**SONY**®

# Multi Channel AV Receiver

Operating Instructions

**Owner's Record**

The model and serial numbers are located on the rear of the receiver. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No.

Serial No.

# WARNING

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

To reduce the risk of fire, do not cover the ventilation opening of the appliance with newspapers, tablecloths, curtains, etc.
Do not expose the appliance to naked flame sources (for example, lighted candles).

To reduce the risk of fire or electric shock, do not expose this appliance to dripping or splashing, and do not place objects filled with liquids, such as vases, on the appliance.

Do not install the appliance in a confined space, such as a bookcase or built-in cabinet.

Do not expose batteries or appliances with battery-installed to excessive heat, such as sunshine and fire.

As the main plug is used to disconnect the unit from the mains, connect the unit to an easily accessible AC outlet. Should you notice an abnormality in the unit, disconnect the main plug from the AC outlet immediately.

The unit is not disconnected from the mains as long as it is connected to the AC outlet, even if the unit itself has been turned off.

This symbol is intended to alert the user to the presence of the Hot Surface that may be hot if it is touched during the normal operation.

**FOR UNITED STATES CUSTOMERS. NOT APPLICABLE IN CANADA, INCLUDING IN THE PROVINCE OF QUEBEC.**

**POUR LES CONSOMMATEURS AUX ÉTATS-UNIS. NON APPLICABLE AU CANADA, Y COMPRIS LA PROVINCE DE QUÉBEC.**

## For the customers in the USA

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

### Important Safety Instructions

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with 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.

## NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

## CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Properly shielded and grounded cables and connectors must be used for connection to host computers and/or peripherals in order to meet FCC emission limits.

To reduce the risk of electric shock, the speaker cable should be connected to the apparatus and the speakers in accordance with the following instructions.
1) Disconnect the AC power cord from the MAINS.
2) Strip 10 to 15 mm of the wire insulation of the speaker cable.
3) Connect the speaker cable to the apparatus and the speakers carefully so as not to touch the core of speaker cable by hand. Also disconnect the AC power cord from the MAINS before disconnecting the speaker cable from the apparatus and the speakers.

This equipment must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment has very low levels of RF energy that is deemed to comply without maximum permissive exposure evaluation (MPE).

## For the customers in Canada

Properly shielded and grounded cables and connectors must be used for connection to host computers and/or peripherals.

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that is deemed to comply without maximum permissive exposure evaluation (MPE). But it is desirable that it should be installed and operated keeping the radiator at least 20 cm or more away from person's body.

## For the customers in Australia and New Zealand

This equipment should be installed and operated with at least 20 cm and more between the radiator and person's body (excluding extremities: hands, wrists, feet and ankles).

**For the customers in Australia**

**Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)**

**For the customers in Europe**

**Disposal of waste batteries and electrical and electronic equipment (applicable in the European Union and other European countries with separate collection systems)**

This symbol on the product, the battery or on the packaging indicates that the product and the battery shall not be treated as household waste. On certain batteries this symbol might be used in combination with a chemical symbol. The chemical symbols for mercury (Hg) or lead (Pb) are added if the battery contains more than 0.0005% mercury or 0.004% lead. By ensuring these products and batteries are disposed of correctly, you will help prevent potentially negative consequences for the environment and human health which could otherwise be caused by inappropriate waste handling. The recycling of the materials will help to conserve natural resources.

In case of products that for safety, performance or data integrity reasons require a permanent connection with an incorporated battery, this battery should be replaced by qualified service staff only. To ensure that the battery and the electrical and electronic equipment will be treated properly, hand over these products at end-of-life to the applicable collection point for the recycling of electrical and electronic equipment. For all other batteries, please view the section on how to remove the battery from the product safely. Hand the battery over to the applicable collection point for the recycling of waste batteries. For more detailed information about recycling of this product or battery, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product or battery.

**Notice for customers: the following information is only applicable to equipment sold in countries applying EU directives**

This product has been manufactured by or on behalf of Sony Corporation, 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan. Inquiries related to product compliance based on European Union legislation shall be addressed to the authorized representative, Sony Belgium, bijkantoor van Sony Europe Limited, Da Vincilaan 7-D1, 1935 Zaventem, Belgium. For any service or guarantee matters, please refer to the addresses provided in the separate service or guarantee documents.

