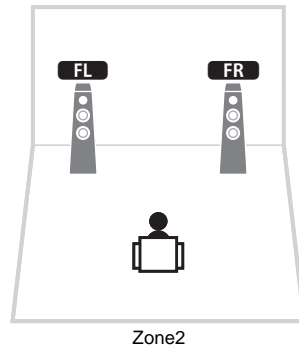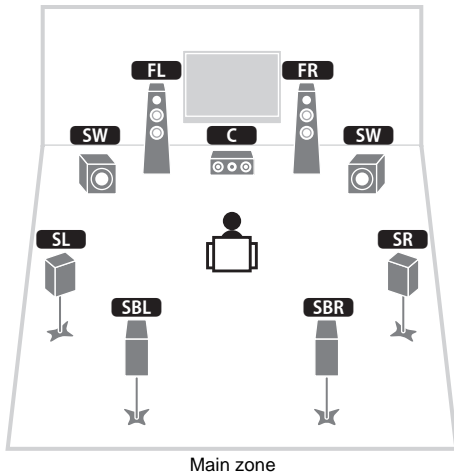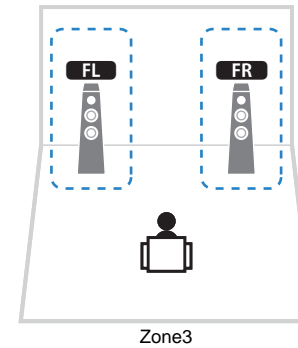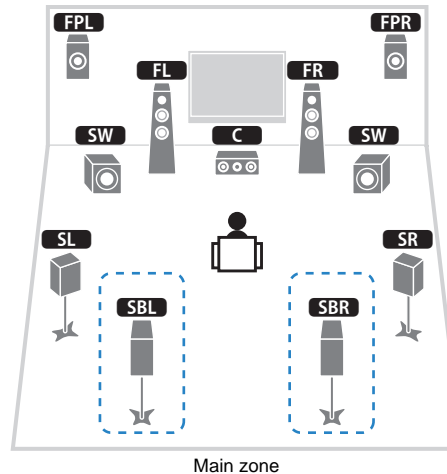
Main zone

Zone2

❏ 9ch +1ZONE

Main zone

Zone3

Speaker	Connect to
FL FR	FRONT
C	CENTER
SL SR	SURROUND
SBL SBR	SURROUND BACK
FPL FPR	(not used)
RPL RPR	(not used)
SW	SUBWOOFER 1–2
Zone2 speakers	EXTRA SP 1

Speaker	Connect to
FL FR	FRONT
C	CENTER
SL SR	SURROUND
SBL SBR	SURROUND BACK
FPL FPR	EXTRA SP 1
RPL RPR	(not used)
SW	SUBWOOFER 1–2
Zone3 speakers	EXTRA SP 2

• When Zone3 output is enabled (p.95), the surround back speakers in the main zone do not output sound.

❏ 7ch +2ZONE
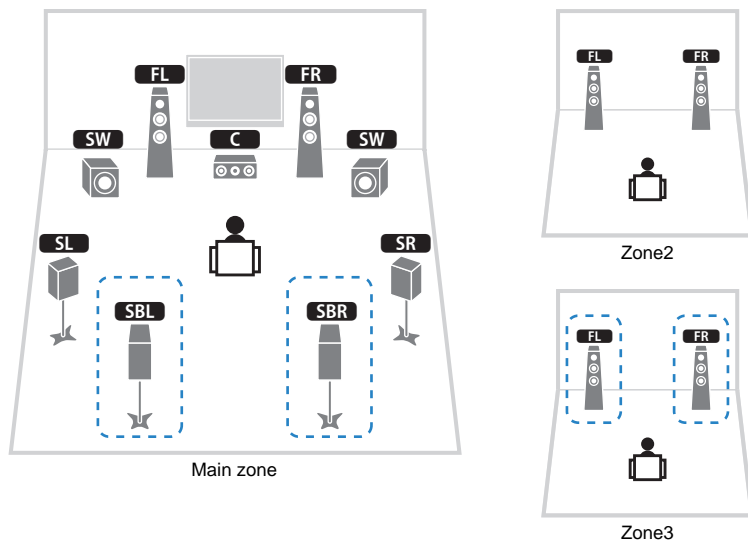
Main zone

Zone2

Zone3

Speaker	Connect to
FL **FR**	FRONT
C	CENTER
SL **SR**	SURROUND
SBL **SBR**	SURROUND BACK
FPL **FPR**	(not used)
RPL **RPR**	(not used)
SW	SUBWOOFER 1–2
Zone2 speakers	EXTRA SP 1
Zone3 speakers	EXTRA SP 2

🔅
• When Zone3 output is enabled (p.95), the surround back speakers in the main zone do not output sound.

■ Connecting front speakers that support bi-amp connections

When using front speakers that support bi-amp connections, connect them to the FRONT terminals and EXTRA SP 1 terminals.

To enable the bi-amp function, configure the "Power Amp Assign" setting (p.114) in the "Setup" menu after connecting the power cable to an AC wall outlet.

The unit (rear)
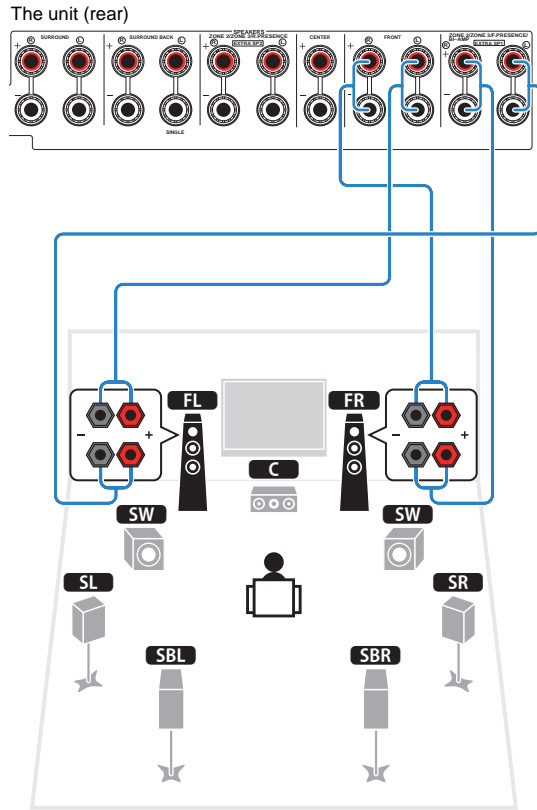
Caution

- Before making bi-amp connections, remove any brackets or cables that connect a woofer with a tweeter. Refer to the instruction manual of the speakers for details. If you are not making bi-amp connections, make sure that the brackets or cables are connected before connecting the speaker cables.

■ Connecting Zone2/3 speakers

When using Zone2/3 speakers, connect them to the EXTRA SP 1–2 terminals.

To utilize the EXTRA SP 1–2 terminals for Zone2/3 speakers, configure the "Power Amp Assign" setting (p.114) in the "Setup" menu after connecting the power cable to an AC wall outlet.

The unit (rear)

Main zone
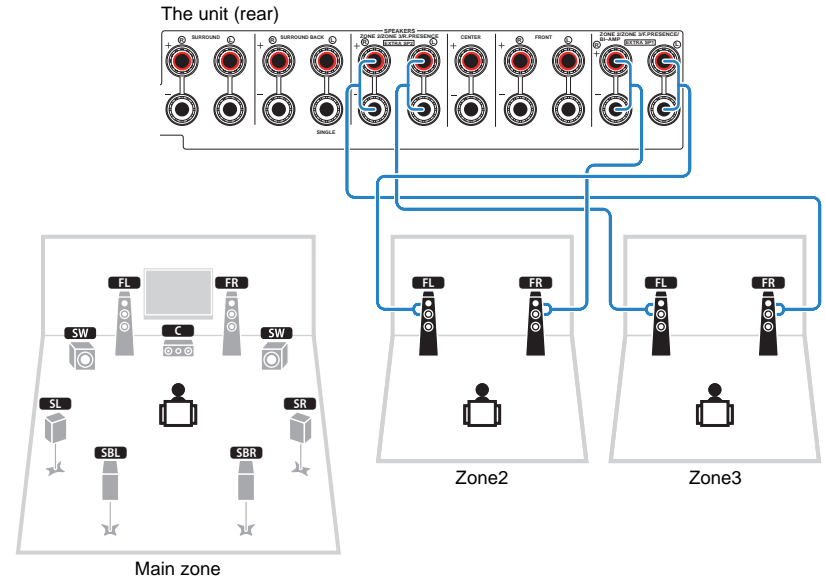
- You can select a zone (Zone2 or Zone3) to be assigned to the EXTRA SP 1–2 jacks in "Power Amp Assign" (p.114) in the "Setup" menu. By default, Zone2 is assigned to the EXTRA SP 1 jacks and Zone3 is assigned to the EXTRA SP 2 jacks.

- You can also connect Zone2 and Zone3 speakers using an external amplifier (p.91).

■ Connecting an external power amplifier

When connecting an external power amplifier (pre-main amplifier) to enhance speaker output, connect the input jacks of the power amplifier to the PRE OUT jacks of the unit. The same channel signals are output from the PRE OUT jacks as from their corresponding SPEAKERS terminals.

Caution

- To prevent the generation of loud noises or abnormal sounds, make sure the followings before making connections.
  - Remove the power cable of the unit and turn off the external power amplifier before connecting them.
  - When using the PRE OUT jacks, do not connect speakers to the corresponding SPEAKERS terminals.
  - When using a pre-main amplifier that does not have the volume control bypass, turn up the volume of the pre-main amplifier enough and fix it. In this case, do not connect other devices (except the unit) to the pre-main amplifier.

The unit (rear)
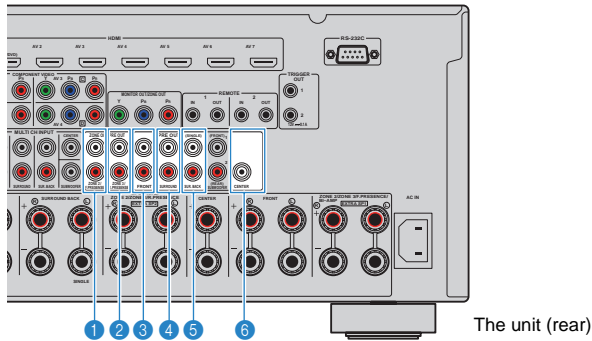
❶ F.PRESENCE jacks (RX-A3020 only)

Output front presence channel audio signals or Zone2 audio signals depending on the "Power Amp Assign" setting (p.114).

❷ R.PRESENCE jacks (RX-A3020 only)

Output rear presence channel audio signals or Zone3 audio signals depending on the "Power Amp Assign" setting (p.114).

❸ FRONT jacks

Output front channel sounds.

❹ SURROUND jacks

Output surround channel sounds.

❺ SUR. BACK jacks

Output surround back channel sounds. When using only one surround back speaker, connect the external amplifier to the SINGLE jack (L side).

❻ CENTER jack

Outputs center channel sounds.

(Example)

Connecting front speakers via an external power amplifier

PRE OUT (FRONT) jacks

Main input jack

Amplifier with volume control bypass (such as A-S2000)

The unit (rear)
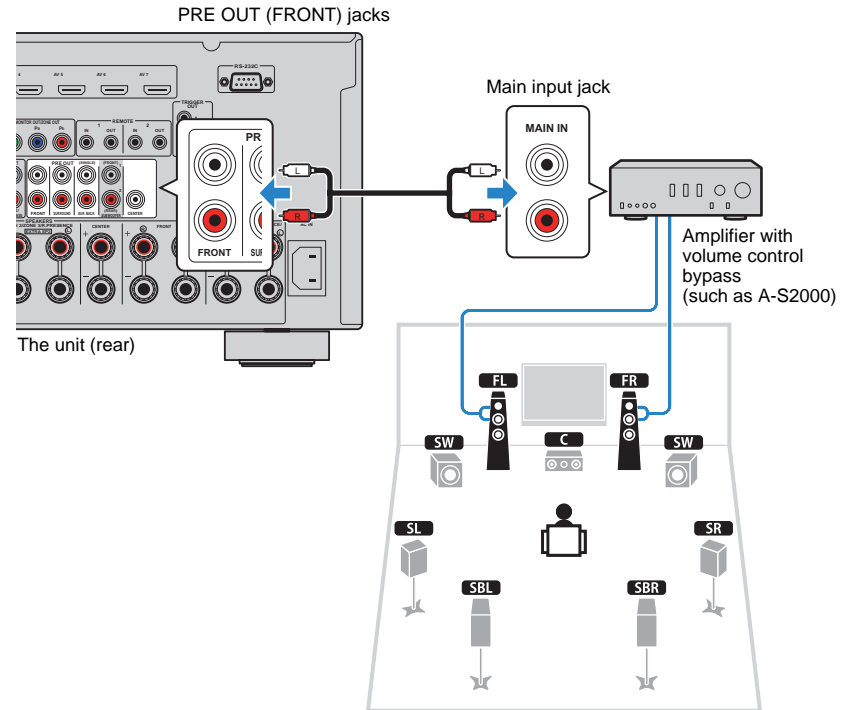
About external power amplifiers

We recommend using power amplifiers that meet the following conditions.

- With unbalanced inputs

- With volume control bypass (or without volume control circuit)

- Output power: about 100 W (6 to 8 Ω)

Input/output jacks and cables

■ Video/audio jacks

❏ HDMI jacks

Transmit digital video and digital sound through a single jack. Use an HDMI cable.

HDMI cable

!
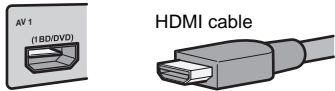
- Use a 19-pin HDMI cable with the HDMI logo. We recommend using a cable less than 5.0 m (16.4 ft) long to prevent signal quality degradation.

- The unit's HDMI jacks support the HDMI Control, Audio Return Channel (ARC), and 3D and 4K video transmission features.

- Use high speed HDMI cables to enjoy 3D or 4K videos.

■ Video jacks

❏ COMPONENT VIDEO jacks

Transmit video signals separated into three components: luminance (Y), chrominance blue (P_B), and chrominance red (P_R). Use a component video cable with three plugs.

Component video cable
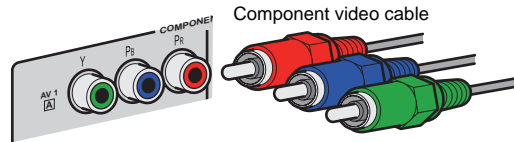
❏ S VIDEO jack

Transmits S-video signals that include luminance (Y) and chrominance (C) components. Use an S-video cable.

S-video cable
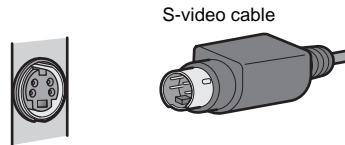
❏ VIDEO jacks

Transmit analog video signals. Use a video pin cable.

Video pin cable
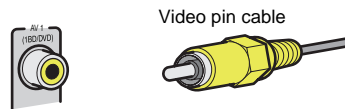
■ Audio jacks

❏ OPTICAL jacks

Transmit digital audio signals. Use a digital optical cable. Remove the tip protector (if available) before using the cable.

Digital optical cable

❏ COAXIAL jacks

Transmit digital audio signals. Use a digital coaxial cable.

Digital coaxial cable
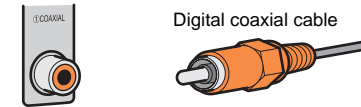
❏ AUDIO jacks

Transmit analog stereo audio signals. Use a stereo pin cable.

Stereo pin cable
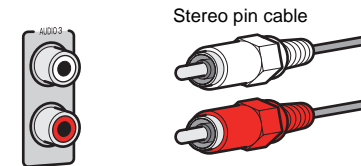
2 Connecting a TV

Connect a TV to the unit so that video input to the unit can be output to the TV.

You can also enjoy playback of TV audio on the unit.

The connection method varies depending on the functions and video input jacks available on your TV.

Refer to the instruction manual of the TV and choose a connection method.

Does your TV support Audio Return Channel (ARC)? — Yes → ■ **Connection Method 1 (p.35)**

No ↓

Does your TV support HDMI Control? — Yes → ■ **Connection Method 2 (p.37)**

No ↓

Does your TV have an HDMI input jack? — Yes → ■ **Connection Method 3 (p.38)**

No ↓

■ **Connection Method 4 (p.39)**
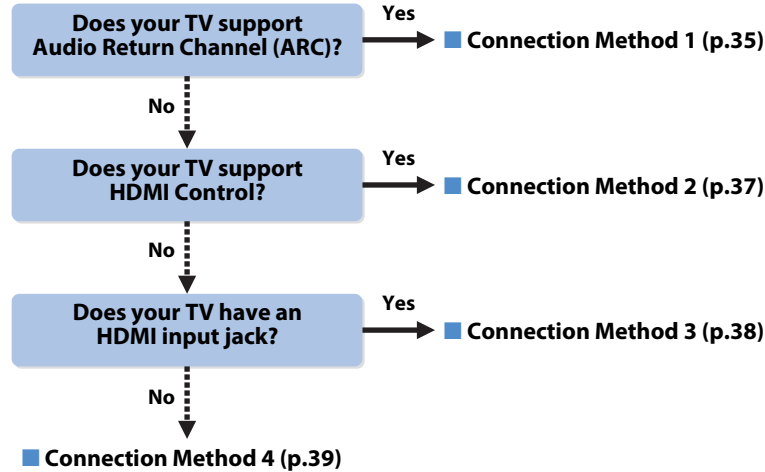
About HDMI Control

HDMI Control allows you to operate external devices via HDMI. If you connect a TV that supports HDMI Control to the unit with an HDMI cable, you can control the unit's power and volume with the TV's remote control. You can also control playback devices (such as an HDMI Control-compatible BD/DVD player) connected to the unit with an HDMI cable. For details, see "HDMI Control" (p.158).

About Audio Return Channel (ARC)

ARC allows audio signals to travel both ways under HDMI Control. If you connect a TV that supports HDMI Control and ARC to the unit with a single HDMI cable, you can output video/audio to the TV or input TV audio to the unit.

■ Connection Method 1 (HDMI Control/ARC-compatible TV)

Connect the TV to the unit with an HDMI cable.

❗

• The following explanation is based on the assumption that you have not changed the "HDMI" parameters (p.122) in the "Setup" menu.
• HDMI Control is available only on the HDMI OUT 1 jack.
• Use an HDMI cable that supports ARC.
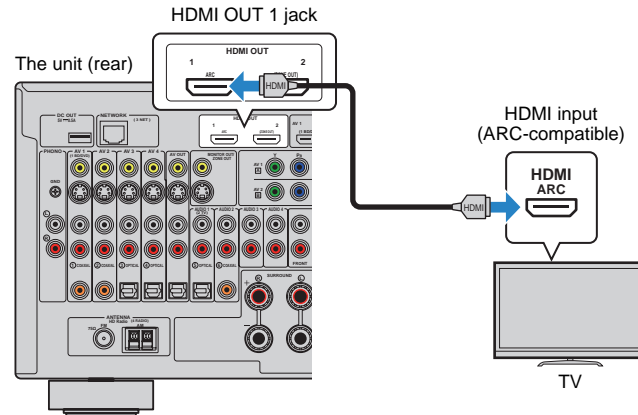
HDMI OUT 1 jack

The unit (rear)

HDMI input (ARC-compatible)

HDMI ARC

TV

☀

• By connecting a TV to the unit with an HDMI cable, any video input to the unit can be output to the TV, regardless of the method used to connect the video device to the unit. For details, see "Video signal flow" (p.156).
• You can connect another TV or a projector by using the HDMI OUT 2 jack (p.40).

❑ **Necessary settings**

To use HDMI Control and ARC, you need to configure the following settings.

For details on settings and operating your TV, refer to the instruction manual for the TV.

1 **After connecting external devices (such as a TV and playback devices) and the power cable to the unit, turn on the unit, TV, and playback devices.**

2 **Configure the settings of the unit.**

① Check that ARC is enabled on the TV.

② Switch the TV input to display video from the unit.
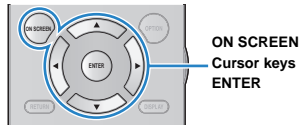
③ Press ON SCREEN.

ON SCREEN
Cursor keys
ENTER

④ Use the cursor keys to select "Setup" and press ENTER.

Setup

⑤ Use the cursor keys (◁/▷) to select "HDMI".

HDMI
HDMI Control   Off
Audio Output
Standby Through   Off
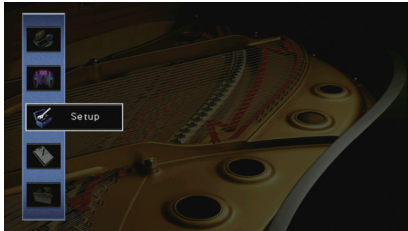
Back:RETURN   1 / 3
HDMI

⑥ Use the cursor keys (△/▽) to select "HDMI Control" and press ENTER.

⑦ Use the cursor keys to select "On".

⑧ Press ON SCREEN.

3 **Configure the settings for HDMI Control.**

① Enable HDMI Control on the TV and playback devices (such as HDMI Control-compatible BD/DVD player).

② Turn off the TV's main power and then turn off the unit and playback devices.

③ Turn on the unit and playback devices and then turn on the TV's main power.

④ Switch the TV input to display video from the unit.

⑤ Check the following.

On the unit: The input to which the playback device is connected is selected. If not, select the input source manually.

On the TV: The video from the playback device is displayed.

⑥ Check that the unit is properly synchronized with the TV by turning off the TV or adjusting the TV volume with the TV remote control.

This completes the necessary settings.

If you select a TV program with the TV remote control, the input source of the unit will be automatically switched to "AUDIO 1" and the TV audio will be played back on the unit.

If you cannot hear the TV's audio, check that "ARC" (p.122) in the "Setup" menu is set to "On".

!

• If HDMI Control does not work properly, try turning off and on (or unplugging and then plugging in again) the devices. It may solve the problem.

• If the unit is not synchronized to the TV's power operations, check the priority of the audio output setting on the TV.

• If the audio is interrupted while using ARC, set "ARC" (p.122) in the "Setup" menu to "Off" and use an audio cable (digital optical or stereo pin cable) to input TV audio to the unit (p.37).

☀

• "AUDIO 1" is set as TV audio input at the factory. If you have connected any external device to the AUDIO 1 jacks, use "TV Audio Input" (p.122) in the "Setup" menu to change the TV audio input assignment. To use the SCENE function (p.61), you also need to change the input assignment for SCENE(TV).

■ Connection Method 2 (HDMI Control-compatible TV)

Connect the TV to the unit with an HDMI cable and an audio cable (digital optical or stereo pin cable).

!

• The following explanation is based on the assumption that you have not changed the "HDMI" parameters (p.122) in the "Setup" menu.

• HDMI Control is available only on the HDMI OUT 1 jack.

HDMI OUT 1 jack

The unit (rear)

HDMI input

HDMI

AUDIO

TV

OPTICAL

AUDIO 1
(OPTICAL or AUDIO) jacks

Audio output
(digital optical or analog stereo)

💡

• By connecting a TV to the unit with an HDMI cable, any video input to the unit can be output to the TV, regardless of the method used to connect the video device to the unit. For details, see "Video signal flow" (p.156).

• You can connect another TV or a projector by using the HDMI OUT 2 jack (p.40).

❑ Necessary settings
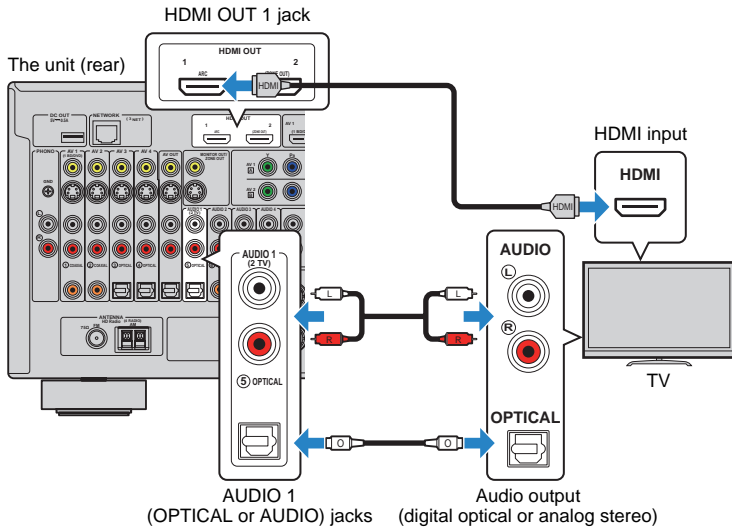
To use HDMI Control, you need to configure the following settings.
For details on settings and operating your TV, refer to the instruction manual for the TV.

1 **After connecting external devices (such as a TV and playback devices) and power cable of the unit, turn on the unit, TV, and playback devices.**

2 **Configure the settings of the unit.**

① Switch the TV input to display video from the unit.

② Press ON SCREEN.
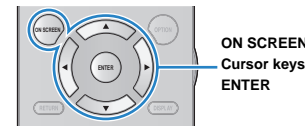
ON SCREEN
Cursor keys
ENTER

③ Use the cursor keys to select "Setup" and press ENTER.

Setup

④ Use the cursor keys (◁/▷) to select "HDMI".

HDMI

HDMI Control	Off
Audio Output	
Standby Through	Off

Back: RETURN   1 / 3
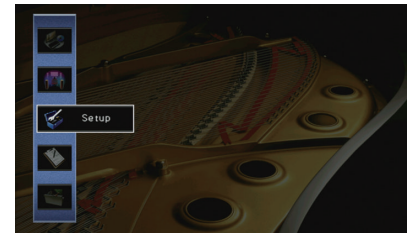
HDMI

⑤ Use the cursor keys (△/▽) to select "HDMI Control" and press ENTER.

⑥ Use the cursor keys to select "On".

⑦ Press ON SCREEN.

3 **Configure the settings for HDMI Control.**

① Enable HDMI Control on the TV and playback devices (such as a HDMI Control-compatible BD/DVD player).

② Turn off the TV's main power and then turn off the unit and playback devices.

③ Turn on the unit and playback devices and then turn on the TV.

④ Switch the TV input to display video from the unit.

⑤ Check the following.

On the unit: The input to which the playback device is connected is selected. If not, select the input source manually.

On the TV: The video from the playback device is displayed.

⑥ Check that the unit is properly synchronized with the TV by turning off the TV or adjusting the TV volume with the TV remote control.

This completes the necessary settings.

If you select a TV program with the TV remote control, the input source of the unit will be automatically switched to "AUDIO 1" and the TV audio will be played back on the unit.

• If HDMI Control does not work properly, try turning off and on (or unplugging and then plugging in again) the devices. It may solve the problem.

• If the unit is not synchronized to the TV's power operations, check the priority of the audio output setting on the TV.

• "AUDIO 1" is set as TV audio input at the factory. If you have connected any external device to the AUDIO 1 jacks, use "TV Audio Input" (p.122) in the "Setup" menu to change the TV audio input assignment. To use the SCENE function (p.61), you also need to change the input assignment for SCENE(TV).

■ Connection Method 3 (TV with HDMI input jacks)

Connect the TV to the unit with an HDMI cable and an audio cable (digital optical or stereo pin cable).
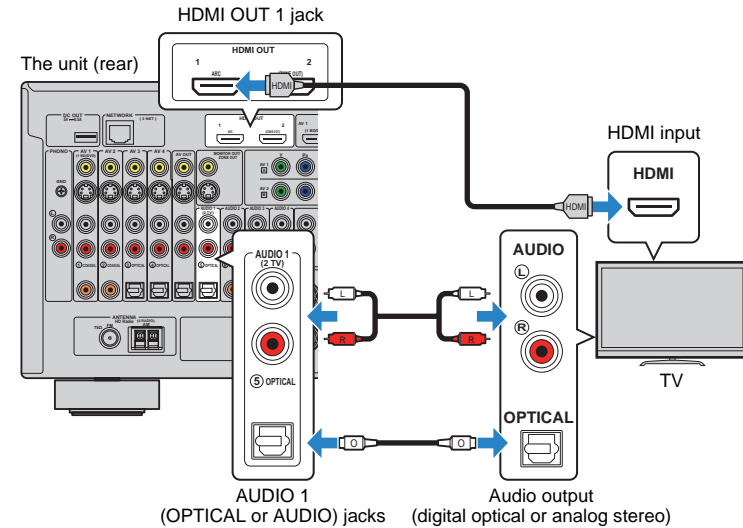
If you select "AUDIO 1" as the input source by pressing AUDIO 1 or SCENE(TV) on the remote control, the TV audio will be played back on the unit.

• By connecting a TV to the unit with an HDMI cable, any video input to the unit can be output to the TV, regardless of the method used to connect the video device to the unit. For details, see "Video signal flow" (p.156).

• If you have connected any external device to the AUDIO 1 jacks, connect the TV to one of the AUDIO 2–4 jacks. To use the SCENE function (p.61), you also need to change the input assignment for SCENE(TV).

• You can connect another TV or a projector by using the HDMI OUT 2 jack (p.40).

■ Connection Method 4 (TV without HDMI input jacks)

Depending on the video input jacks available on your TV, choose one of the following connections.

If you select "AUDIO 1" as the input source by pressing AUDIO 1 or SCENE(TV) on the remote control, the TV audio will be played back on the unit.

• If you connect your TV to the unit with a cable other than HDMI, video input to the unit via HDMI cannot be output to the TV. Also, analog videos that can be output to the TV differ according to the "Analog to Analog Conversion" setting in the "Setup" menu. For details, see "Video signal flow" (p.156).

• If you have connected any external device to the AUDIO 1 jacks, connect the TV to one of the AUDIO 2–4 jacks. To use the SCENE function (p.61), you also need to change the input assignment for SCENE(TV).

❏ COMPONENT VIDEO connection (with a component video cable)

MONITOR OUT (COMPONENT VIDEO) jacks

The unit (rear)

Video input (component video)

COMPONENT VIDEO

AUDIO

TV

AUDIO 1 (OPTICAL or AUDIO) jacks

Audio output (digital optical or analog stereo)

OPTICAL
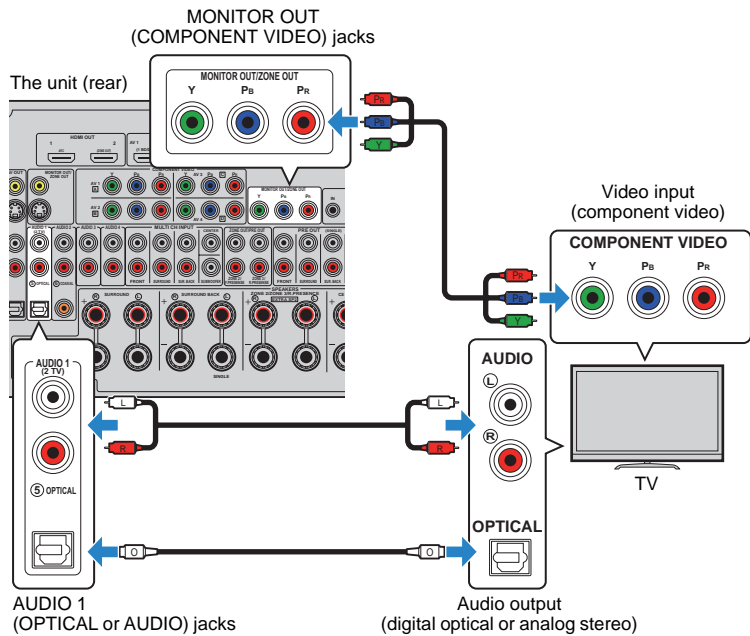
❏ S VIDEO connection (with an S-video cable)

MONITOR OUT (S VIDEO) jack

The unit (rear)

Video input (S-video)

S VIDEO

AUDIO

TV

AUDIO 1 (OPTICAL or AUDIO) jacks

Audio output (digital optical or analog stereo)

OPTICAL
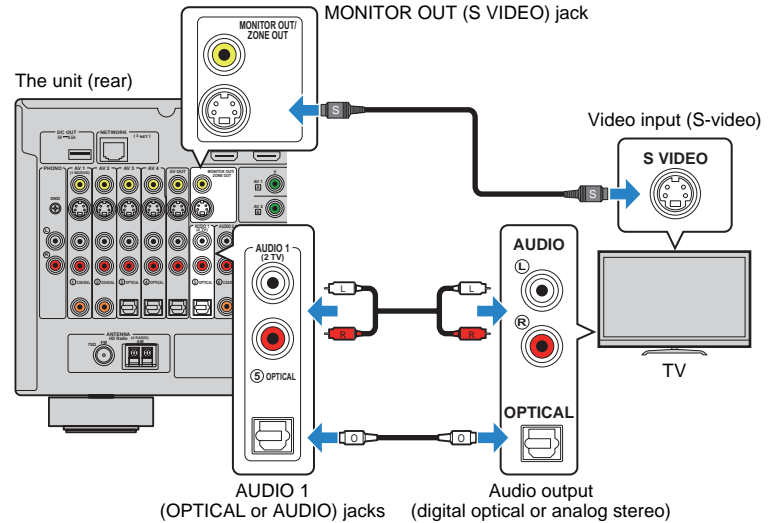
❏ VIDEO (composite video) connection (with a video pin cable)

MONITOR OUT (VIDEO) jack

The unit (rear)

Video input (S-video)

VIDEO

AUDIO

TV

AUDIO 1 (OPTICAL or AUDIO) jacks

Audio output (digital optical or analog stereo)

OPTICAL
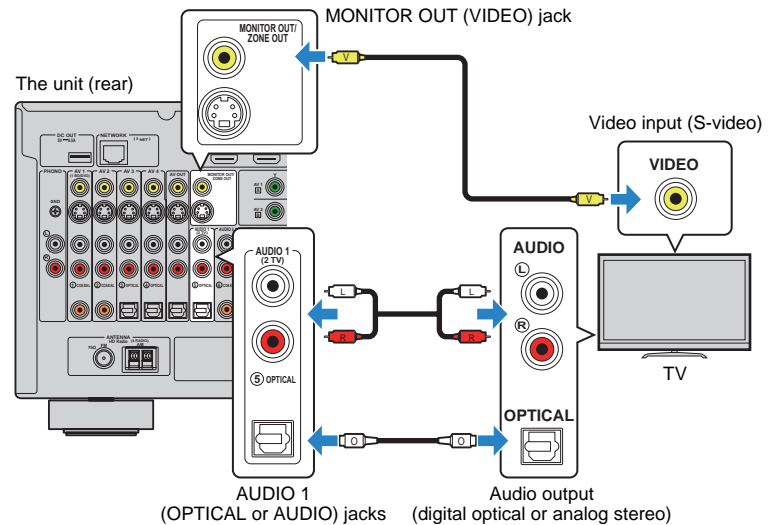
■ Connecting another TV or a projector

The unit has two HDMI output jacks. If you connect another TV or a projector to the unit with an HDMI cable, you can switch the TV (or projector) to be used for watching videos with the remote control (p.60).

HDMI OUT 2 jack

The unit (rear)

TV

HDMI input

TV (already connected)   Projector

!
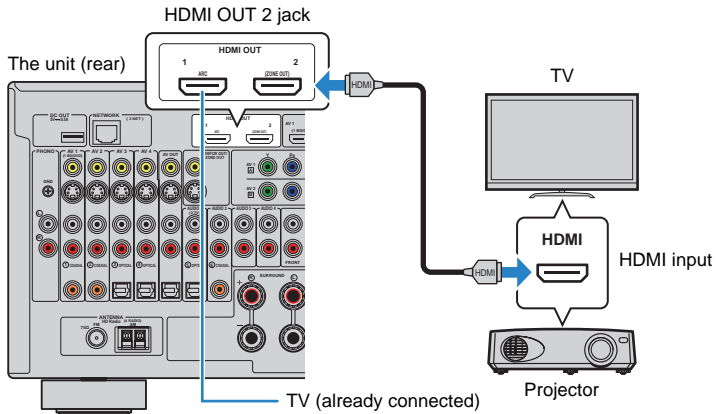
• HDMI Control is not available on the HDMI OUT 2 jack.

• (RX-A3020 only)
If you set "HDMI OUT2 Assign" (p.127) in the "Setup" menu to "Zone2" or "Zone4", you can connect a video monitor for Zone2 or Zone4 to the HDMI OUT 2 jack and enjoy videos and audio using the video monitor (p.93).

3 Connecting playback devices

The unit is equipped with a variety of input jacks including HDMI input jacks to allow you to connect different types of playback devices. For information on how to connect an iPod or a USB storage device, see the following pages.

• Connecting an iPod (p.76)
• Connecting a USB storage device (p.80)

Connecting video devices (such as BD/DVD players)

Connect video devices such as BD/DVD players, set-top boxes (STBs) and game consoles to the unit. Depending on the video/audio output jacks available on your video device, choose one of the following connections. We recommend using an HDMI connection if the video device has an HDMI output jack.

!

• Videos input to the unit via HDMI cannot be output to a TV connected to the unit with a cable other than HDMI.
• The following explanation is based on the assumption that you have not changed the "Input Assignment" setting (p.127) in the "Setup" menu. As necessary, you can assign the COMPONENT VIDEO (Ⓐ, Ⓑ, Ⓒ, Ⓓ), COAXIAL (①, ②, ⑥) and OPTICAL (③, ④, ⑤) jacks to another input source.

☼

• If you make more than one audio connection for one input source, an audio signal played back on the unit will be determined according to the "Audio Select" setting (p.101) in the "Option" menu.

■ HDMI connection

Connect a video device to the unit with an HDMI cable.

The unit (rear) HDMI (AV 1–7) jacks

HDMI output

HDMI
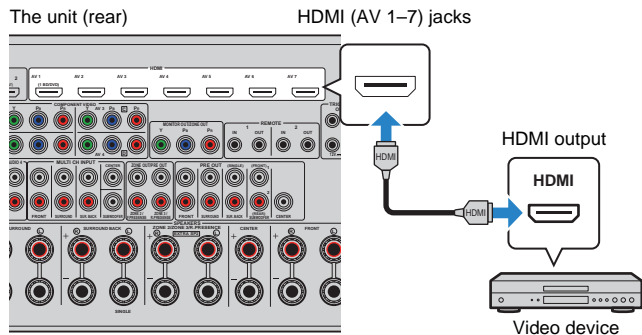
Video device

If you select the input source by pressing AV 1–7 on the remote control, the video/audio played back on the video device will be output from the unit.

■ Component video connection

Connect a video device to the unit with a component video cable and an audio cable (digital coaxial, digital optical or stereo pin cable). Choose a set of input jacks (on the unit) depending on the audio output jacks available on your video device.

Output jacks on video device		Input jacks on the unit
Video	Audio	
Component video	Digital optical	AV 1–2 (COMPONENT VIDEO + OPTICAL)
	Digital coaxial	AV 3–4 (COMPONENT VIDEO + COAXIAL)
	Analog stereo	AV 1–4 (COMPONENT VIDEO + AUDIO)
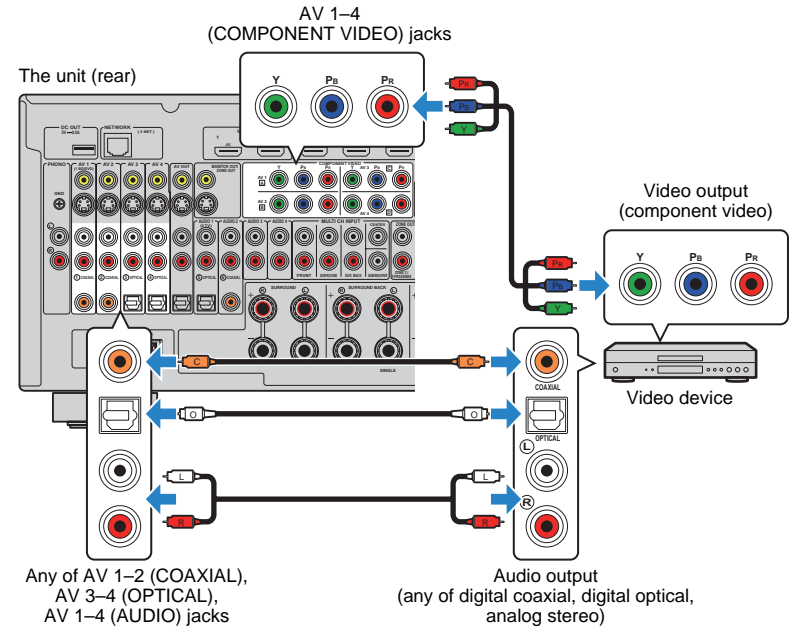
AV 1–4
(COMPONENT VIDEO) jacks

The unit (rear)

Video output
(component video)

Video device

Any of AV 1–2 (COAXIAL),
AV 3–4 (OPTICAL),
AV 1–4 (AUDIO) jacks

Audio output
(any of digital coaxial, digital optical,
analog stereo)

If you select the input source by pressing AV 1–4 on the remote control, the video/audio played back on the video device will be output from the unit.

■ S-video connection

Connect a video device to the unit with an S-video cable and an audio cable (digital coaxial, digital optical or stereo pin cable). Choose a set of input jacks (on the unit) depending on the audio output jacks available on your video device.

Output jacks on video device		Input jacks on the unit
Video	Audio	
S-video	Digital coaxial	AV 1–2 (S VIDEO + COAXIAL)
	Digital optical	AV 3–4 (S VIDEO + OPTICAL)
	Analog stereo	AV 1–4 (S VIDEO + AUDIO)
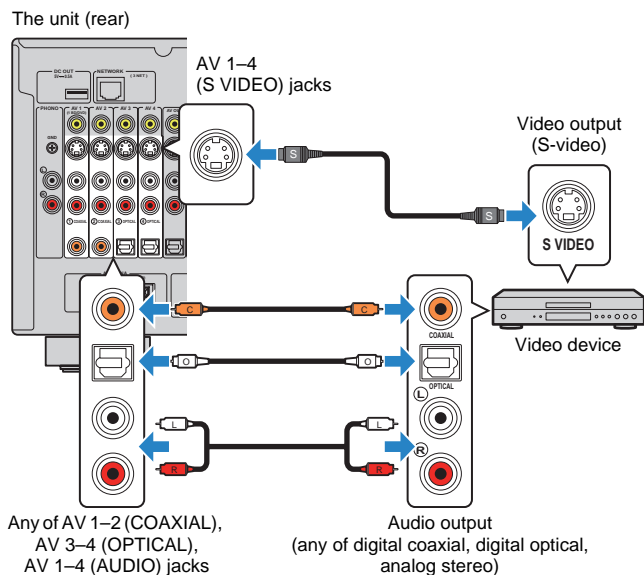
The unit (rear)

AV 1–4 (S VIDEO) jacks

Video output (S-video)

Video device

Any of AV 1–2 (COAXIAL), AV 3–4 (OPTICAL), AV 1–4 (AUDIO) jacks

Audio output (any of digital coaxial, digital optical, analog stereo)

If you select the input source by pressing AV 1–4 on the remote control, the video/audio played back on the video device will be output from the unit.

■ Composite video connection

Connect a video device to the unit with a video pin cable and an audio cable (digital coaxial, digital optical, or stereo pin cable). Choose a set of input jacks (on the unit) depending on the audio output jacks available on your video device.

Output jacks on video device		Input jacks on the unit
Video	Audio	
Composite video	Digital coaxial	AV 1–2 (VIDEO + COAXIAL)
	Digital optical	AV 3–4 (VIDEO + OPTICAL)
	Analog stereo	AV 1–4 (VIDEO + AUDIO)
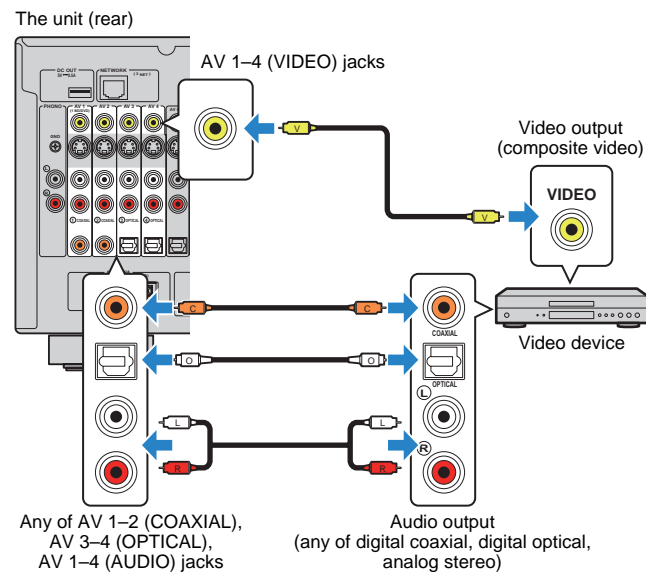
The unit (rear)

AV 1–4 (VIDEO) jacks

Video output (composite video)

Video device

Any of AV 1–2 (COAXIAL), AV 3–4 (OPTICAL), AV 1–4 (AUDIO) jacks

Audio output (any of digital coaxial, digital optical, analog stereo)

If you select the input source by pressing AV 1–4 on the remote control, the video/audio played back on the video device will be output from the unit.

Connecting audio devices (such as CD players)

Connect audio devices such as CD players, MD players, and a turntable to the unit. Depending on the audio output jacks available on your audio device, choose one of the following connections.

!

- The following explanation is based on the assumption that you have not changed the "Input Assignment" setting (p.127) in the "Setup" menu. As necessary, you can assign the COAXIAL (①, ②, ⑥) and OPTICAL (③, ④, ⑤) jacks to another input source.

- If you make more than one audio connection for one input source, an audio signal played back on the unit will be determined according to the "Audio Select" setting (p.101) in the "Option" menu.

Audio output jacks on audio device	Audio output jacks on the unit
Digital optical	AV 1–2 (COAXIAL) AUDIO 2 (COAXIAL)
Digital coaxial	AV 3–4 (OPTICAL) AUDIO 1 (OPTICAL)
Analog stereo	AV 1–4 (AUDIO) AUDIO 1–4 (AUDIO)
Turntable (PHONO)	PHONO

PHONO jacks

The unit (rear)

Ground lead

Audio output (PHONO)

Turntable

Audio device

Any of AV 1–4, AUDIO 1–4 (COAXIAL, OPTICAL, AUDIO) jacks

Audio output (any of digital coaxial, digital optical, analog stereo)
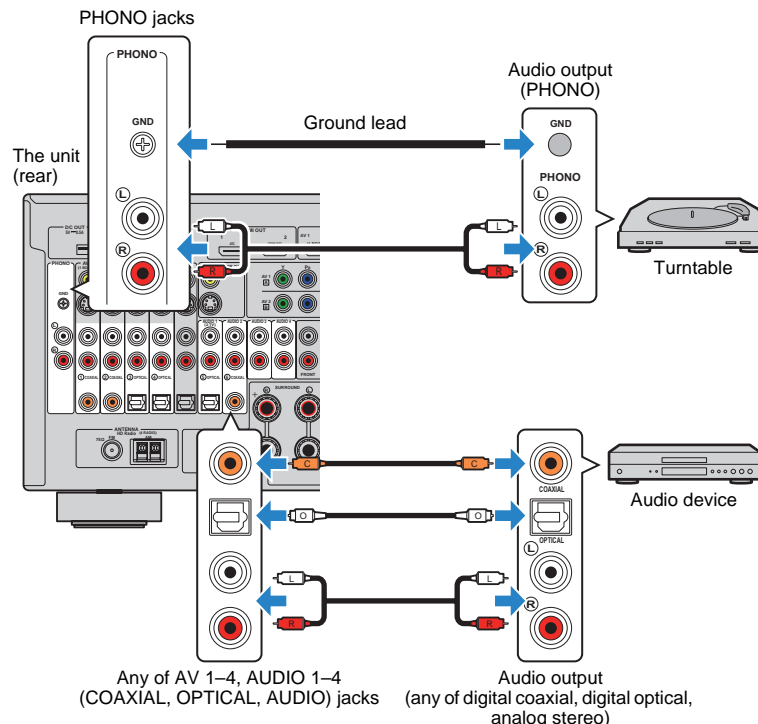
If you select the input source by pressing AV 1–4, AUDIO 1–4 or PHONO on the remote control, the audio played back on the audio device will be output from the unit.

When connecting a turntable

- The PHONO jack of the unit is compatible with an MM cartridge. To connect a turntable with a low-output MC cartridge, use a boosting transformer.

- Connecting the turntable to the GND terminal of the unit may reduce noise in the signal.

Connecting to the jacks on the front panel

Use the VIDEO AUX jack to temporarily connect devices such as game consoles and camcorders to the unit.

Before making a connection, stop playback on the device and turn down the volume on the unit.

The unit (front)

Game console

Camcorder
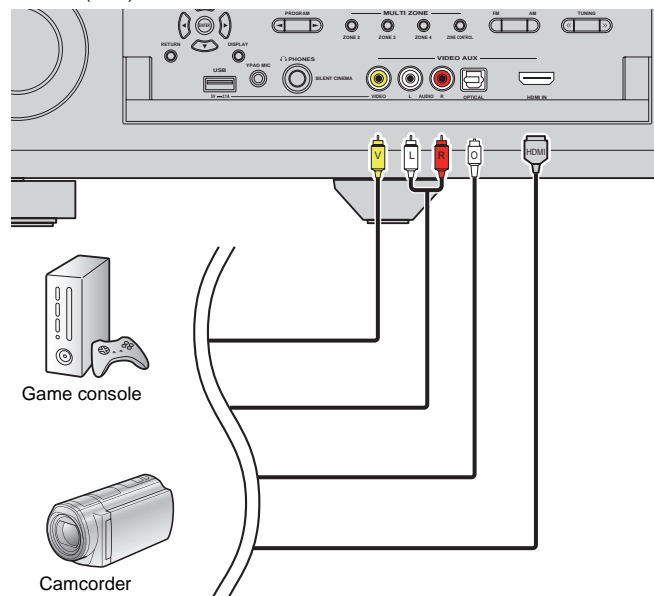
If you select "V-AUX" as the input source by pressing V-AUX on the remote control on the remote control, the video/audio played back on the device will be output from the unit.

!

• You need to prepare a cable that match the output jacks on your device.

☼

• If you connect video devices to both the HDMI IN jack and analog video/audio jacks, the unit outputs video/audio input through the HDMI IN jack.

• When "USB" is selected as the input source, video signals input to the VIDEO AUX (VIDEO) jack are output from the HDMI OUT and MONITOR OUT jacks.

4 | Connecting the FM/AM antennas

Connect the supplied FM/AM antennas to the unit.

Fix the end of the FM antenna to a wall, and place the AM antenna on a flat surface.

• The supplied antennas and the location of the antenna jacks vary depending on the region of purchase.

FM antenna

AM antenna

The unit (rear)
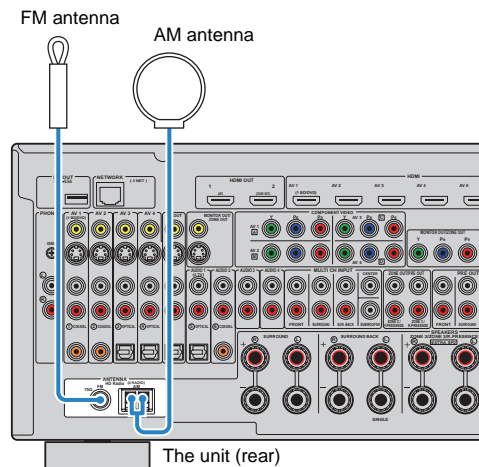
Assembling the AM antenna

(U.S.A. model)
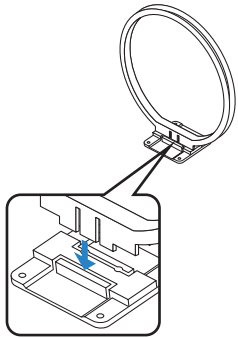
(Other models)
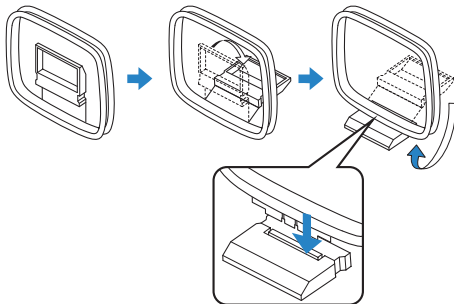
Connecting the AM antenna

Hold down	Insert	Release

💡
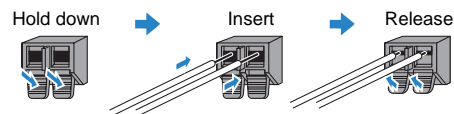
• Unwind only the length of cable needed from the AM antenna unit.

• The wires of the AM antenna have no polarity.

5 Connecting to a network

Connect the unit to your router with a commercially-available STP network cable (CAT-5 or higher straight cable).

You can enjoy Internet radio or music files stored on media servers, such as PCs and Network Attached Storage (NAS), on the unit.

💡
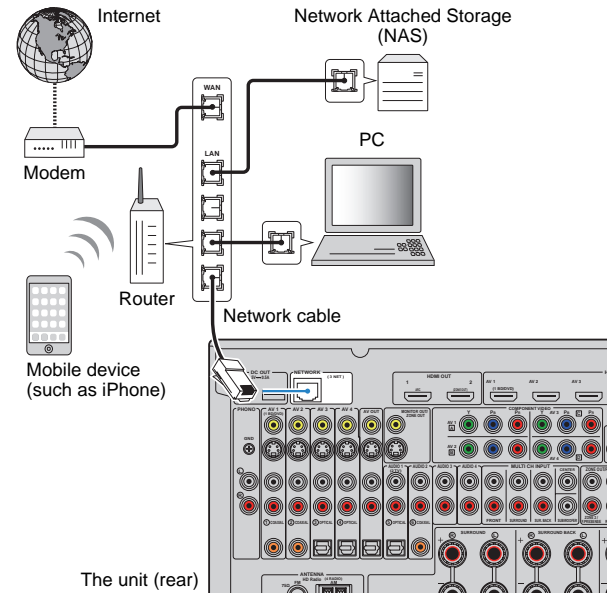
• If you are using a router that supports DHCP, you do not need to configure any network settings for the unit, as the network parameters (such as the IP address) will be assigned automatically to it. You only need to configure the network settings if your router does not support DHCP or if you want to configure the network parameters manually (p.123).

• You can check whether the network parameters (such as IP address) are properly assigned to the unit in "Network" (p.132) in the "Information" menu.

❗

• Some security software installed on your PC or the firewall settings of network devices (such as a router) may block the access of the unit to the network devices or the Internet. In these cases, configure the security software or firewall settings appropriately.

• Each server must be connected to the same subnet as the unit.

• To use the service via the Internet, broadband connection is strongly recommended.

PREPARATIONS ➤ Connecting to a network   En **45**

6 Connecting other devices

Connecting recording devices

You can connect video/audio recording devices to the AV OUT jacks. These jacks output video/audio signals selected as the input.

!
- The AV OUT jacks cannot output video/audio signals input through the HDMI or COMPONENT VIDEO jacks.
- Be sure to use the AV OUT jacks only for connecting recording devices.
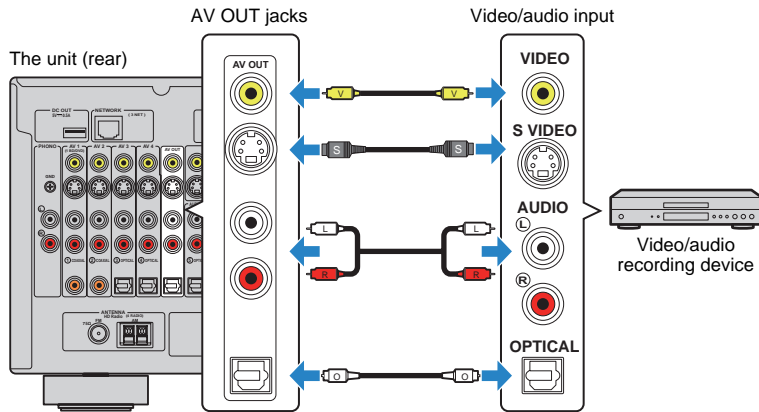
Connecting a device with analog multi-channel output

You can connect an analog multi-channel output device such as a DVD player and an SACD player to the MULTI CH INPUT jacks.
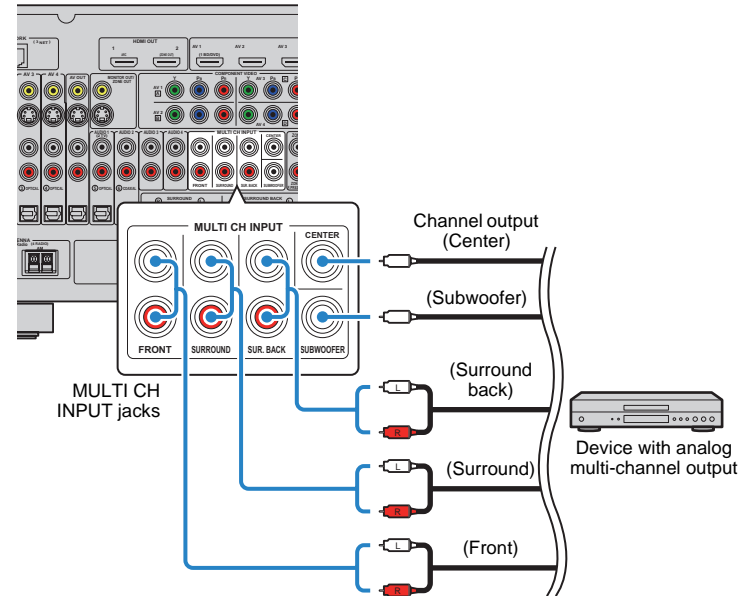
If you select "MULTI CH" as the input source by pressing MULTI on the remote control, the audio played back on the device will be output from the unit.

- You can select a video source to be displayed when "MULTI CH" is selected as the input source using "Video Out" (p.104) in the "Input" menu. When connecting a video device (such as a DVD player) to the MULTI CH INPUT jacks, use the input jack specified in "Video Out" for the video connection.
- Since the unit does not redirect signals input to the MULTI CH INPUT jacks to accommodate for missing speakers, make appropriate settings on the external device (such as a DVD player) that suit to the speaker configuration.
- When "MULTI CH" is selected as the input source, sound mode selection and tone control adjustment are not available.

Connecting a device that supports SCENE link playback (remote connection)

If you have a Yamaha product that supports SCENE control signal transmission, you can operate it remotely by connecting it to one of the REMOTE OUT jacks, using a monaural mini-jack cable, and linking with the SCENE function (p.61).

The unit (rear)

REMOTE OUT jack

Remote input

Yamaha product (such as a DVD player)
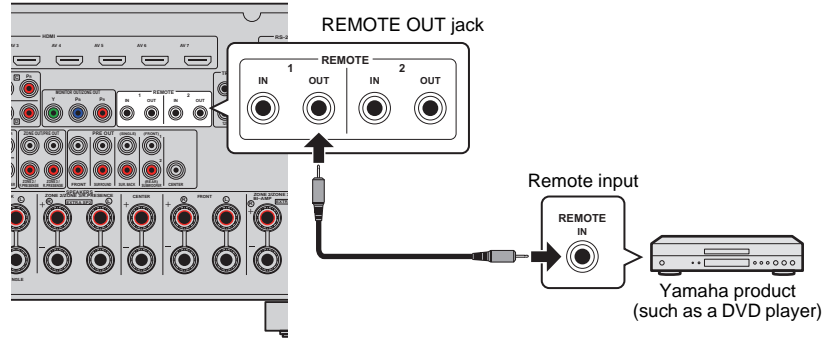
• If you connect a Yamaha product that supports the SCENE link playback function to one of the REMOTE OUT jacks, you can remotely start playback on it by linking with a scene selection (p.61). To enable the SCENE link playback function, specify the device type in "Device Control" (p.106) in the "Scene" menu.

• You can also connect an infrared signal receiver/emitter to operate the unit and external devices from another room (p.94).

Connecting a device compatible with the trigger function

The trigger function can control an external device in conjunction with operating the unit (such as powering on/off and input selection). If you have a Yamaha subwoofer that supports a system connection or a device with a trigger input jack, you can use the trigger function by connecting the external device to one of the TRIGGER OUT jacks.

TRIGGER OUT
1–2 jacks

The unit (rear)

System connection input

Yamaha subwoofer that supports a system connection
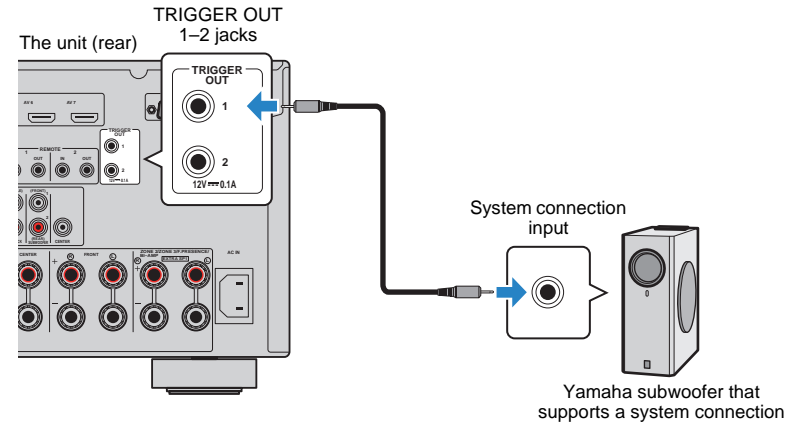
• You can configure the trigger function settings in "Trigger Output1" and "Trigger Output2" (p.128) in the "Setup" menu.

7 Connecting the power cable

Before connecting the power cable (General model only)

Set the switch position of VOLTAGE SELECTOR according to your local voltage. Voltages are AC 110–120/220–240 V, 50/60 Hz.

!

• Make sure you set VOLTAGE SELECTOR of the unit BEFORE plugging the power cable into an AC wall outlet. Improper setting of VOLTAGE SELECTOR may cause damage to the unit and create a potential fire hazard.

The unit (rear)

VOLTAGE SELECTOR
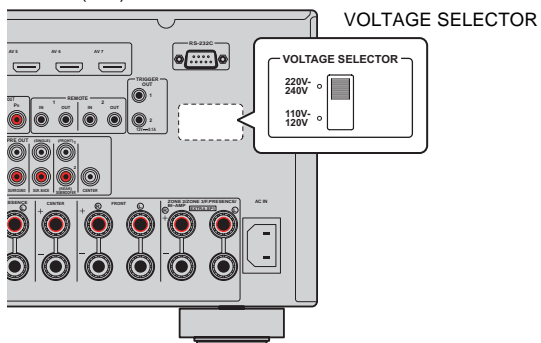
After all the connections are complete, connect the supplied power cable to the unit and then to an AC wall outlet.

The unit (rear)

To an AC wall outlet

RECEIVER ⏻

ON SCREEN

**Cursor keys
ENTER**
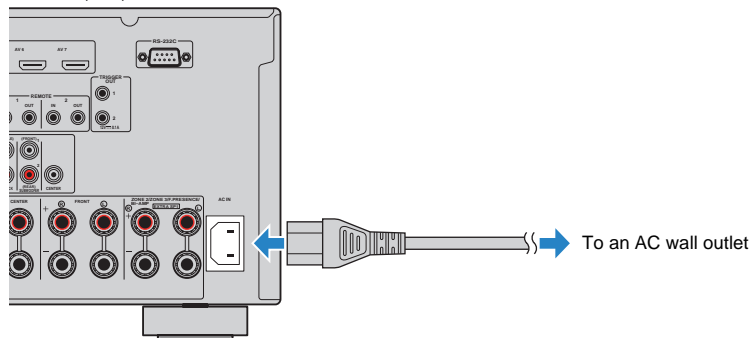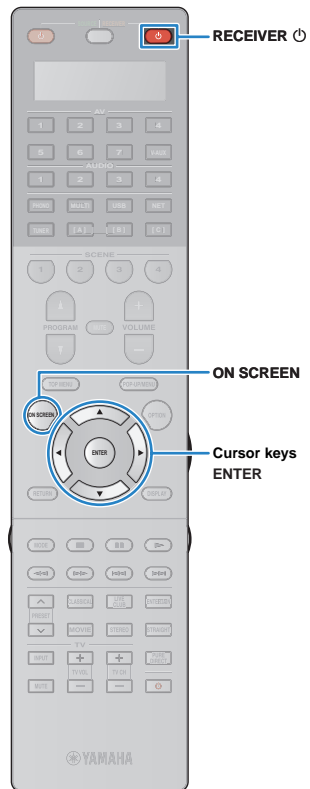
8 Selecting an on-screen menu language

Select the desired on-screen menu language from English, Japanese, French, German, Spanish, Russian and Chinese.

1 Press RECEIVER ⏻ to turn on the unit.

2 Turn on the TV and switch the TV input to display video from the unit.

3 Press ON SCREEN.

4 Use the cursor keys to select "Setup" and press ENTER.

Setup
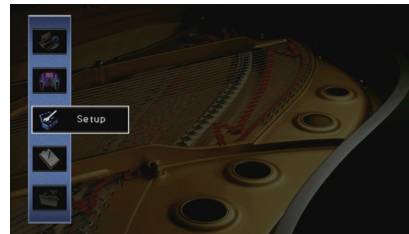
5 Use the cursor keys (◁/▷) to select "Language" and the cursor keys (△/▽) to select the desired language.

Language
✓English
日本語
Français
Deutsch
Español
Русский
中文

Select: ENTER   3 / 7
Back: RETURN
Language
ABC
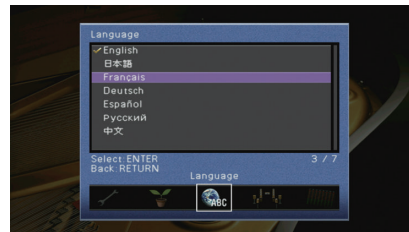
6 To confirm the setting, press ENTER.

7 To exit from the menu, press ON SCREEN.

• The information on the front display is provided in English only.

RECEIVER ⏻

9 Optimizing the speaker settings automatically (YPAO)

The Yamaha Parametric room Acoustic Optimizer (YPAO) function detects speaker connections, measures the distances from them to your listening position(s), and then automatically optimizes the speaker settings, such as volume balance and acoustic parameters, to suit your room.

> ⚠️

• Please note the following when using YPAO.

– Use YPAO after connecting a TV and speakers to the unit.

– During the measuring process, test tones are output at high volume. Ensure that the test tones do not frighten small children. Also, refrain from using this function at night when it may be a nuisance to others.

– During the measuring process, you cannot adjust the volume.

– During the measuring process, keep the room as quiet as possible.

– Do not connect headphones.

1 Press RECEIVER ⏻ to turn on the unit.

2 Turn on the TV and switch the TV input to display video from the unit.

3 Turn on the subwoofer and set the volume to half. If the crossover frequency is adjustable, set it to maximum.
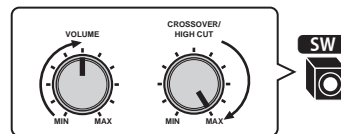
4 According to your speaker configuration, configure the "Power Amp Assign" setting (p.114) in the "Setup" menu.

For the basic speaker configuration (p.19): set to "Basic" (default).

For any of the advanced speaker configurations (p.24): set to the appropriate setting.

5 Place the YPAO microphone at your listening position (same height as your ears) and connect it to the YPAO MIC jack on the front panel.

Place the YPAO microphone at your listening position (same height as your ears). We recommend the use of a tripod as a microphone stand. You can use the tripod screws to stabilize the microphone. (The microphone direction is not considered.)
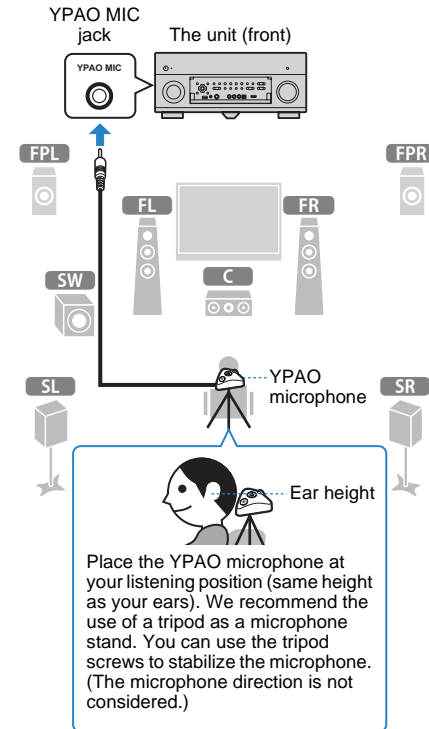
The following screen appears on the TV.
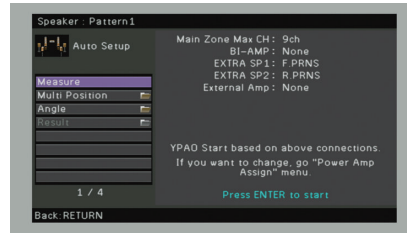
💡
- To cancel the operation, disconnect the YPAO microphone before starting the measurement.

6 If desired, select the measuring options.

① Use the cursor keys to select "Multi Position" (p.51) or "Angle" (p.52) (RX-A3020 only) and press ENTER.

② Use the cursor keys to select a setting and then press ENTER.

This completes the preparations. See the following page to start the measurement.

When "Multi Position" is set to "Yes":
"Measuring at multiple listening positions (multi measure)" (p.54)

When "Multi Position" is set to "No":
"Measuring at one listening position (single measure)" (p.52)

❑ Multi Position

Selects multi measure or single measure.

**Cursor keys
ENTER**
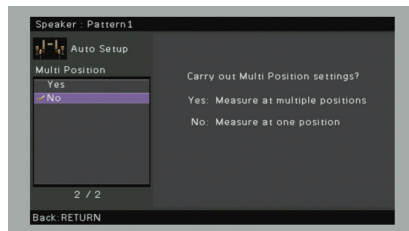
Settings

Yes	Select this option if you will have several listening positions or if you want others to enjoy surround sound. You can take measurements at up to 8 different positions in the room. The speaker settings will be optimized to suit the area defined by those positions (multi measure).
No (default)	Select this option if your listening position will always be fixed. Take the measurements at only one position. The speaker settings will be optimized to suit that position (single measure).

💡
- If you perform the multi measure, the speaker settings will be optimized for you to enjoy surround sound in a wider space.
- If you perform the multi measure, first place the YPAO microphone at the listening position you will be seated most frequently.

Single measure

Multi measure (5 listening positions)

Multi measure (1 listening position + front/back/left/right)

Multi measure (2 listening positions + front/back)
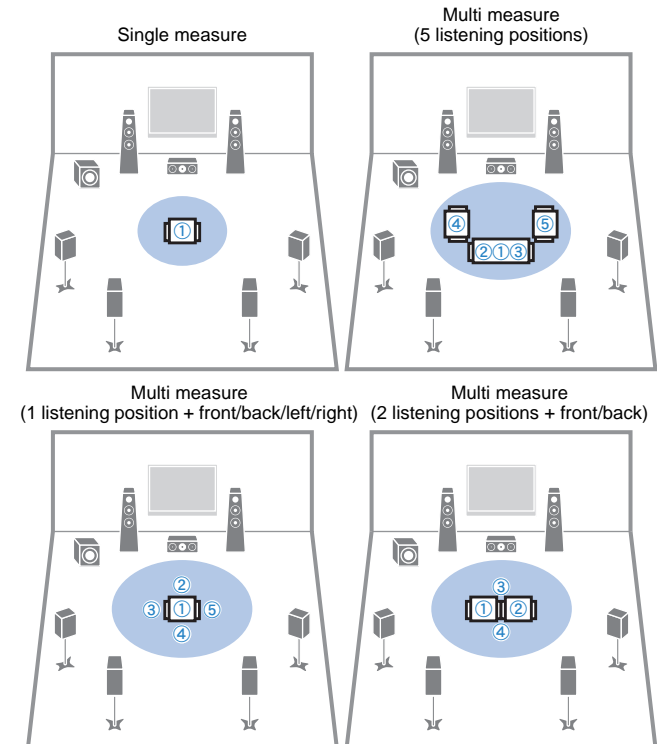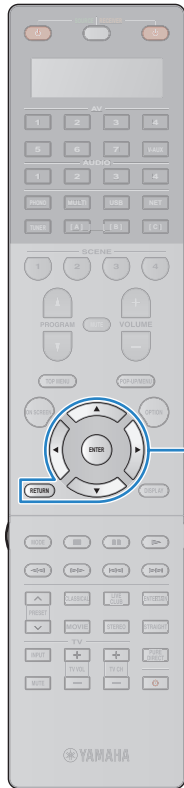
❑ Angle

(RX-A3020 only)

Enables/disables the angle measurement.
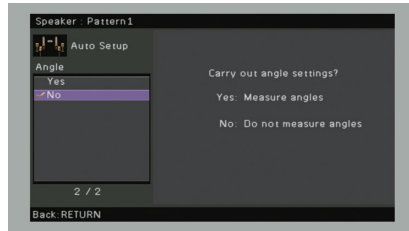
Settings

Yes	Enables the angle measurement. The unit will measure angle of each speaker at the listening position and correct the speaker parameters so that CINEMA DSP can create more effective sound fields.
No (default)	Disables the angle measurement.

Cursor keys
ENTER
RETURN

Measuring at one listening position (single measure)

When "Multi Position" is set to "No", follow the procedure below for measurement.

!

- Do not stand between the speakers and the YPAO microphone during the measurement process (about 5 minutes).
- Move to the corner of the room or leave the room.
- If any error message (such as E-1) or warning message (such as W-1) appears, see "Error messages" (p.58) or "Warning messages" (p.59).

1 **To start the measurement, use the cursor keys to select "Measure" and press ENTER.**

The measurement will start in 10 seconds. Press ENTER again to start the measurement immediately.

💡
- To cancel the measurement temporarily, press RETURN.

The following screen appears on the TV when the measurement finishes.

(RX-A2020)

(RX-A3020 [when angle measurement is disabled])

Proceed to Step 3.

(RX-A3020 [when angle measurement is enabled])

Proceed to Step 2.
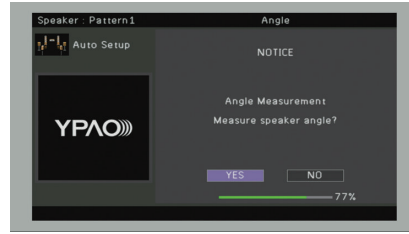
2 Perform the angle measurement.

① Use the cursor keys to select "YES" and press ENTER.

Select "NO" to cancel the angle measurement.

② Place the supplied microphone base at the listening position and set the YPAO microphone to the position "1".
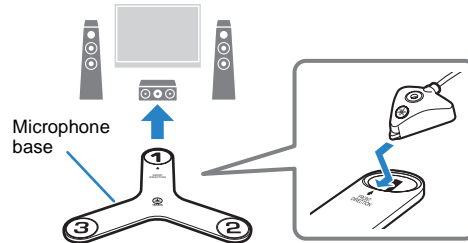
Microphone base

!

• We recommend using a tripod to place the microphone base at ear height. Use the tripod screws to fix the microphone base in place.

• Do not move the microphone base until the third angle measurement finishes.

③ Press ENTER to start the first angle measurement.

The following screen appears on the TV when the first angle measurement finishes.

④ In the same way, perform the angle measurement for the positions "2" and "3".

The following screen appears on the TV when the third angle measurement finishes.

3 Use the cursor keys to select "Save/Cancel" and press ENTER.

☼
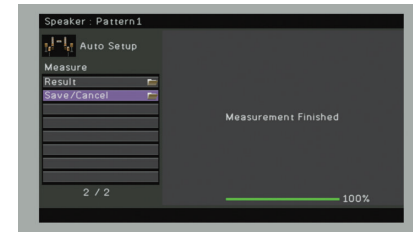
• To check the measurement results, select "Result". For details, see "Checking the measurement results" (p.56).

Cursor keys ENTER

4 **To save the measurement results, use the cursor keys (◁/▷) to select "SAVE" and press ENTER.**

The adjusted speaker settings are applied.

☼
• To finish the measurement without saving the result, select "CANCEL".

5 **Disconnect the YPAO microphone from the unit.**

This completes optimization of the speaker settings.

Caution
• The YPAO microphone is sensitive to heat, so should not be placed anywhere where it could be exposed to direct sunlight or high temperatures (such as on top of AV equipment).

Cursor keys
ENTER
RETURN

Measuring at multiple listening positions (multi measure)

When "Multi Position" is set to "Yes", follow the procedure below for measurement.

❗
• Do not stand between the speakers and the YPAO microphone during the measurement process. It takes about 15 minutes to measure 8 listening positions.
• Move to the corner of the room or leave the room.
• If any error message (such as E-1) or warning message (such as W-1) appears, see "Error messages" (p.58) or "Warning messages" (p.59).

1 **To start the measurement, use the cursor keys to select "Measure" and press ENTER.**

The measurement will start in 10 seconds. Press ENTER again to start the measurement immediately.

☼
• To cancel the measurement temporarily, press RETURN.

The following screen appears on the TV when the measurement at the first position finishes.

2 **Move the YPAO microphone to the next listening position and press ENTER.**

Repeat Step 2 until measurements at all listening positions (up to 8) have been taken.

3 **When the measurements at the positions you want to measure are completed, use the cursor keys to select "CANCEL" and press ENTER.**

When you have taken measurements at 8 listening positions, the following screen appears automatically.

(RX-A2020)

(RX-A3020 [when angle measurement is disabled])

Proceed to Step 5.

Cursor keys
ENTER

(RX-A3020 [when angle measurement is enabled])

Proceed to Step 4.
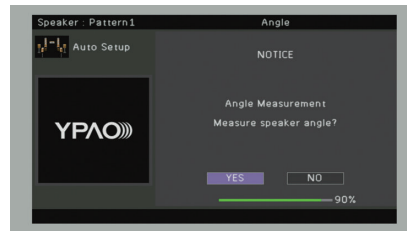
4 **Perform the angle measurement.**

① Use the cursor keys to select "YES" and press ENTER.

Select "NO" to cancel the angle measurement.

② Place the supplied microphone base at the listening position you will be seated most frequently and set the YPAO microphone to the position "1".
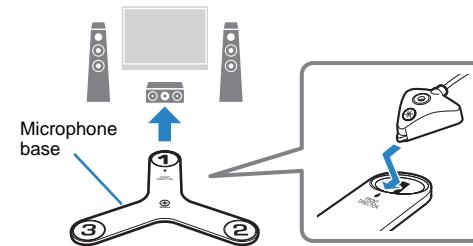
Microphone base

!

- We recommend using a tripod to place the microphone base at ear height. Use the tripod screws to fix the microphone base in place.

- Do not move the microphone base until the third angle measurement finishes.

③ Press ENTER to start the first angle measurement.

The following screen appears on the TV when the first angle measurement finishes.
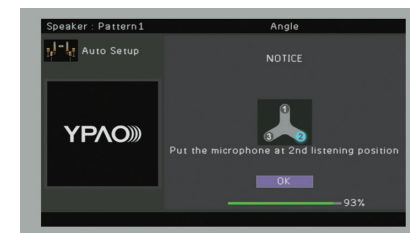
**Cursor keys
ENTER**

④ In the same way, perform the angle measurement for the positions "2" and "3".

The following screen appears on the TV when the third angle measurement finishes.

5 **Use the cursor keys to select "Save/Cancel" and press ENTER.**

💡
• To check the measurement results, select "Result". For details, see "Checking the measurement results" (p.56).

6 **To save the measurement result, use the cursor keys to select "SAVE" and press ENTER.**

The adjusted speaker settings are applied.

💡
• To finish the measurement without saving the result, select "CANCEL".

7 **Disconnect the YPAO microphone from the unit.**

This completes optimization of the speaker settings.

Caution

• The YPAO microphone is sensitive to heat, so should not be placed anywhere where it could be exposed to direct sunlight or high temperatures (such as on top of AV equipment).

Checking the measurement results

You can check the YPAO measurement results.

1 **After the measurement, use the cursor keys to select "Result" and press ENTER.**

💡
• You can also select "Result" from "Auto Setup" (p.112) in the "Setup" menu, which displays the previous measurement results.

The following screen appears.
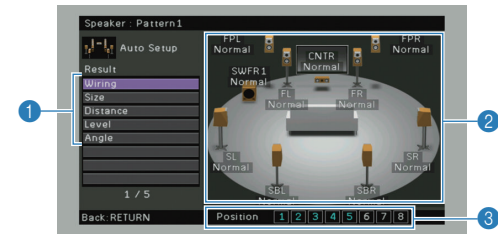
❶ **Measurement result items**

❷ **Measurement result details**

❸ **The number of measured positions (when multi measure is performed)**
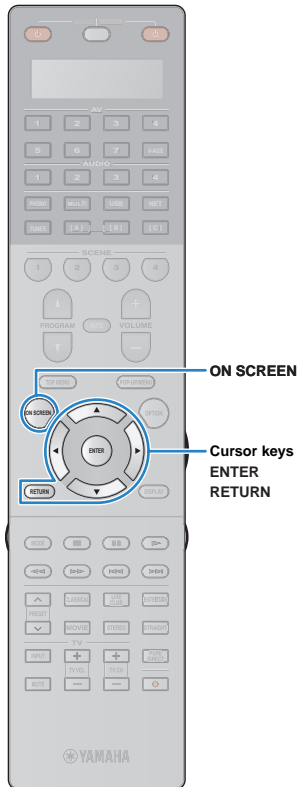
2 **Use the cursor keys to select an item.**

Wiring	Polarity of each speaker **Normal:** The speaker cable is connected with the correct polarity (+/-). **Reverse:** The speaker cable may be connected with the reverse polarity (+/-).
Size	Size of each speaker (cross-over frequency of the subwoofer) **Large:** The speaker can reproduce low-frequency signals effectively. **Small:** The speaker cannot reproduce low-frequency signals effectively.
Distance	Distance from the listening position to each speaker
Level	Output level adjustment for each speaker
Angle	(RX-A3020 only) Angle of each speaker at the listening position

☀️
• A speaker with a problem is indicated with a message enclosed in a red box.

3 **To finish checking the results and return to the previous screen, press RETURN.**

ON SCREEN

Cursor keys
ENTER
RETURN

Reloading the previous YPAO adjustments

When the speaker settings you have configured manually are not suitable, follow the procedure below to discard the manual settings and reload the previous YPAO adjustments.

1 **In the "Setup" menu, select "Speaker", "Auto Setup", and then "Result" (p.111).**

2 **Use the cursor keys to select "Setup Reload" and press ENTER.**
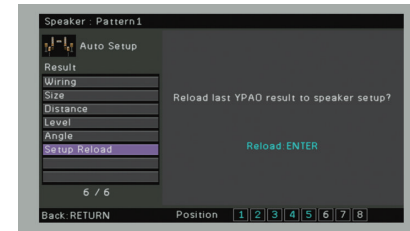
3 **To exit from the menu, press ON SCREEN.**

Error messages

If any error message is displayed during the measurement, resolve the problem and perform YPAO again.
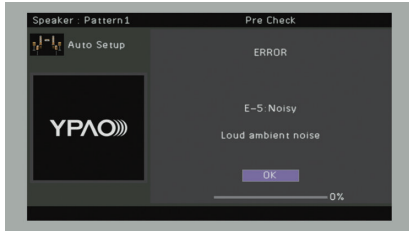
Error message	Cause	Remedy
E-1: No Front SP	Front speakers are not detected.	Follow the on-screen instructions to exit YPAO, turn off the unit, and then check the speaker connections.
E-2: No Sur. SP	One of the surround speakers cannot be detected.	
E-3: No F.PRNS SP	One of the front presence speakers cannot be detected.	
E-4: SBR → SBL	A surround back speaker is connected to the R side only.	When using only one surround back speaker, you need to connect it to the SINGLE jack (L side). Follow the on-screen instructions to exit YPAO, turn off the unit, and then reconnect the speaker.
E-5: Noisy	The noise is too loud.	Keep the room quiet and follow the on-screen instructions to start the measurement again. If you select "PROCEED", YPAO takes the measurement again and ignores any noise detected.
E-6: Check Sur.	Surround back speakers are connected, but no surround speakers are connected.	Surround speakers need to be connected in order to use surround back speakers. Follow the on-screen instructions to exit YPAO, turn off the unit, and then reconnect the speakers.
E-7: No MIC	The YPAO microphone has been removed.	Connect the YPAO microphone to the YPAO MIC jack firmly and follow the on-screen instructions to start the measurement again.
E-8: No Signal	The YPAO microphone cannot detect test tones.	Connect the YPAO microphone to the YPAO MIC jack firmly and follow the on-screen instructions to start the measurement again. If this error occurs repeatedly, contact the nearest authorized Yamaha dealer or service center.
E-9: User Cancel	The measurement has been canceled.	Follow the on-screen instructions to start the measurement again. To cancel the measurement, select "EXIT".
E-10: Internal Error	An internal error has occurred.	Follow the on-screen instructions to exit YPAO, turn off and on the unit. If this error occurs repeatedly, contact the nearest authorized Yamaha dealer or service center.
E-11: No R.PRNS SP	One of the rear presence speakers cannot be detected.	Follow the on-screen instructions to exit YPAO, turn off the unit, and then check the speaker connections.

Warning messages

If a warning message is displayed after the measurement, you can still save the measurement results by following on-screen instructions.

However, we recommend you perform YPAO again in order to use the unit with the optimal speaker settings.
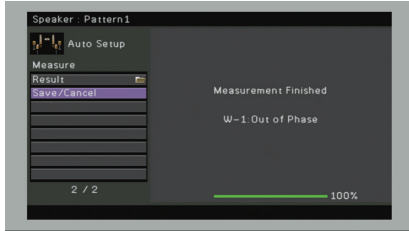
Warning message	Cause	Remedy
W-1: Out of Phase	A speaker cable may be connected with the reverse polarity (+/-).	Select "Wiring" in "Result" (p.56) and check the cable connections (+/-) of the speaker identified by "Reverse". If the speaker is connected incorrectly, turn off the unit and then reconnect the speaker cable. Depending on the type of speakers or room environment, this message may appear even if the speakers are connected correctly. In this case, you can ignore the message.
W-2: Over Distance	A speaker is placed more than 24 m (80 ft) from the listening position.	Select "Distance" in "Result" (p.56) and move the speaker identified by ">24.00m (>80.0ft)" within 24 m (80 ft) of the listening position.
W-3: Level Error	There are significant volume differences between the speakers.	Check the usage environment and cable connections (+/-) of each speaker, and the volume of the subwoofer. We recommend using the same speakers or speakers with specifications that are as similar as possible.

PLAYBACK

Basic playback procedure
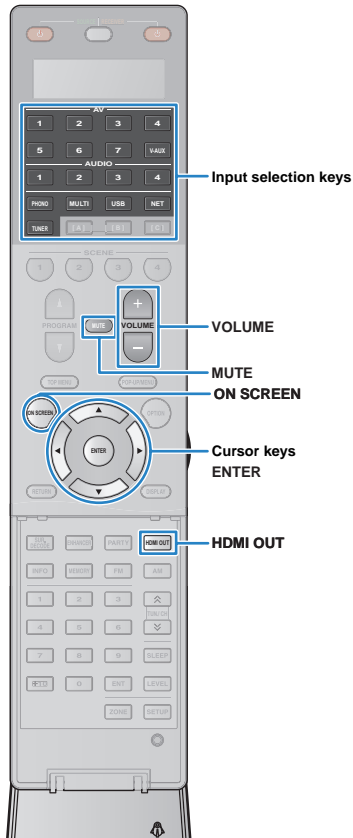
1 **Turn on the external devices (such as a TV or BD/DVD player) connected to the unit.**

2 **Use the input selection keys to select an input source.**

3 **Start playback on the external device or select a radio station.**

Refer to the instruction manual for the external device.

For details on the following operations, see the corresponding pages.

- Listening to FM/AM radio (p.69)
- Playing back iPod music (p.76)
- Playing back music stored on a USB storage device (p.80)
- Playing back music stored on media servers (PCs/NAS) (p.83)
- Listening to Internet radio (p.86)
- Playing back iTunes/iPod music via a network (AirPlay) (p.88)

4 **Press VOLUME to adjust the volume.**

- To mute the audio output, press MUTE. Press MUTE again to unmute.
- To adjust the treble/bass settings, use the "Option" menu or TONE/BALANCE on the front panel (p.99).

On-screen input selection

① Press ON SCREEN.

② Use the cursor keys to select "Input" and press ENTER.

③ Use the cursor keys to select the desired input source and press ENTER.

Selecting an HDMI output jack

1 **Press HDMI OUT to select an HDMI OUT jack.**

Each time you press the key, the HDMI OUT jack to be used for signal output changes.

```
HDMI OUT Sel.  -30.0
            OUT 1+2
```

OUT 1+2	Outputs the same signal at both the HDMI OUT 1 and HDMI OUT 2 jacks.
OUT 1	Output the signals at the selected HDMI OUT jack.
OUT 2	
Off	Does not output the signals at the HDMI OUT jacks.

- You can also select an HDMI output jack by selecting a scene (p.61).
- When "OUT 1+2" is selected, the unit outputs video signals at the highest resolution supported by both TVs (or projectors) connected to the unit. (For example, if you have connected a 1080p TV to the HDMI OUT 1 jack and a 720p TV to the HDMI OUT 2 jack, the unit outputs 720p video signals.)
- (RX-A3020 only) If the HDMI OUT 2 jack is assigned to Zone2 or Zone4 (p.127), you can turn on/off each zone by pressing HDMI OUT repeatedly.

Input selection keys

VOLUME

MUTE
ON SCREEN

Cursor keys
ENTER

HDMI OUT

Selecting the input source and favorite settings with one touch (SCENE)

The SCENE function allows you to select the assigned input source, sound program, HDMI output and various settings with just one touch.

You can use up to 12 scenes to register your favorite settings and switch them depending on a playback source.

1 Press SCENE.

SCENE

ON SCREEN

Cursor keys
ENTER

The input source and settings registered to the corresponding scene are selected. The unit turns on automatically when it is in standby mode.

By default, the following settings are registered for each scene.

SCENE (SCENE key)		1 (BD/DVD)	2 (TV)	3 (NET)	4 (RADIO)
Input	**Input (p.60)**	AV 1	AUDIO 1	NET RADIO	TUNER
	Audio Select (p.101)	Auto	Auto	—	—
HDMI Output	**HDMI Output (p.60)**	OUT 1+2	OUT 1+2	OUT 1+2	OUT 1+2
Mode	**Sound Program (p.63)**	Sci-Fi	STRAIGHT	9ch Stereo	9ch Stereo
	Pure Direct Mode (p.119)	Auto	Auto	Auto	Auto
	Enhancer (p.68)	Off	On	On	On
	Enhancer Hi-Res Mode (p.101)	On	On	On	On

☼
• You can select SCENE 1–4 by pressing SCENE on the remote control.
  Additionally, you can create 8 scenes (SCENE 5–12) and select those scenes
  from the "Scene" menu (p.105).

■ On-screen scene selection

① Press ON SCREEN.
② Use the cursor keys to select "Scene" and press ENTER.
③ Use the cursor keys to select a desired scene and press ENTER.
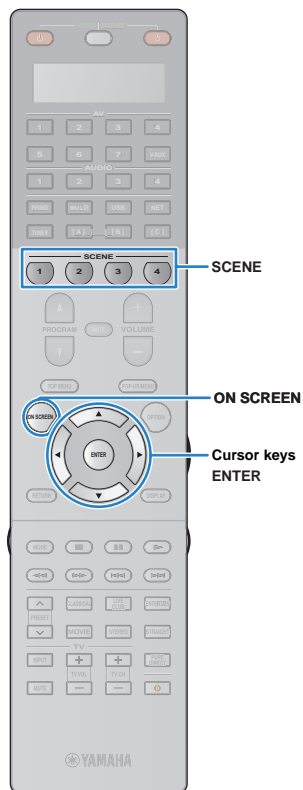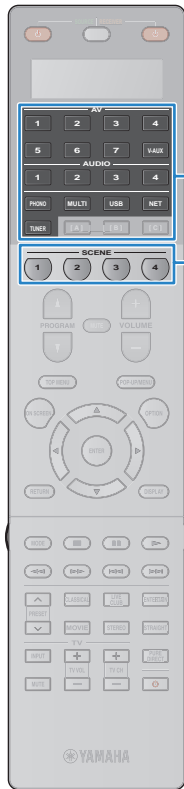
Configuring scene assignments

1 **Set the unit to the condition (such as input source and sound program) that you want to assign to a scene.**

2 **Hold down the desired SCENE key until "SET Complete" appears on the front display.**

```
SCENE1        -30.0
              dB
              VOLUME
SET Complete
```

3 **If you want to control the corresponding playback device after selecting the scene, hold down the corresponding SCENE key and input selection key together for more than 3 seconds.**

Once the setting is completed successfully, "OK" appears in the display window on the remote control.

☀

• If you have not registered the remote control code of the playback device yet, see "Registering the remote control codes for playback devices" (p.137) to register it.

• The SCENE link playback function allows you to start playback of an external device connected to the unit via HDMI or of a Yamaha product connected to the REMOTE OUT jack. To enable SCENE link playback, specify the device type in "Device Control" (p.106) in the "Scene" menu.

Input selection keys

SCENE

Selecting setting items to be included as scene assignments

In addition to the default scene assignments (Input, HDMI Output and Mode), you can also include the following setting items as the scene assignments in "Detail" (p.107) in the "Scene" menu.

Sound	Tone Control, Adaptive DRC
Surround	CINEMA DSP 3D Mode, Dialogue Lift, Dialogue Level, Subwoofer Trim, Extended Surround
Video	Video Mode, Video Adjustment
Volume	Master Volume
Lipsync	Lipsync, Delay
Speaker Setup	Setting Pattern, PEQ Select

Selecting the sound mode

The unit is equipped with a variety of sound programs and surround decoders that allow you to enjoy playback sources with your favorite sound mode (such as sound field effect or stereo playback).

Selecting a sound program suitable for movies

• MOVIE THEATER category (p.65):
  Press MOVIE repeatedly.

• ENTERTAINMENT category (p.65):
  Press ENTERTAIN repeatedly.

Selecting a sound program suitable for music or stereo playback

• CLASSICAL category (p.66):
  Press CLASSICAL repeatedly.

• LIVE/CLUB category (p.66):
  Press LIVE/CLUB repeatedly.

• STEREO category (p.66):
  Press STEREO repeatedly.

Selecting a surround decoder (p.67)
Press SUR.DECODE repeatedly.

Switching to the straight decode mode (p.67)
Press STRAIGHT.

Switching to the Pure Direct mode (p.68)
Press PURE DIRECT.

Enable Compressed Music Enhancer (p.68)
Press ENHANCER.

On-screen sound program/surround decoder selection

① Press ON SCREEN.

② Use the cursor keys to select "Sound Program" and press ENTER.

③ Use the cursor keys to select a sound program/surround decoder and press ENTER.

• You can also switch the sound programs and surround decoder by pressing PROGRAM.

• You can change the settings of the surround programs and surround decoders in the "Sound Program" menu (p.108).

• The sound mode can be applied separately to each input source.

• You can check which speakers are currently outputting sound by looking at the speaker indicators on the unit's front panel (p.12) or at the "Audio Signal" screen in the "Information" menu (p.131).

PROGRAM

ON SCREEN

Cursor keys
ENTER

CLASSICAL
LIVE/CLUB
ENTERTAIN
MOVIE
STEREO
STRAIGHT
PURE DIRECT

SUR.DECODE
ENHANCER
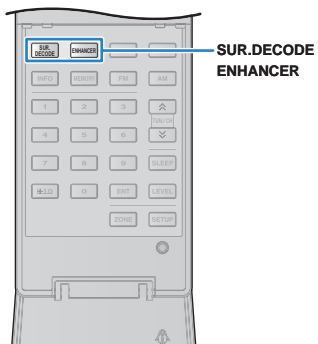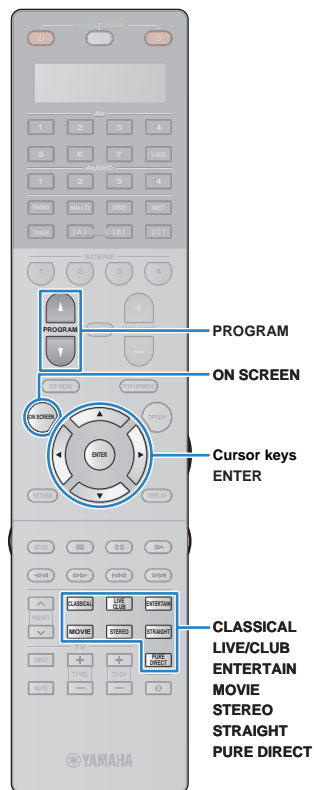
Enjoying stereoscopic sound fields (CINEMA DSP HD³/CINEMA DSP 3D)

CINEMA DSP HD³ DIGITAL   CINEMA DSP 3D DIGITAL

* CINEMA DSP HD³: RX-A3020, CINEMA DSP 3D: RX-A2020

The unit is equipped with a variety of sound programs that utilize Yamaha's original DSP technology (CINEMA DSP HD³/CINEMA DSP 3D). It allows you to easily create sound fields like actual movie theaters or concert halls in your room and enjoy natural stereoscopic sound fields.

Sound program category

```
MUSIC      CLASSICAL      -30.0
                                dB
CINEMA DSP HD3  Hall in Vienna    VOLUME
```

Sound program

"CINEMA DSP HD 3" (RX-A3020) or "CINEMA DSP 3" (RX-A2020) lights up

- To use the conventional CINEMA DSP, set "CINEMA DSP 3D Mode" (p.99) in the "Option" menu to "Off".
- We recommend using front presence speakers in order to experience the full effect of the stereoscopic sound fields (and rear presence speakers for further spatial sounds). However, even when no front presence speakers are connected, the unit creates Virtual Presence Speaker (VPS) using the front, center, and surround speakers to produce stereoscopic sound fields.

■ Enjoying sound field effects without surround speakers (Virtual CINEMA DSP)

If you select one of the sound programs when no surround speakers are connected, the unit creates the surround sound field using the front-side speakers.

■ Enjoying surround sound with headphones (SILENT CINEMA)

SILENT ™ CINEMA

You can enjoy surround or sound field effects, like a multichannel speaker system, with stereo headphones by connecting the headphones to the PHONES jack and selecting a sound program or a surround decoder.

■ Sound programs suitable for movies (MOVIE)

The following sound programs are optimized for viewing video sources, such as movies, TV programs, and games.

❏ MOVIE THEATER

Standard	This program creates a sound field that emphasizes the surround feeling without disturbing the original acoustic positioning of multichannel audio, such as Dolby Digital and DTS. Its design is based on the concept of the ideal movie theater, in which the audience is surrounded by beautiful reverberations from the left, right, and rear.
Spectacle	This program delivers the scale and grandeur of spectacular movie productions. It delivers an expansive sound space to match the cinemascope wide-screen, and boasts a broad dynamic range, providing everything from small delicate sounds to powerful loud booms.
Sci-Fi	This program clearly reproduces the finely elaborated sound design of the latest Sci-Fi and SFX movies. You can enjoy a variety of cinematographically created virtual spaces reproduced with clear separation between dialogue, sound effects, and background music.
Adventure	This program is ideal for reproducing the sound design of action and adventure movies precisely. The sound field restrains reverberations, but puts emphasis on reproducing a sensation of expansiveness on both sides, powerful space expanded widely to the left and right. The restrained depth creates a clear and powerful space, while also maintaining the articulation of the sounds and the separation of the channels.
Drama	This program features stable reverberations that match a wide range of movie genres, from serious dramas to musicals and comedies. The reverberations are modest, but suitably stereophonic. The sound effects and background music are reproduced with a gentle echo that does not impinge on the articulation of the dialogue. You'll never get tired listening for long periods.
Mono Movie	This program reproduces monaural video sources, such as classic movies, in an atmosphere of a good old movie theater. The program creates a pleasant space with depth, by adding breadth and the appropriate reverberation to the original audio.

❏ ENTERTAINMENT

Sports	This program allows listeners to enjoy the rich vividness of sport broadcasts and light entertainment programs. In sports broadcasts, the commentators' voices are positioned clearly at the center, while the atmosphere inside the stadium is realistically conveyed by the peripheral delivery of the sounds of the fans in a suitable space.
Action Game	This program is suitable for action games, such as car racing and fighting games. The reality of, and emphasis on, various effects makes the player feel like they are right in the middle of the action, allowing for greater concentration. Use this program in combination with Compressed Music Enhancer for a more dynamic and strong sound field.
Roleplaying Game	This program is suitable for role-playing and adventure games. This program adds depth to the sound field for natural and realistic reproduction of background music, special effects, and dialogue from a wide variety of scenes. Use this program in combination with Compressed Music Enhancer for a clearer and more spatial sound field.
Music Video	This program allows you to enjoy videos of pop, rock, and jazz concerts, as if you were there yourself. Immerse yourself in the hot concert atmosphere thanks to the vividness of the singers and solos on stage, a presence sound field that emphasizes the beat of rhythm instruments, and a surround sound field that reproduces the space of a big live hall.
Recital/Opera	This program controls the amount of reverberations at an optimum level and emphasizes the depth and clarity of human voices to offer the reverberations of an orchestra box in front the listener at the same time as providing the acoustic positioning and feeling of presence on the stage. The surround sound field is relatively moderate, but the data for concert hall effects are used to represent the inherent beauty of music. The listener will not be fatigued even after long hours of opera entertainment.

■ Sound programs suitable for music/stereo playback (MUSIC)

The following sound programs are optimized for listening to music sources.

You can also select stereo playback.

❏ CLASSICAL

Hall in Munich	This program simulates a Munich concert hall with approximately 2,500 seats that uses stylish wood for the interior finishing. Fine, beautiful reverberations spread richly, creating a calming atmosphere. The listener's virtual seat is at the center left of the arena.
Hall in Vienna	This program simulates a 1,700-seat, middle-sized concert hall with a shoebox shape that is traditional in Vienna. Pillars and ornate carvings create extremely complex reverberations from all around the audience, producing a very full, rich sound.
Hall in Amsterdam	The large, shoe box shaped hall seats about 2,200 around the circle stage. Reflections are rich and pleasing while the sound travels freely.
Church in Freiburg	Located in the south of Germany, this grand, stone-built church has a pointed tower at 120 meters in height. Its long and narrow shape and the high ceiling enable the elongated reverberation time and limited initial reflection time. Thus, the rich reverberation rather than the sound itself reproduces the atmosphere of the church.
Church in Royaumont	This program features the sound field created by the refectory (dining hall) of a beautiful medieval Gothic monastery located in Royaumont on the outskirts of Paris.
Chamber	This program creates a relatively wide space with a high ceiling, like an audience hall in a palace. It offers pleasant reverberations that are suitable for courtly music and chamber music.

❏ LIVE/CLUB

Village Vanguard	The Jazz club is on 7th Avenue, New York. This small club with the low ceiling makes the powerful reflections converge toward the stage located in the center.
Warehouse Loft	The warehouse resembles some lofts in Soho. Sound reflects off the concrete walls clearly with a lot of energy.
Cellar Club	This program simulates an intimate concert venue with a low ceiling and homey atmosphere. A realistic, live sound field delivers powerful sounds that make you feel as if you are sitting in the front row in front of a small stage.
The Roxy Theatre	This program creates the sound field of a 460-seat rock music concert venue in Los Angeles. The listener's virtual seat is at the center left of the hall.
The Bottom Line	This program creates the sound field at stage front in The Bottom Line, a famous New York jazz club once. The floor can seat 300 people to the left and right in a sound field offering real and vibrant sound.

❏ STEREO

2ch Stereo	Use this program to mix down multichannel sources to 2 channels. When multichannel signals are input, they are down mixed to 2 channels and output from the front speakers (this program does not utilize CINEMA DSP).
9ch Stereo	Use this program to output sound from all speakers. When you play back multichannel sources, the unit mixes down the source to 2 channels, and then outputs the sound from all speakers. This program creates a larger sound field and is ideal for background music at parties.

!

• CINEMA DSP HD³/CINEMA DSP 3D (p.64) and Virtual CINEMA DSP (p.64) do not work when "2ch Stereo" or "9ch Stereo" is selected.

Enjoying unprocessed playback

You can play back input sources without any sound field effect processing.

■ Playing back in original channels (straight decode)

When the straight decode mode is enabled, the unit produces stereo sound from the front speakers for 2-channel sources such as CDs, and produces unprocessed multichannel sounds for multichannel sources.

1 **Press STRAIGHT.**

Each time you press the key, the straight decode mode is enabled or disabled.

```
STRAIGHT    -30.⁰
                dB
                VOLUME
```

!