Hereby, Sony Corp., declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
For details, please access the following URL: http://www.compliance.sony.de/

$C\epsilon$

This Multi Channel AV Receiver is intended for sound and video playback from connected devices, music streaming from an NFC-compatible smartphone or a BLUETOOTH device, and FM tuner.

This equipment has been tested and found to comply with the limits set out in the EMC regulation using a connection cable shorter than 3 meters.

Excessive sound pressure from earphones and headphones can cause hearing loss.

# Manuals provided for this product

The following manuals are provided for this product.
The information included in each manual is as shown below:

Startup Guide

Operating Instructions (this booklet)

Help Guide (online)

**Preparation**

Installation
Connections
Initial Setup

**Basic operations**

Listening/Watching

**Advanced operations**

Listening/Watching

**Advanced operations**

BLUETOOTH function
Other features
Adjusting Settings

**Troubleshooting**

**Precautions / Specifications**

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**To read the Help Guide, go to the following website:**

For the customers in Europe
**http://rd1.sony.net/help/ha/strdh77/h_eu/**

For the customers in Taiwan
**http://rd1.sony.net/help/ha/strdh77/zh-tw/**

For the customers in other areas
**http://rd1.sony.net/help/ha/strdh77/h_zz/**

# About These Operating Instructions

- The instructions in these Operating Instructions describe the controls on the remote control. You can also use the controls on the receiver if they have the same or similar names as those on the remote control.
- Some illustrations are presented as conceptual drawings, and may be different from the actual products.
- The items displayed on the TV screen may vary depending on the area.
- The text enclosed in bracket ([--]) appears on the TV screen, and the text enclosed in double quotation mark ("--") appears on the display panel.

## On copyrights

This receiver incorporates Dolby* Digital and Pro Logic Surround and the DTS** Digital Surround System.
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This receiver incorporates High-Definition Multimedia Interface (HDMI™) technology. The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

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## Preparation

## Listening/Watching

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# Supplied Accessories

- Remote control (1)
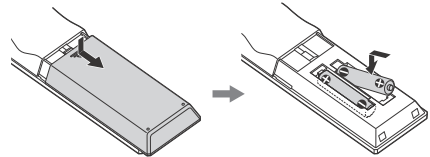- R03 (size AAA) batteries (2)
- FM wire antenna (aerial) (1)
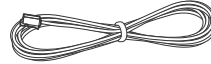
- Calibration microphone (1)

## Inserting batteries into the remote control

Insert two R03 (size AAA) batteries (supplied) in the remote control. Make sure that the + and – ends are in the correct position when installing batteries.

Note

- Do not leave the remote control in an extremely hot or humid place.
- Do not use a new battery with old ones.
- Do not mix manganese batteries and other kinds of batteries.
- Do not expose the remote control sensor to direct sunlight or lights. Doing so may cause a malfunction.
- If you do not intend to use the remote control for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.
- When the receiver no longer responds to the remote control, replace both of the batteries with new ones.