• To enable 6.1/7.1-channel playback from 5.1-channel sources when surround back speakers are used, set "Extended Surround" (p.100) in the "Option" menu to a setting other than "Off".

STRAIGHT

SUR.DECODE

■ Playing back 2-channel sources in multichannel (surround decoder)

The surround decoder enables unprocessed multichannel playback from 2-channel sources. When a multichannel source is input, it works the same way as the straight decode mode.

For details on each decoder see "Glossary" (p.153).

1 **Press SUR.DECODE to select a surround decoder.**

Each time you press the key, the surround decoder changes.

```
SUR. DECODE  -30.⁰
                dB
                VOLUME
   ⫿⫿Pro Logic
```

⫿⫿Pro Logic	Uses the Dolby Pro Logic decoder suitable for all sources.
⫿⫿PLIIx Movie	Use the Dolby Pro Logic IIx decoder (or Dolby Pro Logic II decoder) suitable for movies.
⫿⫿PLII Movie	
⫿⫿PLIIx Music	Use the Dolby Pro Logic IIx decoder (or Dolby Pro Logic II decoder) suitable for music.
⫿⫿PLII Music	
⫿⫿PLIIx Game	Use the Dolby Pro Logic IIx decoder (or Dolby Pro Logic II decoder) suitable for games.
⫿⫿PLII Game	
Neo:6 Cinema	Uses the DTS Neo:6 decoder suitable for movies.
Neo:6 Music	Uses the DTS Neo:6 decoder suitable for music.

!

• You cannot select the Dolby Pro Logic IIx decoders when headphones are connected or when "Surround Back" (p.115) in the "Setup" menu is set to "None".

Enjoying pure high fidelity sound (Pure Direct)

When the Pure Direct mode is enabled, the unit plays back the selected source with the least circuitry in order to reduce the electrical noise from other circuitry (such as the front display). It allows you to enjoy Hi-Fi sound quality.

1 **Press PURE DIRECT.**

Each time you press the key, the Pure Direct mode is enabled or disabled.

```
PURE DIRECT    -30.0
                    dB
                 VOLUME
```

!

• When the Pure Direct mode is enabled, the following functions are not available.
  – Some settings for the speakers or sound programs
  – Operating the on-screen and "Option" menus
  – Using the multi-zone function
  – Output from the AV OUT jacks
  – Viewing information on the front display (when not in operation)

PURE DIRECT

ENHANCER

Enjoying compressed music with enhanced sound (Compressed Music Enhancer)

compressed music
ENHANCER

Compressed Music Enhancer adds depth and breadth to the sound, allowing you to enjoy a dynamic sound close to the original sound before it was compressed. This function can be used along with any other sound modes.

In addition, Compressed Music Enhancer enhances the quality of uncompressed digital audio (such as 2-channel PCM and FLAC) when "Hi-Res Mode" (p.101) in the "Option" menu is set to "On" (default).

1 **Press ENHANCER.**

Each time you press the key, Compressed Music Enhancer is enabled or disabled.

```
Enhancer On    -30.0
                    dB
                 VOLUME
ENHANCER
```

"ENHANCER" lights up

!

• Compressed Music Enhancer does not work on signals whose sampling rate is over 48 kHz.

☀

• You can also use "Enhancer" (p.101) in the "Option" menu to enable/disable Compressed Music Enhancer.

Listening to FM/AM radio

You can tune into a radio station by specifying its frequency or selecting from registered radio stations.

❗

- The radio frequencies differ depending on the country or region where the unit is being used. The explanation of this section uses a display with frequencies used in U.K. and Europe models.
- If you cannot obtain good reception on the radio, adjust the direction of the FM/AM antennas.

Setting the frequency steps

(Asia and General models only)

At the factory, the frequency step setting is set to 50 kHz for FM and 9 kHz for AM. Depending on your country or region, set the frequency steps to 100 kHz for FM and 10 kHz for AM.

1 Set the unit to standby mode.

2 When holding down STRAIGHT on the front panel, press MAIN ZONE ⏻.
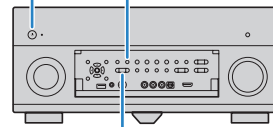
MAIN ZONE ⏻   STRAIGHT

PROGRAM

3 Press PROGRAM repeatedly to select "TUNER FRQ STEP".

```
TUNER FRQ STEP
           FM50/AM9
```

4 Press STRAIGHT to select "FM100/AM10".

5 Press MAIN ZONE ⏻ to set the unit to standby mode and turn it on again.

Selecting a frequency for reception

1 Press TUNER to select "TUNER" as the input source.

2 Press FM or AM to select a band.

```
FM 87.50MHz -30.0dB
                   VOLUME
```

3 Use the following keys to set a frequency.

TUN./CH: Increase/decrease the frequency. Hold down the key for about a second to search stations automatically.

Numeric keys: Enter a frequency directly. For example, to select 98.50 MHz, press "9", "8", "5" and "0" (or ENT).

```
STEREO TUNED      FM 98.50MHz -30.0dB
                                     VOLUME
```

"TUNED" lights up when a signal is received from a radio station.

"STEREO" also lights up when a stereo signal is received.

❗

- "Wrong Station!" appears when you enter a frequency that is out of reception range.

💡

- (U.S.A. model only)
  You can switch between "Auto" (stereo) and "Mono" (monaural) for FM radio reception in "Audio Mode" (p.102) in the "Option" menu. When the signal reception for an FM radio station is unstable, switching to monaural may improve it. (HD Radio programs are not available when the unit is in the monaural reception mode.)
- (Except for U.S.A. model)
  You can switch between "Stereo" (stereo) and "Mono" (monaural) for FM radio reception in "FM Mode" (p.102) in the "Option" menu. When the signal reception for an FM radio station is unstable, switching to monaural may improve it.

TUNER

FM
AM

TUN./CH

Numeric keys

TUNER

PRESET

MEMORY

Numeric keys
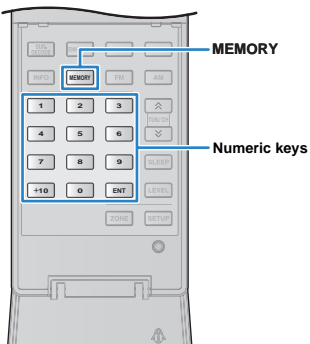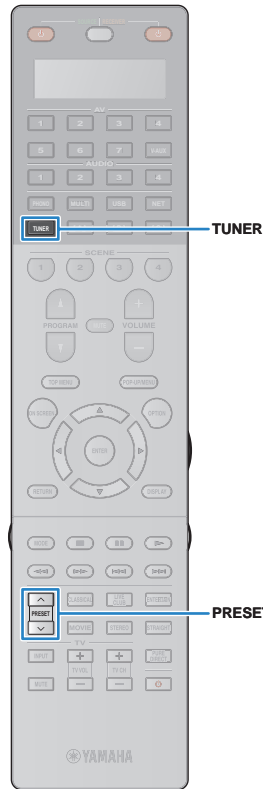
Registering favorite radio stations (presets)

You can register up to 40 radio stations as presets. Once you have registered stations, you can easily tune into them by selecting their preset numbers.

💡

• You can automatically register FM radio stations that have strong signals and HD Radio stations (U.S.A. model only) by using "Auto Preset" (p.73, p.75).

■ Registering a radio station

Select a radio station manually and register it to a preset number.

1 **Follow "Selecting a frequency for reception" (p.69) to tune into the desired radio station.**

💡

• (U.S.A. model only)
To register a specific HD Radio program, select an audio program (p.71) after tuning into the radio station.

2 **Hold down MEMORY for more than 2 seconds.**

The first time that you do register a station, the selected radio station will be registered to the preset number "01". Thereafter, each radio station you select will be registered to the next empty (unused) preset number after the most recently registered number.

Preset number

```
Preset   01:FM 98.50MHz -30.0
STEREO TUNED                      dB
                                VOLUME
         Preset OK
```

💡

• To select a preset number for registering, press MEMORY once after tuning into the desired radio station, use PRESET or numeric keys to select a preset number, and then press MEMORY again.

"Empty" (not in use) or the frequency currently registered

```
Preset   02:Empty    -30.0
STEREO TUNED                      dB
                                VOLUME
         FM 98.50MHz
```

■ Selecting a preset station

Tune into a registered radio station by selecting its preset number.

1 **Press TUNER to select "TUNER" as the input source.**

2 **Press PRESET repeatedly to select the desired radio station.**

You can also enter a preset number (01 to 40) directly by using the numeric keys after pressing PRESET once.

```
Preset   01:FM 98.50MHz -30.0
STEREO TUNED                      dB
                                VOLUME
```

❗

• "No Presets" appears when no radio stations are registered.
• "Wrong Num." appears when an invalid number is entered.
• "Empty" appears when a preset number not in use is entered.

💡

• To clear preset stations, use "Clear Preset" or "Clear All Preset" (p.73, p.75).

HD Radio™ tuning

(U.S.A. model only)

HD Radio Technology is a new technology that enables FM/AM radio stations to broadcast programs digitally. Digital broadcasting provides listeners with radically improved audio quality and reception as well as new data services. Furthermore, supplemental program services allow listeners to select from up to 8 HD Radio programs multicast on a single FM HD Radio channel. For further information on HD Radio Technology, visit "http://www.ibiquity.com/".

The unit is equipped with an HD Radio reception feature, facilitating CD quality FM broadcasts as well as analog FM stereo quality AM broadcasts. In addition, the unit can receive both audio and data (such as song titles, artist names, album titles and program types) from all HD Radio programs (HD1 to HD8).

PSD
● Program Service Data: Contributes to the superior user experience of HD RadioTechnology. Presents song name, artist, station IDs, HD2/HD3 Channel Guide, and other relevant data streams.

HD2/HD3
● Adjacent to traditional main stations are extra local FM channels. These HD2/HD3 Channels provide new, original music as well as deep cuts into traditional genre.

Digital Sound
● Digital, CD-quality sound. HD Radio Technology enables local radio stations to broadcast a clean digital signal. AM sounds like today's FM and FM sounds like a CD.

When tuning into an HD Radio station

Relative/total program number
(when multiple programs are available)

"HD" lights up   Absolute program number
                      (when multiple programs are available)

- The unit is capable of receiving both hybrid and all-digital FM/AM radio stations. If you cannot search the desired all-digital HD Radio station by holding down TUN./CH, enter the frequency directly using the numeric keys.
- When the unit is in the monaural reception mode (p.102), you can tune into the analog part of a hybrid HD Radio station only.

MODE

INFO

TUN./CH

Numeric keys
ENT

■ Selecting an HD Radio™ audio program

You can select an audio program when the unit is tuned into an HD Radio station that provides multiple audio programs (up to 8).

1 Press MODE repeatedly to select a desired audio program.

You can also enter an audio program number (1 to 8) directly by using the numeric keys. For example, to select program 3, press 3 and then ENT (or just leave it).

■ Displaying the HD Radio™ information

You can switch the HD Radio information displayed on the front display.

1 Press INFO.

Each time you press the key, the item switches.

Item name

About 3 seconds later, the information is displayed.

Station Info	Frequency, station name (call sign)
Category	Station name (call sign), program category
Artist/Song	Station name (call sign), artist name/song title
Album	Station name (call sign), album title
DSP Program	Frequency, sound program selected on the unit
Audio Decoder	Frequency, decoder selected on the unit

- Some audio programs may not provide information depending on the station or period of time.

■ Holding HD Radio™ information display

You can hold the HD Radio information currently displayed on the TV (playback screen) and front display by using the hold function.

1 When the desired HD Radio information is displayed, press OPTION.

2 Use the cursor keys to select "Hold/Unhold" (Hold/Unhold) and press ENTER.

The current information will remain displayed until "Hold/Unhold" is selected again.

☼
• Texts in parentheses denote indications on the front display.
• The hold function is automatically disabled if the unit is set to standby mode or if another input source or another radio station is selected.

3 To exit from the menu, press OPTION.

■ Operating HD Radio™ on the TV

You can view the HD Radio information or select a radio station on the TV.

1 Press TUNER to select "TUNER" as the input source.

The playback screen is displayed on the TV.

❑ Playback screen

① HOLD indicator
Flashes when the hold function (p.72) is enabled.

② Radio station information
Displays the information of the selected radio station such as the selected band (FM/AM) and frequency.
When tuning into an HD Radio station, the selected audio program number and HD Radio information (station name [call sign], program category, artist name, album name and song title) are also displayed.
Use the cursor keys (△/▽) to select scrollable information.

③ HD indicator
Lights up when an HD Radio station signal is received.

④ TUNED/STEREO indicators
"TUNED" lights up when a signal is received from a radio station.
"STEREO" lights up when a stereo signal is received.

⑤ Operation menu
Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Manual Tuning	FM	Switches to FM/AM.
	AM	
	Tuning (+/-)	Selects a frequency.
	Auto (+/-)	Selects a radio station automatically.
	Program (+/-)	Selects an audio program (when multiple audio programs are available).
	Memory	Registers the selected station as presets.
	Direct	Enters a frequency directly.
Browse		Moves to the browse screen (preset station list).
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

TUNER

OPTION

Menu operation keys
Cursor keys
ENTER
RETURN

■ Browse screen

❶ Preset station list

Displays the list of preset stations. Use the cursor keys (△/▽) to select a preset station and press ENTER to tune into it.

❷ Preset number

❸ Operation menu

Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Utility	Memory	Registers the current station to the preset number selected in the list.
	Auto Preset	Automatically registers HD Radio (FM/AM) stations and FM radio stations with strong signals (up to 40 stations).
	Clear Preset	Clear the preset station selected in the list.
	Clear All Preset	Clear all the preset stations.
1 Page Up		Moves to the previous/next page of the list.
1 Page Down		
Now Playing		Moves to the playback screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

☼
• If HD Radio stations are detected by "Auto Preset", only the audio program 1 (HD1) will be registered. If you want to register a specific HD Radio program, register it manually (p.70).

Menu operation keys
Cursor keys
ENTER
RETURN

INFO

Radio Data System tuning

(U.K. and Europe models only)

Radio Data System is a data transmission system used by FM stations in many countries. The unit can receive various types of Radio Data System data, such as "Program Service", "Program Type," "Radio Text" and "Clock Time", when it is tuned into a Radio Data System broadcasting station.

■ Displaying the Radio Data System information

1 Tune into the desired Radio Data System broadcasting station.

☼
• We recommend using "Auto Preset" to tune into the Radio Data System broadcasting stations (p.75).

2 Press INFO.

Each time you press the key, the displayed item changes.

Item name

About 3 seconds later, the corresponding information for the displayed item appears.

Frequency (always displayed)

Information

Program Service	Program service name
Program Type	Current program type
Radio Text	Information on the current program
Clock Time	Current time
DSP Program	Sound mode name
Audio Decoder	Decoder name

TUNER

OPTION

Cursor keys
ENTER
RETURN
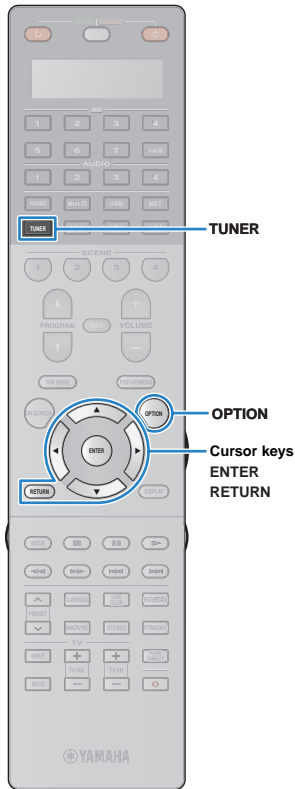
> ⚠️
> • "Program Service", "Program Type", "Radio Text", and "Clock Time" are not displayed if the radio station does not provide the Radio Data System service.

■ Receiving traffic information automatically

When "TUNER" is selected as the input source, the unit automatically receives traffic information. To enable this function, follow the procedure below to set the traffic information station.

1 When "TUNER" is selected as the input source, press OPTION.

2 Use the cursor keys to select "Traffic Program" (TrafficProgram) and press ENTER.

The traffic information station search will start in 5 seconds. Press ENTER again to start the search immediately.

> 💡
> • To search upward/downward from the current frequency, press the cursor keys ($\triangle/\triangledown$) while "READY" is displayed.
> • To cancel the search, press RETURN.
> • Texts in parentheses denote indicators on the front display.

The following screen appears for about 3 seconds when the search finishes.

```
Finished  TrafficProgram -30.0dB
STEREO TUNED            VOLUME
          TP FM101.30MHz
```

Traffic information station (frequency)

> ⚠️
> • "TP Not Found" appears for about 3 seconds when no traffic information stations are found.

Operating the radio on the TV

You can view the radio information or select a radio station on the TV.

> • (U.S.A. model only)
> See "Operating HD Radio™ on the TV" (p.72) to operate the radio on the TV.

1 Press TUNER to select "TUNER" as the input source.

The playback screen is displayed on the TV.

■ Playback screen
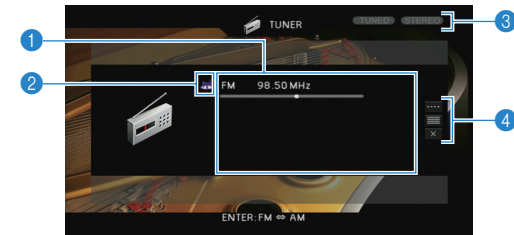
1 Radio station information
Displays the information of the selected radio station such as the selected band (FM/AM) and frequency.

(U.K. and Europe models only)
When tuning into a Radio Data System broadcasting station (p.73), the Radio Data System information ("Program Service", "Program Type," "Radio Text" and "Clock Time") is also displayed.

2 Band icon
(Except for U.K. and Europe models)
Select this icon and press ENTER to switch between FM and AM.

3 TUNED/STEREO indicators
"TUNED" lights up when a signal is received from a radio station.
"STEREO" lights up when a stereo signal is received.

4 Operation menu
Press the cursor key ($\triangleright$) and then use the cursor keys ($\triangle/\triangledown$) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.
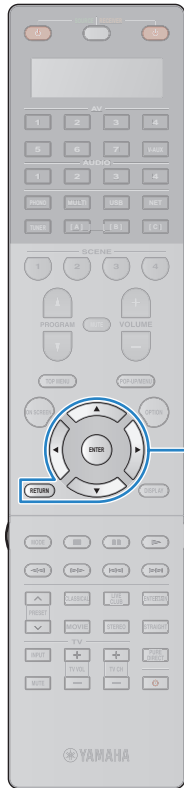
Menu	Submenu	Function
Manual Tuning	FM	(U.K. and Europe models only) Switches to FM/AM.
	AM	
	Tuning (+/-)	Selects a frequency.
	Auto (+/-)	Selects a radio station automatically.
	Memory	Registers the selected station as presets.
	Direct	Enters a frequency directly.
Browse		Moves to the browse screen (preset station list).
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

Menu operation keys
Cursor keys
ENTER
RETURN

■ Browse screen
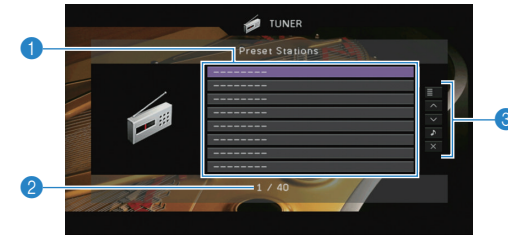
1 Preset station list
Displays the list of preset stations. Use the cursor keys (△/▽) to select a preset station and press ENTER to tune into it.

2 Preset number

3 Operation menu
Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Utility	Memory	Registers the current station to the preset number selected in the list.
	Auto Preset	Automatically registers FM radio stations with strong signals (up to 40 stations).
	Clear Preset	Clear the preset station selected in the list.
	Clear All Preset	Clear all the preset stations.
1 Page Up		Moves to the previous/next page of the list.
1 Page Down		
Now Playing		Moves to the playback screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

🔅
• (U.K. and Europe models only)
Only Radio Data System broadcasting stations are stored automatically by "Auto Preset".

Playing back iPod music

You can play back iPod music on the unit using a USB cable supplied with the iPod.

!

- An iPod may not be detected by the unit or some features may not be compatible, depending on the model or software version of the iPod.
- To play back iPod videos on the unit, an Apple Composite AV Cable (not supplied) is required. Connect the USB and composite video plugs of the Apple Composite AV cable to the USB jack and VIDEO AUX (VIDEO) jack on the front panel. To select a video, operate the iPod itself in the simple play mode (p.78).

Supported iPod (as of April 2012)

- iPod touch, iPod nano (2nd gen. to 6th gen.)
- iPhone 4S, iPhone 4, iPhone 3GS, iPhone 3G, iPhone
- iPad2, iPad

Connecting an iPod

Connect your iPod to the unit with the USB cable supplied with the iPod.

1 Connect the USB cable to the iPod.
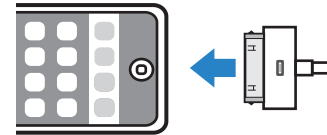
2 Connect the USB cable to the USB jack.

The unit (front)

⌖
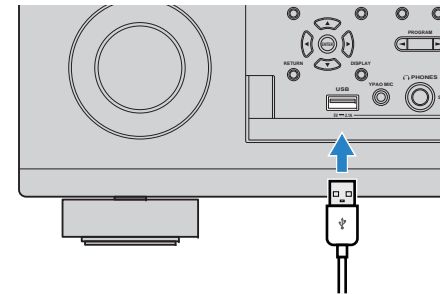
- The iPod charges while it is connected to the unit. If you set the unit to standby mode while the iPod is charging, the iPod continues to charge up to 4 hours. If "Network Standby" (p.124) in the "Setup" menu is set to "On", it continues to charge without limit.

!

- Disconnect the iPod from the USB jack when it is not in use.
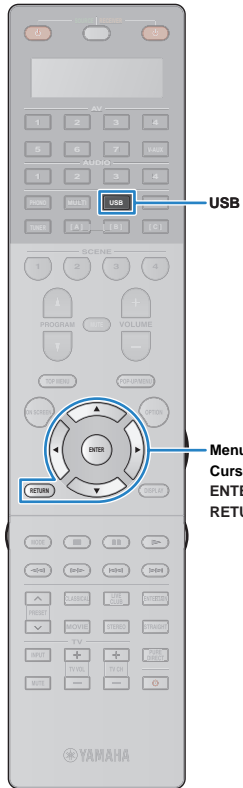
Playback of iPod content

Follow the procedure below to operate the iPod contents and start playback.

You can control the iPod with the menu displayed on the TV screen.

USB

Menu operation keys
Cursor keys
ENTER
RETURN

1 Press USB to select "USB" as the input source.

The browse screen is displayed on the TV.
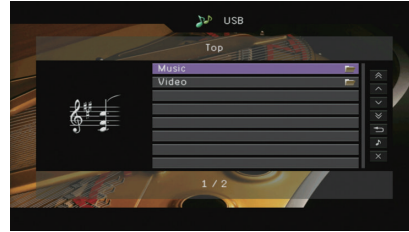
💡
• If playback is ongoing on your iPod, the playback screen is displayed.

2 Use the cursor keys to select an item and press ENTER.

If a song is selected, playback starts and the playback screen is displayed.
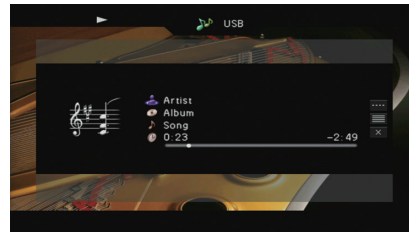
💡
• To return to the previous screen, press RETURN.
• To operate the iPod manually to select content or control playback, switch to the simple play mode (p.78).

■ Browse screen
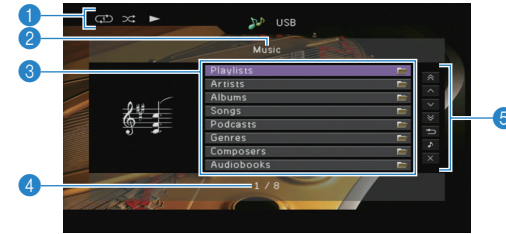
1 Status indicators
Display the current repeat/shuffle settings (p.79) and playback status (such as play/pause).

2 List name

3 Contents list
Displays the list of iPod content. Use the cursor keys ($\triangle/\triangledown$) to select an item and press ENTER to confirm the selection.

4 Item number/total

5 Operation menu
Press the cursor key ($\triangleright$) and then use the cursor keys ($\triangle/\triangledown$) to select an item. Press ENTER to confirm the selection.

Menu	Function
1 Page Up	Moves to the previous/next page of the list.
1 Page Down	
10 Pages Up	Moves 10 pages forward/backward.
10 Pages Down	
Return	Returns to the higher-level list.
Now Playing	Moves to the playback screen.
Screen Off	Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

■ Playback screen

❶ Status indicators

Display the current repeat/shuffle settings (p.79) and playback status (such as play/pause).

❷ Playback information

Displays the artist name, album name, song title, and elapsed/remaining time.
Use the cursor keys (△/▽) to select scrollable information.

❸ Operation menu

Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Play Control	►	Resumes playback from pause.
	■	Stops playback.
	❚❚	Stops playback temporarily.
	⏮	Skips forward/backward.
	⏭	
	◀◀	Searches forward/backward (by holding down).
	►►	
Browse		Moves to the browse screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

💡

• You can also use the external device operation keys on the remote control to control playback.

■ Operating the iPod itself or remote control (simple play)

1 **Press MODE to switch to the simple play mode.**

The TV menu screen turns off and iPod operations are enabled.

To display the TV menu screen, press MODE again.

2 **Operate your iPod itself or the remote control to start playback.**

Operational remote control keys	Function
Cursor keys	Select an item.
ENTER	Confirms the selection.
RETURN	Returns to the previous screen.
External device operation keys ►	Starts playback or stops playback temporarily.
❚❚	
■	Stops playback.
⏮	Skips forward/backward.
⏭	
◀◀	Searches forward/backward (by holding down).
►►	

Menu operation keys
Cursor keys
ENTER
RETURN
External device operation keys
MODE
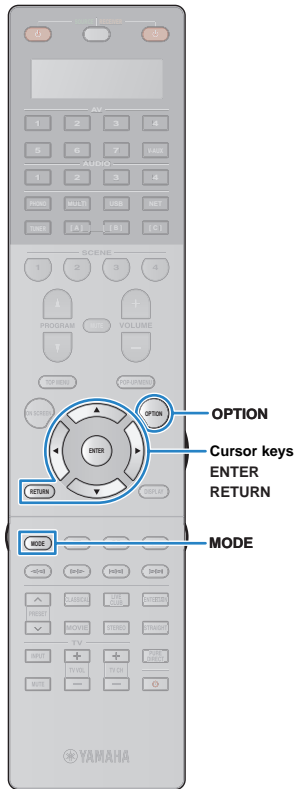
■ Repeat/shuffle settings

You can configure the repeat/shuffle settings of your iPod.

!

- During simple play, configure the repeat/shuffle settings directly on your iPod or press MODE to display the TV menu screen and then follow the procedure below.

1 When "USB" is selected as the input source, press OPTION.

2 Use the cursor keys to select "Shuffle" (Shuffle) or "Repeat" (Repeat) and press ENTER.

- To return to the previous screen during menu operations, press RETURN.
- Texts in parentheses denote indicators on the front display.

3 Use the cursor keys ($\triangleleft$/$\triangleright$) to select a setting.

Item	Setting	Function
Shuffle (Shuffle)	Off (Off)	Turns off the shuffle function.
	Songs (Songs)	Plays back songs in random order. "⤬" appears in the TV screen.
	Albums (Albums)	Plays back albums in random order. "⤬" appears in the TV screen.
Repeat (Repeat)	Off (Off)	Turns off the repeat function.
	One (One)	Plays back the current song repeatedly. "⟳" appears in the TV screen.
	All (All)	Plays back all songs repeatedly. "⟳" appears in the TV screen.

4 To exit from the menu, press OPTION.

OPTION

Cursor keys
ENTER
RETURN

MODE
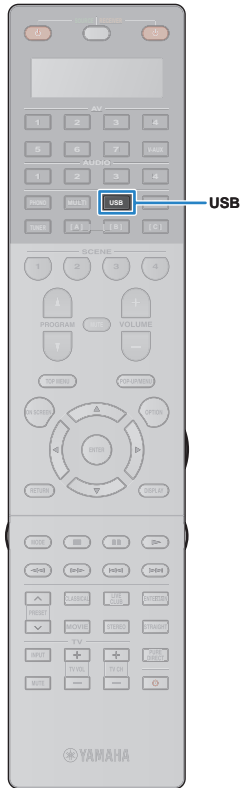
Playing back music stored on a USB storage device

You can play back music files stored on a USB storage device on the unit. Refer to the instruction manuals for the USB storage device for more information.

The unit supports USB mass storage class devices (FAT16 or FAT32 format).

!

- The unit supports WAV (PCM format only), MP3, WMA, MPEG-4 AAC and FLAC files (1- or 2-channel audio only).
- The unit is compatible with sampling rate of up to 96 kHz for WAV and FLAC files, and 48 kHz for other files.
- Some features may not be compatible, depending on the model or manufacturer of the USB storage device.
- Digital Rights Management (DRM) contents cannot be played back.

Connecting a USB storage device

1 **Connect the USB storage device to the USB jack.**

The unit (front)

USB

USB storage device

Playback of USB storage device contents

Follow the procedure below to operate the USB storage device contents and start playback.

You can control the USB memory device with the menu displayed on the TV screen.

1 **Press USB to select "USB" as the input source.**

The browse screen is displayed on the TV.

- If playback is ongoing on your USB storage device, the playback screen is displayed.
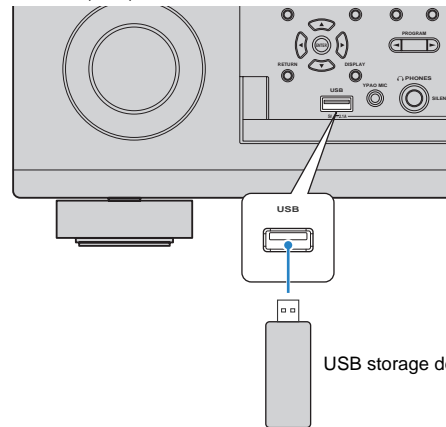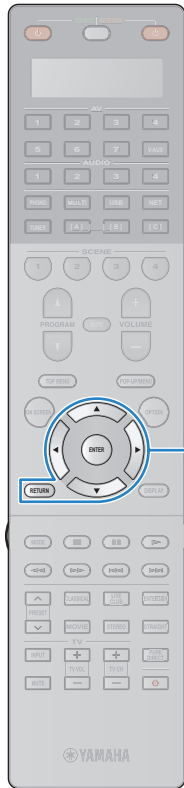
- If the USB storage device contains many files, it may take time to load the them. In this case, "Loading..." appears in the front display.

!

- Stop playback of the USB storage device before disconnect it from the USB jack.
- Disconnect the USB storage device from the USB jack when it is not in use.

2 Use the cursor keys to select an item and press ENTER.

If a song is selected, playback starts and the playback screen is displayed.

☀️

- To return to the previous screen, press RETURN.
- Files not supported by the unit cannot be selected.
- If the unit detects a series of unsupported files (such as images and hidden files) during playback, playback stops automatically.

Menu operation keys
Cursor keys
ENTER
RETURN

■ Browse screen

1 Status indicators
Display the current repeat/shuffle settings (p.82) and playback status (such as play/pause).

2 List name

3 Contents list
Displays the list of USB storage device contents. Use the cursor keys (△/▽) to select an item and press ENTER to confirm the selection.

4 Item number/total

5 Operation menu
Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.

Menu	Function
1 Page Up	Moves to the previous/next page of the list.
1 Page Down	
10 Pages Up	Moves 10 pages forward/backward.
10 Pages Down	
Return	Returns to the higher-level list.
Now Playing	Moves to the playback screen.
Screen Off	Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

■ Playback screen

❶ Status indicators
Display the current repeat/shuffle settings (p.82) and playback status (such as play/pause).

❷ Playback information
Displays the artist name, album name, song title, and elapsed time.
Use the cursor keys (△/▽) to select scrollable information.

❸ Operation menu
Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
	►	Resumes playback from pause.
	■	Stops playback.
Play Control	❚❚	Stops playback temporarily.
	◄◄	Skips forward/backward.
	►►	
Browse		Moves to the browse screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

💡
• You can also use the external device operation keys (►, ■, ❚❚, ◄◄, ►►) on the remote control to control playback.

■ Repeat/shuffle settings
You can configure the repeat/shuffle settings for playback of USB storage device contents.

1 When "USB" is selected as the input source, press OPTION.

2 Use the cursor keys to select "Shuffle" (Shuffle) or "Repeat" (Repeat) and press ENTER.

💡
• To return to the previous screen during menu operations, press RETURN.
• Texts in parentheses denote indicators on the front display.

3 Use the cursor keys (◁/▷) to select a setting.

Item	Setting	Function
Shuffle (Shuffle)	Off (Off)	Turns off the shuffle function.
	On (On)	Plays back songs in the current album (folder) in random order. "✕" appears on the TV screen.
Repeat (Repeat)	Off (Off)	Turns off the repeat function.
	One (One)	Plays back the current song repeatedly. "⟳" appears on the TV screen.
	All (All)	Plays back all songs in the current album (folder) repeatedly. "⟳" appears on the TV screen.

4 To exit from the menu, press OPTION.

OPTION
Menu operation keys
Cursor keys
ENTER
RETURN
External device operation keys

Playing back music stored on media servers (PCs/NAS)

You can play back music files stored on your PC or DLNA-compatible NAS on the unit.

!

- To use this function, the unit and your PC must be connected to the same router (p.45). You can check whether the network parameters (such as the IP address) are properly assigned to the unit in "Network" (p.132) in the "Information" menu.
- The unit supports playback of WAV (PCM format only), MP3, WMA, MPEG-4 AAC and FLAC files (1- or 2-channel audio only).
- The unit is compatible with sampling rates of up to 96 kHz for WAV and FLAC files, and 48 kHz for other files.
- To play back FLAC files, you need to install server software that supports sharing of FLAC files via DLNA on your PC or use a NAS that supports FLAC files.

Media sharing setup

To play back music files stored on your PC or DLNA-compatible NAS, first you need to configure the media sharing setting on each music server.

■ For a PC with Windows Media Player installed

1 **Check that Windows Media Player 11 or later is installed on your PC.**

2 **In the media sharing settings, enable media sharing and allow media to be shared with the device.**

■ For a PC or a NAS with other DLNA server software installed

Refer to the instruction manual for the device or software and configure the media sharing settings.

Playback of PC music contents

Follow the procedure below to operate the PC music contents and start playback.

You can control the PC/NAS with the menu displayed on the TV screen.

1 **Press NET repeatedly to select "SERVER" as the input source.**

The browse screen is displayed on the TV.

💡
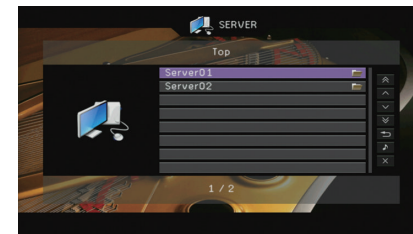
- If playback of a music file selected from the unit is ongoing on your PC, the playback screen is displayed.

2 **Use the cursor keys to select a music server and press ENTER.**
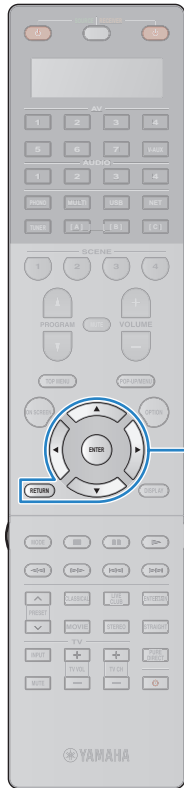
NET

**Cursor keys
ENTER**

3 Use the cursor keys to select an item and press ENTER.

If a song is selected, playback starts and the playback screen is displayed.

💡

- To return to the previous screen, press RETURN.
- Files not supported by the unit cannot be selected.
- If the unit detects a series of unsupported files (such as images and hidden files) during playback, playback stops automatically.

Menu operation keys
Cursor keys
ENTER
RETURN

■ Browse screen

❶ Status indicators

Display the current repeat/shuffle settings (p.85) and playback status (such as play/pause).

❷ List name

❸ Contents list

Displays the list of PC content. Use the cursor keys (△/▽) to select an item and press ENTER to confirm the selection.

❹ Item number/total

❺ Operation menu

Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.

Menu	Function
1 Page Up	Moves to the previous/next page of the list.
1 Page Down	
10 Pages Up	Moves 10 pages forward/backward.
10 Pages Down	
Return	Returns to the higher-level list.
Now Playing	Moves to the playback screen.
Screen Off	Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

■ Playback screen

① Status indicators

Display the current repeat/shuffle settings (p.85) and playback status (such as play/pause).

② Playback information

Displays the artist name, album name, song title, and elapsed time.
Use the cursor keys (△/▽) to select scrollable information.

③ Operation menu

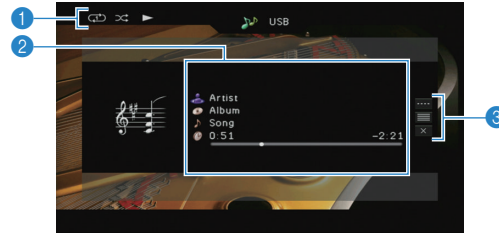Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Play Control	▶	Resumes playback from pause.
	■	Stops playback.
	❚❚	Stops playback temporarily.
	◄◄	Skips forward/backward.
	►►❘	
Browse		Moves to the browse screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

💡

- You can also use the external device operation keys (▶, ■, ❚❚, ◄◄, ►►❘) on the remote control to control playback.
- You can also use a DLNA-compatible Digital Media Controller (DMC) to control playback. For details, see "DMC Control" (p.105).

OPTION

Menu operation keys
Cursor keys
ENTER
RETURN

External device operation keys

■ Repeat/shuffle settings

You can configure the repeat/shuffle settings for the playback of PC music content.

1 When "SERVER" is selected as the input source, press OPTION.

2 Use the cursor keys to select "Shuffle" (Shuffle) or "Repeat" (Repeat) and press ENTER.

💡

- To return to the previous screen during menu operations, press RETURN.
- Text in parentheses denotes indicators on the front display.

3 Use the cursor keys (◁/▷) to select a setting.

Item	Setting	Function
Shuffle (Shuffle)	Off (Off)	Turns off the shuffle function.
	On (On)	Plays back songs in the current album (folder) in random order. "✕" appears on the TV screen.
Repeat (Repeat)	Off (Off)	Turns off the repeat function.
	One (One)	Plays back the current song repeatedly. "↺" appears on the TV screen.
	All (All)	Plays back all songs in the current album (folder) repeatedly. "↻" appears on the TV screen.

4 To exit from the menu, press OPTION.

Listening to Internet radio

You can listen to Internet radio stations from all over the world.

!

- To use this function, the unit must be connected to the Internet (p.45). You can check whether the network parameters (such as the IP address) are properly assigned to the unit in "Network" (p.132) in the "Information" menu.
- This service may be discontinued without notice.
- You may not be able to receive some Internet radio stations.
- The unit uses the vTuner Internet radio station database service.

NET

**Cursor keys
ENTER
RETURN**
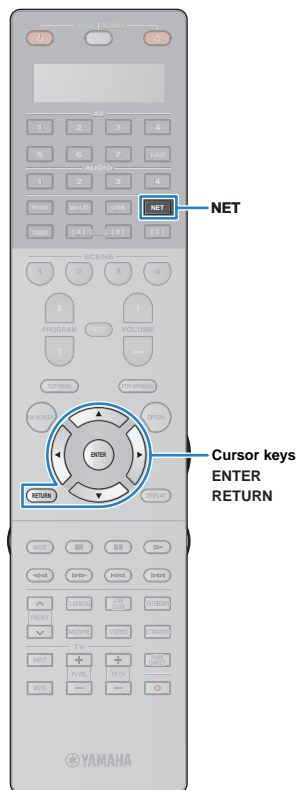
1 **Press NET repeatedly to select "NET RADIO" as the input source.**

The browse screen is displayed on the TV.
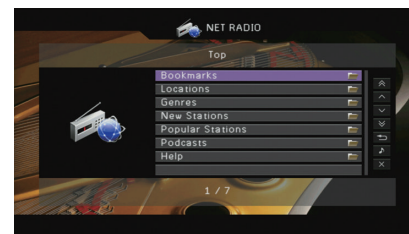
2 **Use the cursor keys to select an item and press ENTER.**

If an Internet radio station is selected, playback starts and the playback screen is displayed.
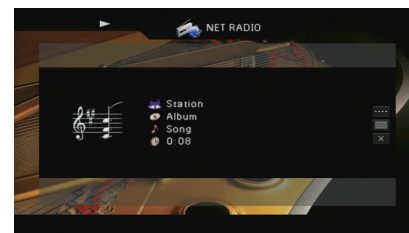
- To return to the previous screen, press RETURN.
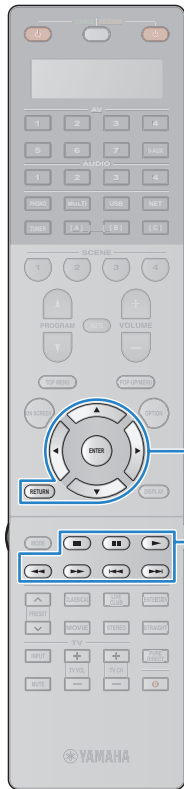
■ Browse screen
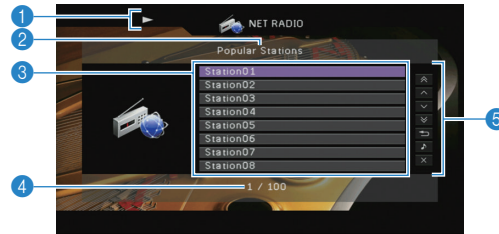
1 Playback indicator

2 List name

3 Contents list
Displays the list of Internet radio content. Use the cursor keys (△/▽) to select an item and press ENTER to confirm the selection.

4 Item number/total

5 Operation menu
Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.

Menu	Function
1 Page Up	Moves to the previous/next page of the list.
1 Page Down	
10 Pages Up	Moves 10 pages forward/backward.
10 Pages Down	
Return	Returns to the higher-level list.
Now Playing	Moves to the playback screen.
Screen Off	Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

💡
- You can register your favorite Internet radio stations to the "Bookmarks" folder by accessing the following website with the web browser on your PC. To use this feature, you need the unit's vTuner ID and your e-mail address in order to create your personal account. You can find the vTunerID (MAC address of the unit) in "Network" (p.132) in the "Information" menu.
  http://yradio.vtuner.com/

■ Playback screen
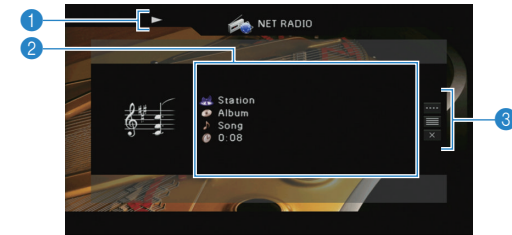
1 Playback indicator

2 Playback information
Displays the station name, album name, song title, and elapsed time. Use the cursor keys (△/▽) to select scrollable information.

3 Operation menu
Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Play Control	■	Stops playback.
Browse		Moves to the browse screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

💡
- You can also use the external device operation key (■) on the remote control to stop playback.
- Some information may not be available depending on the station.

Menu operation keys
Cursor keys
ENTER
RETURN

External device operation keys

Playing back iTunes/iPod music via a network (AirPlay)

The AirPlay function allows you to play back iTunes/iPod music on the unit via network.

iTunes

PC

Router

The unit

Starts playback on iTunes or iPod

Playback starts

iPod

!
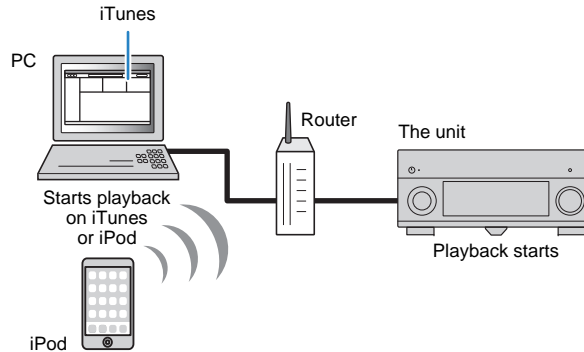
• To use this function, the unit and your PC or iPod must be connected to the same router (p.45). You can check whether the network parameters (such as the IP address) are properly assigned to the unit in "Network" (p.132) in the "Information" menu.

Supported iTunes/iPod (as of April 2012)

• iTunes 10.2.2 or later (Windows/Mac)

• iPod touch, iPhone or iPad with iOS 4.3.3 or later

Playback of iTunes/iPod music contents

Follow the procedure below to play back iTunes/iPod music contents on the unit.

1 Turn on the unit, and start iTunes on the PC or display the playback screen on the iPod.

If the iTunes/iPod recognizes the unit, the AirPlay icon ( ) appears.

iTunes (example)

iPod (example)

!
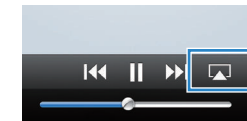
• If the icon does not appear, check whether the unit and PC/iPod are connected to the router properly.

2 On the iTunes/iPod, click (tap) the AirPlay icon and select the unit (network name of the unit) as the audio output device.

iTunes (example)

iPod (example)

My Computer

✓ YAMAHA xxxxxx

Multiple Speakers...

iPod touch

YAMAHA xxxxxx ✓
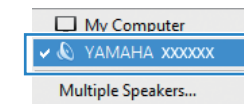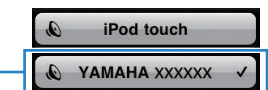
Network name of the unit

3 Select a song and start playback.

The unit automatically selects "AirPlay" as the input source and starts playback.

The playback screen is displayed on the TV.
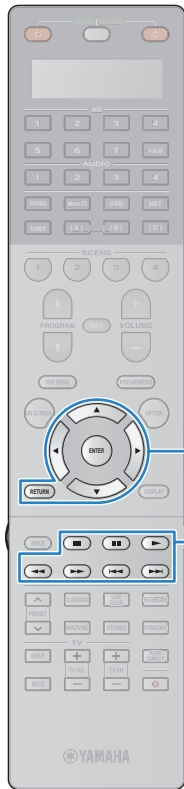
Menu operation keys
Cursor keys
ENTER
RETURN

External device
operation keys

💡

- You can turn on the unit automatically when starting playback on iTunes or iPod by setting "Network Standby" (p.124) in the "Setup" menu to "On".
- You can edit the network name (the unit's name on the network) displayed on iTunes/iPod in "Network Name" (p.124) in the "Setup" menu.
- If you select the other input source on the unit during playback, playback on the iTunes/iPod stops automatically.
- You can adjust the unit's volume from the iTunes/iPod during playback. To disable volume controls from iTunes/iPod, set "Volume Interlock" (p.104) in the "Input" menu to "Off".
- To start AirPlay playback when AirPlay from another device is ongoing, first stop the current playback.

Caution

- When you use iTunes/iPod controls to adjust volume, the volume may be unexpectedly loud. This could result in damage to the unit or speakers. If the volume suddenly increases during playback, stop playback on the iTunes/iPod immediately.

■ Playback screen

❶ **Playback indicator**

❷ **Playback information**
Displays the artist name, album name, song title, and elapsed/remaining time.
Use the cursor keys (△/▽) to select scrollable information.

❸ **Operation menu**
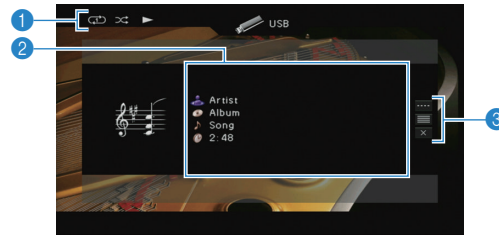Press the cursor key (▷) and then use the cursor keys (△/▽) to select an item. Press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Play Control	▶	Resumes playback from pause.
	■■	Stops playback temporarily.
	◀◀	Skips forward/backward.
	▶▶	
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

💡

- You can also use the external device operation keys (▶, ■, ■■, ◀◀, ▶▶) on the remote control to control playback.

❗

- To control iTunes playback with the remote control of the unit, you need to configure the iTunes preferences to enable iTunes control from remote speakers in advance.

iTunes (example of English version)
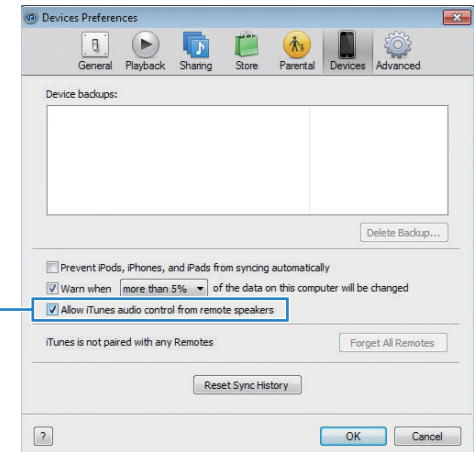
Check this box

Playing back videos/audio in multiple rooms (multi-zone)

The multi-zone function allows you to play back different input sources in the room where the unit is installed (main zone) and in other rooms (Zone2, Zone3 and Zone4).

For example, while you are watching TV in the living room (main zone), another person can listen to PC music in the study room (Zone2), and another can listen to radio in the guest room (Zone3) and play DVD in the kitchen (Zone4).

- The Zone4 function is available on RX-A3020 only.
- Video/audio signals that can be output to each zone vary depending on how you connect the device in each zone to the unit's output jacks. For details, see "Multi-zone output" (p.157).
- Since there are many possible ways to use the unit in a multi-zone configuration, we recommend that you consult with your nearest authorized Yamaha dealer or service center about the multi-zone connections that best meet your requirements.

Multi-zone configuration examples

■ Enjoying music in other rooms

You can enjoy music using speakers placed in other rooms.

Audio
(SPEAKERS or
ZONE OUT)

Study room
(Zone2 and/or Zone3)

Living room (main zone)
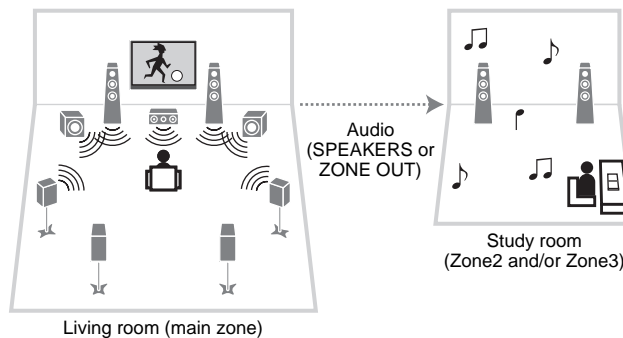
Connections
Speakers (connecting to the unit directly): p.32
Speakers (using an external amplifier): p.91

■ Enjoying videos/music in other rooms

You can enjoy videos/music using TVs placed in other rooms.

❑ Enjoying videos/music using a TV and speakers

Video (ZONE
OUT or HDMI)

Audio
(SPEAKERS or
ZONE OUT)

Guest room
(Zone2 or Zone3)

Living room (main zone)
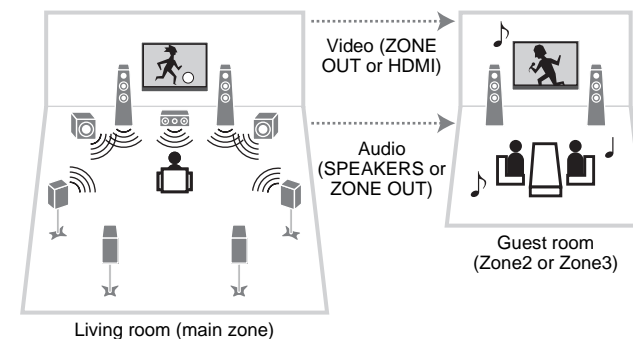
Connections
TV (for analog video playback): p.92
TV (for digital video playback [RX-A3020 only]): p.93
Speakers (connecting to the unit directly): p.32
Speakers (using an external amplifier): p.91

❑ Enjoying videos/music using only a TV (RX-A3020 only)

Video/audio
(HDMI)

Kitchen
(Zone2 or Zone4)

Living room (main zone)
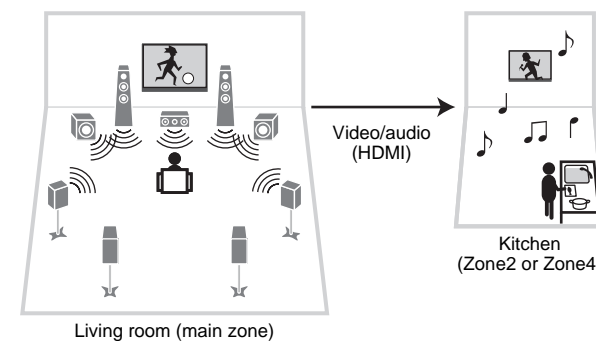
Connection
TV: p.93

Preparing the multi zone system

Connect the device that will be used in other rooms to the unit.