# Parts and Controls

## Receiver

### Front panel
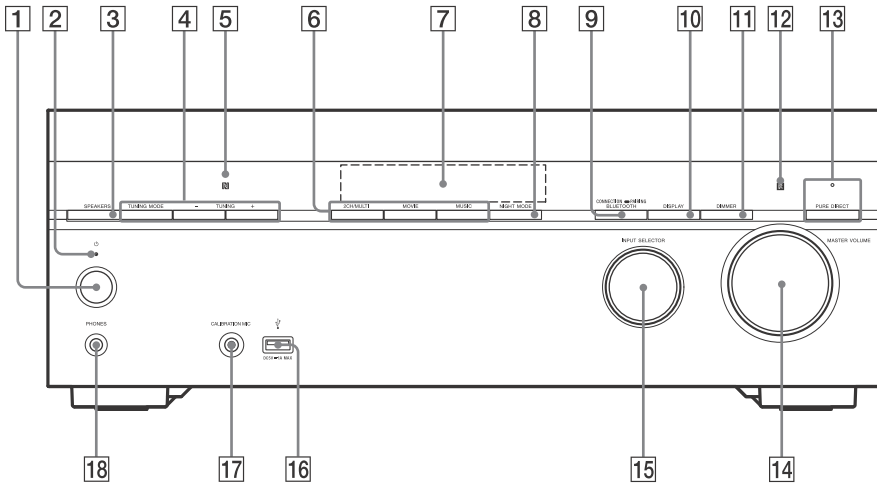


1. ⏻ **(power) (page 27)**
2. **Power indicator**
3. **SPEAKERS (page 29)**
4. **TUNING MODE, TUNING +/–**
   Operates a tuner function.
   Press TUNING +/– to scan a station.
5. **NFC sensor**
6. **2CH/MULTI, MOVIE, MUSIC (page 32, 33)**
7. **Display panel (page 10)**
8. **NIGHT MODE**
9. **CONNECTION ●PAIRING BLUETOOTH**
   Operates the BLUETOOTH function.
10. **DISPLAY**
11. **DIMMER**
    Adjusts the brightness of the display panel in 3 levels.
12. **Remote control sensor**
    Receives signals from remote control.
13. **PURE DIRECT**
    The indicator above the button lights up when the Pure Direct function is activated.
14. **MASTER VOLUME (page 31)**
15. **INPUT SELECTOR (page 32)**
16. ⏦ **(USB) port**

17. **CALIBRATION MIC jack (page 30)**
18. **PHONES jack**
    Connect headphones here.

### Power indicator

- Green: The receiver is turned on.
- Amber: The receiver is in standby mode, and you have set one of the following:
  - "CTRL HDMI" is set to "CTRL ON".
  - "BT STANDBY" is set to "STBY ON"*.
  - "STBY THRU" is set to "ON" or "AUTO".

The indicator turns off when the receiver is in standby mode and:
  - "CTRL HDMI" is set to "CTRL OFF".
  - "BT STANDBY" is set to "STBY OFF".
  - "STBY THRU" is set to "OFF".

* The indicator lights up in amber only if a device has been paired with the receiver. If no devices are paired with the receiver, the indicator turns off.

**9**GB

# Indicators on the display panel

The indicator lights up to indicate the current status.
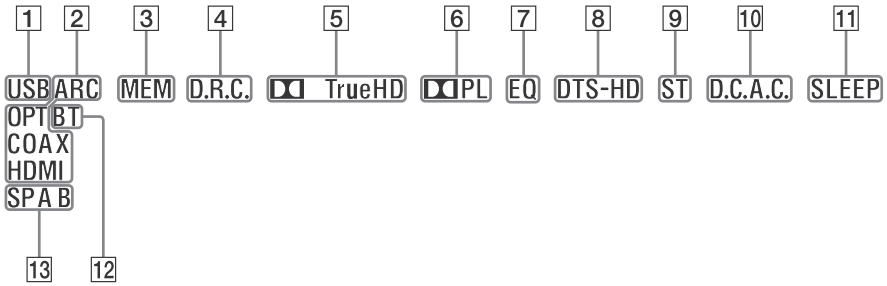


[1] **USB**

USB device is detected.

[2] **Input indicator**

Indicates the current input.

**ARC**

TV input is selected and Audio Return Channel (ARC) signals are detected.

**OPT**

Digital signals are input through the OPTICAL jack (page 22, 24).

**COAX**

Digital signals are input through the COAXIAL jack (page 26).

**HDMI**

Digital signals are input through the selected HDMI jack (page 22, 23, 25).

[3] **MEM**

Memory function such as Preset Memory, etc. is activated.

[4] **D.R.C.**

Dynamic range compression is activated.

[5] **Dolby Digital Surround indicator***

The receiver is decoding the corresponding Dolby Digital format signals.

**TrueHD**   Dolby TrueHD

[6] **Dolby Pro Logic indicator**

The receiver is processing Dolby Pro Logic format signals. This matrix surround decoding technology can enhance input signals.

**Note**

The indicator may not light up depending on the speaker pattern setting.

[7] **EQ**

Equalizer is activated.

[8] **DTS(-HD) indicator***

The receiver is decoding the corresponding DTS format signals.

**DTS-HD**   DTS-HD

[9] **ST**

The receiver tunes to a stereo broadcast.

[10] **D.C.A.C.**

The measurement results of the Auto Calibration function are applied.

[11] **SLEEP**

Sleep timer is activated.

[12] **BT**

Lights up when a BLUETOOTH device is connected. Flashes while pairing and connecting.

[13] **Speaker system indicator (page 29)**

\* When playing a Dolby Digital or DTS format disc, make sure that you have completed the digital connections and "INPUT MODE" is not set to "ANALOG".

## Rear panel
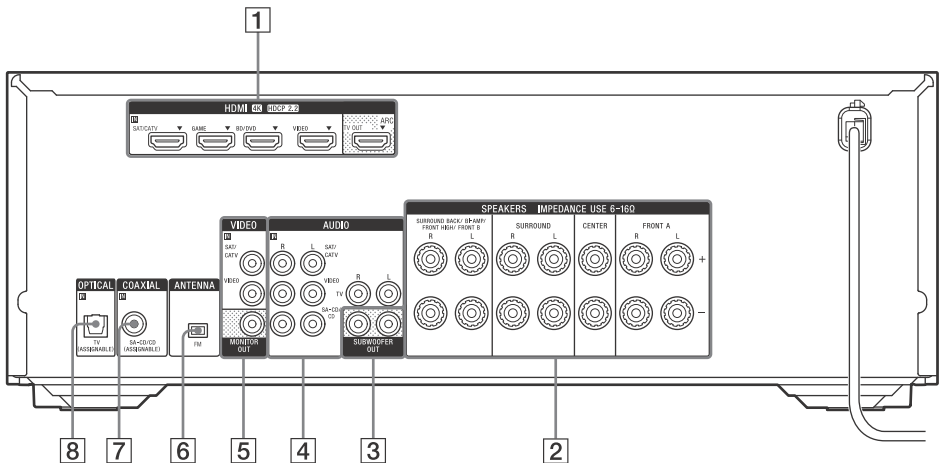


1. **HDMI IN/OUT jacks\* (page 22, 23, 25)**
2. **SPEAKERS terminals (page 16, 17, 18, 19, 20)**
3. **SUBWOOFER OUT jacks (page 16, 17, 18, 19, 20)**
4. **AUDIO IN jacks (page 22, 24, 26)**
5. **VIDEO IN/MONITOR OUT jacks (page 24, 26)**
6. **FM ANTENNA terminal (page 27)**
7. **COAXIAL IN jack (page 26)**
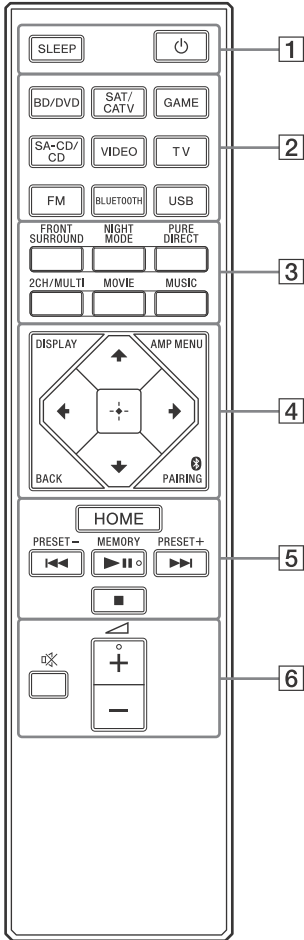8. **OPTICAL IN jack (page 22, 24)**

\* HDCP 2.2 is newly enhanced copyright protection technology that is used to protect content such as 4K movies.

**Connect a TV to the corresponding output jacks to watch video input from these jacks.**

| Input jacks | Output jack |
| --- | --- |
| HDMI IN | HDMI TV OUT |
| VIDEO IN | MONITOR OUT |

For details, see "Connecting a TV" (page 21).