Caution

- Remove the unit's power cable from the AC wall outlet before connecting speakers or an external amplifier.
- Ensure that the core wires of the speaker cable do not touch one another or come into contact with the unit's metal parts. Doing so may damage the unit or the speakers. If the speaker cables short circuit, "Check SP Wires" will appear on the front display when the unit is turned on.

■ Connecting speakers to play back audio

Connect speakers to play back audio in Zone2 or Zone3. The connection method varies depending on the amplifier being used (the unit or an external amplifier).

❏ Using the unit's internal amplifier

Connect the speakers placed in Zone2 or Zone3 to the unit with speaker cables. For details, see "Connecting Zone2/3 speakers" (p.32).

❏ Using an external amplifier

Connect the external amplifier placed in Zone2 or Zone3 to the unit with a stereo pin cable and connect speakers to the external amplifier.

The unit (rear)

ZONE OUT (ZONE 2 or ZONE 3) jacks

External amplifier Audio input (analog stereo)

Zone2 or Zone3

Main zone
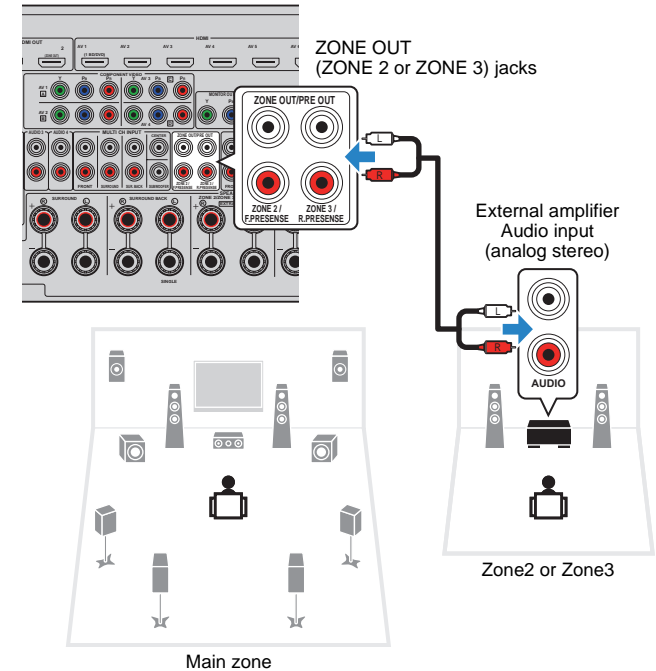
> **!**
> - (RX-A3020 only)
>   You cannot utilize the ZONE OUT/PRE OUT jacks for connecting an external amplifier for Zone2 or Zone3 depending on the "Power Amp Assign" setting (p.114) in the "Setup" menu.

■ Connecting a video monitor to play back analog videos

Connect a video monitor to watch analog videos at Zone2 or Zone3. Depending on the video input jacks available on your video monitor, choose one of the video connection methods.

❗

- The video conversion between the analog video jacks does not work for multi-zone video output. To watch videos played back on a video device on the zone video monitor, you need to connect the video monitor to the unit in the same way as the video device. For example, if you want to watch videos input from the DVD player via a component video cable, connect the video monitor to the MONITOR OUT/ZONE OUT (COMPONENT VIDEO) jacks with a component video cable.

- (RX-A3020 only)
  On-screen operations are not available for Zone3 when "HDMI OUT2 Assign" (p.127) in the "Setup" menu is set to "Zone2".

ZONE OUT jacks
(any of COMPONENT VIDEO, VIDEO, S VIDEO)

Video input
(any of component video, composite video, S-video)

The unit (rear)

Zone2 or Zone3

Main zone
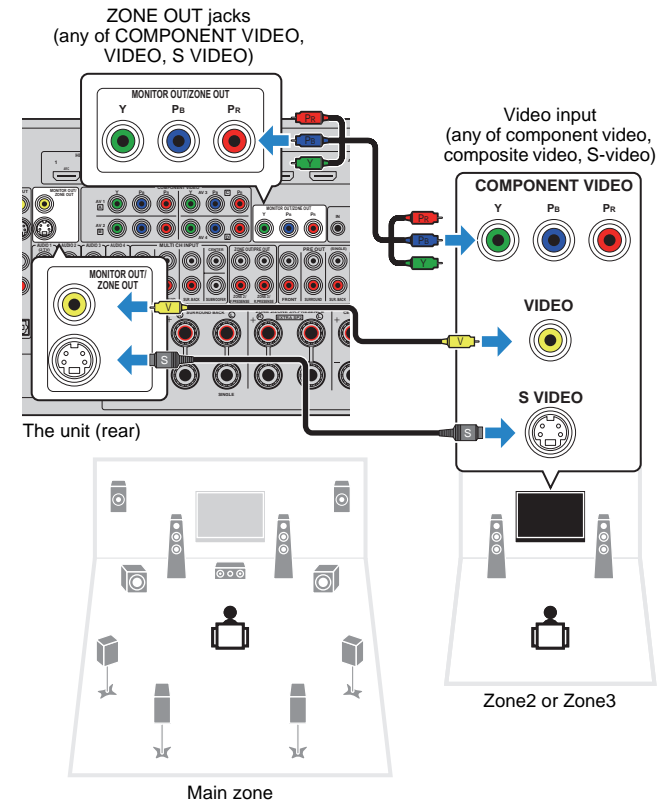
To assign the MONITOR OUT/ZONE OUT jacks to the video monitor for Zone2 or Zone3, set "Monitor Out Assign" (p.126) in the "Setup" menu to "Zone2" or "Zone3".

■ Connecting an HDMI-compatible device to play back videos/audio

(RX-A3020 only)

Connect an HDMI-compatible device (such as a TV) to play back videos/audio at Zone2 or Zone4. If you connect an AV amplifier, you can enjoy multi-channel playback in another room (Zone4).

> **!**
>
> • To watch videos played back on a video device at Zone2 or Zone4, you need to connect the video device to the unit with an HDMI cable (p.41).
>
> • We recommend that you disable HDMI Control on the playback devices connected to the unit.
>
> • On-screen operations are not available for Zone4.

> **☼**
>
> • When the HDMI OUT 2 (ZONE OUT) jack is assigned to Zone2, you can enable/disable the audio output from the HDMI OUT 2 jack by setting "Audio Output" (p.127) in the "Setup" menu to "On" or "Off" (default).
>
> • You can also use speakers placed in Zone2 to output audio (p.32).

• Videos/audio interruptions may happen in another zone when any of the following operations is performed.

  – Tuning on/off a TV connected to the unit via HDMI or switching the TV input

  – Enabling/disabling a zone output or selecting its input source

  – Changing the sound mode or audio settings (such as "Extended Surround")

The unit (rear) — HDMI OUT 2 (ZONE OUT) jack — (Example: using a TV) HDMI input

Zone2 or Zone4

(Example: using an AV amplifier) HDMI input

Main zone — Zone4

To assign the HDMI OUT 2 (ZONE OUT) jack to Zone2 or Zone4, set "HDMI OUT2 Assign" (p.127) in the "Setup" menu to "Zone2" or "Zone4".

■ Operating the unit from another room (remote connection)

You can operate the unit and external devices from Zone2, Zone3 or Zone4 using the supplied remote control if you connect an infrared signal receiver/emitter to the unit's REMOTE IN/OUT 1 or REMOTE IN/OUT 2 jacks.

💡
- To operate external devices with the supplied remote control, you must register a remote control code for each device before using (p.136).

The unit (rear)   REMOTE IN/OUT 1–2 jacks

Infrared signal transmitter

External device (such as a CD player)

Infrared signal receiver

Remote control

Zone2, Zone3 or Zone4

Main zone
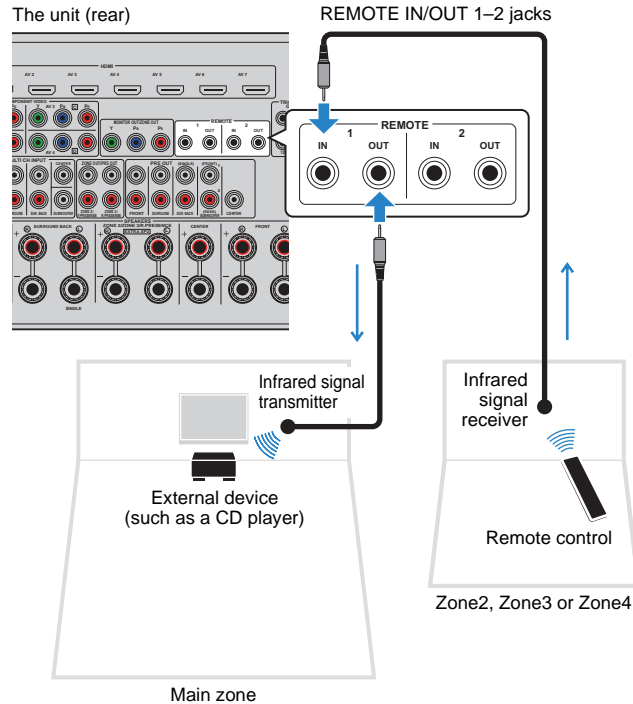
Remote connections between Yamaha products

An infrared signal transmitter is not required if you are using Yamaha products that support remote connections, as the unit does. You can transmit remote control signals by connecting the REMOTE IN/OUT jacks with monaural mini-jack cables and an infrared signal receiver.

REMOTE IN/OUT jacks   REMOTE IN/OUT jacks

Infrared signal receiver

Yamaha products (up to six, including the unit)

Remote control

Zone2, Zone3 or Zone4
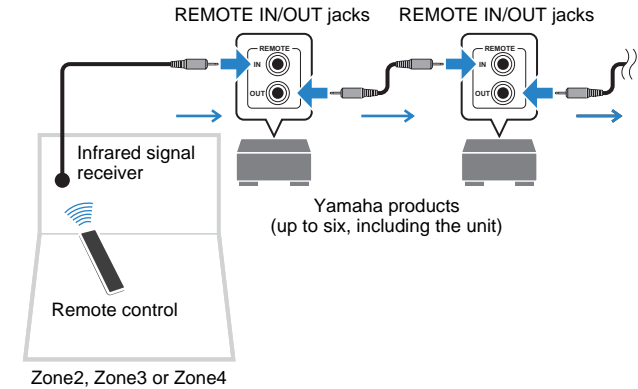
Controlling Zone2, Zone3 or Zone4

1 **Press ZONE repeatedly to select a zone.**

Each time you press the key, the zone to be operated switches.

Selected zone (turns off when main zone is selected)

```
ZONE 2
RECEIVER
```

2 **Press RECEIVER ⏻.**

Each time you press the key, the selected zone is enabled or disabled.

When zone audio output is enabled, the corresponding zone indicator lights up in the front display.

3 **Use the input selection keys to select an input source.**

!

• Video/audio signals that can be output to each zone vary depending on how you connect the device in each zone to the unit's output jacks. For details, see "Multi-zone output" (p.157).

• You cannot select USB and network sources exclusively for each zone. For example, if you select "SERVER" for Zone2 when "USB" is selected for the main zone, the input source for the main zone also switches to "SERVER".

4 **Start playback on the external device or select a radio station.**

Refer to the instruction manual for the external device.

For details on the following operations, see the corresponding pages.

• Listening to FM/AM radio (p.69)

• Playing back iPod music (p.76)

• Playing back music stored on a USB storage device (p.80)

• Playing back music stored on media servers (PCs/NAS) (p.83)

• Listening to Internet radio (p.86)

• Playing back iTunes/iPod music via a network (AirPlay) (p.88)

!

• You can also use the web control to control Zone2, Zone3 or Zone4. For details on the web control function, refer to "Supplement for Web Control" on the CD-ROM.

• AirPlay is available in Zone2 and Zone3 only when AirPlay playback is ongoing in the main zone.

Caution

• To avoid unexpected noise, never play back DTS-CDs in Zone2, Zone3 or Zone4.

RECEIVER ⏻

Input selection keys
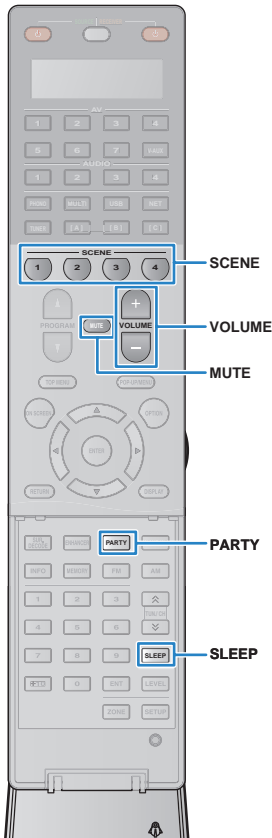
ZONE

■ Other operations for Zone2, Zone3 or Zone4

The following functions are also available when the zone you want to operate is enabled.

Adjusting the volume (for Zone2 and Zone3 only)

Press VOLUME or MUTE.

Selecting the input source and settings at once (SCENE)

Press SCENE.

💡

• To register the current settings (input source, volume and tone control) to a scene, hold down the desired SCENE key until "SET Complete" appears on the front display. (Only an input source can be registered for Zone4.)

Setting the sleep timer

Press SLEEP repeatedly to set the time (120 min, 90 min, 60 min, 30 min, off).

Adjusting the high-/low-frequency range of sounds (for Zone2 and Zone3 only)

① Press ZONE CONTROL on the front panel to select the zone to be operated.

② Press TONE/BALANCE repeatedly to select "Treble" or "Bass".

③ Press PROGRAM to make an adjustment.

Setting range

-10.0 dB to +10.0 dB (2.0 dB steps)

Default

0.0 dB

Adjusting the front speaker balance (for Zone2 and Zone3 only)

① Press ZONE CONTROL on the front panel to select the zone to be operated.

② Press TONE/BALANCE repeatedly to select "Balance".

③ Press PROGRAM to make an adjustment.

■ Enjoying the same source in multiple rooms (party mode)

The party mode allows you to play back in all zones the same music that is being played back in the main zone. During the party mode, stereo playback is automatically selected for all zones. Utilize this function when you want to use main zone music as background music for a house party.

1 Press PARTY.

Each time you press the key, the party mode is turned on or off.

When the party mode is turned on, "PARTY" lights up in the front display.

💡

• You can select the zones to be included in the party mode in "Party Mode Set" (p.127) in the "Setup" menu.

❗

• (RX-A3020 only)
Zone4 output is available only when an HDMI input is selected in the main zone.
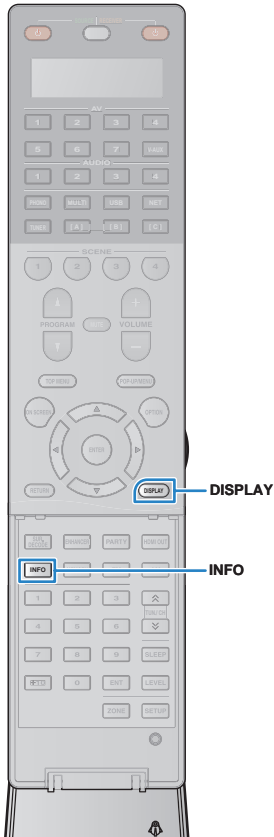
Viewing the current status

Switching information on the front display

1 Press INFO.

Each time you press the key, the displayed item changes.

```
Info            -30.0
                     dB
Audio Decoder     VOLUME
```

Item name

About 3 seconds later, the corresponding information for the displayed item appears.

```
        AV1     -30.0
                     dB
□□Pro Logic       VOLUME
```

Information

☀

• Available items vary depending on the selected input source. The displayed item can also be applied separately to each input source group.

Input source group	Item
AV 1–7 V-AUX AUDIO 1–4 PHONO	DSP Program (sound mode name), Audio Decoder (decoder name)
TUNER	DSP Program (sound mode name), Audio Decoder (decoder name) * (U.S.A. model only) HD Radio data is also available when the unit is tuned into an HD Radio station (p.71). * (U.K. and Europe models only) Radio Data System data is also available when the unit is tuned into a Radio Data System broadcasting station (p.73).

Input source group	Item
USB SERVER AirPlay	Song (song title), Artist (artist name), Album (album name), DSP Program (sound mode name), Audio Decoder (decoder name) * During simple playback of iPod: Input (input source name), DSP Program (sound mode name), Audio Decoder (decoder name)
NET RADIO	Song (song title), Album (album name), Station (station name), DSP Program (sound mode name), Audio Decoder (decoder name)

Viewing the status information on the TV

1 Press DISPLAY.

The following information is displayed on the TV.

Compressed Music Enhancer/Hi-Res mode status

Input source/Party mode status

Volume

Audio format/Decoder

Sound mode

CINEMA DSP status
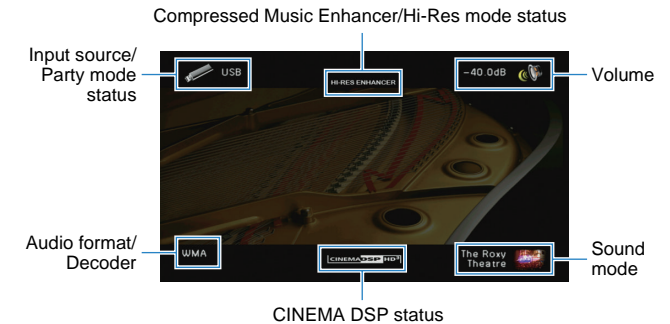
2 To close the information display, press DISPLAY.

DISPLAY

INFO

Configuring playback settings for different playback sources (Option menu)

You can configure separate playback settings for different playback sources. This menu is available on the front panel (or on the TV screen), allowing you to easily configure settings during playback.

1 Press OPTION.

```
Option        -30.0
                  dB
♦Tone Control      VOLUME
```

Front display

TV screen

2 Use the cursor keys to select an item and press ENTER.

• To return to the previous screen during menu operations, press RETURN.

3 Use the cursor keys (◁/▷) to select a setting.

4 To exit from the menu, press OPTION.

Option menu items

• Available items vary depending on the selected input source.
• Text in parentheses denotes indicators on the front display.

Item		Function	Page
Tone Control (Tone Control)		Adjusts the high-frequency range and low-frequency range of sounds.	99
Adaptive DRC (Adaptive DRC)		Sets whether the dynamic range (from maximum to minimum) is automatically adjusted when the volume is adjusted.	99
CINEMA DSP 3D Mode (CINEMA DSP 3D)		Enables/disables CINEMA DSP 3D.	99
Dialogue Adjust (Dialog Adjust)	Dialogue Level (Dialog Lvl)	Adjusts the volume of dialogue sounds.	100
	Dialogue Lift (Dialog Lift)	Adjusts the perceived height of dialogue sounds.	100
Extended Surround (EXTD Surround)		Selects how to play back 5.1- to 7.1-channel sources when surround back speakers are used.	100
Volume Trim (Volume Trim)	Input Trim (In.Trim)	Corrects volume differences between input sources.	100
	Subwoofer Trim (SW.Trim)	Fine-adjusts the subwoofer volume.	101
Enhancer (Enhancer)	Enhancer (Enhancer)	Enables/disables Compressed Music Enhancer.	101
	Hi-Res Mode (HiRes Mode)	Enables/disables the high-resolution mode (for enhancing the quality of uncompressed digital audio).	101
Video Mode (Video Mode)		Enables/disables the video signal processing settings configured in the "Setup" menu.	101
Video Adjustment (Video Adjust)		Selects a video adjustment setting from presets.	101
Audio Select (Audio Select)		Selects the audio input jack to use when more than one audio connection is made for one input source.	101
Audio Mode (Audio Mode)		(U.S.A. model only) Switches between stereo and monaural for FM/AM radio reception.	102

Item	Function	Page
FM Mode **(FM Mode)**	(Except for U.S.A. model) Switches between stereo and monaural for FM radio reception.	102
Hold/Unhold **(Hold/Unhold)**	(U.S.A. model only) Enables/disables the hold function when the unit is tuned into an HD Radio station.	72
Traffic Program **(TrafficProgram)**	(U.K. and Europe models only) Automatically searches for a traffic information station.	74
Repeat **(Repeat)**	Configures the repeat setting for the iPod (p.79), USB storage device (p.82), or media server (p.85).	—
Shuffle **(Shuffle)**	Configures the shuffle setting for the iPod (p.79), USB storage device (p.82), or media server (p.85).	—

■ Tone Control (Tone Control)

Adjusts the high-frequency range (Treble) and low-frequency range (Bass) of sounds.

Choices
Treble (Treble), Bass (Bass)

Setting range
-6.0 dB to Bypass (Bypass) to +6.0 dB, *0.5 dB increments

Default
Bypass (Bypass)

!

• If you set an extreme value, sounds may not match those from other channels.

Adjusting with the front panel controls

① Press TONE/BALANCE repeatedly to select "Treble" or "Bass".

② Press PROGRAM to make an adjustment.

■ Adaptive DRC (Adaptive DRC)

Sets whether the dynamic range (from maximum to minimum) is automatically adjusted when the volume level is adjusted. When it is set to "On", it is useful for listening to playback at a low volume at night.

Settings

On (On)	Automatically adjusts the dynamic range.
Off (Off) (default)	The dynamic range is not automatically adjusted.

If "On" is selected, the dynamic range becomes narrow at a low volume and wide at a high volume.
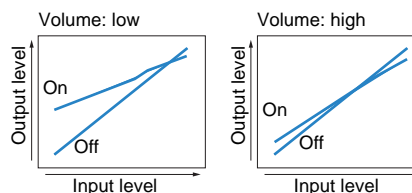
■ CINEMA DSP 3D Mode (CINEMA DSP 3D)

Enables/disables CINEMA DSP HD³ (RX-A3020) or CINEMA DSP 3D (RX-A2020) (p.64). If this function is set to "On", CINEMA DSP HD³/CINEMA DSP 3D functions with the selected sound programs (except 2ch Stereo and 9ch Stereo).

Settings

On (On) (default)	Enables CINEMA DSP HD³/CINEMA DSP 3D.
Off (Off)	Disables CINEMA DSP HD³/CINEMA DSP 3D.

■ Dialogue Adjust (Dialog Adjust)

Adjusts the volume or perceive height of dialogue sounds.

❏ Dialogue Level (Dialog Lvl)

Adjusts the volume of dialogue sounds. If dialogue sounds cannot be heard clearly, you can turn up its volume by increasing this setting.

Setting range
0 to 3

Default
0

❏ Dialogue Lift (Dialog Lift)

Adjusts the perceived height of dialogue sounds. If the dialogue sounds as if it is coming from below the TV screen, you can raise its perceived height by increasing this setting.

🔆

• This setting is available only when one of the following conditions is met.
  – One of the sound programs (except for 2ch Stereo and 9ch Stereo) is selected when front presence speakers are used.
  – Virtual Presence Speaker (VPS) (p.64) is working.
    (You may hear dialogue sounds from the surround speakers depending on the listening position.)

Setting range
0 to 5 (The bigger the value the higher the position)

Default
0

Ideal position

■ Extended Surround (EXTD Surround)

Selects how to play back 5.1- to 7.1-channel sources when surround back speakers are used.

Settings

Auto (Auto) (default)	Automatically selects the most suitable decoder if signals that contain surround back channel signals are input, and reproduces the signals in 6.1- or 7.1-channel. If two surround back speakers are connected, the unit reproduces the 5.1-channel signals in 7.1-channel.
◻◻PLIIx Movie (◻◻PLIIxMo)	Always reproduces signals in 7.1-channel using the Dolby Pro Logic IIx Movie decoder. This setting is available only when two surround back speakers are connected.
◻◻PLIIx Music (◻◻PLIIxMu)	Always reproduces signals in 6.1- or 7.1-channel using the Dolby Pro Logic IIx Music decoder. This setting is available only when one or two surround back speakers are connected.
EX/ES (EX/ES)	Automatically selects the Dolby EX or DTS-ES decoder, and reproduces signals in 6.1- or 7.1-channel.
Off (Off)	Always reproduces signals in their original channels. (Even when DTS-ES or Dolby Digital EX signal is input, the unit reproduces the signal in 5.1-channel.)

🔆

• Some early Dolby Digital EX or DTS-ES sources do not contain a flag for reproducing surround back channel. We recommend you set "Extended Surround" to "◻◻PLIIx Movie" or "EX/ES" when playing back those sources.

■ Volume Trim (Volume Trim)

Fine-adjusts volume difference between input sources or subwoofer volume.

❏ Input Trim (In.Trim)

Corrects volume differences between input sources. If you are bothered by volume differences when switching between input sources, use this function to correct it.

🔆

• This setting is applied separately to each input source.

Setting range
-6.0 dB to +6.0 dB (0.5 dB increments)

Default
0.0 dB

❏ **Subwoofer Trim (SW.Trim)**

Fine-adjusts the subwoofer volume.

Setting range
-6.0 dB to +6.0 dB (0.5 dB increments)

Default
0.0 dB

■ Enhancer (Enhancer)

Enables/disables Compressed Music Enhancer and the high-resolution mode.

❏ Enhancer (Enhancer)

Enables/disables Compressed Music Enhancer (p.68).

- This setting is applied separately to each input source.
- You can also use ENHANCER on the remote control to enable/disable Compressed Music Enhancer (p.68).

Settings

Off (Off)	Disables Compressed Music Enhancer.
On (On)	Enables Compressed Music Enhancer.

Default
TUNER, USB, (network sources): On (On)
Others: Off (Off)

- Compressed Music Enhancer does not work on signals whose sampling rate is over 48 kHz.

❏ Hi-Res Mode (HiRes Mode)

Enables/disables the high-resolution mode when "Enhancer" is set to "On". If this function is set to "On", you can enhance the quality of uncompressed digital audio (such as 2-channel PCM and FLAC) using Compressed Music Enhancer.

Settings

Off (Off)	Disables the high-resolution mode.
On (On) (default)	Enables the high-resolution mode.

■ Video Mode (Video Mode)

Enables/disables the video signal processing (resolution, aspect ratio and video adjustments) settings configured in "Processing" (p.119) in the "Setup" menu.

Settings

Processing (Processing)	Enables the video signal processing.
Direct (Direct) (default)	Disables the video signal processing.

■ Video Adjustment (Video Adjust)

Selects a video adjustment setting from presets you have configured in "Adjustment" (p.120) in the "Setup" menu.

- This setting is applied separately to each input source.

Settings
1 to 6

■ Audio Select (Audio Select)

Selects the audio input jack to use when more than one audio connection is made for one input source.

- This setting is applied separately to each input source.

Settings

Auto (Auto) (default)	Automatically selects the audio input jack in the following priority order. 1. HDMI input 2. Digital input (COAXIAL or OPTICAL) 3. Analog input (AUDIO)
HDMI (HDMI)	Always selects HDMI input. No sounds are produced when no signals are input through the HDMI jack.
Coax/Opt (Coax/Opt)	Always selects digital input (COAXIAL or OPTICAL). No sounds are produced when no signals are input through the COAXIAL or OPTICAL jack.
Analog (Analog)	Always selects analog input (AUDIO). No sounds are produced when no signals are input through the AUDIO jacks.

■ Audio Mode (Audio Mode)

(U.S.A. model only)

Switches between stereo and monaural for FM/AM radio reception.

※
- This setting is applied separately to each band (FM/AM).

Settings

Auto (Auto) (default)	Receives the selected band (FM or AM) in stereo sounds when the signal reception is good and in monaural sounds when it is not good.
Mono (Mono)	Receives the selected band (FM or AM) in monaural sounds.

!
- HD Radio programs are not available when the unit is in the monaural reception mode.

■ FM Mode (FM Mode)

(Except for U.S.A. model)

Switches between stereo and monaural for FM radio reception.

Settings

Stereo (Stereo) (default)	Receives FM radio in stereo sounds.
Mono (Mono)	Receives FM radio in monaural sounds.

CONFIGURATIONS

Configuring input sources (Input menu)

You can change the input source settings using the TV screen.

1 Press ON SCREEN.

2 Use the cursor keys to select "Input" and press ENTER.
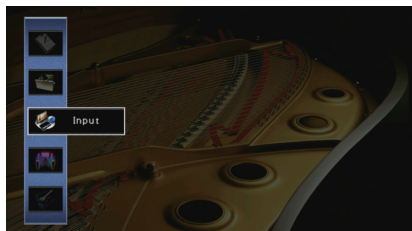
3 Use the cursor keys (◁/▷) to select an input source to be configured and press the cursor key (△).
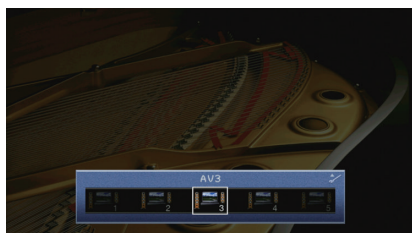
The input source of the unit also changes.

• You can still switch the input source by using cursor keys (◁/▷) after Step 3.
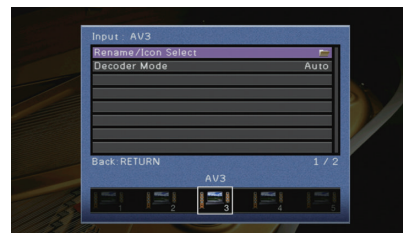
4 Use the cursor keys (△/▽) to select an item and press ENTER.

• To return to the previous screen during menu operations, press RETURN.

5 Use the cursor keys to select a setting and press ENTER.

6 To exit from the menu, press ON SCREEN.

Input menu items

• Available items vary depending on the selected input source.

Item	Function	Page
Rename/Icon Select	Changes the input source name and icon.	104
Decoder Mode	Sets the format of digital audio playback to DTS.	104
Volume Interlock	Enables/disables volume controls from iTunes/iPod via AirPlay.	104
Video Out	Selects a video to be output with the audio input source.	104
DMC Control	Selects whether to allow a DLNA-compatible Digital Media Controller (DMC) to control playback.	105

■ Rename/Icon Select

Changes the input source name and icon displayed on the front display or TV screen.

Input sources
AV 1–7, V-AUX, AUDIO 1–4, PHONO, USB, MULTI CH

■ Setup procedure

1 **Use the cursor keys (◁/▷) to select a template and press the cursor key (▽).**

• You cannot change the template or icon for "USB" when an iPod is connected.

2 **Use the cursor keys (◁/▷) to select an icon and press the cursor key (▽).**

3 **Press ENTER to enter the name edit screen.**

4 **Use the cursor keys and ENTER to rename and select "ENTER" to confirm the entry.**
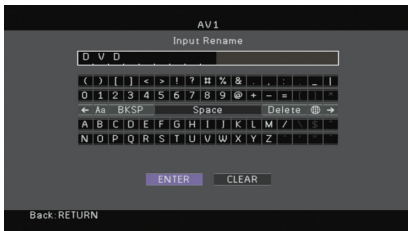
• To clear the entry, select "CLEAR".

5 **Use the cursor keys to select "OK" and press ENTER.**

• To restore the default setting, select "RESET".

6 **To exit from the menu, press ON SCREEN.**

■ Decoder Mode

Sets the format of digital audio playback to "DTS".

For example, if the unit does not detect DTS audio and outputs noise, set "Decoder Mode" to "DTS".

Input sources
AV 1–7, V-AUX, AUDIO 1–4 (available only when any audio digital input jack is assigned)

Settings

Auto (default)	Automatically selects an audio format to match the input audio signal.
DTS	Selects DTS only. (Other audio signals are not reproduced.)

■ Volume Interlock

Enables/disables volume controls from iTunes/iPod via AirPlay.

Input sources
AirPlay

Settings

Off	Disables volume controls from iTunes/iPod.
Limited (default)	Enables volume controls from iTunes/iPod within the limited range (-80 dB to 0 dB and mute).
Full	Enables volume controls from iTunes/iPod in the full range (-80 dB to +16.5 dB and mute).

■ Video Out

Selects a video to be output with the audio input source.

Input sources
TUNER, (network sources), USB, MULTI CH

Settings

Off	Does not output video.
AV 1–7, V-AUX	Outputs video input through the corresponding video input jacks.

Default
USB: V-AUX
Others: Off

■ DMC Control

Selects whether to allow DLNA-compatible Digital Media Controller (DMC) to control playback.

Input source

SERVER

Settings

Disable	Does not allow DMCs to control playback.
Enable (default)	Allows DMCs to control playback.

☼

• A Digital Media Controller (DMC) is a device that can control other network devices through the network. When this function is enabled, you can control playback of the unit from DMCs (such as Windows Media Player 12) on the same network.

Configuring the SCENE function (Scene menu)

You can change the settings of the SCENE function (p.61) using the TV screen.

1 Press ON SCREEN.

2 Use the cursor keys to select "Scene" and press ENTER.
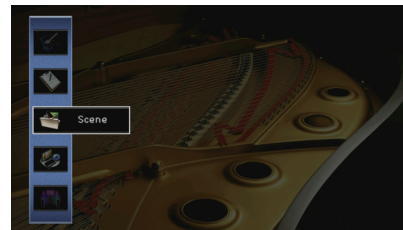
3 Use the cursor keys (◁/▷) to select a scene to be configured and press the cursor key (△).
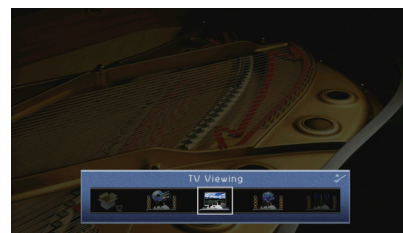
4 Use the cursor keys (△/▽) to select an item and press ENTER.
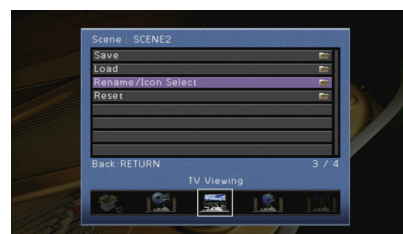
5 **Use the cursor keys and ENTER to change the setting.**

6 **To exit from the menu, press ON SCREEN.**

Scene menu items

Item	Function	Page
Save	Registers the current settings in the selected scene.	106
Load	Loads the settings registered for the selected scene. You can also configure the SCENE link playback setting, select items to be included as the scene assignments, or view the settings currently assigned to the selected scene.	106
Rename/Icon Select	Changes the scene name and icon.	107
Reset	Restores the default settings for the selected scene.	107

■ Save

Registers the unit's current settings (such as input source and sound program) in the selected scene.

🔅

• If you have changed the input assignment for a scene, you also need to change the external device assigned to the corresponding SCENE key (p.62).

■ Load

Loads the settings registered for the selected scene.

Select "DETAIL" to configure the SCENE link playback setting or view the scene assignments.

❏ Device Control

Recalls a selected scene and starts its playback on an external device connected to the unit via HDMI or on a Yamaha product connected to the REMOTE OUT jack. (SCENE link playback)

Settings

Off	Disables the SCENE link playback function.
HDMI Control	Enables SCENE link playback using HDMI Control signals. Select this if an HDMI Control-compatible device (such as a BD/DVD player) is connected to the unit via HDMI. It also turns on the TV if it supports HDMI Control.
IR: Yamaha BD/DVD 1	Enables SCENE link playback using remote control signals. Select this if a Yamaha BD/DVD player is connected to the REMOTE OUT jack.
IR: Yamaha BD/DVD 2	Enables SCENE link playback using remote control signals. Select this if a Yamaha BD/DVD player is connected to the REMOTE OUT jack and "IR: Yamaha BD/DVD 1" does not work properly.
IR: Yamaha CD	Enables SCENE link playback using remote control signals. Select this if a Yamaha CD player is connected to the REMOTE OUT jack.

Default
SCENE1 (BD/DVD), SCENE2 (TV): HDMI Control
SCENE3 (NET), SCENE4 (RADIO), SCENE5–12: Off

❗

• To control playback of an HDMI Control-compatible device by SCENE link playback, you need to set "HDMI Control" in the "Setup" menu to "On" and perform the HDMI Control link setup (p.158).

❏ Detail

Selects items to be included as the scene assignments. You can also view the settings currently assigned to the selected scene.

To include items as the scene assignments, use the cursor keys to select an item and press ENTER to check the box (or uncheck the box to exclude).

For example, if you often adjust the volume while watching TV but listen to radio with low volume at night, exclude "Volume" from the assignments for SCENE2 (TV) and include "Volume" in the assignments for SCENE4 (RADIO).

Check or uncheck

Choices

Input	Input (p.60), Audio Select (p.101)
HDMI Output	HDMI Output (p.60)
Mode	Sound Program (p.63), Pure Direct Mode (p.119), Enhancer (p.68), Enhancer Hi-Res Mode (p.101)
Sound	Tone Control (p.99), Adaptive DRC (p.99)
Surround	CINEMA DSP 3D Mode (p.99), Dialogue Lift (p.100), Dialogue Level (p.100), Subwoofer Trim (p.101), Extended Surround (p.100)
Video	Video Mode (p.119), Video Adjustment (p.101)
Volume	Master Volume (p.60)
Lipsync	Lipsync (p.118), Delay (p.118)
Speaker Setup	Setting Pattern (p.114), PEQ Select (p.117)

Default
Input, HDMI Output, Mode: selected
Sound, Surround, Video, Volume, Lipsync, Speaker Setup: not selected

■ Rename/Icon Select

Changes the scene name and icon displayed on the front display or TV screen.

■ Setup procedure

1 Use the cursor keys (◁/▷) to select an icon and press the cursor key (▽).

2 Press ENTER to enter the name edit screen.

3 Use the cursor keys and ENTER to rename and select "ENTER" to confirm the entry.
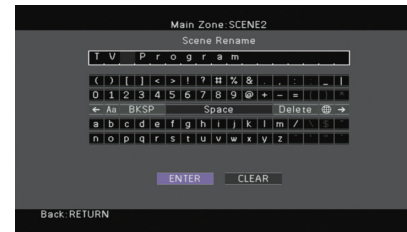
- To clear the entry, select "CLEAR".

4 Use the cursor keys to select "OK" and press ENTER.

- To restore the default setting, select "RESET".

5 To exit from the menu, press ON SCREEN.

■ Reset

Restores the default settings (p.61) for the selected scene.

Configuring sound programs/surround decoders (Sound Program menu)

You can change the settings of the sound programs and surround decoders using the TV screen.

1 **Press ON SCREEN.**

2 **Use the cursor keys to select "Sound Program" and press ENTER.**
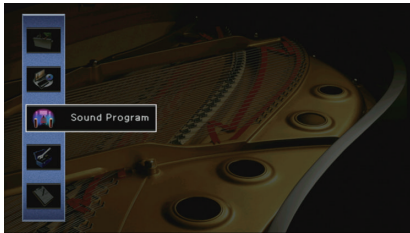
3 **Use the cursor keys (◁/▷) to select a sound program to be configured and press the cursor key (△).**
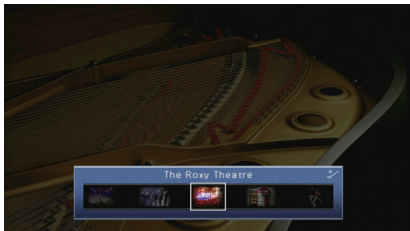
• You can still switch the sound program by using cursor keys (◁/▷) after Step 3.

4 **Use the cursor keys (△/▽) to select an item and press ENTER.**
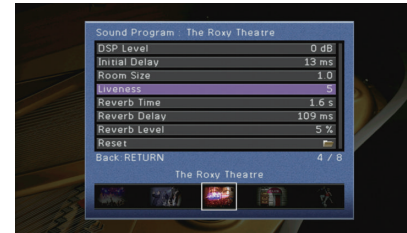
• To return to the previous screen during menu operations, press RETURN.
• To restore the default settings for the selected sound program, select "Reset".

5 **Use the cursor keys to select a setting and press ENTER.**

6 **To exit from the menu, press ON SCREEN.**

Sound Program menu items

💡

- Available items and the default settings vary depending on the selected sound program or surround decoder.

■ Settings for sound programs

Item	Function	Settings
Decode Type	Selects a surround decoder to be used in combination with the selected sound program.	◖PLIIx Movie (◖PLII Movie), Neo:6 Cinema
DSP Level	Adjusts the sound field effect level.	-6 dB to +3 dB (default: 0 dB) Higher to enhance the sound field effect, and lower to reduce it.
Initial Delay	Adjusts the delay between the direct sound and presence sound field generation.	1 ms to 99 ms Higher to enhance the delay effect, and lower to reduce it.
Surround Initial Delay	Adjusts the delay between the direct sound and surround sound field generation.	1 ms to 49 ms Higher to enhance the delay effect, and lower to reduce it.
Surround Back Initial Delay	Adjusts the delay between the direct sound and surround back sound field generation.	
Room Size	Adjusts the broadening effect of the presence sound field.	0.1 to 2.0 Higher to enhance the broadening effect, and lower to reduce it.
Surround Room Size	Adjusts the broadening effect of the surround sound field.	
Surround Back Room Size	Adjusts the broadening effect of the surround back sound field.	
Liveness	Adjusts the loss of the presence sound field.	0 to 10 Higher to enhance the reflectivity, and lower to reduce it.
Surround Liveness	Adjusts the loss of the surround sound field.	
Surround Back Liveness	Adjusts the loss of the surround back sound field.	
Reverb Time	Adjust the decay time of the rear reverberant sound.	1.0 s to 5.0 s Higher to enrich the reverberant sound and lower to have clear sound.

Item	Function	Settings
Reverb Delay	Adjusts the delay between the direct sound and reverberant sound generation.	0 ms to 250 ms Higher to enhance the delay effect, and lower to reduce it.
Reverb Level	Adjusts the volume of the reverberant sound.	0% to 100% Higher to strengthen the reverberant sound, and lower to weaken it.

The following items are available when you select "2ch Stereo" or "9ch Stereo".

Sound program	Item	Function	Settings
2ch Stereo	Direct	Selects whether to automatically bypass the DSP circuit when an analog audio source is played back.	Auto (default), Off
9ch Stereo	Level	Adjusts the entire volume.	-5 to +5 (default: 0)
	Front / Rear Balance	Adjusts the front and rear volume balance.	-5 to +5 (default: 0) Higher to enhance the front side, and lower to enhance the rear side.
	Left / Right Balance	Adjusts the right and left volume balance.	-5 to +5 (default: 0) Higher to enhance the right side, and lower to enhance the left side.
	Height Balance	Adjust the height volume balance using the front presence speakers.	0 to 10 (default: 5) Higher to enhance the upside, and lower to enhance the downside. (The front presence speakers do not produce sounds when "Height Balance" is set to "0".)
	Monaural Mix	Enables/disables monaural sound output.	Off (default), On

💡

- Available items in "9ch Stereo" vary depending on the speaker system being used.

■ Settings for decoders

The following items are available when you set "Decode Type" of "SURROUND DECODER" to "⫴PLIIx Music" (⫴PLII Music) or "Neo:6 Music".

Decode Type	Item	Function	Settings
⫴PLIIx Music (⫴PLII Music)	Panorama	Adjusts the broadening effect of the front sound field.	Off (default), On Select "On" to wrap front right/left channel sounds around the field and generate a spacious sound field in combination with the surround sound field.
	Center Width	Adjusts the broadening effect of the center sound field.	0 to 7 (default: 3) Higher to enhance the broadening effect, and lower to reduce it (closer to center).
	Dimension	Adjusts the difference in level between the front and surround sound fields.	-3 to +3 (default: 0) Higher to strengthen the front sound field and lower to strengthen the surround sound field.
Neo:6 Music	Center Image	Adjusts the center orientation level (broadening effect) of the front sound field.	0.0 to 1.0 (default: 0.3) Higher to strengthen the center orientation level (less broadening effect) and lower to weaken (more broadening effect).

Configuring various functions (Setup menu)

You can configure the unit's various function with the menu displayed on the TV screen.

1 Press ON SCREEN.

2 Use the cursor keys to select "Setup" and press ENTER.
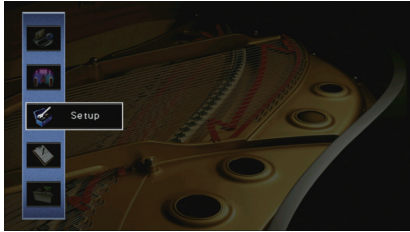
3 Use the cursor keys (◁/▷) to select a menu.

4 Use the cursor keys (△/▽) to select an item and press ENTER.

• To return to the previous screen during menu operations, press RETURN.

5 Use the cursor keys to select a setting and press ENTER.

6 To exit from the menu, press ON SCREEN.

Setup menu items

Menu	Item			Function	Page
Speaker	Auto Setup			Automatically optimizes the speaker settings (YPAO).	50
	Manual Setup	Setting Pattern		Registers two speaker setting patterns and switches between them.	114
		Setting Data Copy		Copies the "Setting Pattern" parameters in the specified direction.	114
		Power Amp Assign		Selects a speaker system.	114
		Configuration	Front	Selects the size of the front speakers.	115
			Center	Selects whether or not a center speaker is connected and its size.	115
			Surround	Selects whether or not surround speakers are connected and their size.	115
			Surround Back	Selects whether or not surround back speakers are connected and their size.	115
			Front Presence	Selects whether or not front presence speakers are connected.	116
			Rear Presence	Selects whether or not rear presence speakers are connected.	116
			Subwoofer 1 Subwoofer 2	Selects whether or not a subwoofer is connected to the SUBWOOFER 1 or SUBWOOFER 2 jack and its phase.	116
			SWFR Layout	Selects a subwoofer layout when 2 subwoofers are used.	116
			Extra Bass	Sets the speakers to produce the front channel low-frequency components.	116
		Distance		Sets the distance between each speaker and listening position.	116
		Level		Adjusts the volume of each speaker.	117
		Parametric EQ		Adjusts the tone with an equalizer.	117
		Test Tone		Enables/disables the test tone output.	117
Sound	Lipsync	Delay Enable		Enables/disables the Lipsync adjustment for each input source.	118
		Auto/Manual Select		Selects the method to adjust the delay between video and audio output.	118
		Adjustment		Adjusts the delay between video and audio output manually.	118
	Dynamic Range			Selects the dynamic range adjustment method for bitstream audio (Dolby Digital and DTS signals) playback.	118
	Max Volume			Sets the maximum volume to prevent excessive loudness.	118
	Initial Volume			Sets the initial volume for when this receiver is turned on.	119
	Pure Direct Mode			Selects whether to output video signals during the Pure Direct mode.	119
	Adaptive DSP Level			Selects whether to automatically adjust the CINEMA DSP effect level.	119
Video	Analog to Analog Conversion			Enables/disables the video conversion between the analog video jacks	119
	Video Mode			Enables/disables the video signal processing (resolution, aspect ratio and video adjustments).	119

Menu	Item			Function	Page
HDMI	**HDMI Control**			Enables/disables HDMI Control. You can also configure the relevant settings (such as ARC and TV audio input).	122
	Audio Output			Selects a device to output audio.	122
	Standby Through			Select whether to output videos/audio (input through HDMI jacks) to the TV when the unit is in standby mode.	123
Network	**IP Address**			Configures the network parameters (such as IP address).	123
	Network Standby			Selects whether to enable/disable the function that turns on the unit from other network devices.	124
	MAC Address Filter			Sets the MAC address filter to limit access to the unit from other network devices.	124
	Network Name			Edits the network name (the unit's name on the network) displayed on other network devices.	124
Multi Zone	**Main Zone Set**	**Zone Rename**		Changes the zone name (for main zone) displayed on the front display or TV screen.	125
	Zone2 Set **Zone3 Set**	**Volume**		Enables/disables volume adjustments for Zone2 or Zone3 output.	125
		Max Volume		Sets the Zone2 or Zone3 maximum volume to prevent excessive loudness in the second zone.	125
		Initial Volume		Sets the Zone2 or Zone3 initial volume for when the unit is turned on.	125
		Mono		Switches between stereo and monaural for Zone2 or Zone3 output.	126
		Zone Scene Rename		Changes the scene names (for Zone2 or Zone3) displayed on the front display or TV screen.	126
		Zone Rename		Changes the zone name (for Zone2 or Zone3) displayed on the front display or TV screen.	126
	Zone4 Set **(RX-A3020 only)**	**Zone Scene Rename**		Changes the scene names (for Zone4) displayed on the front display or TV screen.	126
		Zone Rename		Changes the zone name (for Zone4) displayed on the front display or TV screen.	126
	Monitor Out Assign			Select the zone for which the MONITOR OUT/ZONE OUT jacks are used.	126
	HDMI OUT2 Assign **(RX-A3020 only)**			Select the zone for which the HDMI OUT 2 (ZONE OUT) jack is used.	127
	Party Mode Set			Enables/disables switching to the party mode for each zone.	127
Function	**Input Assignment**			Assigns the COMPONENT VIDEO, COAXIAL and OPTICAL jacks to another input source.	127
	Display Set	**Dimmer (Front Display)**		Adjusts the brightness of the front display.	128
		Short Message		Selects whether to display short messages on the TV screen when the unit is operated.	128
		Wall Paper		Selects the image to be used as wallpaper on the TV.	128
	Trigger Output1 **Trigger Output2**	**Trigger Mode**		Specifies the condition for the TRIGGER OUT jack to function.	128
		Target Zone		Specifies the zone with which the TRIGGER OUT jack functions are synchronized.	129
	Memory Guard			Prevents accidental changes to the settings.	129
ECO	**Auto Power Down**			Sets the amount of time for the auto-standby function.	130
	ECO Mode			Enables/disables the eco mode (power saving mode).	130
Language				Select an on-screen menu language.	130

Speaker (Manual Setup)

Configures the speaker settings manually.
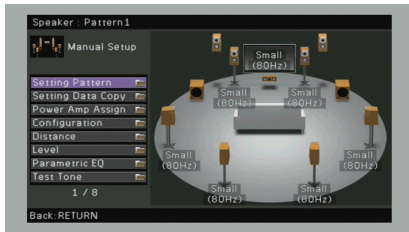
■ Setting Pattern

Registers two speaker setting patterns and switches between them.

When you configure the following speaker settings, the settings will be memorized in the selected pattern.

• Measurement results (Auto Setup)

• Power Amp Assign

• Configuration

• Distance

• Level

• Parametric EQ

Settings
Pattern1 (default), Pattern2

💡

• The setting pattern currently selected is shown at the top of the "Auto Setup" and "Manual Setup" screens.

• This function is useful when you want to save certain settings according to the varying conditions of your listening environment. For example, if you want to switch the settings when curtains are open or closed, you can save the settings suited for each condition and switch between them.

■ Setting Data Copy

Copies the "Setting Pattern" parameters in the specified direction.

Choices

Pattern1 > 2	Copies the "Pattern1" parameters to "Pattern2".
Pattern2 > 1	Copies the "Pattern2" parameters to "Pattern1".

■ Power Amp Assign

Selects a speaker system.

The unit has 9 built-in amplifiers. You can connect 2 to 11 speakers and up to 2 subwoofers (with built-in amplifier) to create the favorite acoustic space in your room. You can also apply bi-amp connections, channel expansion (using an external power amplifier) or multi-zone configurations to enhance your system.

Settings

Basic (default)	Select this option when you use the basic speaker configuration (up to 9-channel plus rear presence speakers) (p.19).
7ch +1ZONE	Select this when you use 7-channel speakers in the main zone and Zone2 (or Zone3) speakers (p.30). You can select a zone to be assigned to the EXTRA SP 1 jacks (default: Zone2).
9ch +1ZONE	Select this when you use 9-channel speakers in the main zone and Zone3 (or Zone2) speakers (p.30). You can select a zone to be assigned to the EXTRA SP 2 jacks (default: Zone3).
7ch +2ZONE	Select this when you use 7-channel speakers in the main zone, plus Zone2 and Zone3 speakers (p.31). You can select a zone to be assigned to the EXTRA SP 1 jacks (default: Zone2) and EXTRA SP 2 jacks (default: Zone3).
9ch +RP	(RX-A3020 only) Select this when you use 9-channel speakers plus rear presence channel expansion using an external amplifier (p.27).
9ch +FRONT	(RX-A3020 only) Select this when you use 9-channel speakers plus front channel expansion using an external amplifier (p.28).
7ch +FP+RP	(RX-A3020 only) Select this when you use 7-channel speakers, plus front presence and rear presence channel expansion using an external amplifier (p.28).
7ch +FRONT+1ZONE	Select this when you use 7-channel speakers plus front channel expansion using an external amplifier in the main zone and Zone3 (or Zone2) speakers (p.29). You can select a zone to be assigned to the EXTRA SP 2 jacks (default: Zone3).
5ch +FRONT+2ZONE	Select this when you use 5-channel speakers plus front channel expansion using an external amplifier in the main zone, plus Zone2 and Zone3 speakers (p.29). You can select a zone to be assigned to the EXTRA SP 1 jacks (default: Zone2) and EXTRA SP 2 jacks (default: Zone3).
7ch BI-AMP	Select this when you use 7-channel speakers (including bi-amp front speakers) (p.26).

	(RX-A3020 only)
7ch BI-AMP +FP	Select this when you use 7-channel speakers (including bi-amp front speakers) plus front presence channel expansion using an external amplifier (p.26).
7ch BI-AMP +FP+RP	(RX-A3020 only) Select this when you use 7-channel speakers (including bi-amp front speakers), plus front presence and rear presence channel expansion using an external amplifier (p.27).

■ Configuration

Configures the output characteristics of the speakers.

※
- When you configure the speaker size, select "Large" if the woofer diameter of your speaker is 16 cm (6-1/4") or larger or "Small" if it is smaller than 16 cm (6-1/4").

❑ Front

Selects the size of the front speakers.

Settings

Large	Select this option for large speakers. The front speakers will produce all of the front channel frequency components.
Small (default)	Select this option for small speakers. The subwoofer will produce front channel low-frequency components lower than the specified crossover frequency (default: 80 Hz).

※
- "Front" is automatically set to "Large" when both "Subwoofer 1" and "Subwoofer 2" are set to "None".

❑ Center

Selects whether or not a center speaker is connected and its size.

Settings

Large	Select this option for large speakers. The center speaker will produce all of the center channel frequency components.
Small (default)	Select this option for small speakers. The subwoofer or front speakers will produce center channel low-frequency components lower than the specified crossover frequency (default: 80 Hz).
None	Select this option when no center speaker is connected. The front speakers will produce center channel audio.

❑ Surround

Selects whether or not surround speakers are connected and their sizes.

Settings

Large	Select this option for large speakers. The surround speakers will produce all of the surround channel frequency components.
Small (default)	Select this option for small speakers. The subwoofer or front speakers will produce surround channel low-frequency components lower than the specified crossover frequency (default: 80 Hz).
None	Select this option when no surround speakers are connected. The front speakers will produce surround channel audio. Virtual CINEMA DSP works when you select a sound program.

❑ Surround Back

Selects whether or not surround back speakers are connected and their sizes.

Settings

Large x1	Select this option when one large speaker is connected. The surround back speaker will produce all of the surround back channel frequency components.
Large x2	Select this option when two large speakers are connected. The surround back speakers will produce all of the surround back channel frequency components.
Small x1	Select this option when one small speaker is connected. The subwoofer or front speakers will produce surround back channel low-frequency components lower than the specified crossover frequency (default: 80 Hz).
Small x2 (default)	Select this option when two small speakers are connected. The subwoofer or front speakers will produce surround back channel low-frequency components lower than the specified crossover frequency (default: 80 Hz).
None	Select this option when no surround back speakers are connected. The surround speakers will produce surround back channel audio.

※
- This setting is not available when "Surround" is set to "None".

❏ **Front Presence**

Selects whether or not front presence speakers are connected.

Settings

Use (default)	Select this option when front presence speakers are connected.
None	Select this option when no front presence speakers are connected.

❏ **Rear Presence**

Selects whether or not rear presence speakers are connected.

Settings

Use	Select this option when rear presence speakers are connected.
None (default)	Select this option when no rear presence speakers are connected.

💡

• This setting is not available when "Surround" or "Front Presence" is set to "None".

❏ **Subwoofer 1, Subwoofer 2**

Selects whether or not a subwoofer is connected to the SUBWOOFER 1 or SUBWOOFER 2 jack and its phase.

Settings

Use	Normal (default)	Select this option when a subwoofer is connected to the SUBWOOFER 1 or SUBWOOFER 2 jack (phase not reversed). The subwoofer will produce LFE (low-frequency effect) channel audio and low-frequency components from other channels.
	Reverse	Select this option when a subwoofer is connected to the SUBWOOFER 1 or SUBWOOFER 2 jack (phase reversed). The subwoofer will produce LFE (low-frequency effect) channel audio and low-frequency components from other channels.
None		Select this option when no subwoofer is connected to the SUBWOOFER 1 or SUBWOOFER 2 jack. The front speakers will produce LFE (low-frequency effect) channel audio and low-frequency components from other channels when both "Subwoofer 1" and "Subwoofer 2" are set to "None".

💡

• When the bass sound is lacking or unclear, switch the subwoofer phase.

❏ **SWFR Layout**

Selects a subwoofer layout when 2 subwoofers are used.

Settings

Left + Right	Select this option when 2 subwoofers are placed on the left and right sides of the room.
Front + Rear	Select this option when 2 subwoofers are placed on the front and rear sides of the room.
Monaural x2 (default)	Select this option when 2 subwoofers are placed freely.

💡

• This setting is not available when "Subwoofer 1" or "Subwoofer 2" is set to "None".

❏ **Extra Bass**

Sets the speakers to produce the front channel low-frequency components.

Settings

Off (default)	Depending on the size of the front speakers, either the subwoofer or front speakers produce the front channel low-frequency components.
On	Both the front speakers and subwoofer produce the front channel low-frequency components.

💡

• This setting is not available when both "Subwoofer 1" and "Subwoofer 2" are set to "None", or when "Front" is set to "Small".

■ **Distance**

Sets the distance between each speaker and listening position so that sounds from the speakers reach the listening position at the same time. First, select the unit of distance from "Meter" or "Feet".

Choices
Front L, Front R, Center, Surround L, Surround R, Surround Back L, Surround Back R, Front Presence L, Front Presence R, Rear Presence L, Rear Presence R, Subwoofer 1, Subwoofer 2

Setting range
0.30 m to 24.00 m (1.0 ft to 80.0 ft), *0.05 m (0.2 ft) increments

Default
3.00 m (10.0 ft)

■ Level

Adjusts the volume of each speaker.

Choices

Front L, Front R, Center, Surround L, Surround R, Surround Back L, Surround Back R, Front Presence L, Front Presence R, Rear Presence L, Rear Presence R, Subwoofer 1, Subwoofer 2

Setting range

-10.0 dB to +10.0 dB (0.5 dB increments)

Default

0.0 dB

Adjusting while viewing the front display

① Press LEVEL.

② Use the cursor keys ($\triangle/\triangledown$) to select a speaker.

③ Use the cursor keys ($\triangleleft/\triangleright$) to adjust the volume of the selected speaker.

■ Parametric EQ

Adjusts the tone with an equalizer.

Settings

Manual	Select this option when you want to adjust the equalizer manually. For details, see "Manual equalizer adjustment".
YPAO:Flat	Adjusts individual speakers to achieve the same characteristics.
YPAO:Front	Adjusts individual speakers to achieve the same characteristics as the front speakers.
YPAO:Natural	Adjusts all speakers to achieve a natural sound.
Through	Does not use the equalizer.

☼

• "YPAO:Flat", "YPAO:Front", and "YPAO:Natural" are available only when the measurement results of "Auto Setup" have already been saved (p.50). Press ENTER again to view the measurement results.

■ Manual equalizer adjustment

1 Set "Parametric EQ" to "Manual" and press ENTER.

2 Press ENTER again to enter the edit screen.

3 Use the cursor keys to select a speaker and press ENTER.

☼

• To restore the default settings for all speakers, select "PEQ Data Clear" and then "OK".

• To copy the parametric equalizer values acquired with "Auto Setup" (p.50) to the "Manual" fields for fine adjustment, select "PEQ Data Copy" and then an equalizer type.

4 Use the cursor keys ($\triangleleft/\triangleright$) to select a preset band and the cursor keys ($\triangle/\triangledown$) to adjust the gain.
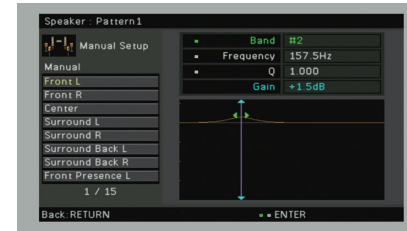
Setting range

Gain: -20.0 dB to +6.0 dB

5 To fine-adjust the center frequency or Q factor (bandwidth), press ENTER repeatedly to select an item.

Frequency: Use the cursor keys ($\triangleleft/\triangleright$) to adjust the center frequency of the selected band and the cursor keys ($\triangle/\triangledown$) to adjust the gain.

Q: Use the cursor keys ($\triangleleft/\triangleright$) to adjust the Q factor (bandwidth) of the selected band and the cursor keys ($\triangle/\triangledown$) to adjust the gain.

Setting range

Center frequency: 31.3 Hz to 16.0 kHz (31.3 Hz to 250.0 Hz for subwoofer)
Q factor: 0.500 to 10.080

6 To exit from the menu, press ON SCREEN.

■ Test Tone

Enables/disables the test tone output. Test tone output helps you to adjust the speaker balance or equalizer while confirming its effect.

Settings

Off (default)	Does not output test tones.
On	Outputs test tones automatically when you adjust the speaker balance or equalizer.

Sound

Configures the audio output settings.

■ Lipsync

Adjusts the delay between video and audio output.

❏ Delay Enable

Enables/disables the Lipsync adjustment for each input source.

Choices
AV 1–7, AUDIO 1–4

Settings

Disable	Disable the Lipsync adjustment for the selected input source.
Enable (default)	Enables the Lipsync adjustment for the selected input source.

❏ Auto/Manual Select

Selects the method to adjust the delay between video and audio output.

Setting range

Auto (default)	Adjusts the delay between video and audio output automatically when a TV that supports an automatic lipsync function is connected to the unit via HDMI. If necessary, you can fine-adjust the audio output timing in "Adjustment".
Manual	Select this option when you want to adjust the delay between video and audio output manually. Adjust the audio output timing in "Adjustment".

> !
> • Even if "Auto/Manual Select" is set to "Auto", the automatic adjustment does not work depending on the TV connected to the unit. In this case, adjust the delay manually in "Adjustment".

❏ Adjustment

Adjusts the delay between video and audio output manually when "Auto/Manual Select" is set to "Manual". You can fine-adjust the audio output timing when "Auto/Manual Select" is set to "Auto".
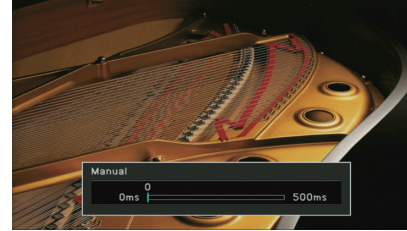
Setting range
0 ms to 500 ms (1 ms increments)

Default
0 ms

> ☀
> • When "Auto/Manual Select" is set to "Auto", "Offset" shows the difference between automatic adjustment and fine adjustment.

■ Dynamic Range

Selects the dynamic range adjustment method for bitstream audio (Dolby Digital and DTS signals) playback.

Settings

Maximum (default)	Produces audio without adjusting the dynamic range.
Standard	Optimizes the dynamic range for regular home use.
Minimum/Auto	Sets the dynamic range for clear sound even at night or at low volumes. When playing back Dolby TrueHD signals, the dynamic range is automatically adjusted based on the input signal information.

■ Max Volume

Sets the maximum volume to prevent excessive loudness.

Setting range
-30.0 dB to +15.0 dB (5.0 dB increments), +16.5 dB

Default
+16.5 dB

■ Initial Volume

Sets the initial volume when the receiver is turned on.

Settings

Off (default)	Sets the level to the volume level of the unit when it last entered standby mode.
On	Sets at Mute or the specified volume level (-80.0 dB to +16.5 dB, 0.5 dB increments). (Specify a volume level which is lower than the "Max Volume" setting.)

■ Pure Direct Mode

Selects whether to output video signals during the Pure Direct mode (p.68).

Settings

Auto (default)	Automatically outputs video signals when any videos are input from the selected input source or an input source that can be operated with the on-screen display is selected. When no video signals are input, the wall paper is displayed.
Video Off	Does not output video signals including the wall paper.

■ Adaptive DSP Level

Selects whether to automatically adjust the CINEMA DSP effect level.

Settings

Off	Does not adjust the effect level automatically.
On (default)	Adjusts the effect level automatically according to the YPAO measurement results and the volume level.

Video

Configures the video output settings.

■ Analog to Analog Conversion

Enables/disables the video conversion (p.156) between the analog video jacks (COMPONENT VIDEO, S VIDEO and VIDEO).

Settings

Off	Disables the video conversion between the analog video jacks.
On (default)	Enables the video conversion between the analog video jacks. Converted video signals are output from the MONITOR OUT jacks only.

> **!**
> - This function works only when "Monitor Out Assign" (p.126) is set to "Main" (default) and "HDMI OUT2 Assign" (RX-A3020 only) (p.127) is set to "Main" (default) or "Zone4".
> - The unit does not convert 480-line and 576-line video signals interchangeably.
> - Only 480i/576i-resolution video signals can be output from the S VIDEO and VIDEO jacks (p.156).

■ Video Mode

Enables/disables the video signal processing (resolution, aspect ratio and video adjustments).

Settings

Direct (default)	Disables the video signal processing.
Processing	Enables the video signal processing. Configure the settings in "Resolution", "Aspect" and "Adjustment".

> **☼**
> - When "Video Mode" is set to "Direct", the unit transmits video signals with the least circuitry in order to reduce video output delay.

❏ **Resolution**

Selects a resolution to output HDMI video signals when "Video Mode" is set to "Processing".

Settings

Through	Does not convert the resolution.
Auto (default)	Selects a resolution automatically in accordance with TV resolution.
480p/576p, 720p, 1080i, 1080p, 4K	Output video signals with a selected resolution. (Only the resolutions supported by your TV are selectable.)

💡
• Conversion into 4K signals is available only when both "Monitor Out Assign" (p.126) and "HDMI OUT2 Assign" (RX-A3020 only) (p.127) are set to "Main" (default).
• If you need to select a resolution that is not supported by your TV, set "MONITOR CHECK" (p.134) in the "ADVANCED SETUP" menu to "SKIP" and try again. (Note that the output video may not be displayed on your TV normally.)

❏ **Aspect**

Selects an aspect ratio to output HDMI video signals when "Video Mode" is set to "Processing".

Settings

Through (default)	Does not convert the aspect ratio.
16:9 Normal	Outputs 4:3 video signals to a 16:9 TV with black bands on either side of the screen.
Smart Zoom	Adjusts 4:3 video signals to fit a 16:9 TV. (The edges of video images may be distorted.)

💡
• This setting functions only when 480i/576i or 480p/576p signals are converted into 720p, 1080i, 1080p, or 2160p (4K) signals.

❏ **Adjustment**

Configures the video adjustments when "Video Mode" is set to "Processing". You can register the video adjustments as presets (up to 6).

■ **Setup procedure**

1 **Use the cursor keys (△/▽) to select a preset number and press ENTER.**

2 **Use the cursor keys (△/▽) to select an item.**
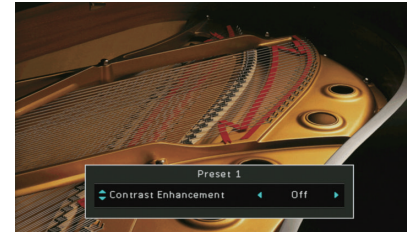
3 **Use the cursor keys (◁/▷) to select a setting and press ENTER.**

4 **To exit from the menu, press ON SCREEN.**

Contrast Enhancement

Selects whether to automatically enhance the video contrast.

Settings

Off (default)	Does not enhance the video contrast.
Auto	Enhances the video contrast automatically.

Resolution Enhancement

Selects whether to enhance the video resolution.

Settings

Off (default)	Does not enhance the video resolution.
Auto	Enhances the video resolution automatically.
Manual	(RX-A3020 only) Adjusts the video resolution settings manually. Configure the settings in "Detail Enhancement" and "Edge Enhancement".

Detail Enhancement

(RX-A3020 only)

Adjusts the enhancement effect of video details manually when "Resolution Enhancement" is set to "Manual".

Setting range
0 to 50

Default
0

Edge Enhancement

(RX-A3020 only)

Adjusts the enhancement effect of video edges manually when "Resolution Enhancement" is set to "Manual".

Setting range
0 to 50

Default
0

Noise Reduction (NR)

Selects whether to use the noise reduction functions.

Settings

Off (default)	Does not use the noise reduction functions.
Auto	Reduces the video noises automatically.
Manual	(RX-A3020 only) Selects noise types and noise reduction effects manually. Configure the settings in "Mosquito NR", "Block NR" and "Temporal NR".

Mosquito NR

(RX-A3020 only)

Selects the effect of the mosquito noise reduction when "Noise Reduction (NR)" is set to "Manual". Mosquito noise is a distortion that comes out at the video edges.

Settings

Off (default)	Does not use the mosquito noise reduction.
Low, Medium, High	Reduces mosquito noises according to the selected effect level.

Block NR

(RX-A3020 only)

Selects the effect of the block noise reduction when "Noise Reduction (NR)" is set to "Manual". Block noise is a block-shaped distortion that often appears during playback of low bit-rate videos.

Settings

Off (default)	Does not use the block noise reduction.
Low, Medium, High	Reduces block noises according to the selected effect level.

Temporal NR

(RX-A3020 only)

Selects the effect of the temporal noise (film-grain noise and random noise of analog video signals) reduction when "Noise Reduction (NR)" is set to "Manual".

Settings

Off (default)	Does not use the temporal noise reduction.
Low, Medium, High	Reduces temporal noises according to the selected effect level.

Brightness

Adjusts the video brightness.

Setting range
-100 to +100

Default
0

Contrast

Adjusts the video contrast.

Setting range
-100 to +100

Default
0

Saturation

Adjusts the video saturation.

Setting range
-100 to +100

Default
0

HDMI

Configures the HDMI settings.

■ HDMI Control

Enables/disables HDMI Control (p.158).

Settings

Off (default)	Disables HDMI Control.
On	Enables HDMI Control. Configure the settings in "TV Audio Input", "ARC" and "Standby Sync".

> ❗
> • To use HDMI control, you need to perform the HDMI Control link setup (p.158) after connecting HDMI Control-compatible devices.

❏ TV Audio Input

Selects an audio input jack of the unit to be used for TV audio input when "HDMI Control" is set to "On". The unit's input source automatically switches to TV audio when the TV input is switched to its built-in tuner.

Settings
AUDIO 1–4

Default
AUDIO 1

> ❗
> • When using ARC to input TV audio to the unit, you cannot use the input jacks selected here for connecting an external device because the input will be used for TV audio input.

❏ ARC

Enables/disables ARC (p.35) when "HDMI Control" is set to "On".

Settings

Off	Disables ARC.
On (default)	Enables ARC.

> ❗
> • You do not need to change this setting normally. In case noises are produced from the speakers connected to the unit because TV audio signals input to the unit via ARC are not supported by the unit, set "ARC" to "Off" and use the TV's speakers.

❏ Standby Sync

Select whether to use HDMI control to link the standby behavior of the TV and the unit when "HDMI Control" is set to "On".

Settings

Off	Does not set the unit to standby mode when the TV is turned off.
On	Sets the unit to standby mode when the TV is turned off.
Auto (default)	Sets the unit to standby mode when the TV is turned off only when the unit is receiving TV audio or HDMI signals.

■ Audio Output

Selects a device to output audio.

> ☀
> • The "Amp" and "HDMI OUT1" settings are available only when "HDMI Control" is set to "Off".
> • (RX-A3020 only)
> The "HDMI OUT2" setting is available only when "HDMI OUT2 Assign" (p.127) is set to "Main".

❏ Amp

Enables/disables the audio output from the speakers and headphones connected to the unit.

Settings

Off	Disables the audio output from the speakers and headphones.
On (default)	Enables the audio output from the speakers and headphones.

❏ HDMI OUT1, HDMI OUT2

Enables/disables the audio output from a TV connected to the HDMI OUT 1 jack or HDMI OUT 2 jack.

Settings

Off (default)	Disables the audio output from the TV.
On	Enables the audio output from the TV.

❗

• The HDMI OUT 1–2 jacks output 2-channel audio signals when the unit is turned on.

■ Standby Through

Select whether to output videos/audio (input through HDMI jacks) to the TV when the unit is in standby mode. If this function is set to "On", you can use the input selection keys (AV 1–7 and V-AUX) to select an HDMI input even when the unit is in standby mode (the standby indicator on the unit blinks).

Settings

Off (default)	Does not output videos/audio to the TV.
On	Outputs videos/audio to the TV. (The unit consumes more power than when "Off" is selected.)

🔆

• This setting is available only when "HDMI Control" is set to "Off".

Network

Configures the network settings.

■ IP Address

Configures the network parameters (such as IP address).

❏ DHCP

Select whether to use a DHCP server.

Settings

Off	Does not use a DHCP server. Configure the network parameters manually. For details, see "Manual network settings".
On (default)	Uses a DHCP server to automatically obtain the unit's network parameters (such as IP address).

■ Manual network settings

1 Set "DHCP" to "Off".

2 Use the cursor keys (△/▽) to select a parameter type and press ENTER.

IP Address	Specifies an IP address.
Subnet Mask	Specifies a subnet mask.
Default Gateway	Specifies the IP address of the default gateway.
DNS Server (P)	Specifies the IP address of the primary DNS server.
DNS Server (S)	Specifies the IP address of the secondary DNS server.

3 Use the cursor keys (◁/▷) to move the edit position and the cursor keys (△/▽) to select a value.

4 To confirm the setting, press ENTER.

5 To configure another network parameter, repeat steps 2 to 4.

6 To save the changes, use the cursor keys to select "OK" and press ENTER.

7 To exit from the menu, press ON SCREEN.

■ Network Standby

Selects whether the unit can be turned on from other network devices (network standby).

Settings

Off (default)	Disables the network standby function.
On	Enables the network standby function. (The unit consumes more power than when "Off" is selected.)

■ MAC Address Filter

Sets the MAC address filter to limit access to the unit from other network devices.

❏ Filter

Enables/disables the MAC address filter.

Settings

Off (default)	Disables the MAC address filter.
On	Enables the MAC address filter. In "MAC Address 1–10", specify the MAC addresses of the network devices that will be permitted access to the unit.

❏ MAC Address 1–10

Specifies the MAC addresses (up to 10) of the network devices that will be permitted access to the unit when "Filter" is set to "On".

■ Procedure

1 Use the cursor keys ($\triangle/\triangledown$) to select "MAC Address 1–5" or "MAC Address 6–10" and press ENTER.

2 Use the cursor keys ($\triangle/\triangledown$) to select an MAC address number and press ENTER.

3 Use the cursor keys ($\triangleleft/\triangleright$) to move the edit position and the cursor keys ($\triangle/\triangledown$) to select a value.

4 To confirm the setting, press ENTER.

5 To save the changes, use the cursor keys to select "OK" and press ENTER.

6 To exit from the menu, press ON SCREEN.

■ Network Name

Edits the network name (the unit's name on the network) displayed on other network devices.

■ Procedure

1 Press ENTER to enter the name edit screen.

2 Use the cursor keys and ENTER to rename and select "ENTER" to confirm the entry.
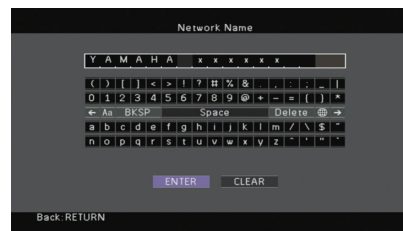
• To clear the entry, select "CLEAR".

3 Use the cursor keys to select "OK" and press ENTER.

• To restore the default setting, select "RESET".

4 To exit from the menu, press ON SCREEN.

Multi Zone

Configures the multi zone settings.

■ Main Zone Set

Configures the main zone setting.

❑ Zone Rename

Changes the zone name (for main zone) displayed on the front display or TV screen.

■ **Procedure**

1 Press ENTER to enter the name edit screen.

2 Use the cursor keys and ENTER to rename and select "ENTER" to confirm the entry.
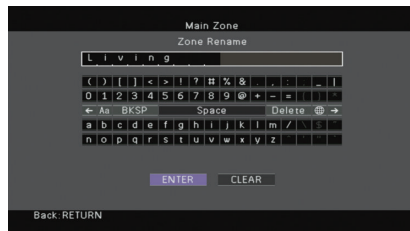
• To clear the entry, select "CLEAR".

3 Use the cursor keys to select "OK" and press ENTER.

• To restore the default setting, select "RESET".

4 To exit from the menu, press ON SCREEN.

■ Zone2 Set, Zone3 Set

Configures the Zone2 or Zone3 settings.

❑ Volume

Enables/disables volume adjustments for Zone2 or Zone3 output.

If you have connected an external amplifier with volume control to the unit, disable the volume adjustment for the corresponding zone.

Settings

Fixed	Disables volume adjustments for Zone2 or Zone3 output.
Variable (default)	Enables volume adjustments for Zone2 or Zone3 output.

• This setting is not available depending on the "Power Amp Assign" setting (p.114).

❑ Max Volume

Sets the Zone2 or Zone3 maximum volume to prevent excessive loudness.

Setting range
-30.0 dB to +15.0 dB (5.0 dB increments), +16.5 dB

Default
+16.5 dB

• This setting is available only when "Volume" is set to "Variable".

❑ Initial Volume

Sets the Zone2 or Zone3 initial volume for when the unit is turned on.

Settings

Off (default)	Sets the level at the volume level of the unit when it last entered standby mode.
On	Sets at Mute or the specified volume level (-80.0 dB to +16.5 dB, 0.5 dB increments). (Specify a volume level which is lower than the "Max Volume" setting.)

• This setting is available only when "Volume" is set to "Variable".

❏ Mono

Switches between stereo and monaural for Zone2 or Zone3 output.

Settings

Off (default)	Produces stereo sounds in Zone2 or Zone3.
On	Produces monaural sounds in Zone2 or Zone3.

❏ Zone Scene Rename

Changes the scene names (for Zone2 or Zone3) displayed on the front display or TV screen.

■ Procedure

1 **Use the cursor keys to select a scene to be renamed and press ENTER.**

2 **Press ENTER to enter the name edit screen.**

3 **Use the cursor keys and ENTER to rename and select "ENTER" to confirm the entry.**

💡
• To clear the entry, select "CLEAR".

4 **Use the cursor keys to select "OK" and press ENTER.**

💡
• To restore the default setting, select "RESET".
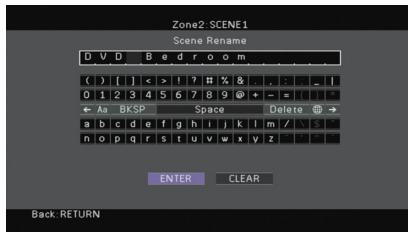
5 **To exit from the menu, press ON SCREEN.**

❏ Zone Rename

Changes the zone name (for Zone2 or Zone3) displayed on the front display or TV screen.

You can change the zone name in the same manner as "Zone Rename" in "Main Zone Set" (p.125).

■ Zone4 Set

(RX-A3020 only)
Configures the Zone4 settings.

❏ Zone Scene Rename

Changes the scene names (for Zone4) displayed on the front display or TV screen.

You can change the scene names in the same manner as "Zone Scene Rename" in "Zone2 Set, Zone3 Set" (p.126).

❏ Zone Rename

Changes the zone name (for Zone4) displayed on the front display or TV screen.

You can change the zone name in the same manner as "Zone Rename" in "Main Zone Set" (p.125).

■ Monitor Out Assign

Select the zone for which the MONITOR OUT/ZONE OUT (COMPONENT VIDEO, S VIDEO and VIDEO) jacks are used.

Settings
Main (default), Zone2, Zone3

❗
• To watch videos played back on a video device on the zone video monitor, you need to connect the video monitor to the unit in the same way as the video device. For example, if you want to watch videos input from the DVD player via a component video cable, connect the video monitor to the COMPONENT VIDEO jacks with a component video cable.

■ HDMI OUT2 Assign

(RX-A3020 only)

Select the zone for which the HDMI OUT 2 (ZONE OUT) jack is used.

Settings
Main (default), Zone2, Zone4

• For details on video/audio signals that can be output to each zone, see "Multi-zone output" (p.157).

❑ Audio Output

Enables/disables the audio output from the HDMI OUT 2 jack when "HDMI OUT2 Assign" is set to "Zone2".

On	Enables the audio output.
Off (default)	Disables the audio output (video output only).

■ Party Mode Set

Enables/disables switching to the party mode (p.96) for each zone.

Choice
Target: Zone2, Target: Zone3, Target: Zone4 (RX-A3020 only)

Settings

Disable	Disables switching to the party mode.
Enable (default)	Enables switching to the party mode. You can turn on/off the party mode by pressing PARTY on the remote control.

Function

Configures the functions that make the unit easier to use.

■ Input Assignment

Assigns the COMPONENT VIDEO, COAXIAL and OPTICAL jacks to another input source.

■ Procedure

Example: assigning the OPTICAL (⑤) jack to the input source "AV 2"

1 Use the cursor keys to select the cell at the intersection of "AV 2" and "Optical", and press ENTER.

2 Use the cursor keys to select "⑤" and press ENTER.

3 To exit from the menu, press ON SCREEN.

💡
• You cannot assign both COAXIAL and OPTICAL jacks to the same input source.

■ Display Set

Configures the settings related to the front display and TV screen display.

❑ Dimmer (Front Display)

Adjusts the brightness of the front display.

Setting range
-4 to 0 (higher to brighten)

Default
0

❗
• The front display may become dark when "ECO Mode" (p.130) is set to "On".

❑ Short Message

Selects whether to display short messages on the TV screen when the unit is operated (such as input selection and volume adjustment).

Settings

On (default)	Displays short messages on the TV screen.
Off	Does not display short messages on the TV screen.

❑ Wall Paper

Selects the image to be used as wallpaper on the TV.

Settings

Picture 1 (default), Picture 2, Picture 3	Displays the selected image on the TV screen when there is no video signal.
Gray	Displays a gray background on the TV screen when there is no video signal.

■ Trigger Output1, Trigger Output2

Sets the TRIGGER OUT 1–2 jacks to function in sync with the power status of each zone or input switching.

❑ Trigger Mode

Specifies the condition for the TRIGGER OUT jack to function.

Settings

Power (default)	The TRIGGER OUT jack functions in sync with the power status of the zone specified with "Target Zone".
Source	The TRIGGER OUT jack functions in sync with the input switching in the zone specified with "Target Zone". An electronic signal is transmitted according to the setting made in "Source".
Manual	Select this to manually switch the output level for electronic signal transmission with "Manual".

Source

Specifies the output level of the electronic signal transmitted with each input, switching when "Trigger Mode" is set to "Source".

Choices
AV 1–7, V-AUX, AUDIO 1–4, PHONO, TUNER, (network sources), USB, MULTI CH

Settings

Low	Stops the electronic signal transmission when you switch to the input source specified in this option.
High (default)	Transmits the electronic signal when you switch to the input source specified in this option.

Manual

Switches the output level for electronic signal transmission manually when "Trigger Mode" is set to "Manual". This setting can also be used to confirm proper function of the external device connected via the TRIGGER OUT jack.

Choices

Low	Stops the electronic signal transmission.
High (default)	Transmits the electronic signal.

❏ **Target Zone**

Specifies the zone with which the TRIGGER OUT jack functions are synchronized.

Settings

Main	When "Trigger Mode" is set to "Power", electronic signal transmission is synchronized with the power status of the main zone. When "Trigger Mode" is set to "Source", electronic signal transmission is synchronized with the input switching in the main zone.
Zone2	When "Trigger Mode" is set to "Power", electronic signal transmission is synchronized with the power status of Zone2. When "Trigger Mode" is set to "Source", electronic signal transmission is synchronized with the input switching in Zone2.
Zone3	When "Trigger Mode" is set to "Power", electronic signal transmission is synchronized with power status of Zone3. When "Trigger Mode" is set to "Source", electronic signal transmission is synchronized with input switching in Zone3.
Zone4	(RX-A3020 only) When "Trigger Mode" is set to "Power", electronic signal transmission is synchronized with power status of Zone4. When "Trigger Mode" is set to "Source", electronic signal transmission is synchronized with input switching in Zone4.
All (default)	When "Trigger Mode" is set to "Power", electronic signal transmission is synchronized with the power status of any zone. When "Trigger Mode" is set to "Source", electronic signal transmission is synchronized with the input switching in any zone.

■ **Memory Guard**

Prevents accidental changes to the settings.

Settings

Off (default)	Does not protect the settings.
On	Protects the settings until "Off" is selected.

• When "Memory Guard" is set to "On", the lock icon (🔒) is displayed on the menu screen.

Icon
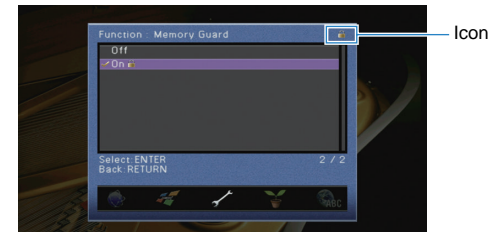
ECO

Configures the power supply settings.

■ Auto Power Down

Sets the amount of time for the auto-standby function. If you do not operate the unit for the specified time, the unit will automatically go into standby mode.

Settings

Off	Does not set the unit to standby mode automatically.
2 hours, 4 hours, 8 hours, 12 hours	Sets the unit to standby mode when you have not operated the unit for the specified time. For example, when "2 hours" is selected, the unit will switch to standby mode if you do not operate it for 2 hours.

Default

U.K. and Europe models: 8 hours
Other models: Off

- Just before the unit enters standby mode, "AutoPowerDown" appears and then countdown starts in the front display.

■ ECO Mode

Enables/disables the eco (power saving) mode.
When the eco mode is enabled, you can reduce the unit's power consumption.

Settings

Off (default)	Disables the eco mode.
On	Enables the eco mode.

- The new setting will take effect after the unit is restarted.
- When "ECO Mode" is set to "On", the front panel display may become dark.
- If you want to play audio at high volume, set "ECO Mode" to "Off".

Language

Select an on-screen menu language.

Settings

English (default)	English
日本語	Japanese
Français	French
Deutsch	German
Español	Spanish
Русский	Russian
中文	Chinese

- The information on the front display is provided in English only.

Viewing information about the unit (Information menu)

You can view information about the unit using the TV screen.

1 **Press ON SCREEN.**

2 **Use the cursor keys to select "Information" and press ENTER.**
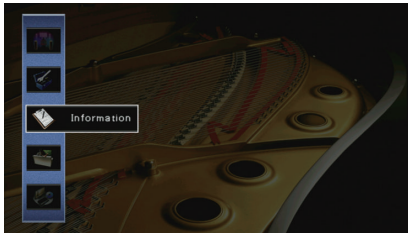
3 **Use the cursor keys (◁/▷) to select an information type.**
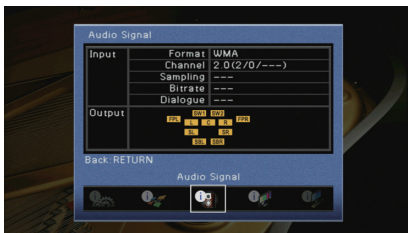
4 **To exit from the menu, press ON SCREEN.**

Types of information

■ Audio Signal

Displays information about the current audio signal.

Input	Format	Audio format of the input signal
	Channel	The number of source channels in the input signal (front/surround/LFE) For example, "5.1 (3/2/0.1)" means 5.1ch in total (3 front channels, 2 surround channels, and LFE).
	Sampling	The number of samples per second of the input digital signal
	Bitrate	The amount of data per second of the input bitstream signal
	Dialogue	The dialogue normalization level of the input bitstream signal
Output		The speaker terminals from which signals are output

• Even when the unit is set to output bitstream signals directly, the signal may be converted depending on the specifications and settings of the playback device.

■ Video Signal

Displays information about the current video signal.

HDMI Signal	Presence or absence of HDMI signal input/output
HDMI Resolution	Resolutions of input signal (analog or HDMI) and output signal (HDMI)
Analog Resolution	Resolutions of input signal (analog) and signal output at the MONITOR OUT jacks (analog)

■ HDMI Monitor

Displays information about the TVs connected to the HDMI OUT jacks.

Use the cursor keys (△/▽) to switch between "OUT1" and "OUT2".

Interface	TV interface
Video Resolution	Resolutions supported by the TV

■ Network

Displays the network information on the unit.

IP Address	IP address
Subnet Mask	Subnet mask
Default Gateway	The IP address of the default gateway
DNS Server (P)	The IP address of the primary DNS server
DNS Server (S)	The IP address of the secondary DNS server
MAC Address	MAC address
Network Name	Network name (the unit's name on the network) (p.124)
Status	The connection status of the NETWORK jack

■ System

Displays the system information on the unit.

Remote ID	The unit's remote control ID setting (p.133)
TV Format	The unit's video signal type (p.134)
Speaker Impedance	The speaker impedance setting of the unit (p.133)
Tuner Freq. Step	(Asia and General models only) The FM/AM tuning frequency setting of the unit (p.134)
System ID	System ID number
Firmware Version	The version of firmware installed on the unit

☼
• If the unit detects a newer firmware over the network, "!" (exclamation mark) appears at the upper right of the "Information" and "System" icons, and the corresponding message will be displayed in this screen. You can update the unit's firmware by pressing ENTER in this screen and following the procedure in "Updating the unit's firmware" (p.144).

■ Zone

Displays information about Zone2, Zone3 and Zone4 (RX-A3020 only).

Input	The input source selected for Zone2, Zone3 or Zone4
Volume	The volume for Zone2 or Zone3

Configuring the system settings (ADVANCED SETUP menu)

Configure the system settings of the unit while viewing the front display.

1 **Set the unit to standby mode.**

2 **While holding down STRAIGHT on the front panel, press MAIN ZONE ⏻.**

MAIN ZONE ⏻   STRAIGHT
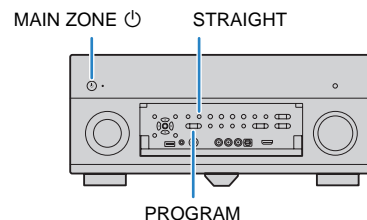
PROGRAM

3 **Press PROGRAM to select an item.**

4 **Press STRAIGHT to select a setting.**

5 **Press MAIN ZONE ⏻ to set the unit to standby mode and turn it on again.**

The new settings take effect.

ADVANCED SETUP menu items

Item	Function	Page
SPEAKER IMP.	Changes the speaker impedance setting.	133
REMOTE SENSOR	Turns on/off of the remote control sensor on the main unit.	133
REMOTE CON AMP	Selects the unit's remote control ID.	133
TUNER FRQ STEP	(Asia and General models only) Changes the FM/AM tuning frequency setting.	134
TV FORMAT	Switches the video signal type.	134
MONITOR CHECK	Removes the limitation on HDMI video output.	134
RECOV./BACKUP	Creates backup of the settings of the unit, or recovers the settings from the backup.	135
INITIALIZE	Restores the default settings.	135
FIRM UPDATE	Updates the firmware.	135
VERSION	Checks the version of firmware currently installed on the unit.	135

Changing the speaker impedance setting (SPEAKER IMP.)

```
SPEAKER IMP.
        8ΩMIN
```

Change the unit's speaker impedance settings depending on the impedance of the speakers connected.

Settings

6 Ω MIN	Select this option when you connect 6-ohm speakers to the unit. You can also use 4-ohm speakers as the front speakers.
8 Ω MIN (default)	Select this option when you connect 8-ohm or higher speakers to the unit.

Turning on/off the remote control sensor (REMOTE SENSOR)

```
REMOTE SENSOR
        ON
```

Turn on/off the remote control sensor on the main unit. While the remote control sensor is turned off, you cannot control the unit from the remote control.

Settings

ON (default)	Turns on the remote control sensor.
OFF	Turns off the remote control sensor.

Selecting the remote control ID (REMOTE CON AMP)

```
REMOTE CON AMP
        ID1
```

Change the unit's remote control ID so that it matches the remote control's ID (default: ID1). When using multiple Yamaha AV receivers, you can set each remote control with a unique remote control ID for its corresponding receiver.

Settings
ID1 (default), ID2

■ **Changing the remote control ID of the remote control**

Perform each of the following steps within 30 seconds. Otherwise, the setting will be automatically canceled.

1 Press SETUP.

2 Use the cursor keys (△/▽) to select "PRESET" and press ENTER.

```
PRESET
```

3 Press RECEIVER ⏻ and press ENTER.

4 Use the numeric keys or cursor keys to enter "5019" (ID1) or "5020" (ID2).

```
5020
```

5 **Press ENTER to confirm the setting.**

Once the remote control ID is registered successfully, "OK" appears in the display window.

If "ERROR" appears, registration failed. Repeat from step 3.

6 **To exit from the setup menu, press SETUP.**

- The registered remote control codes (p.136) are not cleared even if you change the remote control ID.

Changing the FM/AM tuning frequency setting (TUNER FRQ STEP)

(Asia and General models only)

```
TUNER FRQ STEP
       FM50/AM9
```

Change the FM/AM tuning frequency setting of the unit depending on your country or region.

Settings

FM100/AM10	Select this when you want to adjust the FM frequency by 100-kHz steps and AM by 10-kHz steps.
FM50/AM9 (default)	Select this when you want to adjust the FM frequency by 50-kHz steps and AM by 9-kHz steps.

Switching the video signal type (TV FORMAT)

```
TV FORMAT
      NTSC
```

Switch the video signal type of the unit so that it matches to the format of your TV.

Settings
NTSC, PAL

Default
U.S.A., Canada, Korea and General models: NTSC
Other models: PAL

Removing the limitation on HDMI video output (MONITOR CHECK)

```
MONITOR CHECK
         YES
```

The unit automatically detects resolutions supported by a TV connected to the HDMI OUT jack.

Disable the monitor check function if you want to specify a resolution in "Resolution" (p.120) when the unit cannot detect the TV's resolution or when you want to specify a different resolution than the detected resolution.

Settings

YES (default)	Enables the monitor check function. (Outputs video signals with a resolution supported by the TV only.)
SKIP	Disables the monitor check function. (Outputs video signals with a specified resolution regardless of compatibility with the TV.)

- Reset to "YES" if the unit becomes inoperable because video from the unit cannot be displayed on the TV after "MONITOR CHECK" has been set to "SKIP".

Backing up/recovering the settings (RECOV./BACKUP)

```
RECOV./BACKUP
        BACKUP
```

Creates backup of the settings of the unit, or recovers the settings from the backup.

■ **Backup/recovery procedure**

1 **Press STRAIGHT repeatedly to select "BACKUP" or "RECOVERY" and press INFO to start the process.**

Choices

BACKUP	Creates backup of the settings of the unit in the internal memory.
RECOVERY	Recovers the settings of the unit from the backup (available only when backup has been created).

Note

• Do not turn off the unit during the recovery process. Otherwise, the settings may not be restored correctly.

• The backup does not contain user information (such as user accounts and passwords).

Restoring the default settings (INITIALIZE)

```
INITIALIZE
        CANCEL
```

Restores the default settings for the unit.

Choices

VIDEO	Restores the default settings for video configurations.
ALL	Restores the default settings for the unit.
CANCEL	Does not perform an initialization.

Updating the firmware (FIRM UPDATE)

```
FIRM UPDATE
        USB
```

New firmware that provides additional features or product improvements will be released as needed. Updates can be downloaded from our website. If the unit is connected to the Internet, you can download the firmware via the network. For details, refer to the information supplied with updates.

■ **Firmware update procedure**

Do not perform this procedure unless firmware update is necessary. Also, make sure you read the information supplied with updates before updating the firmware.

1 **Press STRAIGHT repeatedly to select "USB" or "NETWORK" and press INFO to start firmware update.**

Choices

USB	Update the firmware using a USB memory device.
NETWORK	Update the firmware via the network.

• If the unit detects newer firmware over the network, the corresponding message will be displayed after ON SCREEN is pressed. In this case, you can also update the unit's firmware by following the procedure in "Updating the unit's firmware" (p.144).

Checking the firmware version (VERSION)

```
VERSION
        X.XX
```

Check the version of firmware currently installed on the unit.

• You can also check the firmware version in "System" (p.132) in the "Information" menu.

• It may take a while until the firmware version is displayed.

Controlling external devices with the remote control

You can use the unit's remote control to operate external devices (such as BD/DVD players) if you have registered the remote control code of the external device. You can also use the macro function to sequentially operate multiple functions at once.

1 Press SETUP.

SETUP

!
• If no operation is performed within 30 seconds, the remote control automatically exits from the setup menu.

2 Use the cursor keys (△/▽) to select an item and press ENTER.

Item name

PRESET

Item	Function	Page
LEARN	Assigns a function to each key by learning the code from other remote controls.	138
PRESET	Registers the remote control code for external devices.	136
RENAME	Edits the device names or scene names displayed on the remote control's display window.	139
MACRO	Programs macro operations (sequence of control commands).	140
CLEAR	Clears the remote control configurations.	142
ERASE	Erases a function assigned to each key by learning.	143
EX-IR	Extended IR code mode. This feature is for the authorized custom installers only.	—

!
• You cannot control an external device that does not have a remote control sensor.

Registering remote control codes

■ Registering the remote control code for a TV

You can use the unit's remote control to operate a TV if you have registered its remote control code.

☼
• You can also register your TV's remote control code to the unit's input selection keys (p.137). This would allow you to use the cursor keys or numeric keys to operate the TV (this function may not be available on some TV models).

1 Use "Remote Control Code Search" in the CD-ROM to find your TV's remote control code.

☼
• If there are multiple remote control codes, register the first code in the list. If that does not work, try the other codes.

2 Press SETUP.

Perform each of the following steps within 30 seconds. Otherwise, the setting will be canceled. If this happens, repeat from Step 2.

3 Use the cursor keys (△/▽) to select "PRESET" and press ENTER.

PRESET

4 Press TV ⏻ and press ENTER.

"----" (empty) or code currently registered

---- ---- ---- ----

Cursor keys
ENTER

TV ⏻

SETUP
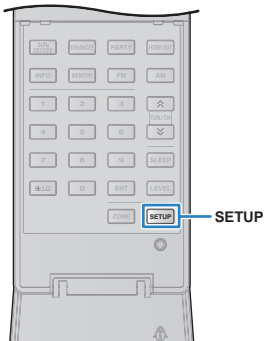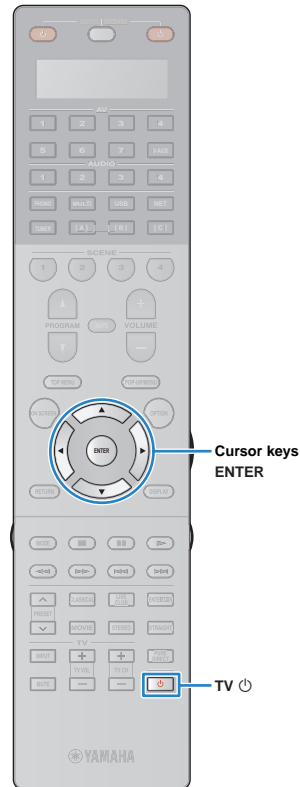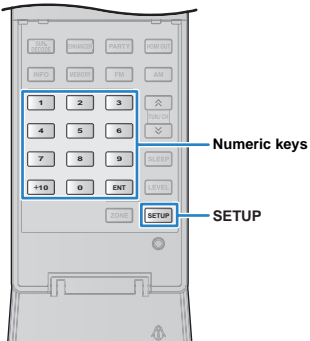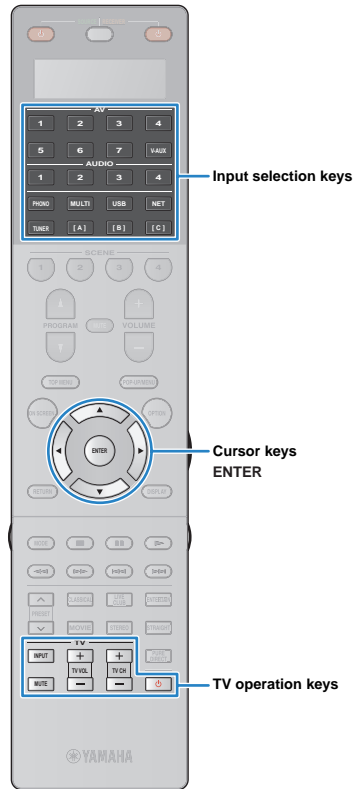
5 **Use the numeric keys or cursor keys to enter the 4-digit remote control code and press ENTER.**

Once the remote control code is successfully registered, "OK" appears in the display window.

If "ERROR" appears, registration has failed. Repeat from Step 3.

6 **To exit from the setup menu, press SETUP.**

❑ TV operations

Once you have registered the remote control code for your TV, you can control it using the TV operation keys, regardless of the input source selected on the unit.

	INPUT	Switches the video inputs of the TV.
	MUTE	Mutes the audio output of the TV.
TV operation keys	TV VOL	Adjust the volume of the TV.
	TV CH	Switch the channels of the TV.
	TV ⏻	Turns on/off the TV.

■ Registering the remote control codes for playback devices

You can use the unit's remote control to operate playback devices if you have registered their remote control codes. You can also use the input selection keys to change the playback devices that are controlled by the remote control, because their remote control codes are assigned to the input selection keys.

💡

• Under the unit's default settings, the amplifier code (Yamaha: 5098) is set for all the input selection keys. With this setting, you can control HDMI Control-compatible devices connected to the unit with the remote control. (This function may not work depending on the specification of the external device.)

• If you have registered the remote control code for an external device to the [A], [B] or [C] key, you can operate the device with the remote control without switching the input source after pressing the key.

Input selection keys

Cursor keys
ENTER

TV operation keys

Numeric keys

SETUP

1 **Use "Remote Control Code Search" in the CD-ROM to find the remote control code for your playback device.**

💡

• If there are multiple remote control codes, register the first code in the list. If that does not work, try the other codes.

2 **Press SETUP.**

Perform each of the following steps within 30 seconds. Otherwise, the setting will be canceled. If this happens, repeat from Step 2.

3 **Use the cursor keys (△/▽) to select "PRESET" and press ENTER.**

PRESET

4 **Press a corresponding input selection key and press ENTER.**

For example, press AV1 to set the remote control code for the playback device connected to the AV1 jack.

Code currently registered

5098

5 **Use the numeric keys or cursor keys to enter the 4-digit remote control and press ENTER.**

Once the remote control code is successfully registered, "OK" appears in the display window.

If "ERROR" appears, registration has failed. Repeat from Step 3.

SOURCE ⏻
SOURCE/RECEIVER

External device operation keys

Menu operation keys
Cursor keys
ENTER
DISPLAY

MODE
External device operation keys

TV operation keys
TV ⏻

Numeric keys
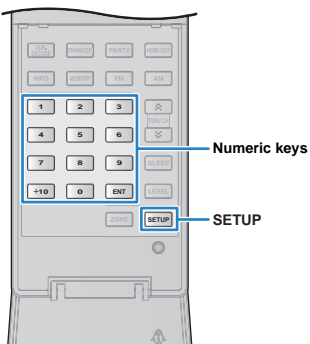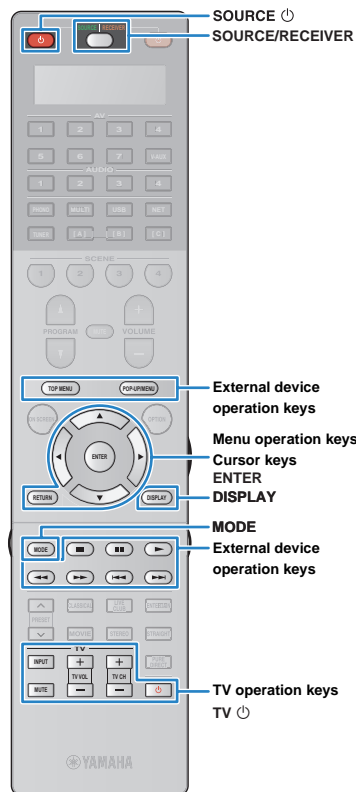
SETUP

6 **To set another remote control code, repeat Steps 4 and 5.**

7 **To exit from the setup menu, press SETUP.**

☀
- For details on how to register a remote control code to a SCENE key, refer to "Configuring scene assignments" (p.62).