# Remote control



A ⏻ **(power)**

Turns the receiver on or sets it to the standby mode.

**Saving power in standby mode**

Check that you have made the following settings:
- Set "CTRL HDMI" to "CTRL OFF" in the "<HDMI>" menu.
- Set "BT STANDBY" to "STBY OFF" in the "<BT>" menu.
- Set "STBY THRU" to "OFF" in the "<HDMI>" menu.

**SLEEP**

Sets the receiver to turn off automatically at a specified time.

B **Input buttons**

Selects the input channel connected to the device you want to use. When you press any of the input buttons, the receiver turns on.

C **FRONT SURROUND, 2CH/MULTI, MOVIE, MUSIC**

Selects a sound field.

**NIGHT MODE**

Activates the Night Mode function.

**PURE DIRECT**

Activates the Pure Direct function.

D **DISPLAY**

Displays information on the display panel.

**AMP MENU**

Displays the menu on the display panel to operate the receiver.

**BACK**

Returns to the previous menu or exits a menu or on-screen guide that is displayed on the TV screen.

**⑧ PAIRING**

Sets the receiver to pairing mode.

**⊞ (enter), ←/↑/↓/→**

Press ←, ↑, ↓, → to select the menu items. Then, press ⊞ to enter the selection.

E **HOME**

Displays the home menu on the TV screen.

**I◀◀ /▶▶I (previous/next), ▶II (play/pause)*, ■ (stop)**

Skip, play, pause, stop operation.

**PRESET +/−**

Selects preset stations or channels.

**MEMORY**

Stores a station during tuner operation.

F **⊿ (volume) +*/−**

Adjusts the volume level of all speakers at the same time.

**◁✕ (muting)**

Turns off the sound temporarily. Press the button again to restore the sound.

\* The ▶II/MEMORY and ⊿ + buttons have tactile dots. Use the tactile dots as reference when operating the receiver.
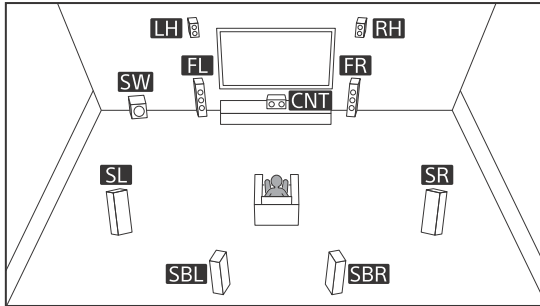
**Note**

- The above explanation is intended to serve as examples.
- Depending on the model of your connected device, some functions explained in this section may not work with the supplied remote control.

## Preparation

# Installing Speakers

You can connect up to 7 speakers and 2 subwoofers to this AV receiver. Place the speakers and subwoofers according to the speaker system of your preference.

## Location of each speaker



**Note**

- When you connect only one surround back speaker (SB), place the surround back speaker directly behind the listening position.
- As the subwoofer (SW) does not emit highly directional signals, you can place it wherever you want.

## Names and functions of speakers

| Abbreviations used in illustrations | Speaker name | Functions |
|---|---|---|
| FL | Front left speaker | Produces stereo sounds from front left/right channel. |
| FR | Front right speaker | |
| CNT | Center speaker | Produces vocal sounds from center channel. |
| SL | Surround left speaker | Produces sounds from surround left/right channel. |
| SR | Surround right speaker | |
| SBL | Surround back left speaker | Produces sounds from surround back left/right channel. |
| SBR | Surround back right speaker | |
| SB | Surround back speaker | Produces sounds from surround back channel. |
| SW | Subwoofer | Produces LFE (low frequency effect) channel sounds and reinforces bass parts of other channels. |
| LH | Left front high speaker | Produces vertical sound effects from front high left/right channel. |
| RH | Right front high speaker | |

## Speaker configuration and speaker pattern settings

Select the speaker pattern according to the speaker configuration which you are using.