❑ **Playback device operations**

Once you have registered the remote control code for your playback device, you can control it using the following keys after selecting the input source or scene.

☀
- By pressing SOURCE/RECEIVER, you can switch the devices (the unit or external device) that are operated by the menu operation keys, DISPLAY and numeric keys. You can operate the unit when SOURCE/RECEIVER lights up in orange, and an external device when SOURCE/RECEIVER lights up in green. For example, if you register the remote control code of your external device on TUNER, you can operate the unit's built-in FM/AM radio when SOURCE/RECEIVER lights up in orange, and the external device when SOURCE/RECEIVER lights up in green.

SOURCE ⏻		Turns on/off the playback device.
Menu operation keys	Cursor keys	Select an item.
	ENTER	Confirms a selected item.
	RETURN	Returns to the previous screen.
DISPLAY		Switches information on the display.
MODE		Switches between modes.
External device operation keys	TOP MENU	Displays the top menu.
	POP-UP/MENU	Displays the pop-up menu.
	■	Stops playback.
	❚❚	Stops playback temporarily.
	▶	Starts playback of the selected song/video.
	◀◀ ▶▶	Searches forward/backward (by holding down).
	◀◀ ▶▶❙	Skips forward/backward.
Numeric keys		Enter numerical values.
TV operation keys		Control the TV (p.137).

⚠
- These keys work only if the corresponding function is available on your playback device and if the device can be operated with an infrared remote control.

Programming from other remote controls (learning)

The remote control of the unit can receive remote control signals from other infrared remote controls and learn the remote control operation. If you cannot find a remote control code for your playback device or if any key on the remote control does not work after you register the remote control code, use the learning function to assign a function to each key.

1 **Press SETUP.**

Perform each of the following steps within 30 seconds. Otherwise, the setting will be canceled. If this happens, repeat from Step 1.

2 **Use the cursor keys (△/▽) to select "LEARN" and press ENTER.**

LEARN

3 **Press one of the following keys depending on the type of your device.**

For playback device: press the input selection key (corresponding to the input jacks where the device is connected).

For TV: press TV ⏻.

SOURCE ⏻
RECEIVER ⏻

Input selection keys

SCENE

External device operation keys

Menu operation keys
Cursor keys
ENTER
DISPLAY

MODE
External device operation keys

TV operation keys
TV ⏻

Numeric keys

SETUP
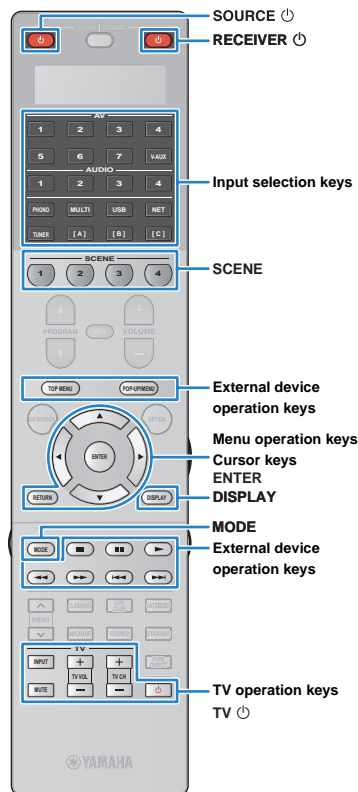
4 Press ENTER.

5 Aim the infrared transmitters of the remote controls at each other.

Remote control of external device

5 to 10 cm (2 to 4") apart
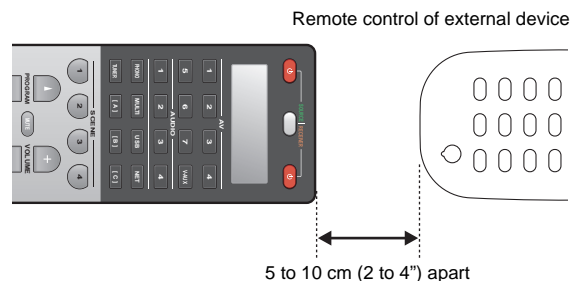
6 Perform the following steps (① and ②) within 10 seconds.

① On the unit, press one of the following keys to which you want to assign a function.

For playback device: SOURCE ⏻, menu operations keys, DISPLAY, MODE, external device operation keys, numeric keys

For TV: TV operation keys

② On the external device, press the key from which the operation is learned until "OK" appears in the display window.

If "NG" appears, learning has failed. Repeat from Step 4.

7 Repeat Steps 3 to 6 until all desired operations are learned.

8 To exit from the setup menu, press SETUP.

💡

• This remote control can learn approximately 200 functions (may be decreased depending on the signals). If "FULL" appears in the display window, clear unnecessary assignments to free some memory space for the new functions.

Note

• If you press RECEIVER ⏻ in Step 3, you can assign functions of an external receiver to the menu operation keys, external device operation keys or numeric keys. However, it makes these keys to control the unit impossible. If you need to restore the remote control code for the unit, perform the following steps.

① Press SETUP.
② Use the cursor keys (△/▽) to select "CLEAR" and press ENTER.
③ Use the cursor keys (△/▽) to select "LEARN" and press ENTER.
④ Press RECEIVER ⏻.
⑤ Hold down ENTER until "OK" appears on the window display.
⑥ To exit from the setup menu, press SETUP.

Editing device names

You can edit the device names or scene names displayed on the remote control's display window.

1 Press SETUP.

Perform each of the following steps within 30 seconds.

Otherwise, the setting will be canceled. If this happens, repeat from Step 1.

2 Use the cursor keys (△/▽) to select "RENAME" and press ENTER.

RENAME

3 Press one of the following keys to select a device or a scene.

For playback device: press the input selection key (corresponding to the input jacks where the device is connected).

For TV: press TV ⏻.

For AV receiver (the unit): press RECEIVER ⏻.

For scene: press one of the SCENE keys.
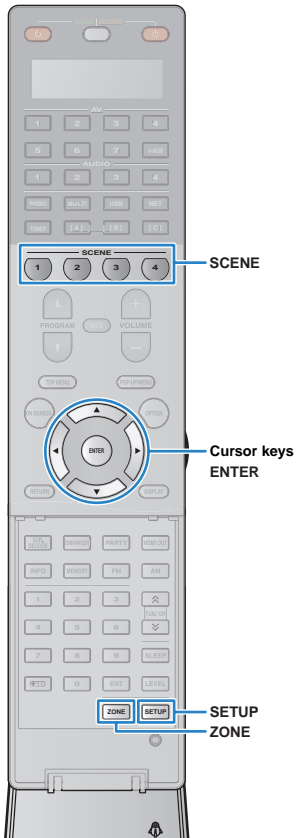
💡
- To edit scene names of each zone, press one of the SCENE keys and press ZONE to select a zone.

4 Press ENTER.

5 Use the cursor keys to rename.

To locate the position, use the cursor keys ($\lhd$/$\rhd$).

To select a character (A to Z, a to z, 0 to 9, space, symbols), use the cursor keys ($\triangle$/$\triangledown$).

BD/DVD

6 Press ENTER to register the new name.

Once the new name is successfully registered, "OK" appears in the display window.

7 To edit another device name (or scene name), repeat Steps 3 to 6.

8 To exit from the setup menu, press SETUP.

Operating multiple functions at once (macro)

The macro function allows you to sequentially operate multiple functions at once.

For example, when you want to listen to a CD, you can turn on the CD player, select the corresponding input source on the unit and start playback on the CD player sequentially with a single key operation.

■ Enabling the macro operations

1 Press SETUP.

Perform each of the following steps within 30 seconds.

Otherwise, the setting will be canceled. If this happens, repeat from Step 1.

## 2 Use the cursor keys ($\triangle$/$\triangledown$) to select "MACRO" and press ENTER.

MACRO

3 Use the cursor keys ($\triangle$/$\triangledown$) to select "ON" and press ENTER.

ON

4 To exit from the setup menu, press SETUP.

"MACRO" lights up (when macro operations are enabled)

RECEIVER
MACRO

💡
- To disable the macro operations, select "OFF" in Step 3.
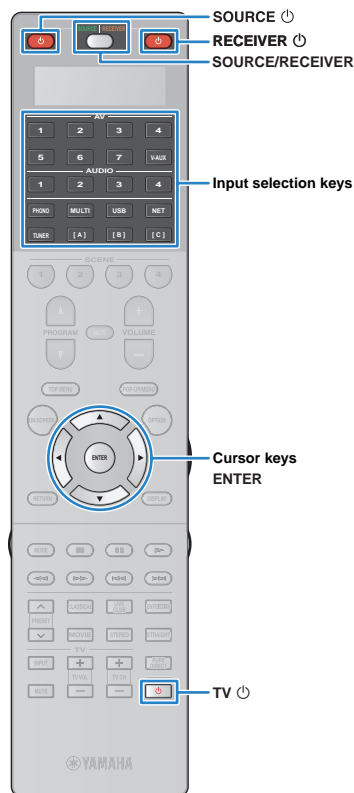
By default, the following macro operations are available after pressing a macro operation key when the macro operations are enabled.

Macro operation key	Macro operations	
	1st command	2nd commend
RECEIVER ⏻	Turns on the unit.	(unregistered)
Input selection keys	Turns on the unit.	Selects the corresponding input source. (unregistered for the [A], [B] and [C] keys)

■ Programming macro operations

You can program up to 10 remote control commands for each macro operation key. If you press the corresponding macro operation key, the multiple operations will be carried out sequentially according to the programmed remote control commands.

!

- Before programming macro operations, you need to register the remote control codes (p.136) or assign a function to each key using the learning function (p.138).
- We do not recommend including continuous operations (such as volume adjustment) in macro operations.

1 Press SETUP.

Perform each of the following steps within 30 seconds.

Otherwise, the setting will be canceled. If this happens, repeat from Step 1.

2 Use the cursor keys (△/▽) to select "MACRO" and press ENTER.
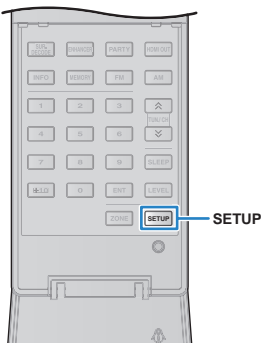
MACRO

3 Use the cursor keys (△/▽) to select "EDIT" and press ENTER.

EDIT

4 Press the macro operation key (RECEIVER ⏻ or input selection key) to which macro operations are assigned and press ENTER.

"MACRO 1" appears in the display window.

MACRO 1

5 Press the keys for functions (up to 10) you want to include in the macro operations in sequence.

To switch the devices (the unit or external device) to control, press SOURCE/RECEIVER.

(Example)
Programming for ①turning on the unit, ②selecting "AV1" as the input source, ③turning on the DVD player assigned to "AV1" and ④turning on the TV

① (MACRO 1) Press RECEIVER ⏻.

② (MACRO 2) Press AV1.

③ (MACRO 3) Press SOURCE/RECEIVER repeatedly to select "AV1" and press SOURCE ⏻.

④ (MACRO 4) Press SOURCE/RECEIVER repeatedly to select "TV" and press TV ⏻.

6 To confirm the setting, hold down ENTER until "OK" appears on the window display.

If you have programmed 10 functions, "FULL" appears and the setting is confirmed automatically.

7 To exit from the setup menu, press SETUP.
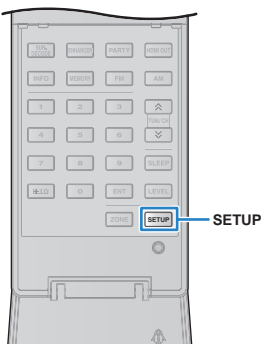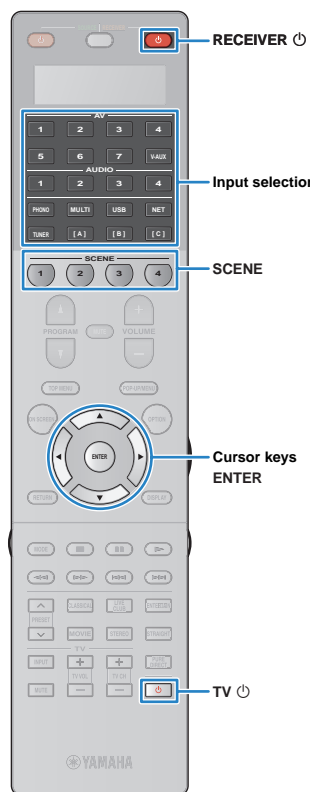
Resetting the remote control configurations

■ Clearing the remote control configurations

You can clear remote control configurations by selecting a type of settings or clear all the remote control configurations.

1 Press SETUP.

Perform each of the following steps within 30 seconds.

Otherwise, the setting will be canceled. If this happens, repeat from Step 1.

2 Use the cursor keys (△/▽) to select "CLEAR" and press ENTER.

CLEAR

3 Use the cursor keys (△/▽) to select the settings to be cleared and press ENTER.

PRESET

LEARN	Clears the functions learned from other remote controls.
PRESET	Restores the default remote control code settings.
RENAME	Restores the default device name settings.
MACRO	Clears the macro operation settings.
RESET	Clears all remote control configurations and restores default settings.

"ALL" appears in the display window.

ALL

To apply the selection to all the corresponding keys, proceed to Step 5.

To apply the selection to a specific key, proceed to Step 4.

🔅
• When "RESET" is selected, all remote control configurations will be cleared. You cannot select a specific key. Proceed to step 5.

4 Press a key to which the selected process is applied.

When "LEARN" or "PRESET" is selected: press the input selection key or TV ⏻.

When "RENAME" is selected: press the input selection key, RECEIVER ⏻, TV ⏻ or SCENE.

When "MACRO" is selected: press the macro operation key (input selection key or RECEIVER ⏻).

5 Hold down ENTER until "OK" appears on the window display.

If "NG" or "ERROR" appears, clearing has failed. Repeat from Step 2.

6 To exit from the setup menu, press SETUP.
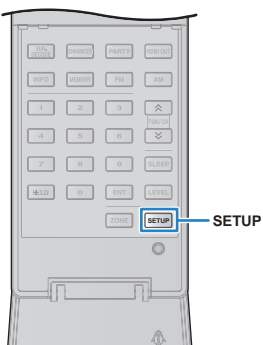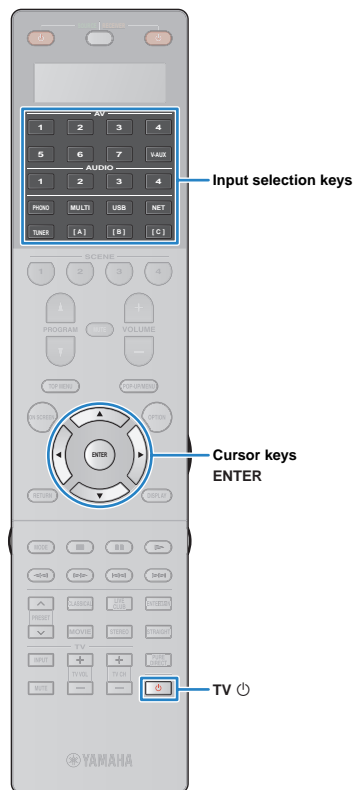
■ Erasing a function assigned to each key by learning

You can erase a function assigned to each key by learning and restore the default key assignments.

1 Press SETUP.

Perform each of the following steps within 30 seconds.

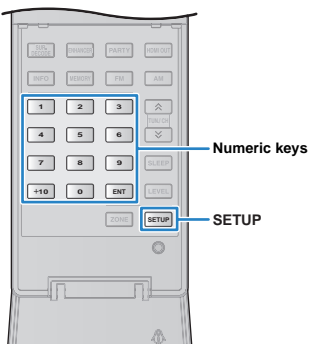Otherwise, the setting will be canceled. If this happens, repeat from Step 1.

2 Use the cursor keys (△/▽) to select "ERASE" and press ENTER.

ERASE

3 Press one of the following keys to select the device for which key assignments will be cleared.

For playback device: press the input selection key.
For TV: press TV ⏻.

4 Press ENTER.

5 Hold down the key to be reset until "OK" appears on the window display.

If "NG" or "ERROR" appears, clearing has failed. Repeat from Step 2.

6 Repeat Steps 3 to 5 until all desired key assignments are erased.

7 To exit from the setup menu, press SETUP.

Input selection keys

Cursor keys
ENTER

TV ⏻

SETUP
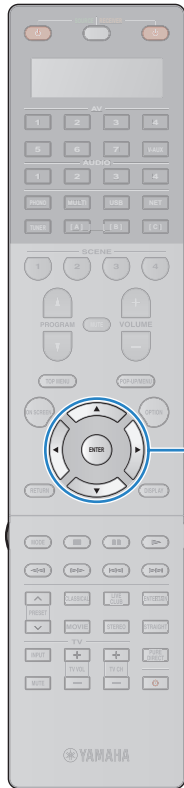
Updating the unit's firmware

New firmware that provides additional features or product improvements will be released as needed. If the unit is connected to the Internet, you can download the firmware via the network and update it.

> **Note**
> • Do not operate the unit or disconnect the power cable or network cable during firmware update. Firmware update takes about 20 minutes or more (depending on your Internet connection speed).

💡
• You can also update the firmware using the USB memory device from the "ADVANCED SETUP" menu (p.135).

A firmware update is available if the following message is displayed after ON SCREEN is pressed.

New firmware available.

It takes about 15 minutes to update the firmware.
This screen will disappear once the update begins, so please check the status on the front panel display.

Press the "START" button to update now, or the "CLOSE" button to update later.
(You can also start the update from the "Information – System" screen.)

<Note>
Do not disconnect the power cable or network cable during the update.

START   CLOSE

1 **Read the on-screen description.**

2 **To start the firmware update, use the cursor keys to select "START" and press ENTER.**

The on-screen display turns off.

3 **If "UPDATE SUCCESS PLEASE POWER OFF!" appears on the front display, press MAIN ZONE ⏻ on the front panel.**

The firmware update is complete.

💡
• If you want to update the firmware later, select "CLOSE" in Step 2. "!" (exclamation mark) appears at the upper right of the "Information" and "System" icons, and a message will be displayed in the "System" screen (p.132). You can update the unit's firmware by pressing ENTER in the "System" screen.

Information icon — Information

Message — New firmware available. Press ENTER to go to the update screen.

System Icon

Cursor keys
ENTER
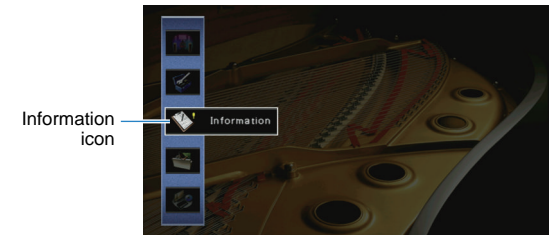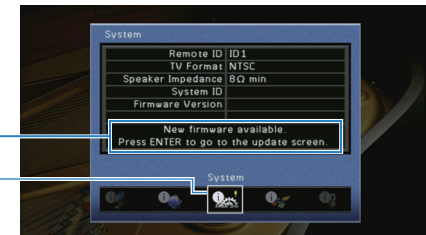
APPENDIX

Frequently asked questions

The new speaker system does not provide an ideal sound balance...

If you have changed speakers or have a new speaker system, use "Auto Setup" to optimize the speaker settings again (p.50). If you want to adjust the speaker settings manually, use "Manual Setup" in the "Setup" menu (p.114).

Since we have small children, we want to set limitations on the volume control...

If a small child accidentally operates the controls on the main unit or remote control, the volume may suddenly increase. This may also cause injury or damage the unit or speakers. We recommend using "Max Volume" in the "Setup" menu to set the maximum volume level for the unit in advance (p.118). You can also set the maximum volume for Zone2 or Zone3 (p.125).

I am occasionally startled by a sudden loud sound when turning on the unit...

By default, the volume level when the unit last entered standby mode is automatically applied. If you want to fix the volume, use "Initial Volume" in the "Setup" menu to set the volume to be applied when the receiver is turned on (p.119). You can also set the initial volume for Zone2 or Zone3 (p.125).

I made HDMI connections but HDMI Control does not work at all...

To use HDMI Control, you need to perform the HDMI Control link setup (p.158). After connecting HDMI Control-compatible devices (such as BD/DVD players) to the unit, enable HDMI Control on each device and perform the HDMI Control link setup. This setup is required every time you add a new HDMI Control-compatible device to your system. For information on how HDMI Control works between your TV and playback devices, refer to the instruction manuals for each device.

I want to turn off the on-screen messages displayed during operations...

By default, short messages are displayed on the TV screen when the unit is operated (such as input selection and volume adjustment). If the short messages bother you when you are watching movies or sports, configure "Short Message" (p.128) in the "Setup" menu to turn off the short messages.

I want to prevent accidental changes to the settings...

You can protect the settings configured on the unit (such as speaker settings) by utilizing "Memory Guard" in the "Setup" menu (p.129).

The unit's remote control is simultaneously controlling another Yamaha product as well as the unit...

When using multiple Yamaha products, the remote control may work on another Yamaha product or another remote control may work on the unit. If this happens, register different remote control IDs for the devices that you want to control with each remote control (p.133).

Troubleshooting

Refer to the table below when the unit does not function properly.

If the problem you are experiencing is not listed below or if the instructions below do not help, turn off the unit, disconnect the power cable, and contact the nearest authorized Yamaha dealer or service center.

First, check the following:

① **The power cables of the unit, TV and playback devices (such as BD/DVD players) are connected to AC wall outlets securely.**

② **The unit, subwoofer, TV and playback devices (such as BD/DVD players) are turned on.**

③ **The connectors of each cable are securely inserted in to jacks on each device.**

Power and system

Problem	Cause	Remedy
The power does not turn on.	The protection circuitry has been activated three times consecutively. When the unit is in this condition, the standby indicator on the unit blinks if you try to turn on the power.	As a safety precaution, capability to turn on the power is disabled. Contact your nearest Yamaha dealer or service center to request repair.
The power does not turn off.	The internal microcomputer has frozen, due to an external electric shock (such as lightning or excessive static electricity) or to a drop in the power supply voltage.	Hold down MAIN ZONE ⏻ on the front panel for more than 10 seconds to initialize and reboot the unit. (If the problem persists, disconnect the power cable from the AC wall outlet and plug it again.)
The power turns off (standby mode) immediately.	The unit was turned on while a speaker cable was shorted.	Twist the bare wires of each speaker cable firmly and reconnect to the unit and speakers (p.23).
The unit enters standby mode automatically.	The sleep timer worked.	Turn on the unit and start playback again.
	The auto-standby function kicked in because the unit was not used for the specified time.	To disable the auto-standby function, set "Auto Power Down" in the "Setup" menu to "Off" (p.130).
	The speaker impedance setting is incorrect.	Set the speaker impedance to match your speakers (p.133).
	The protection circuitry has been activated because of a short circuit.	Twist the bare wires of each speaker cable firmly and reconnect to the unit and speakers (p.23).
	The protection circuitry has been activated because the volume of the unit is too high.	Turn down the volume. If "ECO Mode" in the "Setup" menu is set to "On", set it to "Off" (p.130).
The unit is not reacting.	The internal microcomputer is frozen, due to an external electric shock (such as lightning or excessive static electricity) or to a drop in the power supply voltage.	Hold down MAIN ZONE ⏻ on the front panel for more than 10 seconds to initialize and reboot the unit. (If the problem persists, disconnect the power cable from the AC wall outlet and plug it again.)

Audio

Problem	Cause	Remedy
No sound.	Another input source is selected.	Select an appropriate input source with the input selection keys.
	Signals that the unit cannot reproduce are being input.	Some digital audio formats cannot be played back on the unit. To check the audio format of the input signal, use "Audio Signal" in the "Information" menu (p.131).
	The cable connecting the unit and playback device is defective.	If there is no problem with the connection, replace with another cable.
The volume cannot be increased.	The maximum volume is set.	Use "Max Volume" in the "Setup" menu to adjust the maximum volume (p.118).
	A device connected to the output jacks of the unit is not turned on.	Turn on all devices connected to the output jacks of the unit.
No sound is coming from a specific speaker.	The playback source does not contain a signal for the channel.	To check it, use "Audio Signal" in the "Information" menu (p.131).
	The currently selected sound program/decoder does not use the speaker.	To check it, use "Test Tone" in the "Setup" menu (p.117).
	Audio output of the speaker is disabled.	Perform "Auto Setup" (p.50) or use "Configuration" in the "Setup" menu to change the speaker settings (p.115).
	The volume of the speaker is set too low.	Perform "Auto Setup" (p.50) or use "Level" in the "Setup" menu to adjust the speaker volume (p.117).
	The speaker cable connecting the unit and the speaker is defective.	If there is no problem with the connection, replace with another speaker cable.
	The speaker is malfunctioning.	To check it, replace with another speaker. If the problem persists, the unit may be malfunctioning.
No sound is coming from the surround back speaker.	The extended surround is disabled.	Use "Extended Surround" in the "Option" menu to select a decoder to be used (p.100).
No sound is coming from the subwoofer.	The playback source does not contain LFE or low-frequency signals.	To check it, set "Extra Bass" in the "Setup" menu to "On", in order to output the front channel low-frequency components from the subwoofer (p.116).
	Subwoofer output is disabled.	Perform "Auto Setup" (p.50) or set "Subwoofer 1" or "Subwoofer 2" in the "Setup" menu to "Use" (p.116).
	The volume of the subwoofer is too low.	Adjust the volume on the subwoofer.
	The subwoofer has been turned off by its auto-standby function.	Disable the auto-standby function of the subwoofer or adjust its sensitivity level.
No sound from the playback device (connected to the unit with HDMI).	The TV does not support HDCP (High-bandwidth Digital Content Protection).	Refer to the instruction manuals for the TV and check the TV's specifications.
	The unit is set not to output audio input through HDMI jacks from the SPEAKERS terminals.	In "Audio Output" in the "Setup" menu, set "Amp" to "On" (p.122).
	The number of devices connected to the HDMI OUT jack exceeds the limit.	Disconnect some of the HDMI devices.

Problem	Cause	Remedy
No sound from the TV (when HDMI Control is used).	The TV is set to output audio from the TV speakers.	Change the audio output setting on your TV so that the TV audio is output from the speakers connected to the unit.
	(If the TV is connected to the unit with an audio cable) The TV audio input setting does not match the actual connection.	Use "TV Audio Input" in the "Setup" menu to select the correct audio input jack (p.122).
	(If you are trying to use ARC) ARC is disabled on the unit or TV.	Set "ARC" in the "Setup" menu to "On" (p.122). Also, enable ARC on the TV.
No sound from the Zone2 TV (connected to the unit with HDMI). (RX-A3020 only)	The audio output from the HDMI OUT 2 (ZONE OUT) jack is disabled.	Set "Audio Output" in the "Setup" menu to "On" (p.127).
Only the front speakers work on multichannel audio.	The playback device is set to output 2-channel audio (such as PCM) only.	To check it, use "Audio Signal" in the "Information" menu (p.131). If necessary, change the digital audio output setting on the playback device.
Noise/hum is heard.	The unit is too close to another digital or radio frequency device.	Move the unit further away from the device.
	The cable connecting the unit and playback device is defective.	If there is no problem with the connection, replace with another cable.
The sound is distorted.	The volume of the unit is too high.	Turn down the volume. If "ECO Mode" in the "Setup" menu is set to "On", set it to "Off" (p.130).
	A device connected to the unit's output jacks is not turned on.	Turn on all devices connected to the unit's output jacks.
The sound is interrupted. (RX-A3020 only)	If the HDMI OUT 2 (ZONE OUT) jack is assigned to Zone2 or Zone4, HDMI audio output may be interrupted during some zone operations due to internal circuitry switching.	For details, see "Connecting an HDMI-compatible device to play back videos/audio" (p.93).

Video

Problem	Cause	Remedy
No video.	Another input source is selected on the unit.	Select an appropriate input source with the input selection keys.
	Another input source is selected on the TV.	Switch the TV input to display the video from the unit.
	The video signal output from the unit is not supported by the TV.	Set "MONITOR CHECK" in the "ADVANCED SETUP" menu to "YES" (p.134).
	The cable connecting the unit and TV (or playback device) is defective.	If there is no problem with the connection, replace with another cable.
No video from the playback device (connected to the unit with HDMI).	The input video signal (resolution) is not supported by the unit.	To check the information about the current video signal (resolution), use "Video Signal" in the "Information" menu (p.131). For information about video signals supported by the unit, see "HDMI signal compatibility" (p.159).
	The TV does not support HDCP (High-bandwidth Digital Content Protection).	Refer to the instruction manuals for the TV and check the TV's specifications.
	The number of devices connected to the HDMI OUT jack is over the limit.	Disconnect some of the HDMI devices.
The menu of the unit is not displayed on the TV.	Another input source is selected on the TV.	Switch the TV input to display the video from the unit.
The video is interrupted. (RX-A3020 only)	If the HDMI OUT 2 (ZONE OUT) jack is assigned to Zone2 or Zone4, HDMI video output may be interrupted during some zone operations due to internal circuitry switching.	For details, see "Connecting an HDMI-compatible device to play back videos/audio" (p.93).

FM/AM radio

Problem	Cause	Remedy
FM radio reception is weak or noisy.	There is multi-path interference.	Adjust the FM antenna height or orientation, or place it in a different location.
	Your area is too far from the FM station transmitter.	(U.S.A. model only) Set "Audio Mode" in the "Option" menu to "Mono" to select monaural FM radio reception (p.102).
		(Except for U.S.A. model) Set "FM Mode" in the "Option" menu to "Mono" to select monaural FM radio reception (p.102).
		Use an outdoor FM antenna. We recommend using a sensitive multi-element antenna.
AM radio reception is weak or noisy.	The noises may be caused by fluorescent lamps, motors, thermostats, or other electrical equipment.	It is difficult to completely eliminate noise. It may be reduced by using an outdoor AM antenna.
Radio stations cannot be selected automatically.	Your area is too far from the FM station transmitter.	Select the station manually (p.69).
		Use an outdoor antenna. We recommend using a sensitive multi-element antenna.
	The AM radio signal is weak.	Adjust the AM antenna orientation.
		Select the station manually (p.69).
		Use an outdoor AM antenna. Connect it to the ANTENNA (AM) jack together with the supplied AM antenna.
AM radio stations cannot be registered as presets.	Auto Preset has been used.	Auto Preset is for registering FM radio stations and HD Radio station (U.S.A. model only) only. Register AM radio stations manually (p.70).
The unit does not receive HD Radio signals. (U.S.A. model only)	The unit is in the monaural reception mode.	Set "Audio Mode" in the "Option" menu to "Auto" (p.102).

USB and network

Problem	Cause	Remedy
The unit does not detect the USB device.	The USB device is not connected to the USB jack securely.	Turn off the unit, reconnect your USB device, and turn the unit on again.
	The file system of the USB device is not FAT16 or FAT32.	Use a USB device with FAT16 or FAT32 format.
Folders and files in the USB device cannot be viewed.	The data in the USB device is protected by the encryption.	Use a USB device without an encryption function.
The files in the USB device cannot be played back continuously.	Files not supported by the unit exist in the selected folder.	If the unit detects a series of unsupported files (such as images and hidden files) during playback, playback stops automatically. Do not store the unsupported files in the playback folder.
The network feature does not function.	The network parameters (IP address) have not been obtained properly.	Enable the DHCP server function on your router and set "DHCP" in the "Setup" menu to "On" on the unit (p.123). If you want to configure the network parameters manually, check that you are using an IP address which is not used by other network devices in your network (p.123).
The unit does not detect the PC.	The media sharing setting is not correct.	Configure the sharing setting and select the unit as a device to which music contents are shared (p.83).
	Some security software installed on your PC is blocking the access of the unit to your PC.	Check the settings of security software installed on your PC.
	The unit and PC are not in the same network.	Check the network connections and your router settings, and then connect the unit and the PC to the same network.
The files in the PC cannot be viewed or played back.	The files are not supported by the unit or the media server.	Use the file format supported by both the unit and the media server. For information about the file formats supported by the unit, see "Playing back music stored on media servers (PCs/NAS)" (p.83).
The files in the PC cannot be played back continuously.	Files not supported by the unit exist in the selected folder.	If the unit detects a series of unsupported files (such as images and hidden files) during playback, playback stops automatically. Do not store the unsupported files in the playback folder.
The Internet radio cannot be played.	The selected Internet radio station is currently not available.	There may be a network problem at the radio station, or the service may have been stopped. Try the station later or select another station.
	The selected Internet radio station is currently broadcasting silence.	Some Internet radio stations broadcast silence at certain of times of the day. Try the station later or select another station.
	Access to the network is restricted by the firewall settings of your network devices (such as the router).	Check the firewall settings of your network devices. The Internet radio can be played only when it passes through the port designated by each radio station. The port number varies depending on the radio station.

Remote control

Problem	Cause	Remedy
The unit cannot be controlled using the remote control.	The unit is out of the operating range.	Use the remote control within the operating range (p.5).
	The batteries are weak.	Replace with new batteries.
	The unit's remote control sensor is exposed to direct sunlight or strong lighting.	Adjust the lighting angle, or reposition the unit.
	The remote control is set to control external devices.	Press SOURCE/RECEIVER to set the remote control to control the unit (the key lights up in orange).
	The remote control IDs of the unit and the remote control are not identical.	Change the remote control ID of the unit or the remote control (p.133).
External devices cannot be controlled using the remote control.	The remote control is set to control the unit.	Press SOURCE/RECEIVER to set the remote control to control external devices (the key lights up in green).
	The corresponding remote control code is not set properly.	Set the remote control code again (p.136). Even if the remote control code is registered properly, some products may not respond to the remote control.
The remote control does not learn new functions.	The batteries of the remote control of the unit and/or the external device are weak.	Replace with new batteries.
	The distance between the two remote controls is not appropriate.	Place the remote controls at a proper distance (p.138).
	The signal coding or modulation of the other remote control is not compatible with the remote control.	Learning is impossible in this case.
	Memory capacity is full.	Clear unnecessary assignments to free some memory space for new functions (p.143).

Error indications on the front display

Message	Cause	Remedy
Access denied	Access to the PC is denied.	Configure the sharing settings and select the unit as a device to which music contents are shared (p.83).
Access error	The unit cannot access the USB device.	Turn off the unit and reconnect your USB device. If the problem persists, try another USB device.
	The unit cannot access the iPod.	Turn off the iPod and turn it on again.
	The connected iPod is not supported by the unit.	Use an iPod supported by the unit (p.76).
	There is a problem with the signal path from the network to the unit.	Make sure your router and modem are turned on.
		Check the connection between the unit and your router (or hub) (p.45).
Check SP Wires	The speaker cables short circuit.	Twist the bare wires of the cables firmly and connect to the unit and speakers properly.
Internal Error	An internal error has occurred.	Contact the nearest authorized Yamaha dealer or service center.
No content	There are no playable files in the selected folder.	Select a folder that contains files supported by the unit.
No device	The unit cannot detect the USB device.	Turn off the unit and reconnect your USB device. If the problem persists, try another USB device.
	The unit cannot detect the iPod.	Turn off the iPod and then turn it on again.
Please wait	The unit is preparing for connecting to the network.	Wait until the message disappears. If the message stays more than 3 minutes, turn off the unit and turn it on again.
RemID Mismatch	The remote control IDs of the unit and the remote control are not identical.	Change the remote control ID of the unit or the remote control (p.133).
Remote Off	The unit cannot be operated from remote control because the remote control sensor on the main unit is turned off.	Use the controls on the front panel. To use the remote control, set "REMOTE SENSOR" in the "ADVANCED SETUP" menu to "ON" (p.133).
Unable to play	The unit cannot play back the songs stored on the USB device for some reasons.	Check the song data. If it cannot be played on another device, the song data may be defective.
	The unit cannot play back the songs stored on the iPod for some reason.	Check the song data. If it cannot be played on the iPod itself, the song data or storage area may be defective.
	The unit cannot play back the songs stored on the PC for some reason.	Check if the format of files you are trying to play is supported by the unit. For information about the formats supported by the unit, see "Playing back music stored on media servers (PCs/NAS)" (p.83). If the unit supports the file format, but still cannot play back any files, the network may be overloaded with heavy traffic.
USB Overloaded	An overcurrent is flowing through the USB device.	Turn off the unit and reconnect your USB device. If the problem persists, try another USB device.

Glossary

Audio information

■ Audio decoding format

Dolby Digital

Dolby Digital is a compressed digital audio format developed by Dolby Laboratories, Inc. that supports 5.1-channel audio. This technology is used for audio on most DVD discs.

Dolby Digital EX

Dolby Digital EX creates total 6.1-channel audio from 5.1-channel sources that are recorded with Dolby Digital Surround EX. This decoder adds a surround back sound to the original 5.1-channel sound.

Dolby Digital Plus

Dolby Digital Plus is a compressed digital audio format developed by Dolby Laboratories, Inc. that supports 7.1-channel audio. Dolby Digital Plus remains fully compatible with the existing multichannel audio systems that support Dolby Digital. This technology is used for audio on BD (Blu-ray discs).

Dolby Pro Logic II

Dolby Pro Logic II enables 5-channel playback from 2-channel sources. There are three modes available: "Music mode" for music sources, "Movie mode" for movie sources, and "Game mode" for game sources.

Dolby Pro Logic IIx

Dolby Pro Logic IIx enables 7-channel playback from 2-channel or multichannel sources. There are three modes available: "Music mode" for music sources, "Movie mode" for movie sources and "Game mode" for game sources (for 2-channel sources only).

Dolby TrueHD

Dolby TrueHD is an advanced lossless audio format developed by Dolby Laboratories, Inc. to offer a high-definition home theater experience with the quality of the studio master. Dolby TrueHD can carry up to eight channels of 96 kHz/24-bit audio (up to six channels of 192 kHz/24-bit audio) simultaneously. This technology is used for audio on BD (Blu-ray discs).

DTS 96/24

DTS 96/24 is a compressed digital audio format that supports 5.1-channel and 96 kHz/24-bit audio. This format remains fully compatible with the existing multichannel audio systems that support DTS Digital Surround. This technology is used for music DVDs, etc.

DTS Digital Surround

DTS Digital Surround is a compressed digital audio format developed by DTS, Inc. that supports 5.1-channel audio. This technology is used for audio on most DVD discs.

DTS-ES

DTS-ES creates total 6.1-channel audio from 5.1-channel sources that are recorded with DTS-ES. This decoder adds a surround back sound to the original 5.1-channel sound. In the DTS-ES Matrix 6.1 format, a surround back sound is recorded in the surround channels, and in the DTS-ES Discrete 6.1 format, a discrete surround back channel is recorded.

DTS Express

DTS Express is a compressed digital audio format that supports 5.1-channel audio and allows a higher compression rate than the DTS Digital Surround format developed by DTS, Inc. This technology is developed for audio streaming services on the Internet and secondary audio on BD (Blu-ray discs).

DTS-HD High Resolution Audio

DTS-HD High Resolution Audio is a compressed digital audio format developed by DTS, Inc. that supports 7.1-channel and 96 kHz/24-bit audio. DTS-HD High Resolution Audio remains fully compatible with the existing multichannel audio systems that support DTS Digital Surround. This technology is used for audio on BD (Blu-ray discs).

DTS-HD Master Audio

DTS-HD Master Audio is an advanced lossless audio format developed to offer a high-definition home theater experience with the quality of the studio master by DTS, Inc. DTS-HD Master Audio can carry up to eight channels of 96 kHz/24-bit audio (up to six channels of 192 kHz/24-bit audio) simultaneously. This technology is used for audio on BD (Blu-ray discs).

DTS Neo:6

DTS Neo:6 enables 6-channel playback from 2-channel sources. There are two modes available: "Music mode" for music sources and "Cinema mode" for movie sources. This technology provides discrete full-bandwidth matrix channels of surround sound.

DSD (Direct Stream Digital)

DSD (Direct Stream Digital) technology stores audio signals on digital storage media, such as SACD (Super Audio CDs). The signals are stored at a high-frequency sampling rate of 2.8224 MHz. The highest frequency response is equal to or higher than 100 kHz, with a dynamic range of 120 dB. This technology offers better audio quality than that used for CDs.

FLAC

FLAC is a file format for lossless audio data compression. FLAC is inferior to lossy compressed audio formats in compression rate but provides higher audio quality.

MP3

One of the compressed digital audio format used by MPEG. With psychoacoustic technologies, this compression method achieves a high compression rate. Reportedly, it is capable of compressing data quantity by about 1/10 maintaining a certain level of audio quality.

MPEG-4 AAC

An MPEG-4 audio standard. It is used for mobile telephones, portable audio players, and audio streaming services on Internet because it allows a high compression rate of data while maintaining better audio quality than MP3.

PCM (Pulse Code Modulation)

PCM is a signal format under which an analog audio signal is digitized, recorded, and transmitted. This technology is the basis of all other audio format. This technology is used as a lossless audio format called Linear PCM for audio on a variety of media, including CDs and BD (Blu-ray discs).

Sampling frequency/Quantization bit

Sampling frequency and quantization bits indicate the quantity of information when an analog audio signal is digitized. These values are noted as in the following example: "48 kHz/24-bit".

• Sampling frequency

Sampling frequency (the number of times the signal is sampled per second) is called the sampling rate. When the sampling frequency is higher, the range of frequencies that can be played back are wider.

• Quantization bit

The number of quantization bits indicate the degree of accuracy when converting the sound level into a numeric value. When the number of quantized bits is higher, the expression of the sound level is more accurate.

WAV

Windows standard audio file format, which defines the method of recording the digital data obtained by converting audio signals. By default, the PCM method (no compression) is used, but you can also use other compression methods.

WMA (Windows Media Audio)

One of the compressed digital audio formats developed by Microsoft Corporation. With psychoacoustic technologies, this compression method achieves a high compression rate. Reportedly, it is capable of compressing data quantity by about 1/20 maintaining a certain level of audio quality.

■ Others

Bi-amplification connection (Bi-amp)

A bi-amplification connection uses two amplifiers for a speaker. When you use the bi-amplification connection, the unit drives the tweeter and woofer in a speaker with the discrete amplifiers. As a consequence, the tweeter and woofer provide clear audio signal without the interference.

LFE (Low Frequency Effects) 0.1 channel

This channel reproduces low-frequency bass signals and has a frequency range from 20 Hz to 120 Hz. This channel is added to the channels for all bands with Dolby Digital or DTS to enhance low frequency audio effects. This channel is labeled 0.1 because it is limited to only low frequency audio.

Lip sync

Video output sometimes lags behind audio output due to the complexity of signal processing caused by an increase in video signal capacity. Lip sync is a technique for automatically correcting the timing lag between audio and video output.

HDMI and video information

Component video signal

With the component video signal system, the video signal is separated into the Y signal for luminance and the Pb and Pr signals for chrominance. Color can be reproduced more faithfully with this system because each of these signals is independent.

Composite video signal

With the composite video signal system, color, brightness, and synchronization data signals are combined and transmitted with a single cable.

Deep Color

Deep Color is a technology that HDMI specification supports. Deep Color increases the number of available colors within the boundaries defined by the RGB or YCbCr color space. Conventional color systems process the color using 8 bits. Deep Color processes the color with 10, 12, or 16 bits. This technology allows HDTVs and other displays to increase from millions of colors to billions of colors and eliminate on-screen color banding for smooth tonal transitions and subtle gradations between colors.

HDMI

HDMI (High-Definition Multimedia Interface) is the world-wide standard interface for digital audio/video signal transmission. This interface transmits both digital audio and digital video signals using a single cable without any loss. HDMI complies with HDCP (High-bandwidth Digital Content Protection) and provides a secure audio/video interface. For further information on HDMI, visit the HDMI website at "http://www.hdmi.org/".

S-video signal

With the S-video signal system, the video signal is separated into the Y signal for the luminance and the C signal for the chrominance through the S-video cable. This technology achieves more accurate color reproduction than the composite video signal system.

x.v.Color

"x.v.Color" is a technology that the HDMI specification supports. It is a more extensive color space than sRGB and allows the expression of colors that were not hitherto possible. While remaining compatible with the color gamut of sRGB standards, "x.v.Color" expands the color space, and thus can produce more vivid, natural images.

Yamaha technologies

CINEMA DSP (Digital Sound Field Processor)

Since the Dolby Surround and DTS systems were originally designed for use in movie theaters, their effect is best experienced in a theater that has many speakers designed for acoustic effects. Since home conditions (such as room size, wall material, and number of speakers) can differ so widely, it is inevitable that there are differences in the sound that you hear. Based on a wealth of actually measured data, CINEMA DSP, Yamaha's original DSP technology provides the audiovisual experience of a movie theater in your own home.

CINEMA DSP 3D

The actually measured sound field data contain the information of the height of the sound images. CINEMA DSP 3D mode achieves the reproduction of the accurate height of the sound images so that it creates the accurate and intensive 3D sound fields in a listening room.

CINEMA DSP HD³

The actually measured sound field data contain the information of the height of the sound images. CINEMA DSP HD³ feature achieves the reproduction of the accurate height of the sound images so that it creates the accurate and intensive stereoscopic sound fields in a listening room.

Compressed Music Enhancer

The Compressed Music Enhancer feature compensates for missing harmonics in compression music formats (such as MP3). As a result, this technology provides improved performance for the overall sound system.

SILENT CINEMA

Yamaha has developed a natural, realistic sound effect DSP algorithm for headphones. Parameters for headphones have been set for each sound program, so that accurate representations of all the sound programs can be enjoyed on headphones.

Virtual CINEMA DSP

Virtual CINEMA DSP allows the system to virtually reproduce the sound field of the surround speakers with front left and right speakers. Even if the surround speakers are not connected, the unit creates the realistic sound field in a listening room.

Video signal flow

Video signals input from a video device to the unit are output to a TV as shown below.
→ (solid line) is always available. ⇢ (dotted line) is available only when "Analog to Analog Conversion" (p.119) in the "Setup" menu is set to "On" (default).
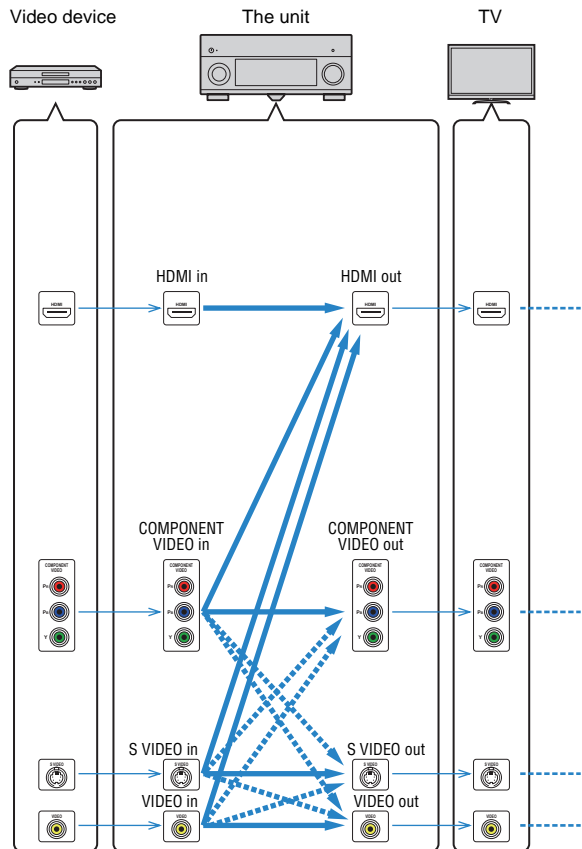
■ Video conversion table

💡
- You can select the resolution and the aspect ratio applied to HDMI-output video processing in "Video Mode" (p.119) in the "Setup" menu.
- The unit does not convert 480-line and 576-line video signals interchangeably.

		HDMI out						COMPONENT VIDEO out					S VIDEO out	VIDEO out
	Resolution	480i/576i	480p/576p	720p	1080i	1080p	4K	480i/576i	480p/576p	720p	1080i	1080p	480i/576i	480i/576i
HDMI in	480i/576i	→	→	→	→	→	→							
	480p/576p		→	→	→	→	→							
	720p		→	→	→	→	→							
	1080i		→	→	→	→	→							
	1080p/ 50, 60 Hz		→	→	→	→	→							
	1080p/24 Hz				→	→								
	4K						→							
COMPONENT VIDEO in	480i/576i	→	→	→	→	→	→	→					⇢	⇢
	480p/576p		→	→	→	→	→		→					
	720p		→	→	→	→	→			→				
	1080i		→	→	→	→	→				→			
	1080p											→		
S VIDEO in	480i/576i	→	→	→	→	→	→	⇢					→	⇢
VIDEO in	480i/576i	→	→	→	→	→	→	⇢					⇢	→

Multi-zone output

■ RX-A3020

❏ Audio output

In \ Out	Using the unit's internal amplifier (p.32) EXTRA SP 1–2 jacks		Using an external amplifier (p.91) ZONE OUT/PRE OUT jacks		HDMI OUT 2 (ZONE OUT) jack	
	Zone2	Zone3	Zone2	Zone3	Zone2 (*1)	Zone4 (*2)
Digital audio (HDMI)	→ (*3)		→ (*3)		→ (*3)	→ (*4)
Digital audio (COAXIAL/OPTICAL)	→ (*5)		→ (*5)		→ (*5)	
Analog audio (AUDIO)	→	→	→	→	→	
USB (including iPod)	→	→	→	→	→	
Network sources	→	→	→	→	→	
TUNER	→	→	→	→	→	

→ : Available

*1 Available when "HDMI OUT2 Assign" (p.127) in the "Setup" menu is set to "Zone2" (Audio Output: On)
*2 Available when "HDMI OUT2 Assign" (p.127) in the "Setup" menu is set to "Zone4"
*3 Available when 2-channel PCM signals are input (stereo output [down mixed to 2-channels] when the input source selected in the main zone is selected)
*4 HDMI audio pass-through (stereo output [down mixed to 2-channels] when the input source selected in the main zone is selected)
*5 Available when 2-channel PCM signals are input

❏ Video output

In \ Out	MONITOR OUT/ZONE OUT jacks (*6) COMPONENT VIDEO	S VIDEO	VIDEO	HDMI OUT 2 (ZONE OUT) jack (*7)	
	Zone2/3	Zone2/3	Zone2/3	Zone2	Zone4
HDMI video				→	→
Component video	→				
S-video		→			
Composite video			→		
On-screen display (browse/playback)	→ (*8)	→ (*8)	→ (*8)	→	

→ : Available

*6 Available when "Monitor Out Assign" (p.126) in the "Setup" menu is set to "Zone2" or "Zone3"
*7 Available when "HDMI OUT2 Assign" (p.127) in the "Setup" menu is set to "Zone2" or "Zone4"
*8 Not available in Zone3 when "HDMI OUT2 Assign" (p.127) in the "Setup" menu is set to "Zone2"

■ RX-A2020

❏ Audio output

In \ Out	Using the unit's internal amplifier (p.32) EXTRA SP 1–2 jacks		Using an external amplifier (p.91) ZONE OUT jacks	
	Zone2	Zone3	Zone2	Zone3
Digital audio (HDMI)				
Digital audio (COAXIAL/OPTICAL)				
Analog audio (AUDIO)	→	→	→	→
USB (including iPod)	→	→	→	→
Network sources	→	→	→	→
TUNER	→	→	→	→

→ : Available

* To listen to the playback of an external device in Zone2 or Zone3, connect the device to the AUDIO jacks of the unit with a stereo pin cable.

❏ Video output

In \ Out	MONITOR OUT/ZONE OUT jacks COMPONENT VIDEO	S VIDEO	VIDEO
	Zone2/3	Zone2/3	Zone2/3
HDMI video			
Component video	→		
S-video		→	
Composite video			→
On-screen display (browse/playback)	→	→	→

→ : Available

* To watch videos in Zone2 or Zone3, set "Monitor Out Assign" (p.126) in the "Setup" menu is set to "Zone2" or "Zone3".

Information on HDMI

HDMI Control

HDMI Control allows you to operate external devices via HDMI. If you connect a TV that supports HDMI Control to the unit with an HDMI cable, you can control the unit (such as power and volume) with TV remote control operations. You can also control playback devices (such as HDMI Control-compatible BD/DVD players) connected to the unit with an HDMI cable.

For details on connections, see "Connecting a TV" (p.35) and "Connecting video devices (such as BD/DVD players)" (p.41).

Operations available from the TV's remote control

- Standby synchronization
- Volume control including mute
- Switching to input audio from the TV when the TV input is switched to its built-in tuner
- Switching to input video/audio from the selected playback device
- Switching between audio output devices (the unit or TV speaker)

(Example)

HDMI Control   HDMI Control

Playback device also turns off — The unit turns off (standby) — Turn off the TV
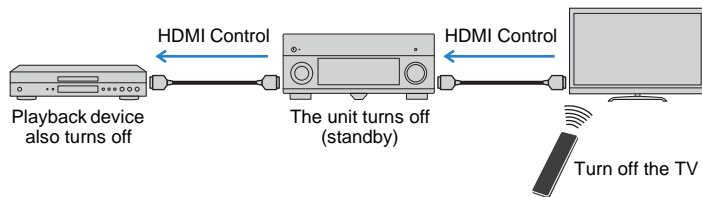
Operations available from the unit's remote control

- Starting playback on the playback device and turning on the TV with a scene selection (p.61)
- Switching the TV input to display the on-screen menu (when ON SCREEN is pressed)
- Controlling the playback device (playback and menu operations) without registering remote control codes (p.137)

(Example)

HDMI Control   HDMI Control

Playback starts   Turns on and displays video from the playback device

Press SCENE (BD/DVD)
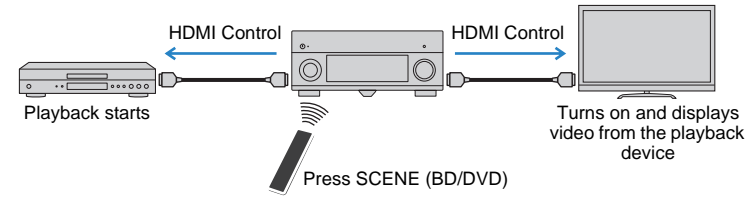
To use HDMI Control, you need to perform the following HDMI Control link setup after connecting the TV and playback devices.

!

- This setup is required every time you add a new HDMI Control-compatible device to your system.

1 Turn on the unit, TV, and playback devices.

2 Enable HDMI Control on the unit, TV, and playback devices (such as HDMI Control-compatible BD/DVD players).

To enable HDMI Control on the unit, set "HDMI Control" (p.122) in the "Setup" menu to "On" and configure the related items ("TV Audio Input", "ARC", and "Standby Sync").

3 Turn off the main power of the TV and then turn off the unit and playback devices.

4 Turn on the unit and playback devices and then turn on the TV.

5 Switch the TV input to display the video from the unit.

6 Check the followings.

On the unit: The input to which the playback device is connected is selected. If not, select the input source manually.

On the TV: The video from the playback device is displayed.

7 **Check that the unit is properly synchronized with the TV by turning off the TV or adjusting the TV volume with the TV remote control.**

!

• If HDMI Control does not work properly, try unplugging the TV in Step 3 and plugging in the TV again in Step 4. It may solve the problem. Also, HDMI Control may not work if the number of connected devices exceeds the limit. In this case, disable HDMI Control on the devices not in use.

• If the unit is not synchronized to the TV's power operations, check the priority of the audio output setting on the TV.

• We recommend using TV and playback devices from the same manufacturer so that HDMI Control works more effectively.

HDMI signal compatibility

Audio signals

Audio signal type	Audio signal format	Compatible media (example)
2ch Linear PCM	2ch, 32 to 192 kHz, 16/20/24 bit	CD, DVD-Video, DVD-Audio
Multichannel Linear PCM	8ch, 32 to 192 kHz, 16/20/24 bit	DVD-Audio, BD (Blu-ray disc), HD DVD
DSD	2 to 5.1ch, 2.8224 MHz, 1 bit	SACD
Bitstream	Dolby Digital, DTS	DVD-Video
Bitstream (High definition audio)	Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio, DTS-HD High Resolution Audio, DTS Express	BD (Blu-ray disc), HD DVD

Video signals

The unit is compatible with the video signals of the following resolutions:

• VGA
• 480i/60 Hz
• 576i/50 Hz
• 480p/60 Hz
• 576p/50 Hz

• 720p/60 Hz, 50 Hz
• 1080i/60 Hz, 50 Hz
• 1080p/60 Hz, 50 Hz, 24 Hz
• 4K/30 Hz, 25 Hz, 24 Hz

!

• When CPPM copy-protected DVD-Audio is played back, video/audio signals may not be output, depending on the type of the DVD player.

• The unit is not compatible with HDCP-incompatible HDMI or DVI devices. For details, refer to the instruction manual for each device.

• To decode audio bitstream signals on the unit, set the input source device appropriately so that the device outputs the bitstream audio signals directly (does not decode the bitstream signals on the playback device). For details, refer to the instruction manual for the playback device.

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dts-HD Master Audio

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Made for iPod iPhone iPad / AirPlay

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Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards.
Please note that the use of this accessory with iPod, iPhone, or iPad may affect wireless performance.

AirPlay, the AirPlay logo, iPad, iPhone, iPod, iPod nano, and iPod touch are trademarks of Apple Inc., registered in the U.S. and other countries.

Fraunhofer Institut Integrierte Schaltungen

MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and Thomson.

Network

This receiver supports network connections.

HD Radio

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Specifications

Input jacks

- Analog Audio
  Audio x 10 (AV 1–4, AUDIO 1–4, PHONO, V-AUX)
  MULTI CH INPUT x 1 (8 ch)
  (FRONT L/R, CENTER, SURROUND L/R,
  SURROUND BACK L/R, SUBWOOFER)

- Digital Audio (Supported frequencies: 32 kHz to 96 kHz)
  Optical x 4 (AV 3–4, AUDIO 1, V-AUX)
  Coaxial x 3 (AV 1–2, AUDIO 2)

- Video
  Composite x 5 (AV 1–4, V-AUX)
  S-video x 4 (AV 1–4)
  Component x 4 (AV 1–4)

- HDMI Input
  HDMI x 8 (AV 1–7, V-AUX)

- Other
  USB x 1 (USB2.0)
  NETWORK x 1 (100Base-TX/10Base-T)

Output jacks

- Analog Audio
  - Speaker Out x 11 (9 ch) (FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK L/R, EXTRA SP 1 L/R[*1], EXTRA SP 2 L/R[*2])
    *1 Note: Assignment is possible
        [ZONE2, ZONE3, F.PRESENCE, BI-AMP (FRONT L/R)]
    *2 Note: Assignment is possible
        [ZONE2, ZONE3, R.PRESENCE]
  - Subwoofer Out x 2
    (SUBWOOFER 1–2, Stereo/Front&Rear/Monox2)
  - Audio x 1 (AV OUT)

  [RX-A3020]
  - Pre Out x 11 (FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK L/R, F.PRESENCE L/R[*3], R.PRESENCE L/R[*4])
    *3 Note: barter to ZONE2
    *4 Note: barter to ZONE3

  [RX-A2020]
  - Pre Out x 7 (FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK L/R)
  - ZONE OUT x 2 (ZONE2/ZONE3)

- Digital Audio
  Optical x 1 (AV OUT)

- Video
  MONITOR OUT/ZONE OUT
  - Composite x 1
  - S-video x 1
  - Component x 1
  AV OUT
  - Composite x 1
  - S-video x 1

- HDMI Output
  HDMI OUT x 2 (HDMI OUT 1–2[*5])
    *5 [RX-A3020 only] barter to ZONE OUT (ZONE2/ZONE4)

Other jacks

- REMOTE IN x 2
- REMOTE OUT x 2
- TRIGGER OUT x 2
- RS-232C x 1
- DC OUT x 1

HDMI

- HDMI Specification: Deep Color, "x.v.Color," Auto Lip Sync, ARC (Audio Return Channel), 3D, 4K

- Video Format (Repeater Mode)
  - VGA
  - 480i/60 Hz
  - 576i/50 Hz
  - 480p/60 Hz
  - 576p/50 Hz
  - 720p/60 Hz, 50 Hz
  - 1080i/60 Hz, 50 Hz
  - 1080p/60 Hz, 50 Hz, 24 Hz
  - 4K/30 Hz, 25 Hz, 24 Hz

- Audio Format
  - Dolby TrueHD
  - Dolby Digital Plus
  - Dolby Digital
  - DTS-HD Master Audio
  - DTS-HD High Resolution Audio
  - DTS Express
  - DTS
  - DSD 6-ch
  - PCM 2-ch to 8-ch (Max. 192 kHz/24-bit)

- Content Protection: HDCP compatible

- Link Function: CEC supported

TUNER

- Analog Tuner
  [U.K. and Europe models]
  FM/AM with Radio Data System x 1 (TUNER)
  [Other models]
  FM/AM x 1 (TUNER)

- HD Radio tuner [U.S.A. model] x 1 (TUNER)

USB

- Capable of iPod, Mass Storage Class USB Memory
- Current Supply Capacity: 2.1 A

Network

- PC Client Function
- Compatible with DLNA ver. 1.5
- AirPlay supported
- Internet Radio

Compatible Decoding Formats

- Decoding Format
  - Dolby TrueHD, Dolby Digital Plus
  - Dolby Digital, Dolby Digital EX
  - DTS-HD Master Audio, DTS-HD High Resolution Audio, DTS Express
  - DTS, DTS 96/24, DTS-ES Matrix 6.1, DTS-ES Discrete 6.1
  - DTS Digital Surround

- Post Decoding Format
  - 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

Audio Section

- Rated Output Power (2-channel driven)

  [RX-A3020]

  (20 Hz to 20 k Hz, 0.06% THD, 8 Ω)

  Front L/R .... 150 W+150 W
  Center .... 150 W
  Surround L/R .... 150 W+150 W
  Surround Back L/R .... 150 W+150 W
  Front Presence L/R .... 150 W+150 W

  (1 k Hz, 0.9% THD, 8 Ω)

  Front L/R .... 165 W+165 W
  Center .... 165 W
  Surround L/R .... 165 W+165 W
  Surround Back L/R .... 165 W+165 W
  Front Presence L/R .... 165 W+165 W

  [RX-A2020]

  (20 Hz to 20 k Hz, 0.06% THD, 8 Ω)

  Front L/R .... 140 W+140 W
  Center .... 140 W
  Surround L/R .... 140 W+140 W
  Surround Back L/R .... 140 W+140 W
  Front Presence L/R .... 140 W+140 W

  (1 k Hz, 0.9% THD, 8 Ω)

  Front L/R .... 155 W+155 W
  Center .... 155 W
  Surround L/R .... 155 W+155 W
  Surround Back L/R .... 155 W+155 W
  Front Presence L/R .... 155 W+155 W

- Rated Output Power (1-channel driven)

  [RX-A3020]

  (1 k Hz, 0.9% THD, 8 Ω)

  Front L/R .... 185 W/ch
  Center .... 185 W/ch
  Surround L/R .... 185 W/ch
  Surround Back L/R .... 185 W/ch
  Front Presence L/R .... 185 W/ch

  (1 k Hz, 0.9% THD, 4 Ω)

  Front L/R [U.K. and Europe models] .... 230 W/ch

  [RX-A2020]

  (1 k Hz, 0.9% THD, 8 Ω)

  Front L/R .... 175 W/ch
  Center .... 175 W/ch
  Surround L/R .... 175 W/ch
  Surround Back L/R .... 175 W/ch
  Front Presence L/R .... 175 W/ch

  (1 k Hz, 0.9% THD, 4 Ω)

  Front L/R [U.K. and Europe models] .... 220 W/ch

- Maximum Effective Output Power (1-channel driven)

  (JEITA, 1 kHz, 10% THD, 8 Ω)

  [China, Korea, Asia and General models]

  [RX-A3020]

  Front L/R .... 230 W/ch
  Center .... 230 W/ch
  Surround L/R .... 230 W/ch
  Surround Back L/R .... 230 W/ch
  Front Presence L/R .... 230 W/ch

  [RX-A2020]

  Front L/R .... 220 W/ch
  Center .... 220 W/ch
  Surround L/R .... 220 W/ch
  Surround Back L/R .... 220 W/ch
  Front Presence L/R .... 220 W/ch

- Dynamic Power (IHF)

  [RX-A3020]

  Front L/R (8/6/4/2 Ω) .... 175/220/295/410 W

  [RX-A2020]

  Front L/R (8/6/4/2 Ω) .... 165/210/285/405 W

- Damping Factor

  Front L/R, 1 kHz, 8 Ω .... 150 or more

- Input Sensitivity / Input Impedance

  PHONO (1 kHz, 100 W/8 Ω) .... 3.5 mV/47 kΩ
  AUDIO 2 etc. (1 kHz, 100 W/8 Ω) .... 200 mV/47 kΩ

- Maximum Input Signal

  PHONO (1 kHz, 0.5% THD) .... 60 mV or more
  AUDIO 2 etc. (1 kHz, 0.5% THD) .... 2.4 V or more

- Output Level / Output Impedance

  AV OUT .... 200 mV/1.2 kΩ
  HEADPHONE OUT .... 150 mV/100 Ω
  PRE OUT
    SUBWOOFER (50 Hz) .... 1.0 V/1.2 kΩ
    Except SUBWOOFER (1 kHz) .... 1.0 V/1.2 kΩ
  ZONE OUT .... 1.0 V/1.2 kΩ

- Frequency Response

  AUDIO 2 etc. (10 Hz to 100 kHz) .... +0/-3 dB

- RIAA Equalization Deviation
  PHONO (20 Hz to 20 kHz)..0±0.5 dB

- Total Harmonic Distortion
  PHONO to AV OUT ....0.02% or less
  MULTI CH INPUT to Speaker Out (Pure Direct, 70 W, 8 Ω)
  ....0.04% or less

- Signal to Noise Ratio (IHF-A Network)
  PHONO to AV OUT (Input Shorted 5 mV)
  [U.S.A., Canada, China and General models] ...86 dB or more
  [Other models]..81 dB or more
  AUDIO 2 etc. to Speaker Out (Pure Direct, Input Shorted 250 mV)
  ....100 dB or more

- Residual Noise (IHF-A Network)
  Front L/R (Speaker Out).....................................150 µV or less

- Channel Separation
  PHONO (Input Shorted, 1 kHz/10 kHz) ...60 dB/55 dB or more
  AUDIO 2 etc. (Input 5.1 kΩ Shorted, 1 kHz/10 kHz)
  ....60 dB/45 dB or more

- Volume Control
  Main Zone.................MUTE, -80 dB to +16.5 dB (0.5 dB Step)
  Zone2/Zone3 ....MUTE, -80 dB to +16.5 dB (0.5 dB Step)

- Tone Control Characteristics
  Main Zone
    Bass Boost/Cut ....±6.0 dB/50 Hz (0.5 dB Step)
    Bass Turnover ....350 Hz
    Treble Boost/Cut ....±6.0 dB/20 kHz (0.5 dB Step)
    Treble Turnover ....3.5 kHz
  Zone2/Zone3
    Bass Boost/Cut ....±10 dB/50 Hz (2 dB Step)
    Bass Turnover ....350 Hz
    Treble Boost/Cut ....±10 dB/50 Hz (2 dB Step)
    Treble Turnover ....3.5 kHz

- Filter Characteristics
  (fc=40/60/80/90/100/110/120/160/200 Hz)
  H.P.F. (Front, Center, Surround, Surround Back: Small)
  ....12 dB/oct.
  L.P.F. (Subwoofer)..24 dB/oct.

Video Section

- Video Signal Type
  [U.S.A., Canada, Korea and General models]................ NTSC
  [Other models] .... PAL

- Video Signal Type (Video Conversion).....................NTSC/PAL

- Video Signal Level
  Composite ....1 Vp-p/75 Ω
  S-video
    Y ....1 Vp-p/75 Ω
    C (NTSC) [U.S.A., Canada, Korea and General models]
    ....0.286 Vp-p/75 Ω
    C (PAL) [Other models] ....0.3 Vp-p/75 Ω
  Component
    Y ....1 Vp-p/75 Ω
    Pb/Pr...0.7 Vp-p/75 Ω

- Video Maximum Input Level (Video Conversion Off)
  ....1.5 Vp-p or more

- Signal to Noise Ratio (Video Conversion Off).....60 dB or more

- Monitor Out Frequency Response (Video Conversion Off)
  Component (MONITOR OUT/ZONE OUT)
  ....5 Hz to 100 MHz, ±3 dB

FM Section

- Tuning Range
  [U.S.A. and Canada models] .... 87.5 MHz to 107.9 MHz
  [Asia and General models]
  ....87.5/87.50 MHz to 108.0/108.00 MHz
  [Other models] .... 87.50 MHz to 108.00 MHz

- 50 dB Quiet Sensitivity (IHF, 1 kHz, 100% MOD.)
  Mono ....3 µV (20.8 dBf)

- Signal to Noise Ratio (IHF)
  Mono/Stereo [except U.S.A. model] ....72 dB/70 dB
  HD [U.S.A. model].. 80 dB

- Harmonic Distortion (IHF, 1 kHz)
  Mono/Stereo [except U.S.A. model] 0.3%/0.5%
  HD [U.S.A. model]...0.03%

- Antenna Input.. 75 Ω unbalanced

AM section

- Tuning Range
  [U.S.A. and Canada models]...................530 kHz to 1710 kHz
  [Asia and General models] ......530/531 kHz to 1710/1611 kHz
  [Other models].......................................531 kHz to 1611 kHz

General

- Power Supply
  [U.S.A. and Canada models].........................AC 120 V, 60 Hz
  [General model]............AC 110 to 120/220 to 240 V, 50/60 Hz
  [China model] ....AC 220 V, 50 Hz
  [Korea model] ....AC 220 V, 60 Hz
  [Australia model]...AC 240 V, 50 Hz
  [U.K. and Europe models] ....AC 230 V, 50 Hz
  [Asia model]..................................AC 220 to 240 V, 50/60 Hz

- Power Consumption
  [U.S.A. model]...490 W/620 VA
  [Canada model]...400 W/510 VA
  [Korea model] ....390 W
  [Other models] ....490 W

- Standby Power Consumption
  HDMI Control Off, Standby Through Off .... 0.3 W (Typical)
  HDMI Control On, Standby Through On .... 5.0 W (Typical)
  HDMI Control Off, Standby Through On (AV 1, No Signals)
  .... 4.2 W (Typical)
  Network Standby On.. 2.2 W (Typical)

- Maximum Power Consumption
  [Asia and General models].. 1210 W

- Dimensions (W x H x D)
  ....435 x 192 x 467 mm (17-1/8" x 7-1/2" x 18-3/8")

- Weight
  [RX-A3020]
    [China, U.K. and Europe models].............. 19.9 kg (43.9 lbs)
    [Other models] .... 18.2 kg (40.1 lbs)
  [RX-A2020]... 17.1 kg (37.7 lbs)

* Specifications are subject to change without notice.

Index

YAMAHA

UC

English

FCC INFORMATION (for US customers)

1 IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!
This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2 IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3 NOTE: This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices.
This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America A/V Division, USA. 6660 Orangethorpe Ave., Buena Park, CA 90620.

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

COMPLIANCE INFORMATION STATEMENT (DECLARATION OF CONFORMITY PROCEDURE)

Responsible Party: Yamaha Corporation of America A/V Division

Address: 6660 Orangethorpe Avenue Buena Park, CA 90620

Telephone: 714-522-9011

Type of Equipment: AV Receiver

Model Name: RX-A3020/RX-A2020/RX-A1020/RX-A820/RX-A720/
                  RX-V3073/RX-V2073/RX-V1073/RX-V773/RX-V673/RX-V573/RX-V473/
                  HTR-7065/HTR-6065/HTR-5065/HTR-4065

- This device complies with Part 15 of the FCC Rules.
- Operation is subject to the following conditions:
  – This device may not cause harmful interference.
  – This device must accept any interference received including interference that may cause undesired operation.

See the Troubleshooting section at the end of the Owner's Manual on the supplied CD-ROM if interference to radio reception is suspected.

INFORMATION DE LA FCC (pour les clients résidant aux États-Unis)

1 AVIS IMPORTANT : NE PAS APPORTER DE MODIFICATIONS À CET APPAREIL !
Cet appareil est conforme aux exigences de la FCC s'il est installé selon les instructions du mode d'emploi. Toute modification non approuvée expressément par Yamaha peut invalider l'autorisation de la FCC d'utiliser cet appareil.

2 IMPORTANT : N'utiliser que des câbles blindés de haute qualité pour le raccordement de cet appareil à des accessoires et/ou à un autre appareil. Seuls le ou les câbles fournis avec le produit DOIVENT être utilisés. Suivre les instructions concernant l'installation. Le non respect des instructions peut invalider l'autorisation, accordée par la FCC, d'utiliser ce produit aux États-Unis.

3 REMARQUE : Cet appareil a été testé et déclaré conforme aux normes relatives aux appareils numériques de Classe « B », telles que fixées dans l'Article 15 de la Réglementation FCC. Ces normes sont destinées à assurer une protection suffisante contre les interférences nuisibles avec d'autres appareils électroniques dans une installation résidentielle. Cet équipement génère et utilise des fréquences radio qui, en cas d'installation et d'utilisation non conformes aux instructions du mode d'emploi, peuvent être à l'origine d'interférences empêchant d'autres appareils de fonctionner.

Cependant, la conformité à la Réglementation FCC ne garantit pas l'absence d'interférences dans une installation particulière. Si cet appareil devait produire des interférences, ce qui peut être déterminé en « ÉTEIGNANT », puis en « RALLUMANT » l'appareil, l'utilisateur est invité à essayer de corriger le problème d'une des manières suivantes :

Réorienter cet appareil ou le dispositif affecté par les interférences.

Utiliser des prises d'alimentation branchées sur différents circuits (avec interrupteur de circuit ou fusible) ou installer un ou des filtres pour ligne secteur.

Dans le cas d'interférences radio ou TV, changer de place l'antenne et la réorienter. Si l'antenne est un conducteur plat de 300 ohms, remplacer ce câble par un câble de type coaxial.

Si ces mesures ne donnent pas les résultats escomptés, prière de contacter le détaillant local autorisé à commercialiser ce type d'appareil. Si ce n'est pas possible, prière de contacter Yamaha Corporation of America A/V Division, États-Unis, 6660 Orangethorpe Ave., Buena Park, CA 90620.

Les déclarations précédentes concernent EXCLUSIVEMENT les appareils commercialisés par Yamaha Corporation of America ou ses filiales.

DÉCLARATION SUR LES INFORMATIONS DE CONFORMITÉ (PROCÉDURE DE DÉCLARATION DE CONFORMITÉ)

Partie responsable:	Yamaha Corporation of America A/V Division
Addresse:	6660 Orangethorpe Avenue Buena Park, CA 90620
Téléphone:	714-522-9011
Type d'équipement:	Ampli-tuner audio-vidéo
Nom de modèle:	RX-A3020/RX-A2020/RX-A1020/RX-A820/RX-A720/ RX-V3073/RX-V2073/RX-V1073/RX-V773/RX-V673/RX-V573/ RX-V473/ HTR-7065/HTR-6065/HTR-5065/HTR-4065

• Cet appareil est conforme à l'article 15 de la réglementation FCC.
• Le fonctionnement est soumis aux conditions suivantes:
  – Cet appareil ne peut pas causer d'interférences nuisibles.
  – Cet appareil doit recevoir toutes les interférences, y compris celles pouvant entraîner des problèmes de fonctionnement.

Voyez la section Guide de dépannage à la fin de ce mode d'emploi si vous pensez que le problème de réception radio est dû à des interférences.

YAMAHA CORPORATION

YAMAHA

AV Receiver
Safety Brochure

⏻ (Power key)
Turns on the power of this unit or sets it to the standby mode.

For more detailed information, refer to the Owner's Manual on the CD-ROM. To view the Owner's Manual, click on "English" in the screen displayed automatically when you insert the CD-ROM into your PC, or click on the model name if the screen to select models is displayed, and then click on "English" in the next screen. Then, follow the onscreen instructions.
If the screen is not displayed automatically, open the "index.html" in the CD-ROM.
Caution: Do not attempt to play this CD-ROM in an audio player.
The Owner's Manual contained in the CD-ROM can be downloaded from the following website.
 http://download.yamaha.com/

IMPORTANT SAFETY INSTRUCTIONS

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.
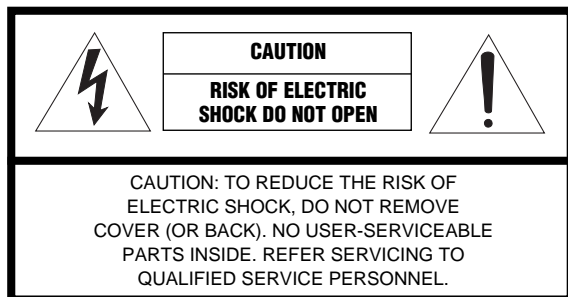
• Explanation of Graphical Symbols

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you 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 you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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 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 Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10 Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11 Only use attachments/accessories specified by the manufacturer.
12 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.
13 Unplug this apparatus during lightning storms or when unused for long periods of time.
14 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.

We Want You Listening For A Lifetime

Yamaha and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion – and, most importantly, without affecting your sensitive hearing. Since hearing damage from loud sounds is often undetectable until it is too late, Yamaha and the Electronic Industries Association's Consumer Electronics Group recommend you to avoid prolonged exposure from excessive volume levels.

CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

1 To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.

2 Install this sound system in a well ventilated, cool, dry, clean place - away from direct sunlight, heat sources, vibration, dust, moisture, and/or cold. For proper ventilation, allow the following minimum clearances.
   Top: 30 cm, Rear: 20 cm, Sides: 20 cm

3 Locate this unit away from other electrical appliances, motors, or transformers to avoid humming sounds.

4 Do not expose this unit to sudden temperature changes from cold to hot, and do not locate this unit in an environment with high humidity (i.e. a room with a humidifier) to prevent condensation inside this unit, which may cause an electrical shock, fire, damage to this unit, and/or personal injury.

5 Avoid installing this unit where foreign object may fall onto this unit and/or this unit may be exposed to liquid dripping or splashing. On the top of this unit, do not place:
   – Other components, as they may cause damage and/or discoloration on the surface of this unit.
   – Burning objects (i.e. candles), as they may cause fire, damage to this unit, and/or personal injury.
   – Containers with liquid in them, as they may fall and liquid may cause electrical shock to the user and/or damage to this unit.

6 Do not cover this unit with a newspaper, tablecloth, curtain, etc. in order not to obstruct heat radiation. If the temperature inside this unit rises, it may cause fire, damage to this unit, and/or personal injury.

7 Do not plug in this unit to a wall outlet until all connections are complete.

8 Do not operate this unit upside-down. It may overheat, possibly causing damage.

9 Do not use force on switches, knobs and/or cords.

10 When disconnecting the power cable from the wall outlet, grasp the plug; do not pull the cable.

11 Do not clean this unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.

12 Only voltage specified on this unit must be used. Using this unit with a higher voltage than specified is dangerous and may cause fire, damage to this unit, and/or personal injury. Yamaha will not be held responsible for any damage resulting from use of this unit with a voltage other than specified.

13 To prevent damage by lightning, keep the power cable and outdoor antennas disconnected from a wall outlet or this unit during a lightning storm.

14 Do not attempt to modify or fix this unit. Contact qualified Yamaha service personnel when any service is needed. The cabinet should never be opened for any reasons.

15 When not planning to use this unit for long periods of time (i.e. vacation), disconnect the AC power plug from the wall outlet.

16 Be sure to refer to the "Troubleshooting" section of the Owner's Manual on the CD-ROM for common operating errors before concluding that this unit is faulty.

17 Before moving this unit, press Ⓞ to set it to standby mode and disconnect the AC power plug from the wall outlet.

18 VOLTAGE SELECTOR (General model)
   The VOLTAGE SELECTOR on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC wall outlet. Voltages are:
   ....AC 110-120/220-240V, 50/60Hz

19 Condensation will form when the surrounding temperature changes suddenly. Disconnect the power cable from the outlet, then leave this unit alone.

20 When using this unit for a long time, this unit may become warm. Turn the power off, then leave this unit alone for cooling.

21 Install this unit near the AC outlet and where the AC power plug can be reached easily.

22 The batteries shall not be exposed to excessive heat such as sunshine, fire or the like. When you dispose of batteries, follow your regional regulations.

23 Excessive sound pressure from earphones and headphones can cause hearing loss.

24 When replacing the batteries, be sure to use batteries of the same type. Danger of explosion may happen if batteries are incorrectly replaced.

This unit is not disconnected from the AC power source as long as it is connected to the wall outlet, even if this unit itself is turned off by Ⓞ. This state is called the standby mode. In this state, this unit is designed to consume a very small quantity of power.

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

■ Notes on remote controls and batteries

• Do not spill water or other liquids on the remote control.
• Do not drop the remote control.
• Do not leave or store the remote control in the following conditions:
   – places of high humidity, such as near a bath
   – places of high temperatures, such as near a heater or stove
   – places of extremely low temperatures
   – dusty places
• Insert the battery according to the polarity markings (+ and -).
• Change all batteries if you notice the following conditions:
   – the operation range of the remote control narrows
   – the transmit indicator does not flash or is dim
• If the batteries run out, immediately remove them from the remote control to prevent an explosion or acid leak.
• If you find leaking batteries, discard the batteries immediately, taking care not to touch the leaked material. If the leaked material comes into contact with your skin or gets into your eyes or mouth, rinse it away immediately and consult a doctor. Clean the battery compartment thoroughly before installing new batteries.
• Do not use old batteries together with new ones. This may shorten the life of the new batteries or cause old batteries to leak.
• Do not use different types of batteries (such as alkaline and manganese batteries) together. Specification of batteries may be different even though they look the same.
• Before inserting new batteries, wipe the compartment clean.
• If the remote control is without batteries for more than 2 minutes, or if exhausted batteries remain in the remote control, the contents of the memory may be cleared. In such a case, install new batteries and set the remote control code.
• Dispose of batteries according to your regional regulations.
• Keep batteries away from children. If a battery is accidentally swallowed, contact your doctor immediately.
• When not planning to use the remote control for long periods of time, remove the batteries from the remote control.
• Do not charge or disassemble the supplied batteries.

This label is required to be attached to a product of which the temperature of the top cover may hot during operation.

3 *En*

Information for Users on Collection and Disposal of Old Equipment and Used Batteries

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

Pb

[Information on Disposal in other Countries outside the European Union]

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

IMPORTANT

Please record the serial number of this unit in the space below.

MODEL:

Serial No.:

The serial number is located on the rear of the unit. Retain this Owner's Manual in a safe place for future reference.

Important Notice:Guarantee Information for customers in EEA* and Switzerland

English

For detailed guarantee information about this Yamaha product, and Pan-EEA* and Switzerland warranty service, please either visit the website address below (Printable file is available at our website) or contact the Yamaha representative office for your country. *EEA:European Economic Area

http://europe.yamaha.com/warranty/

YAMAHA CORPORATION

YAMAHA

Supplement for Web Control

Controlling the unit from a web browser (web control)

You can control the unit with the web control screen displayed in a web browser.

Web browser

Web control   Web control

PC   Router   The unit
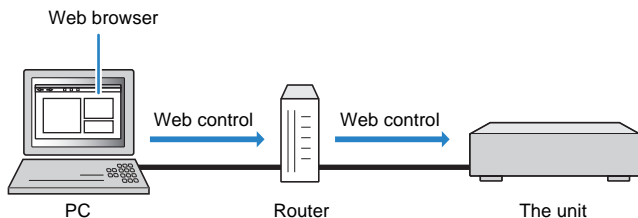
!
- To use this function, the unit and your PC must be connected to the network properly.
- Some security software installed on your PC may block the access of the unit to your PC. In these cases, configure the security software appropriately.
- To display the web control screen or turn on the unit from the web control when the unit is in standby mode, set "Network Standby" (p.3) to "On".
- We recommend using one of the following web browsers.
  – Internet Explorer 7.x, 8.x or 9.x
  – Safari 5.x

1 **Start the web browser.**

2 **Enter the IP address of the unit in the address bar of the web browser.**

(Example)

http://192.168.1.21/
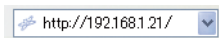
- You can check the IP address of the unit in "Network" in the "Information" menu.
- You can bookmark the unit's IP address in the browser or create a shortcut link (p.3) to access the web control screen quickly in the future.

Note
- If you are using a DHCP server, the IP address of the unit may change each time the unit is turned on.
- If you have enabled the MAC address filter, you need to specify the MAC address of your PC to allow the PC to access the unit. For information on how to check the MAC address of your PC, refer to its instruction manual.

- Items available on the web control screen vary depending on the model.

■ Top menu screen
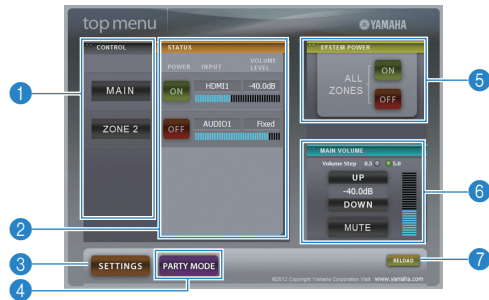
1 CONTROL
Moves to the control screen for the selected zone.

2 STATUS
Turns on/off the power for each zone or displays the input source and volume set for each zone.

3 SETTINGS
Moves to the settings screen.

4 PARTY MODE
(Not available on some models)
Turns on/off the party mode.

5 SYSTEM POWER
Turns on/off the power for all zones.

6 MAIN VOLUME
Adjusts the volume or mutes the audio output for the main zone. You can also select the increments used for volume adjustment.

7 RELOAD
Reloads the current status of the unit.

■ Control screen

1 PLAY INFO
Selects an input source or controls playback for the selected zone.

2 TOP MENU
Moves to the top menu screen.

3 SCENE
Selects a scene for the selected zone (only for the main zone on some models).

4 POWER
Turns on/off the power for the selected zone.

5 VOLUME
Adjusts the volume or mutes the audio output for the selected zone. You can also select the increments used for volume adjustment.

6 RELOAD
Reloads the current status of the unit.

!

• Multi-zone volume adjustment is not available when an external amplifier is used.

■ Settings screen

❶ Rename

Edits the network name (the unit's name on the network) or the name of each zone. Click "APPLY" to apply the changes to the unit.

IP Address

Configures the network parameters (such as IP address). Click "APPLY" to apply the changes to the unit.

MAC Filter

Sets the MAC address filter to limit access to the unit from the network devices. Click "APPLY" to apply the changes to the unit.

Auto Reload

Enables/disables automatic reloading. When "Auto Reload" is "On" (enabled), the web control screen reloads the status of the unit every 5 seconds.

Network Standby

Enables/disables the network standby function.

Backup/Recovery

Creates a backup of the unit's settings on the PC or restores the settings from the backup.

Firmware Update

Updates the firmware of the unit by using the firmware you have downloaded on the PC.
Follow the on-screen instructions to start the firmware update.

Create Link

Creates a shortcut link to the desired control screen.

Tips

Displays tips for use of the web control.

❷ BACK

Moves to the top menu screen.

❸ RELOAD

Reloads the current status of the unit.

Note

- Do not operate the unit during the recovery process, as this may result in the incorrect recovery of the settings. When the recovery finishes, click "OK" to set the unit to standby mode.
- The backup does not contain user information (such as user account and password) or unit-specific information (such as MAC address and IP address).

Information about software

This product uses the following free software.

For information (copyright, etc) about each software, read the original sentences stated below.

■ About ASN.1 object dumping code

ASN.1 object dumping code, copyright Peter Gutmann <pgut001@cs.auckland.ac.nz>, based on ASN.1 dump program by David Kemp <dpkemp@missi.ncsc.mil>, with contributions from various people including Matthew Hamrick <hamrick@rsa.com>, Bruno Couillard <bcouillard@chrysalis-its.com>, Hallvard Furuseth <h.b.furuseth@usit.uio.no>, Geoff Thorpe <geoff@raas.co.nz>, David Boyce <d.boyce@isode.com>, John Hughes <john.hughes@entegrity.com>, Life is hard, and then you die <ronald@trustpoint.com>, Hans-Olof Hermansson <hans-olof.hermansson@postnet.se>, Tor Rustad <Tor.Rustad@bbs.no>, Kjetil Barvik <kjetil.barvik@bbs.no>, James Sweeny <jsweeny@us.ibm.com>, and several other people whose names I've misplaced.

This code grew slowly over time without much design or planning, with features being tacked on as required.

It's not representative of my normal coding style.

■ About FLAC codec Library

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■ About RC4 Algorithm

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List of remote control codes
Liste des codes de commande
Liste der Fernbedienungscodes
Lista över fjärrstyrningskoder
Elenco dei codici di telecomando
Lista de códigos de mando a distancia

Lijst met afstandsbedieningscodes
Liste over fjernbetjeningskoder
Liste over fjernkontrollkoder
Список кодов дистанционного управления
遥控器代码列表
리모콘코드목록

TV

A.R. Systems	0320
Acme	0342
Acura	0323, 0343
ADC	0337
Admiral	0054, 0178, 0336, 0337, 0339, 0346, 0347
Advent	0158
Adventura	0057
Adyson	0277, 0282, 0342
Agashi	0277, 0282
Agazi	0337
Aiko	0277, 0282, 0320, 0323, 0342, 0343
Aim	0320
Aiwa	0078, 0379
Akai	0050, 0055, 0109, 0159, 0181, 0277, 0282, 0320, 0323, 0340, 0343, 0349, 0350
Akiba	0320, 0340
Akura	0320, 0323, 0337, 0340
Alaron	0277
Alba	0161, 0277, 0320, 0323, 0340, 0342, 0343, 0344, 0349, 0351, 0372, 0382
Albatron	0140
Alcyon	0171
Alleron	0059
Allorgan	0282
Allstar	0320, 0350
America Action	0179
AMOi	0276
Amplivision	0161, 0282, 0321, 0342
Amstrad	0320, 0323, 0337, 0340, 0343
Amtron	0058

Anam	0179, 0343
Anam National	0052, 0058
Anglo	0323, 0343
Anitech	0171, 0320, 0323, 0337, 0343
Ansonic	0161, 0168, 0320, 0323, 0341, 0343
AOC	0008, 0026, 0050, 0053
Apex	0039, 0111, 0217
Arcam	0277, 0282
Arcam Delta	0342
Aristona	0320, 0349, 0350
Arthur Martin	0321
ASA	0339, 0347
Asberg	0171, 0320, 0350
Astra	0343
Asuka	0277, 0282, 0337, 0340, 0342
Atlantic	0277, 0320, 0342, 0349, 0350
Atori	0323, 0343
Auchan	0321
Audiosonic	0161, 0282, 0320, 0340, 0342, 0343, 0349, 0350
AudioTon	0161, 0282, 0342
Audiovox	0058, 0179, 0194
Ausind	0171
Autovox	0171, 0282, 0337, 0339, 0342
Aventura	0051
Awa	0277, 0282
Axion	0156
Baird	0282
Bang & Olufsen	0180, 0339
Basic Line	0282, 0320, 0323, 0340, 0343, 0350
Bastide	0282, 0342
Baur	0320, 0349

Bazin	0282
Beko	0161, 0269, 0294, 0302, 0311, 0320, 0328, 0351
Belcor	0008
Bell & Howell	0019, 0054
Benq	0097, 0242, 0361
Beon	0320, 0349, 0350
Best	0161
Bestar	0161, 0320, 0350
Binatone	0282, 0342
Blue Sky	0320, 0340
Blue Star	0348
Boots	0282, 0342
BPL	0320, 0348
Bradford	0058, 0179
Brandt	0322, 0345
Brillian	0182
Brinkmann	0320
Brionvega	0320, 0339, 0349, 0350
Britannia	0277, 0282, 0342
Brockwood	0008
Broksonic	0109, 0179
Bruns	0339
BTC	0340
Bush	0269, 0282, 0283, 0304, 0320, 0323, 0328, 0332, 0340, 0343, 0344, 0346, 0348, 0349, 0350, 0372, 0382, 0463, 0470, 0472
byd:sign	0093
Candle	0008, 0026, 0050, 0057
Capsonic	0337
Carena	0320
Carnivale	0050
Carrefour	0344
Carver	0010
Cascade	0320, 0323, 0343
Casio	0367

Cathay	0320, 0349, 0350
CCE	0183, 0282
Celebrity	0055, 0107
Celera	0039
Centurion	0320, 0349, 0350
Century	0339
CGE	0161, 0171
Changhong	0039
Chimei	0273
Cimline	0323, 0343
Citizen	0007, 0008, 0026, 0050, 0058
City	0323, 0343
Clarion	0179
Clarivox	0349
Clatronic	0161, 0171, 0282, 0320, 0323, 0337, 0340, 0342, 0343, 0350, 0351
CMS	0277
CMS Hightec	0282
Coby	0197
Colortyme	0008, 0026
Commercial Solutions	0021
Concerto	0008, 0026
Concorde	0323, 0343
Condor	0161, 0277, 0320, 0323, 0342, 0350, 0351
Contec	0179, 0277, 0323, 0342, 0343, 0344
Contec/Cony	0012, 0058
Continental Edison	0345
Cosmel	0323, 0343
Craig	0058, 0179
Crosley	0010, 0037, 0171, 0339

Brand	Codes
Crown	0058, 0161, 0171, 0179, 0320, 0323, 0343, 0349, 0350, 0351
CS Electronics	0277, 0340, 0342
CTC Clatronic	0341
CTX	0205
Curtis Mathes	0007, 0008, 0010, 0019, 0021, 0026, 0049, 0050, 0178
CXC	0058, 0179
Cybertron	0340
Cytron	0152
Daewoo	0007, 0008, 0026, 0037, 0053, 0167, 0266, 0275, 0277, 0282, 0315, 0320, 0323, 0331, 0335, 0342, 0343, 0350, 0381, 0465
Dainichi	0277, 0340
Dansai	0277, 0282, 0320, 0337, 0349, 0350
Dantax	0161, 0349
Dawa	0320
Daytron	0007, 0008, 0026, 0323, 0343
De Graaf	0346
Decca	0282, 0320, 0342, 0349, 0350
Dell	0145, 0245
Denver	0358, 0362
Desmet	0320, 0349, 0350
Diamant	0320
Diamond	0277
DiamondVision	0135, 0143
Dimensia	0049
Disney	0219
Dixi	0282, 0320, 0323, 0343, 0349, 0350
Dream Vision	0461, 0498
DTS	0323, 0343
Dual	0282, 0320, 0342
Dual-Tec	0342, 0343
Dumont	0008, 0030, 0062, 0282, 0339, 0341, 0342
Durabrand	0031, 0051, 0179, 0215
Dux	0349
Dwin	0178
Dynatron	0320, 0349, 0350
Dynex	0228, 0231
EIZO	0509
Elbe	0161, 0168, 0282, 0320
Elcit	0339
Electa	0348
ELECTRO TECH	0343
Electroband	0055, 0107
Electrograph	0176
Electrohome	0008, 0026, 0052, 0055
Element	0230
Elin	0277, 0320, 0323, 0342, 0349, 0350
Elite	0320, 0340, 0350
Elman	0341
Elta	0277, 0323, 0343
Emerson	0000, 0007, 0008, 0012, 0013, 0026, 0031, 0037, 0051, 0058, 0059, 0161, 0179, 0320, 0339
Emprex	0154
Envision	0008, 0026, 0050
Epson	0155, 0206, 0359
Erres	0320, 0349, 0350
ESA	0051
ESC	0282
Etron	0343
Eurofeel	0282
Euro-Feel	0337
Euroline	0349
Euroman	0161, 0277, 0282
Euromann	0320, 0337, 0342, 0350
Europhon	0277, 0282, 0320, 0341, 0342, 0350
Expert	0321
Exquisit	0320
Fenner	0323, 0343
Ferguson	0322, 0345, 0349
Fidelity	0277, 0320, 0342, 0346
Filsai	0282
Finlandia	0346
Finlux	0171, 0282, 0320, 0339, 0341, 0342, 0349, 0350
FIRST LINE	0342, 0343, 0350
Firstline	0277, 0282, 0320, 0323
Fisher	0019, 0161, 0282, 0339, 0342, 0344, 0351
Flint	0320, 0350
Formenti	0171, 0277, 0336, 0339, 0342, 0349
Formenti/Phoenix	0277
Fortress	0336, 0339
Fraba	0161, 0320
Friac	0161
Frontech	0282, 0323, 0337, 0343, 0346, 0347
Fujitsu	0059, 0069, 0074, 0075, 0282
Fujitsu General	0282
Fujitsu Siemens	0504, 0505, 0507, 0510, 0511
Funai	0051, 0058, 0059, 0112, 0113, 0115, 0118, 0119, 0179, 0337, 0488, 0489
Futuretech	0058, 0179
Galaxi	0320, 0351
Galaxis	0161, 0320
Gateway	0176, 0177, 0241
GBC	0323, 0343, 0344
GE	0008, 0021, 0023, 0026, 0027, 0031, 0034, 0049, 0052, 0056, 0209
Geant Casino	0321
GEC	0282, 0320, 0342, 0347, 0349, 0350
Geloso	0323, 0343, 0346
General Technic	0323, 0343
Genexxa	0320, 0340, 0347, 0350
GFM	0128, 0227
Giant	0282
Gibralter	0008, 0030, 0050, 0062
GoldHand	0277
Goldline	0320
GoldStar	0007, 0008, 0012, 0026, 0031, 0050, 0053, 0161, 0277, 0282, 0320, 0323, 0342, 0343, 0346, 0349, 0350
Goodmans	0246, 0272, 0282, 0320, 0323, 0337, 0343, 0344, 0349, 0350, 0462, 0473, 0477
Gorenje	0161, 0351
GPM	0340
GPX	0129
Gradiente	0240
Graetz	0347
Granada	0171, 0282, 0320, 0321, 0342, 0344, 0346, 0349, 0350
Grandin	0340, 0343, 0348, 0349
Gronic	0282
Grundig	0160, 0161, 0171, 0310, 0320
Grunpy	0058, 0059, 0179
Haier	0157, 0233
Halifax	0277, 0282, 0337, 0342
Hallmark	0008, 0026, 0031
Hampton	0277, 0282, 0342
Hanseatic	0161, 0168, 0282, 0320, 0323, 0342, 0343, 0344, 0349, 0350
Hantarex	0320, 0323, 0343
Hantor	0320
Harman/Kardon	0010
Harvard	0058, 0179
Harwood	0320, 0323
Havermy	0178
HCM	0282, 0320, 0323, 0337, 0342, 0343, 0348
Hema	0282, 0323
Hewlett Packard	0192
Higashi	0277
HiLine	0320
Hinari	0320, 0323, 0340, 0343, 0344, 0349, 0350
Hisawa	0321, 0340, 0348
Hisense	0247
Hitachi	0008, 0012, 0026, 0066, 0084, 0092, 0093, 0120, 0172, 0173, 0255, 0270, 0271, 0282, 0320, 0335, 0338, 0342, 0344, 0346, 0347, 0365, 0382, 0448, 0456, 0467, 0482, 0484, 0487
Hornyphon	0320, 0350
Hoshai	0340
Huanyu	0277, 0342
Hygashi	0277, 0282, 0342
Hyper	0277, 0282, 0323, 0342, 0343
Hypson	0282, 0320, 0321, 0337, 0342, 0348, 0349, 0350
Hyundai	0141
Iberia	0320
ICE	0277, 0282, 0320, 0323, 0337, 0340, 0342, 0343, 0350
ICeS	0277
Ilo	0148, 0153
IMA	0058
Imperial	0161, 0171, 0320, 0347, 0350, 0351

Indiana	0320, 0349, 0350	Kingsley	0277, 0342	Magnavox	0008, 0009, 0010, 0013,	Motion	0171
Infinity	0010	KLH	0039		0026, 0032, 0033, 0048,	Motorola	0052, 0178
InFocus	0250, 0327, 0363, 0479,	Kloss Novabeam	0057, 0058		0050, 0128, 0211, 0212,	MTC	0008, 0026, 0050, 0053,
	0508	Kneissel	0161, 0168, 0320		0224, 0226, 0239		0161, 0277
Ingelen	0347	Kolster	0320, 0350	Magnum	0337, 0343	Multi System	0349
Ingersol	0323, 0343	Konka	0340	Majestic	0054	Multitech	0058, 0161, 0179, 0183,
Initial	0153	Korpel	0320, 0349, 0350	Mandor	0337		0277, 0282, 0320, 0323,
Inno Hit	0171, 0282, 0320, 0323,	Korting	0161, 0339	Manesth	0282, 0320, 0337, 0342,		0341, 0342, 0343, 0344,
	0340, 0342, 0343, 0349,	Kosmos	0320		0349, 0350		0346, 0349
	0350	Koyoda	0343	Marantz	0008, 0010, 0026, 0050,	Murphy	0277, 0342
Innovation	0337, 0343	KTV	0007, 0050, 0058, 0179,		0204, 0320, 0349, 0350	NAD	0026, 0031, 0111
Insignia	0131, 0228, 0236, 0238		0183, 0282, 0342	Marelli	0339	Naonis	0346
Inteq	0030	Kyoto	0277, 0282	Mark	0277, 0282, 0320, 0323,	NEC	0008, 0026, 0050, 0052,
Interactive	0161	Lasat	0161		0349, 0350		0053, 0072, 0103, 0282,
Interbuy	0323, 0343	Lenco	0323, 0343	Masuda	0282		0344
Interfunk	0161, 0320, 0339, 0347,	Lenoir	0323, 0342, 0343	Matsui	0282, 0320, 0323, 0342,	Neckermann	0161, 0282, 0320, 0339,
	0349, 0350	Leyco	0320, 0337, 0349, 0350		0343, 0344, 0346, 0349,		0342, 0346, 0349, 0350,
International	0277	LG	0031, 0053, 0066, 0116,		0350, 0455		0351
Intervision	0161, 0282, 0320, 0337,		0117, 0140, 0161, 0164,	Matsushita	0017	NEI	0320, 0349, 0350
	0341, 0342		0175, 0195, 0269, 0277,	Maxent	0147, 0176	Net-TV	0176
Irradio	0171, 0320, 0323, 0340,		0282, 0300, 0309, 0317,	Mediator	0320, 0349, 0350	Neufunk	0320, 0323
	0343, 0349, 0350		0320, 0323, 0328, 0342,	Medion	0320, 0337, 0343	New Tech	0343, 0350
Isukai	0320, 0340		0343, 0346, 0349, 0350,	Megapower	0140	New World	0340
ITC	0282, 0342		0366, 0368, 0377, 0466,	Megatron	0026, 0031	NewTech	0282, 0320, 0323
ITS	0277, 0320, 0340, 0348,		0471, 0478	MElectronic	0277, 0282, 0320, 0323	Nicamagic	0277, 0342
	0350	LG/GoldStar	0164	Melvox	0321	Nikkai	0277, 0282, 0320, 0323,
ITT	0343, 0347	Liesenk	0349	Memorex	0019, 0026, 0031, 0053,		0337, 0340, 0342, 0349,
ITV	0320, 0343, 0349	Liesenkotter	0320		0054, 0137, 0215, 0323,		0350
Janeil	0057	Life	0337, 0343		0343	Nikko	0026, 0031, 0050
JBL	0010	Lifetec	0320, 0323, 0337, 0343	Memphis	0323, 0343	Nobliko	0171, 0277, 0341, 0342
JC Penney	0007, 0008, 0026, 0027,	Lloyds	0323	Mercury	0320, 0323	Nokia	0347
	0049, 0053, 0056	Loewe	0161, 0168, 0265, 0320,	Metz	0339	Norcent	0201
JCB	0055, 0107		0330, 0352	MGA	0008, 0026, 0031, 0050,	Nordic	0282
Jensen	0008, 0026	Loewe Opta	0339, 0349, 0350		0053	Nordmende	0339, 0345, 0347, 0350
JVC	0012, 0014, 0015, 0056,	Logik	0054	Micromaxx	0337, 0343	Nordvision	0349
	0064, 0065, 0067, 0169,	Luma	0320, 0323, 0346, 0349	Microstar	0337, 0343	Novatronic	0320
	0174, 0297, 0314, 0344,	Lumatron	0282, 0320, 0346, 0349,	Midland	0007, 0021, 0023, 0027,	Oceanic	0321, 0347
	0350, 0375		0350		0030, 0056, 0062	Okano	0161, 0320, 0351
Kaisui	0277, 0282, 0320, 0323,	Lux May	0350	Minerva	0171	Olevia	0102, 0199, 0200, 0207,
	0340, 0342, 0343, 0348	Luxman	0008, 0026	Minoka	0320, 0350		0222
Kamosonic	0342	Luxor	0282, 0342, 0346	Mintek	0153	ONCEAS	0342
Kamp	0277, 0342	LXI	0010, 0019, 0021, 0026,	Mitsubishi	0008, 0026, 0031, 0053,	Onwa	0058, 0179
Kapsch	0347		0027, 0031, 0049, 0111		0066, 0084, 0093, 0098,	Opera	0320
Karcher	0161, 0320, 0342, 0343,	M Electronic	0342, 0343, 0345, 0347,		0150, 0178, 0289, 0320,	Oppo	0130
	0349		0349, 0350		0339, 0344, 0350, 0376	Optimus	0017, 0019
Kawasho	0008, 0026, 0055, 0277	MAG	0096	Mivar	0161, 0168, 0171, 0277,	Optoma	0144
KEC	0179	Magnadyne	0339, 0341, 0349		0282, 0342	Optonica	0178
Kendo	0161, 0320, 0341, 0346	Magnafon	0171, 0277, 0341, 0342	Monivision	0140	Orbit	0320, 0350
Kenwood	0008, 0026, 0050			Montgomery Ward			
KIC	0282				0054		

Brand	Codes
Orion	0043, 0146, 0283, 0320, 0323, 0328, 0343, 0349, 0350
Orline	0320
Osaki	0282, 0320, 0337, 0340, 0342
Oso	0340
Otto Versand	0282, 0320, 0336, 0342, 0344, 0348, 0349, 0350
Pael	0277, 0342
Palladium	0161, 0282, 0320, 0342, 0351
Palsonic	0282
Panama	0277, 0282, 0320, 0323, 0337, 0342, 0343
Panasonic	0016, 0017, 0020, 0022, 0023, 0035, 0052, 0056, 0084, 0085, 0133, 0163, 0193, 0284, 0286, 0290, 0292, 0320, 0325, 0347, 0356, 0483, 0485, 0490
Panavision	0320
Pathe Cinema	0161, 0168, 0277, 0321, 0342
Pausa	0323, 0343
Penney	0021, 0023, 0031, 0050, 0111
Perdio	0277, 0320
Perfekt	0320
Philco	0008, 0009, 0010, 0012, 0026, 0050, 0052, 0053, 0161, 0171, 0320, 0339
Philharmonic	0282, 0342
Philips	0008, 0009, 0010, 0011, 0012, 0032, 0048, 0049, 0052, 0122, 0128, 0134, 0186, 0187, 0213, 0221, 0224, 0226, 0239, 0256, 0257, 0259, 0261, 0263, 0267, 0280, 0281, 0287, 0296, 0299, 0301, 0303, 0305, 0313, 0319, 0320, 0324, 0333, 0339, 0342, 0349, 0350, 0353, 0357, 0360, 0380, 0383, 0452, 0459, 0460
Philips Magnavox	0011, 0032, 0033
Phoenix	0161, 0277, 0320, 0339, 0349, 0350
Phonola	0277, 0320, 0339, 0349, 0350
Pilot	0007, 0008, 0050
Pioneer	0008, 0026, 0094, 0095, 0161, 0320, 0345, 0347, 0349, 0350, 0458, 0480
Plantron	0320, 0323, 0337, 0350
Playsonic	0282
Polaroid	0039, 0142, 0202, 0234
Poppy	0323, 0343
Portland	0007, 0008, 0026, 0053
Prandoni-Prince	0171, 0346
Precision	0282, 0342
Prima	0157, 0243, 0323, 0343, 0347
Princeton	0140
Prism	0023, 0056
Profex	0323, 0343
Profi-Tronic	0320, 0350
Proline	0320, 0350
Proscan	0021, 0027, 0049
Prosonic	0161, 0277, 0282, 0320, 0342, 0349
Protech	0282, 0337, 0341, 0342, 0343, 0349, 0350
Proton	0008, 0012, 0026, 0031
Protron	0196
PROVIEW	0096, 0246
Provision	0320, 0349
Pulsar	0008, 0030, 0062
Pye	0256, 0320, 0349, 0350, 0378
Pymi	0323, 0343
Quandra Vision	0321
Quasar	0017, 0023, 0052, 0056
Quelle	0282, 0320, 0337, 0342, 0349, 0350
Questa	0344
Radialva	0320
RadioShack	0019, 0021, 0031, 0050, 0179, 0320
RadioShack/Realistic	0007, 0008, 0012, 0026, 0049, 0058
Radiola	0282, 0320, 0349, 0350
Radiomarelli	0320, 0339
Radiotone	0161, 0320, 0323, 0350
Rank	0344
RCA	0008, 0021, 0024, 0025, 0026, 0027, 0042, 0049, 0052, 0053, 0063, 0136, 0225
Realistic	0019, 0031, 0050, 0179
Recor	0320
Redstar	0320
Reflex	0320
Revox	0161, 0320, 0349, 0350
Rex	0337, 0346, 0347
RFT	0161, 0168, 0339
Rhapsody	0277
R-Line	0320, 0349, 0350
Roadstar	0323, 0337, 0340, 0343
Robotron	0339
Rowa	0277, 0282
Royal Lux	0161
RTF	0339
Runco	0030, 0050, 0062
Saba	0298, 0322, 0339, 0345, 0347
Saisho	0282, 0323, 0337, 0342, 0343
Salora	0346, 0347
Sambers	0171, 0341
Sampo	0007, 0008, 0026, 0050, 0176
Samsung	0004, 0005, 0006, 0007, 0008, 0012, 0026, 0031, 0036, 0050, 0053, 0076, 0077, 0079, 0114, 0124, 0125, 0126, 0127, 0139, 0161, 0183, 0185, 0190, 0191, 0258, 0264, 0277, 0282, 0320, 0323, 0334, 0337, 0342, 0343, 0349, 0350, 0351, 0373, 0453, 0468
Sandra	0277, 0282, 0342
Sansui	0043, 0109, 0320, 0350
Sanyo	0008, 0019, 0068, 0070, 0071, 0099, 0161, 0168, 0223, 0237, 0277, 0282, 0288, 0295, 0323, 0342, 0344, 0369, 0469
SBR	0320, 0349
Sceptre	0235, 0244
Schaub Lorenz	0347
Schneider	0282, 0316, 0318, 0320, 0333, 0340, 0342, 0349, 0350, 0382
Scotch	0026, 0031
Scott	0008, 0012, 0026, 0031, 0058, 0059, 0149, 0179
Sears	0008, 0010, 0019, 0021, 0026, 0027, 0031, 0049, 0051, 0059, 0111
SEG	0277, 0282, 0320, 0323, 0337, 0341, 0342, 0344, 0349, 0382
SEI	0320
SEI-Sinudyne	0339, 0341, 0347
Seleco	0344, 0346, 0347
Sencora	0323, 0343
Sentra	0323
Serino	0277
Sharp	0000, 0001, 0002, 0003, 0007, 0008, 0012, 0026, 0060, 0088, 0089, 0091, 0138, 0165, 0170, 0178, 0198, 0229, 0262, 0278, 0279, 0291, 0308, 0312, 0336, 0344, 0354, 0370, 0449, 0450, 0451, 0464, 0474, 0476, 0481
Sheng Chia	0178
Shogun	0008
Siarem	0320, 0339, 0341
Sierra	0320, 0350
Siesta	0161
Signature	0054
Silva	0277
Silver	0344
Singer	0321, 0339, 0341
Sinudyne	0320, 0339, 0341, 0349
Skantic	0347
Solavox	0347
Sonitron	0161, 0282
Sonoko	0282, 0320, 0323, 0337, 0342, 0343, 0349, 0350
Sonolor	0321, 0347
Sontec	0161, 0320, 0349, 0350

4

Sony	0038, 0044, 0045, 0047, 0055, 0090, 0104, 0105, 0107, 0110, 0123, 0184, 0220, 0248, 0249, 0251, 0252, 0254, 0326, 0343, 0344, 0371, 0374, 0457, 0475, 0486		
Sound & Vision	0340, 0341		
Soundesign	0008, 0026, 0031, 0058, 0059, 0179		
Soundwave	0320, 0349, 0350		
Squareview	0051		
SSS	0008, 0058, 0179		
Standard	0282, 0320, 0323, 0340, 0342, 0343, 0350		
Starlite	0058, 0179, 0320, 0323, 0349		
Stenway	0348		
Stern	0346, 0347		
Strato	0320, 0323		
Stylandia	0282		
Sunkai	0343		
Sunstar	0320, 0323		
Sunwood	0320, 0323, 0343, 0350		
Superla	0277, 0282, 0342		
Superscan	0013, 0178		
SuperTech	0277, 0320, 0323		
Supra	0323, 0343		
Supre-Macy	0057		
Supreme	0055, 0107		
Susumu	0340		
Sutron	0323, 0343		
SVA	0151		
Sydney	0277, 0282, 0342		
Sylvania	0008, 0009, 0010, 0011, 0013, 0026, 0048, 0050, 0051, 0128, 0227, 0253		
Symphonic	0051, 0058, 0062, 0128, 0179, 0215		
Syntax	0199		
Syntax-Brillian	0199		
Sysline	0349		
Sytong	0277		
Tandy	0178, 0282, 0336, 0340, 0342, 0347		
Tashiko	0277, 0282, 0342, 0344, 0346		
Tatung	0052, 0177, 0282, 0320, 0342, 0349, 0350		
TCM	0337, 0343		

Teac	0282, 0320
Tec	0282, 0323, 0342, 0343
Technics	0017, 0023, 0056
TechniSat	0274, 0496, 0497, 0499
Techwood	0008, 0023, 0026, 0056
TEDELEX	0282
Teknika	0007, 0008, 0010, 0012, 0026, 0053, 0054, 0058, 0059, 0179
Teleavia	0345
Telecor	0282, 0320
Telefunken	0320, 0322, 0345, 0350
Telegazi	0320
Telemeister	0320
Telesonic	0320
Telestar	0320
Teletech	0320, 0323, 0343, 0349
Teleton	0282, 0342
Televideon	0277
Televiso	0321
Tensai	0282, 0320, 0323, 0340, 0343, 0350
Tesmet	0350
Tevion	0337, 0343
Texet	0277, 0282, 0323, 0342
Thomson	0162, 0188, 0189, 0285, 0320, 0322, 0342, 0345, 0350
Thorn	0320, 0349
TMK	0008, 0026, 0031
TNCi	0030
Tokai	0282, 0320, 0350
Tokyo	0277, 0342
Tomashi	0348
Toshiba	0018, 0019, 0040, 0041, 0046, 0073, 0100, 0103, 0108, 0109, 0111, 0121, 0132, 0166, 0208, 0210, 0214, 0217, 0260, 0268, 0282, 0283, 0293, 0304, 0306, 0307, 0329, 0344, 0355, 0454, 0491
Totevision	0007
Towada	0282, 0347
Trakton	0282
Trans Continens	0282, 0320
Transtec	0277
Trident	0282
Triumph	0320

Uher	0161, 0171, 0320, 0347, 0350
Ultravox	0277, 0320, 0339, 0341, 0342
Unic Line	0320
United	0349
Universum	0161, 0171, 0282, 0320, 0337, 0349, 0350, 0351
Univox	0320
Vector Research	0050
Vestel	0282, 0320, 0346, 0347, 0349, 0350, 0351
Vexa	0320, 0323, 0343, 0349
Victor	0015, 0344, 0350
VIDEOLOGIC	0277
Videologique	0277, 0282, 0340, 0342
VideoSystem	0320, 0350
Videotechnic	0277, 0282
Vidikron	0010
Vidtech	0008, 0026, 0031, 0053
Viewsonic	0176, 0203, 0232, 0364
Viking	0057
Viore	0148
Visiola	0277, 0342
Vision	0282, 0320, 0350
Vizio	0008, 0177, 0218, 0242, 0500, 0501, 0502, 0503, 0506
Vortec	0320, 0349, 0350
Voxson	0171, 0320, 0339, 0346, 0347, 0350
Waltham	0282, 0320, 0342
Wards	0008, 0009, 0010, 0026, 0031, 0048, 0049, 0050, 0053, 0054, 0059
Watson	0320, 0349, 0350
Watt Radio	0277, 0341, 0342
Waycon	0111
Wega	0320, 0339, 0344
Wegavox	0323
Weltblick	0282, 0320, 0349, 0350
Westinghouse	0107, 0216, 0220
White Westinghouse	
	0037, 0090, 0277, 0320, 0341, 0342, 0349
Wincom	0101, 0106
Xrypton	0320
Yamaha	0008, 0026, 0050, 0053, 0080, 0081, 0082, 0083, 0086, 0087

Yamishi	0282, 0320
Yokan	0320
Yoko	0161, 0277, 0282, 0320, 0323, 0337, 0340, 0342, 0343, 0349, 0350
Yorx	0340
Zanussi	0282, 0346
Zenith	0008, 0028, 0029, 0030, 0031, 0054, 0061, 0062

VCR

ABS	1016
Adventura	1069
Adyson	1008
Aiwa	1024, 1026, 1027, 1069
Akai	1021, 1027
Akiba	1008, 1029
Akura	1008, 1027, 1029
Alba	1008, 1009, 1024, 1025, 1029, 1030
Alienware	1016
Ambassador	1030
American High	1068
Amstrad	1008, 1009, 1026
Anitech	1008, 1029
Apex	1088
ASA	1028, 1031
Asha	1070
Asuka	1008, 1026, 1028, 1029, 1031
Audio Dynamics	1064
Audiosonic	1009
Audiovox	1071
Baird	1009, 1025, 1026, 1027
Bang & Olufsen	1017
Basic Line	1008, 1009, 1024, 1025, 1029, 1030
Baur	1028
Beaumark	1070
Bell & Howell	1065
Bestar	1009, 1025, 1030
Black Panther Line	
	1009, 1025
Blaupunkt	1028
Bondstec	1008, 1030
Broksonic	1100

Bush	1008, 1009, 1024, 1025, 1029, 1049, 1051, 1063, 1217	ESC	1009, 1025	HTS	1018	Magnavox	1020, 1068, 1114, 1126
Calix	1071	Etzuko	1008, 1029	Hughes	1111, 1113, 1122	Magnin	1071
Candle	1070, 1071	Expressvu	1018	Hughes Network Systems		Manesth	1008, 1029
Canon	1068	Ferguson	1027		1110, 1116	Marantz	1028, 1064, 1065, 1068
Cathay	1009	Fidelity	1008, 1026	Humax	1012, 1110, 1113	Mark	1009
Catron	1030	Finlandia	1028	Hush	1016	Marta	1071
CGE	1026, 1027	Finlux	1026, 1027, 1028	Hypson	1008, 1009, 1024, 1029	Matsui	1024, 1031
Cimline	1008, 1024, 1029	Firstline	1008, 1024, 1029, 1031	iBUYPOWER	1016	Matsushita	1068
CineVision	1104	Fisher	1065	Impego	1030	Media Center PC	1016
Citizen	1070, 1071	Flint	1024	Imperial	1026	Mediator	1028
Clatronic	1008, 1030	Formenti/Phoenix	1028	Inno Hit	1008, 1009, 1025, 1028, 1029, 1030	Medion	1024
Colortyme	1064	Frontech	1030			MEI	1068
Condor	1009, 1025, 1030	Fuji	1068	Innovation	1024	Memorex	1023, 1026, 1031, 1065, 1068, 1069, 1070, 1071, 1098, 1114
Craig	1070, 1071	Fujitsu	1026	Instant Replay	1068		
Crown	1008, 1009, 1025, 1029, 1030	Funai	1026, 1069	Interbuy	1008, 1031		
		Galaxy	1026	Interfunk	1028	Memphis	1008, 1029
Curtis Mathes	1064, 1068, 1070	Garrard	1069	Intervision	1009, 1026	MGN Technology	1070
Cybernex	1070	Gateway	1016	Irradio	1008, 1029, 1031	Micromaxx	1024
CyberPower	1016	GBC	1029, 1030	ITT	1027	Microsoft	1016
Daewoo	1009, 1025, 1030, 1038, 1069, 1223	GE	1068, 1070	ITV	1009, 1025, 1031	Microstar	1024
		GEC	1028	JC Penney	1064, 1065, 1068, 1070, 1071	Migros	1026
Dansai	1008, 1009, 1029	Geloso	1029			Mind	1016
Dantax	1024	General	1030	JCL	1068	Mitsubishi	1026, 1028, 1079
Daytron	1009, 1025	General Technic	1024	JVC	1007, 1018, 1027, 1039,	Motorola	1068
DBX	1064	GOI	1018		1064, 1065, 1066, 1067,	MTC	1070
De Graaf	1028	GoldHand	1008, 1029		1078, 1089, 1092, 1093,	Multitech	1008, 1026, 1028, 1029, 1030, 1069, 1070
Decca	1026, 1027, 1028	Goldstar	1026, 1031, 1064, 1071		1094, 1095, 1113, 1208,		
Dell	1016	Goodmans	1008, 1009, 1025, 1026,		1209, 1212, 1213, 1215,		
Denko	1008		1029, 1030, 1031		1218	Murphy	1026
DiamondVision	1096	Gradiente	1069	Kaisui	1008, 1029	NEC	1027, 1064, 1065
DigiFusion	1014	Graetz	1027	Karcher	1028	Neckermann	1027, 1028
DIRECTV	1019, 1105, 1110, 1111,	Granada	1028	Kendo	1008, 1024, 1025, 1030	NEI	1028
	1113, 1116, 1122	Grandin	1008, 1009, 1025, 1026,	Kenwood	1027, 1064, 1065	Nesco	1008, 1029
Dish Network	1018		1029, 1030, 1031	Kodak	1068, 1071	Nikkai	1008, 1009, 1030
Dishpro	1018	Grundig	1028, 1029	Korpel	1008, 1029	Nikko	1071
Dual	1009, 1027, 1028	Hanseatic	1009, 1028, 1031	Kyoto	1008	Niveus Media	1016
Dumont	1026, 1028	Harley Davidson	1069	Lenco	1025	Noblex	1070
Durabrand	1114	Harman/Kardon	1064	Leyco	1008, 1029	Nokia	1009, 1027
Dynatech	1069	Harwood	1008	LG	1010, 1026, 1031, 1047,	Nordmende	1027
Echostar	1018	HCM	1008, 1029		1054, 1056, 1071, 1103,	Northgate	1016
Elbe	1009	Headquarter	1065		1221	Oceanic	1026, 1027
Elcatech	1008	Hewlett Packard	1016	Lifetec	1024	Okano	1008, 1009, 1024
Electrohome	1071	Hinari	1008, 1009, 1024, 1029	Linksys	1016	Olympus	1068
Electrophonic	1071	Hisawa	1024	Lloyd's	1069	Optimus	1071
Elsay	1008	Hitachi	1011, 1026, 1027, 1028,	Loewe Opta	1028, 1031	Orion	1023, 1024, 1051, 1115, 1217
Elta	1008, 1009, 1029		1046, 1062	Logik	1008, 1029		
Emerson	1008, 1020, 1068, 1069,	HNS	1110	Lumatron	1009, 1025	Orson	1026
	1071	Howard Computers		Luxor	1008	Osaki	1008, 1026, 1029, 1031
			1016	LXI	1071	Otto Versand	1028
		HP	1016	M Electronic	1026	Palladium	1008, 1027, 1029, 1031

Brand	Code
Panasonic	1000, 1022, 1044, 1055, 1068, 1072, 1085, 1090, 1091, 1120, 1121, 1214
Pathe Marconi	1027
Perdio	1026
Philco	1008, 1068
Philips	1006, 1013, 1028, 1035, 1040, 1045, 1046, 1050, 1058, 1059, 1061, 1068, 1076, 1101, 1110, 1113, 1116, 1117, 1122, 1126, 1210, 1211
Philips Magnavox	1076
Phonola	1028
Pilot	1071
Pioneer	1028, 1036
Polaroid	1088, 1099
Portland	1009, 1025, 1030
Prinz	1026
Profex	1029
Proline	1026
Proscan	1019
Prosonic	1009, 1024
Pulsar	1114
Pye	1028, 1102
Quarter	1065
Quartz	1065
Quasar	1068
Quelle	1026, 1028
Radialva	1008
RadioShack	1071
RadioShack/Realistic	1065, 1068, 1069, 1070, 1071
Radiola	1028
Radix	1071
Randex	1071
RCA	1019, 1068, 1070, 1075, 1110, 1113, 1122, 1125
Realistic	1065, 1068, 1069, 1070, 1071
ReplayTV	1022, 1123
Rex	1027
RFT	1008, 1028, 1030
Ricavision	1016
Roadstar	1008, 1009, 1025, 1029, 1031
Royal	1008
Runco	1114
Saba	1027

Brand	Code
Saisho	1024, 1029
Samsung	1002, 1034, 1041, 1043, 1057, 1060, 1070, 1084, 1110, 1116, 1122, 1124, 1220, 1222
Samurai	1008, 1030
Sanky	1114
Sansui	1023, 1027, 1106, 1115
Sanyo	1032, 1065, 1070
Saville	1009
SBR	1028
Schaub Lorenz	1026, 1027
Schneider	1008, 1009, 1024, 1025, 1026, 1028, 1029, 1030, 1031
Sears	1065, 1068, 1071
SEG	1008, 1009, 1029
SEI-Sinudyne	1028
Seleco	1027
Sentra	1008, 1030
Sentron	1008, 1029
Sharp	1003, 1033, 1077, 1107, 1127, 1219
Shintom	1008, 1029
Shivaki	1031
Shogun	1070
Siemens	1031
Silva	1031
Silver	1009
Singer	1068
Sinudyne	1028
Solavox	1030
Sonic Blue	1022, 1123
Sonneclair	1008
Sonoko	1009, 1025
Sontec	1031
Sony	1001, 1016, 1048, 1053, 1073, 1074, 1080, 1081, 1082, 1083, 1108, 1118, 1216
Stack	1016
Stack 9	1016
Standard	1009, 1025
Stern	1009
STS	1068
Sunkai	1024
Sunstar	1026
Suntronic	1026
Sunwood	1008, 1029
Superscan	1020

Brand	Code
Sylvania	1020, 1068, 1069, 1102, 1126
Symphonic	1008, 1069, 1126
Systemax	1016
Tagar Systems	1016
Taisho	1024
Tandberg	1009
Tandy	1065
Tashiko	1026, 1071
Tatung	1026, 1027, 1028
TCM	1015, 1024, 1042
Teac	1009, 1069
Tec	1008, 1009, 1030
Technics	1068
Teknika	1068, 1069, 1071
Teleavia	1027
Telefunken	1027
Teletech	1008, 1009
Tenosal	1008, 1029
Tensai	1008, 1026, 1029, 1031
Tevion	1024
Thomson	1005, 1027
Thorn	1027
Tivo	1108, 1110, 1111, 1113, 1117, 1118, 1119, 1122
TMK	1070
Tokai	1008, 1029, 1031
Tonsai	1029
Toshiba	1004, 1016, 1027, 1028, 1037, 1049, 1052, 1086, 1087, 1097, 1109, 1112, 1194
Totevision	1070, 1071
Touch	1016
Towada	1008, 1029
Towika	1008, 1029
TVA	1030
Uher	1031
UltimateTV	1019
Ultravox	1009
Unitech	1070
United Quick Star	1009, 1025
Universum	1026, 1028, 1031
Vector Research	1064
Video Concepts	1064
Videon	1024
Videosonic	1070
Viewsonic	1016
Voodoo	1016
Wards	1068, 1069, 1070, 1071

Brand	Code
Weltblick	1031
XR-1000	1068, 1069
Yamaha	1064, 1065
Yamishi	1008, 1029
Yokan	1008, 1029
Yoko	1008, 1029, 1030, 1031
Zenith	1114
ZT Group	1016

DVD

Brand	Code
4Kus	2051
Accurian	2142
Advent	2155, 2251
AEG	2362
Airis	2364
Aiwa	2322
Akai	2145, 2177, 2179, 2248
Akura	2356
Alba	2064, 2165, 2186, 2337, 2346
Alco	2149
Alize	2361
Allegro	2133
Amitech	2362
Amphion MediaWorks	2195
AMW	2195, 2363
Apex	2030, 2124, 2125, 2126, 2127, 2130, 2131
Apple	2241
Arrgo	2138
Asono	2364
Aspire	2152, 2222
Astar	2240
ATACOM	2364
Audiovox	2061, 2149
Avious	2367
Awa	2363
Axion	2249
Bang & Olufsen	2128
Baze	2367
BBK	2364
Bellagio	2363
Best Buy	2359
Blaupunkt	2131
Blue Parade	2157
Boghe	2382
Brainwave	2362

Brand	Code	Brand	Code	Brand	Code	Brand	Code
Brandt	2148, 2188	DVX	2355	Irradio	2053	Memorex	2028, 2145, 2234
Broksonic	2145, 2146	Easy Home	2359	iSymphony	2246	MiCO	2354, 2382
Bush	2064, 2110, 2170, 2268, 2290, 2346, 2358, 2367, 2383	Eclipse	2354	JBL	2135	Micromaxx	2182
		E-Dem	2364	JVC	2020, 2096, 2097, 2099, 2100, 2101, 2102, 2103, 2106, 2107, 2160, 2257, 2260, 2262, 2263, 2321, 2324, 2326, 2327, 2343, 2464, 2465, 2468, 2469, 2471	Microsoft	2156
California Audio Labs	2151	Electrohome	2362			Microstar	2182
Cambridge Audio	2354	Elin	2362			Minoka	2362
CAT	2352, 2353	Elta	2341, 2361, 2362			Minowa	2367
CAVS	2192	Emerson	2129, 2137, 2150			Mintek	2131, 2245
Centrum	2353	Enterprise	2129			Mitsubishi	2003
CGV	2354, 2362	Enzer	2380			Mizuda	2358, 2359
Changhong	2140	Epson	2247	Jwin	2198	Monyka	2380
Cinetec	2363	ESA	2137	Kansai	2360	Mustek	2186
CineVision	2133, 2237	Finlux	2354, 2362, 2367	Kawasaki	2149	Mx Onda	2354
Clatronic	2358, 2367	Fintec	2377	Kennex	2362	Mystral	2366
Coby	2031, 2046, 2360	Fisher	2134	Kenwood	2041, 2151, 2348	Naiko	2362
Conia	2383	Funai	2137	KeyPlug	2362	Nesa	2131
Continental Edison	2363	Gateway	2051	Kiiro	2362	Neufunk	2380
Crown	2362	GE	2029, 2131, 2156	Kingavon	2358	Nevir	2362
C-Tech	2355	Gericom	2351	Kiss	2380	Next Base	2143
Curtis Mathes	2139	GFM	2226	KLH	2131, 2149	Nexxtech	2243
CVG	2377	Giec	2382	Koda	2358	NU-TEC	2383
CyberHome	2022, 2098, 2138, 2187, 2336	Global Solutions	2355	Koss	2013, 2148, 2158	Onkyo	2159, 2368
		Global Sphere	2355	KXD	2359	Oopla	2051
Cytron	2244	Go Video	2133, 2213	Landel	2143	Oppo	2196, 2255
Daenyx	2363	Goodmans	2165, 2280, 2291, 2358, 2371, 2376, 2382	Lasonic	2132	Optim	2381
Daewoo	2001, 2133, 2276, 2298, 2330, 2362, 2363, 2377			Lawson	2355	Optimus	2180
		GPX	2227	Lecson	2381	Orava	2358
Daewoo International	2363	Gradiente	2151	Lenco	2358, 2362, 2367	Orbit	2363
Dalton	2357	Graetz	2380	Lenoxx	2136, 2153	Orion	2073, 2110
Dansai	2362, 2381	Greenhill	2131	LG	2002, 2033, 2038, 2057, 2129, 2133, 2189, 2191, 2223, 2238, 2270, 2288, 2335, 2373, 2375	Oritron	2148, 2158
Daytek	2184, 2195, 2363	Grundig	2349			P&B	2358
Dayton	2363	Grunkel	2362, 2366			Pacific	2355
DEC	2358	GVG	2377	Life	2182	Panasonic	2011, 2024, 2034, 2042, 2058, 2062, 2066, 2067, 2093, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2151, 2159, 2164, 2166, 2167, 2172, 2173, 2175, 2209, 2214, 2275, 2277, 2278, 2281, 2282, 2283, 2301, 2374, 2470
Decca	2362	H&B	2358	Lifetec	2182		
Denon	2059, 2151, 2193, 2332	H_her	2364	Limit	2355		
Denver	2356, 2358, 2360, 2370	Haaz	2354, 2355	Liquid Video	2158		
Denzel	2380	Haier	2254	Liteon	2043, 2051, 2142		
Desay	2205	Harman/Kardon	2047, 2135	Loewe	2320		
Diamond	2354, 2355	HiMAX	2359	LogicLab	2355		
DiamondVision	2225, 2232	Hitachi	2062, 2090, 2115, 2274, 2316, 2359, 2380	Magnavox	2025, 2050, 2137, 2150, 2159, 2224, 2230, 2358		
Disney	2010, 2028	Hiteker	2130				
DK Digital	2339	Home Tech Industries	2364	Magnex	2367	Parasound	2197
Dmtech	2176	Hyundai	2366	Majestic	2360	peeKTON	2364
Dual	2380	Ilo	2245	Marantz	2328		
DUNE	2473	Initial	2131, 2245	Marquant	2362		
Durabrand	2136	Innovation	2182	Matsui	2148, 2378		
		Insignia	2002, 2137, 2253	McIntosh	2199		
		Integra	2157	Mecotek	2362		
				Medion	2182		

Brand	Codes
Philips	2008, 2012, 2025, 2044, 2050, 2051, 2053, 2060, 2072, 2108, 2111, 2147, 2159, 2163, 2169, 2174, 2181, 2185, 2230, 2261, 2266, 2267, 2286, 2287, 2289, 2295, 2300, 2302, 2317, 2328, 2338, 2342, 2350, 2467
Phonotrend	2367
Pioneer	2016, 2017, 2018, 2019, 2035, 2092, 2094, 2095, 2109, 2157, 2180, 2190, 2212, 2269, 2272, 2299, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2344, 2345, 2347, 2379
Pointer	2362
Polaroid	2125, 2215, 2235
Portland	2362
Powerpoint	2363
Prima	2252
Proceed	2130
Proscan	2156
Prosonic	2360, 2377
Protron	2202
Provision	2358
Pye	2144
Qwestar	2148
Raite	2380
RCA	2021, 2029, 2104, 2105, 2131, 2149, 2156, 2157, 2229
RedStar	2356, 2360, 2362
Regent	2153
Reoc	2355
Rimax	2361
Rio	2133
Roadstar	2331, 2358
Ronin	2363
Rotel	2203
Rowa	2154, 2383
Rownsonic	2353
Saba	2148, 2188
Sabaki	2355
Saivod	2362
Sampo	2141

Brand	Codes
Samsung	2000, 2045, 2077, 2112, 2113, 2114, 2115, 2151, 2200, 2216, 2219, 2228, 2264, 2265, 2271, 2279, 2294, 2303, 2329, 2365
Sansui	2073, 2145, 2354, 2355, 2362
Sanyo	2134, 2145, 2217, 2292
ScanMagic	2186
Schaub Lorenz	2362
Schneider	2176
Scientific Labs	2355
Scott	2161, 2357
Seeltech	2364
SEG	2161, 2355, 2363, 2380
Sharp	2006, 2040, 2088, 2091, 2182, 2194, 2220, 2221, 2231, 2236, 2293, 2340
Shinsonic	2245
Sigmatek	2359, 2364
Silva	2356
Singer	2354, 2355
Skymaster	2325, 2355
Skyworth	2356
Slim Art	2362
SM Electronic	2355
Sonic Blue	2133
Sontech	2366
Sony	2004, 2005, 2007, 2009, 2014, 2015, 2023, 2026, 2027, 2052, 2068, 2069, 2070, 2071, 2074, 2075, 2084, 2085, 2087, 2168, 2171, 2208, 2210, 2211, 2258, 2273, 2284, 2285, 2312, 2313, 2314, 2315, 2318, 2319, 2466
Soundmaster	2355
Soundmax	2355
Spectra	2363
Spectroniq	2201
Standard	2355
Star Cluster	2355
Starmedia	2358, 2364
Sungale	2204
Sunkai	2362
Superscan	2150
Supervision	2355
Sylvania	2012, 2137, 2150, 2178, 2230, 2239

Brand	Codes
Symphonic	2108, 2230
Synn	2355
T.D.E. Systems	2366
Tatung	2001, 2362
TCM	2182, 2297
Teac	2149, 2333, 2355, 2383
Tec	2356
Technics	2151
Technika	2362, 2367
Telefunken	2353
Tensai	2362
Tevion	2182, 2355, 2357
Theta Digital	2157
Thomson	2183, 2188, 2334, 2372
Tokai	2356, 2380
Top Suxess	2364
Toshiba	2032, 2036, 2037, 2039, 2048, 2049, 2054, 2055, 2072, 2073, 2076, 2078, 2079, 2086, 2145, 2159, 2218, 2233, 2256, 2259, 2296, 2369, 2472
TRANScontinents	2363, 2367
Transonic	2367
Trio	2362
Trutech	2242
TruVision	2359
TSM	2364
Umax	2361
United	2367
Urban Concepts	2159
US Logic	2245
Venturer	2149
Viewmaster	2364
Vocopro	2206
VocoStar	2207
Waitec	2364
Welltech	2382
Westinghouse	2063, 2250
Wharfedale	2354, 2355
Woxter	2361, 2364
Xbox	2156, 2183
Xlogic	2355, 2362
XMS	2362
Xoro	2382
Yamada	2051, 2361, 2363
Yamaha	2056, 2064, 2065, 2080, 2081, 2082, 2083, 2089, 2118, 2151, 2323
Yamakawa	2363, 2380

Brand	Codes
Yukai	2186
Zenith	2002, 2129, 2133, 2159, 2223

Blu-ray Disc

Brand	Codes
Denon	2452, 2500, 2501
Hitachi	2460, 2461, 2463
JVC	2472, 2473, 2475, 2478, 2496, 2499, 2511
LG	2033, 2456, 2457
Marantz (US)	2454, 2455
Mitsubishi	2450, 2451
Onkyo	2504
Panasonic	2011, 2209, 2214, 2476, 2477, 2479
Philips	2510
Pioneer	2212, 2506
Samsung	2045, 2113, 2498
Sharp	2194, 2220, 2221, 2497, 2502, 2503
Sony	2075, 2453, 2458, 2459, 2507
Toshiba	2462
Yamaha	2064, 2448, 2449, 2474, 2505

DVR

Brand	Codes
Bush	2110
Hitachi	2090
Panasonic	2066, 2067, 2093, 2116, 2117, 2119, 2120, 2122, 2123
Philips	2108, 2111
Pioneer	2016, 2017, 2018, 2019, 2092, 2094, 2095, 2109
RCA	2105
Samsung	2113, 2219
Sharp	2088, 2091
Sony	2084, 2085, 2087
Toshiba	2086, 2218
Victor	2475
Yamaha	2089, 2118

DVD Recorder

Aspire	2222
Astar	2240
Broksonic	2146
Go Video	2213
Hitachi	2062
Insignia	2002
Irradio	2053
JVC	2100, 2101, 2106, 2107
LG	2033, 2057, 2223, 2238
Liteon	2043
Panasonic	2011, 2034, 2058, 2062, 2116, 2117, 2119, 2120, 2121, 2123
Philips	2008, 2044, 2050, 2051, 2147
Pioneer	2017, 2035
Pye	2144
Samsung	2000, 2112, 2216
Sansui	2073
Sanyo	2217
Sony	2004, 2005, 2007, 2052, 2068, 2069, 2074, 2208, 2210, 2211
Sylvania	2239
Toshiba	2032, 2036, 2037, 2039, 2049, 2054, 2055, 2076
Yamaha	2056

Cable

ABC	3002, 3003, 3017, 3066, 3067, 3086, 3093, 3119, 3122
ADB	3020
Adelphia	3081
Alcatel	3016
Americast	3124
Amstrad	3022, 3098
Antronix	3065, 3070
Archer	3070
Arcon	3098
AT&T	3095
Axis	3098
Bell South	3124
Cable Vision	3092
Cabletenna	3065
Cabletime	3104
Cableview	3087
Clearmaster	3127
ClearMax	3127
Clyde Cablevision	3105
Colour Voice	3068
Comcast	3084, 3088, 3117
Comcrypt	3107
Comtronics	3069
Contec	3074
Coolmax	3127
COX	3084
Cryptovision	3110
Director	3084
Eastern	3075
Everquest	3123
Fidelity	3098
Filmnet	3107
Filmnet Cablecrypt	3111
Filmnet Comcrypt	3111
Finlux	3097
FIOS	3004
Focus	3126
Foxtel	3022
France Telecom	3100, 3101
Freebox	3023
GC Electronics	3070
GE	3066, 3093
GEC	3105
Gemini	3072, 3123
General Instrument	3017, 3025, 3066, 3084, 3090, 3096, 3117
Goldstar	3120
Gooding	3099
Grundig	3098, 3099
Hamlin	3073, 3078
Hirschmann	3097
Hitachi	3066
HomeChoice	3106
Humax	3021, 3080, 3083
ITT Nokia	3097
Jasco	3123
Jerrold	3017, 3018, 3025, 3066, 3072, 3084, 3090, 3096, 3119, 3123
JVC	3099
Kabel Deutschland	3024, 3027, 3121
Macab	3101
Magnavox	3079
Maspro	3099
Matsui	3099
MegaCable	3117
Memorex	3076, 3122
Minerva	3099
Mnet	3107
Motorola	3025, 3026, 3084, 3088, 3090, 3095, 3117
Movie Time	3077, 3109
Mr Zapp	3101
Multichoice	3107
Multitech	3127
NEC	3064
NET Brazil	3085
Nokia	3097
Noos	3101
NSC	3077
Oak	3074
Pace	3006, 3089, 3121
Palladium	3099
Panasonic	3112, 3118, 3122
Paragon	3122
Philips	3068, 3071, 3079, 3099, 3100, 3101, 3103
Pioneer	3001, 3006, 3094, 3098, 3114, 3116, 3120
Popular Mechanics	3126
Proscan	3066, 3093
Pulsar	3122
PVP Stereo Visual Matrix	3018
Quasar	3122
RadioShack	3123, 3127
RCA	3030, 3031, 3087, 3118
Realistic	3070
Recoton	3126
Regal	3078
Regency	3075
Rembrandt	3066
Runco	3122
Sagem	3101
Samsung	3069, 3089, 3114, 3120
SAT	3098
Scientific Atlanta	3000, 3001, 3002, 3003, 3006, 3028, 3029, 3081, 3086, 3089, 3094, 3095, 3108
Signal	3072, 3123
Signature	3066
Sony	3092, 3125
Sprucer	3118
Standard Component	3115
Starcom	3017, 3072, 3119, 3123
Stargate	3072, 3123
Starquest	3072, 3123
Supercable	3090
Supermax	3127
Tele+1	3107, 3111
TELENET	3007
Telepiu	3107
Thomson	3082, 3091
TIME WARNER	3084
Tocom	3067
Torx	3017
Toshiba	3122
Tristar	3127
Tudi	3102
Tusa	3072, 3123
TV86	3077
Unika	3065, 3070
United Cable	3018, 3119
Universal	3065, 3070
Universum	3097, 3099
V2	3127
Videoway	3019
View Star	3074, 3077, 3079
Viewmaster	3127
Vision	3127
Visiopass	3097, 3100, 3101
Vortex View	3127
Wittenberg	3098
Zenith	3113, 3122, 3124
Zentek	3126

Satellite

AB Sat	4216, 4217
AccessHD	4104
ADB	4220
AGS	4216
Akai	4053, 4055
Alba	4001, 4004, 4006, 4007, 4062, 4217
Aldes	4005, 4007, 4010
Allsat	4048, 4053, 4055

Brand	Codes	Brand	Codes
Allsonic	4005, 4008, 4024	Comag	4080, 4081, 4082, 4083, 4086
Alltech	4217	Commlink	4005
Alpha	4053	Comtech	4050
Alpha Digital	4104	Condor	4008, 4024, 4219
Alphastar	4077	Connexions	4014, 4024
Amitronica	4217	Conrad	4024, 4215, 4218, 4219
Amstrad	4011, 4035, 4217, 4218	Conrad Electronic	4217, 4219
Anglo	4217	Contec	4050
Ankaro	4005, 4008, 4024, 4217	Coolsat	4096
Anttron	4001, 4004	Cosat	4048
Apollo	4001	Coship	4109
Armstrong	4011, 4053	Crown	4011
Artec	4100	Daeryung	4014
Asat	4053, 4055	Daewoo	4057, 4217
ASLF	4217	DDC	4007
Astacom	4216	Delega	4007
Astra	4009, 4011, 4054, 4217, 4219	Dew	4050
Astro	4004, 4008, 4010, 4015, 4024, 4213, 4218, 4219	Diamond	4051
		Digiality	4219
AudioTon	4004, 4048	Digital Stream	4105
Aurora	4222	DIRECTV	4056, 4064, 4067, 4068, 4070, 4071, 4074, 4107, 4116, 4119, 4121, 4122, 4123, 4127, 4192, 4193, 4194, 4195, 4196, 4197, 4198, 4199, 4200, 4201, 4202, 4203, 4206, 4207, 4221
Austar	4222		
Axiel	4216		
Axis	4008, 4009, 4024, 4050		
BBK	4205		
Best	4008, 4024		
Blaupunkt	4015		
Blue Sky	4217		
Boca	4011, 4054, 4059, 4217	Discoverer	4212
Boston	4216	Discovery	4216
Brain Wave	4013	Diseqc	4216
Broadcast	4012	Dish Network	4018, 4065, 4089, 4092, 4094, 4095, 4117
Broco	4217		
BSkyB	4035, 4041	Dishpro	4018, 4117
BT	4216	Distrisat	4053
Bubu Sat	4217	Ditristrad	4048
Bush	4006, 4045	DNT	4014, 4053, 4055
Cambridge	4218	Drake	4072
Canal Satellite	4213	DStv	4222
Canal+	4213	Dune	4024, 4240, 4242
CaptiveWorks	4099	Echostar	4014, 4018, 4065, 4089, 4117, 4217
Channel Master	4007, 4110		
Chaparral	4075	Einhell	4001, 4005, 4011, 4217, 4218
CHEROKEE	4216		
Chess	4212, 4217	Elap	4216, 4217
CityCom	4006, 4215, 4219	Elekta	4010
Clatronic	4013	Elsat	4217
CNT	4010	Elta	4001, 4008, 4024, 4048, 4053, 4055

Brand	Codes	Brand	Codes
Emanon	4001	Hirschmann	4015, 4024, 4210, 4216, 4218, 4219
Emme Esse	4008, 4024		
Engel	4217	Hisawa	4013
Ep Sat	4006	Hisense	4016
EURIEULT	4031	Hitachi	4006, 4114, 4199, 4203
Eurodec	4052	Homecast	4084, 4085, 4087
Europa	4053, 4218, 4219	Houston	4048
Europhon	4219	HTS	4117
Eurosat	4011	Hughes	4064, 4068, 4192, 4194, 4196, 4202
Eurosky	4008, 4011, 4215, 4218, 4219, 4024		
		Hughes Network Systems	4071
Eurostar	4011, 4215, 4219	Humax	4025, 4030, 4060, 4097
Eutelsat	4217	Huth	4005, 4011, 4012, 4013, 4048, 4050, 4219, 4223
Exator	4001, 4004		
Expressvu	4117		
Fenner	4024, 4212, 4217	Hypson	4031
Ferguson	4006, 4052, 4214	Ilo	4016
Fidelity	4218	Imex	4031
Finlandia	4006	Innovation	4008
Finlux	4006	Insignia	4107
FinnSat	4050, 4052	Intertronic	4011
Flair Mate	4217	Intervision	4048, 4219
Foxtel	4222	ITT Nokia	4006
Freecom	4001, 4049, 4218	Jerrold	4019
FTEmaximal	4024, 4217	Johansson	4013
Fuba	4001, 4008, 4014, 4015, 4024, 4055, 4215	JOK	4216
		JSR	4048
Galaxis	4005, 4008, 4009, 4024, 4048, 4050, 4215, 4222	JVC	4029, 4065, 4089, 4117
		Kamm	4217
GE	4066, 4093, 4111, 4197	Kathrein	4015, 4034, 4042, 4053, 4055, 4063, 4215, 4216, 4217
General Instrument	4019, 4073		
GMI	4011		
GOI	4117	Kathrein Eurostar	4215
Goldbox	4213	Klap	4216
GoldStar	4049	Konig	4219
Goodmans	4002, 4006, 4029	Kosmos	4049
Goodmind	4111	KR	4004
Grandin	4031	Kreiselmeyer	4015
Grothusen	4001, 4049	K-SAT	4217
Grundig	4004, 4006, 4015, 4035, 4211, 4218, 4222	Kyostar	4001
		L&S Electronic	4024
Hänsel & Gretel	4219	Lasat	4008, 4010, 4024, 4054, 4212, 4215, 4219
Hantor	4001, 4013		
Hanuri	4010	Lasonic	4108
Hauppauge	4044	Lenco	4001, 4024, 4049, 4215, 4217, 4219
Heliocom	4219		
Helium	4219	Leng	4013
Hinari	4007	Lennox	4048
		Lenson	4218
		Lexus	4053

LG	4049, 4103, 4107	Nokia	4006, 4040	Quelle	4015, 4215, 4219	SkySat	4212, 4217, 4218, 4219
Lifesat	4008, 4024, 4212, 4217	Nordmende	4001, 4006, 4007, 4010, 4052	Quiero	4052	Skyvision	4048
Lifetec	4008			RadioShack	4019	SM Electronic	4212, 4217
Lorenzen	4219	Nova	4222	Radiola	4053, 4055	Smart	4215, 4217
Lorraine	4049	Novis	4013	Radix	4014, 4037	Sony	4067, 4070, 4213
Lupus	4008, 4024	Oceanic	4051	Rainbow	4004	SR	4011, 4054
Luxor	4218	Octagon	4001, 4004, 4050	RCA	4066, 4093, 4112, 4113, 4116, 4118, 4119, 4197, 4122, 4207	Star Choice	4019
Lyonnaise	4052	Okano	4011			Starland	4217
Macab	4052	Optex	4048			Starring	4013
Magnavox	4127, 4101	Optus	4213, 4222, 4223			Start Trak	4001
Manata	4031, 4216, 4217	Orbitech	4001, 4212, 4213, 4218	Realistic	4078	Strong	4001, 4004, 4008, 4024, 4049, 4222
Manhattan	4006, 4010, 4048, 4216	OSat	4004	Redpoint	4009		
Marantz	4055	Otto Versand	4015	Redstar	4008, 4024	STS	4115
Mascom	4010	Pace	4006, 4015, 4035, 4043, 4047, 4204, 4216, 4243	RFT	4005, 4053, 4055	STVI	4031
Maspro	4006, 4217			Roadstar	4217	Sumida	4011
Matsui	4216			Roch	4031	Sunny Sound	4024
Max	4219	Pacific	4051	Rover	4024, 4217	Sunsat	4217
Mediabox	4213	Packsat	4216	Saba	4010, 4215, 4216, 4219	Sunstar	4011, 4024, 4054
Mediamarkt	4011	Palcom	4007	Sabre	4006	Supermax	4223
Mediasat	4009, 4213, 4218	Palladium	4011, 4218	Sagem	4023, 4052	Tandberg	4052
Medion	4008, 4024, 4217	Palsat	4212, 4218	Sakura	4050	Tandy	4004
Medison	4217	Panasat	4222	Samsung	4000, 4001, 4003, 4032, 4064, 4069, 4071, 4120, 4123, 4196, 4200	Tantec	4006
Mega	4053, 4055	Panasonic	4006, 4035, 4036, 4121, 4124, 4126, 4198, 4221			TCM	4008
Memorex	4127					Techniland	4012
Metronic	4001, 4004, 4005, 4010, 4028, 4031, 4217	Panda	4006, 4219			TechniSat	4014, 4021, 4026, 4027, 4038, 4039, 4053, 4212, 4213, 4218
		Pansat	4125	SAT	4007, 4218		
Metz	4015	Patriot	4216	Sat Cruiser	4223		
Micro electronic	4217, 4218, 4219	Paysat	4127	Sat Partner	4001, 4004, 4010, 4013, 4049, 4218		
Micro Technology	4217	PCT	4110			Technology	4222
MicroGem	4106	Philco	4101	Sat Team	4217	Technosat	4223
Micromaxx	4008, 4024	Philips	4006, 4033, 4053, 4055, 4061, 4068, 4071, 4127, 4196, 4201, 4202, 4203, 4206, 4213, 4216	Satcom	4012, 4219	Technowelt	4219
Microstar	4008			Satec	4217	Teco	4011, 4054
Microtec	4217			Satelco	4024	Telanor	4007
Minerva	4015			Satford	4012	Telasat	4215, 4219
Mitsubishi	4006, 4015, 4202	Phoenix	4050	Satmaster	4012	Telecom	4217
Mitsumi	4054	Phonotrend	4006, 4005, 4048	Satplus	4212	Telefunken	4001, 4017, 4216
Morgan's	4011, 4053, 4054, 4055, 4217	Pioneer	4046, 4213	Schneider	4008, 4212, 4216	Teleka	4004, 4011, 4014, 4218, 4219
		Polsat	4052	Schwaiger	4051, 4212, 4219		
Motorola	4019, 4088, 4090, 4091	Predki	4013	SCS	4215	Telemaster	4010
Multichoice	4222	Premiere	4048, 4213	Seemann	4009, 4011, 4014	TELENET	4241
Multitec	4212	Priesner	4011	SEG	4001, 4008, 4013, 4024	Telesat	4219
Muratto	4049	Primestar	4076	Seleco	4048	Telestar	4212, 4213, 4218
Mysat	4217	Profile	4216	Servi Sat	4031, 4217	Televes	4006, 4218
Navex	4013	Promax	4006	Siemens	4015	Telewire	4048
Neuhaus	4009, 4048, 4217, 4218, 4219	Prosat	4005, 4007	Silva	4049	Tempo	4223
		Proscan	4066, 4093, 4122, 4197	Skantin	4217	Tevion	4008, 4217
Neusat	4217	Protek	4051	Skardin	4009	Thomson	4006, 4020, 4052, 4058, 4208, 4213, 4215, 4216, 4217, 4219
Next Level	4019	Proton	4016	Skinsat	4218		
NextWave	4223	Provision	4010	SKR	4217		
Nikko	4011, 4217	Quadral	4005, 4007, 4008, 4216, 4024	Skymaster	4005, 4017, 4022, 4212, 4217		
				Skymax	4053, 4055	Thorens	4051
						Thorn	4006

Tivax	4104	Variosat	4015	
Tivo	4196	Vega	4024	
Tokai	4053	Ventana	4053, 4055	
Tonna	4006, 4012, 4048, 4217, 4218	Viewsat	4098	
		Visiosat	4013, 4048, 4216, 4217	
Toshiba	4194, 4202, 4203	Voom	4019	
Triad	4049	Vortec	4001	
Triasat	4218	Welltech	4212	
Triax	4015, 4215, 4217, 4218	WeTeKom	4212, 4218	
Turnsat	4217	Wevasat	4006	
Tvonics	4214	Wewa	4006	
Twinner	4031, 4217	Winersat	4013	
UEC	4222	Wisi	4006, 4014, 4015, 4218, 4219	
Uher	4212			
UltimateTV	4070	Woorisat	4010	
Uniden	4079, 4127	Worldsat	4216	
Unisat	4011, 4050, 4053	Xrypton	4024	
Unitor	4013	XSat	4217	
Universum	4015, 4215, 4219	Zehnder	4008, 4209, 4010, 4215, 4024	
US Digital	4016			
		Zenith	4102, 4107, 4195	
		Zodiac	4004	

CD

Yamaha	5082, 5095

CD Recorder

Yamaha	5083

MD

Yamaha	5080, 5081, 5086

Tape

Yamaha	5084, 5087

Tuner

Yamaha	5066, 5085, 5088, 5090, 5092

LD

Yamaha	2080

Amplifier

Yamaha	5019, 5020, 5098

Apple TV

Apple	2241

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