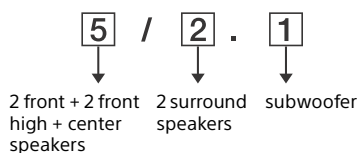| Speaker configuration | "SB ASSIGN"* | Speaker pattern to be selected in "<SPEAKER>" menu | For connection, see page |
|---|---|---|---|
| 5.1-channel | "OFF" | "3/2.1" | 16 |
| 7.1-channel using surround back speakers | – | "3/4.1" | 17 |
| 7.1-channel using front high speakers | – | "5/2.1" | 18 |
| 5.1-channel with Bi-amplifier connection | "BI-AMP" | "3/2.1" | 19 |
| 5.1-channel with Front B speakers | "SPK B" | "3/2.1" | 20 |

* You can only set "SB ASSIGN" if the speaker pattern is set to a setting that does not have surround back and front high speakers.

## Selecting the speaker pattern

**1** Press AMP MENU.

**2** Press ✦/✦ to select "<SPEAKER>", then press ⊞.

**3** Press ✦/✦ to select "SP PATTERN", then press ⊞.

**4** Select the speaker pattern you want, then press ⊞.

## Speaker pattern settings

For example:

⎡5⎤ / ⎡2⎤ . ⎡1⎤

2 front + 2 front high + center speakers → 2 surround speakers → subwoofer

| Speaker pattern | Front left/right speaker | Center speaker | Surround left/right speaker | Surround back left speaker | Surround back right speaker | Subwoofer | Left/right front high speaker |
|---|---|---|---|---|---|---|---|
| 5/2.1 | ○ | ○ | ○ | – | – | ○ | ○ |
| 5/2 | ○ | ○ | ○ | – | – | – | ○ |
| 4/2.1 | ○ | – | ○ | – | – | ○ | ○ |
| 4/2 | ○ | – | ○ | – | – | – | ○ |
| 3/4.1 | ○ | ○ | ○ | ○ | ○ | ○ | – |
| 3/4 | ○ | ○ | ○ | ○ | ○ | – | – |
| 2/4.1 | ○ | – | ○ | ○ | ○ | ○ | – |
| 2/4 | ○ | – | ○ | ○ | ○ | – | – |
| 3/3.1 | ○ | ○ | ○ | ○ | – | ○ | – |
| 3/3 | ○ | ○ | ○ | ○ | – | – | – |
| 2/3.1 | ○ | – | ○ | ○ | – | ○ | – |

| Speaker pattern | Front left/right speaker | Center speaker | Surround left/right speaker | Surround back left speaker | Surround back right speaker | Subwoofer | Left/right front high speaker |
|---|---|---|---|---|---|---|---|
| 2/3 | ○ | – | ○ | ○ | – | – | – |
| 3/2.1 | ○ | ○ | ○ | – | – | ○ | – |
| 3/2 | ○ | ○ | ○ | – | – | – | – |
| 2/2.1 | ○ | – | ○ | – | – | ○ | – |
| 2/2 | ○ | – | ○ | – | – | – | – |
| 3/0.1 | ○ | ○ | – | – | – | ○ | – |
| 3/0 | ○ | ○ | – | – | – | – | – |
| 2/0.1 | ○ | – | – | – | – | ○ | – |
| 2/0 | ○ | – | – | – | – | – | – |

– : Not used.
○ : Used.

# Connecting Speakers

This receiver allows you to connect up to 7.1-channel speaker system.
The speaker layout diagram is a guide for the ideal speaker placement. You do not need to adjust your speaker placement exactly the same as the diagram.

**Note**

- Before connecting cables, be sure to disconnect the AC power cord (mains lead).
- Before connecting the AC power cord (mains lead), make sure that metallic wires of the speaker cables are not touching each other between the SPEAKERS terminals.
- When you connect a subwoofer with an auto standby function, turn off the function when watching movies. If the auto standby function is set to on, it turns to standby mode automatically based on the level of the input signal to the subwoofer, and the sound may not be output.
- If you have two subwoofers, you can connect them to both SUBWOOFER OUT jacks.

## Examples of speaker connections

## 5.1-channel speaker system
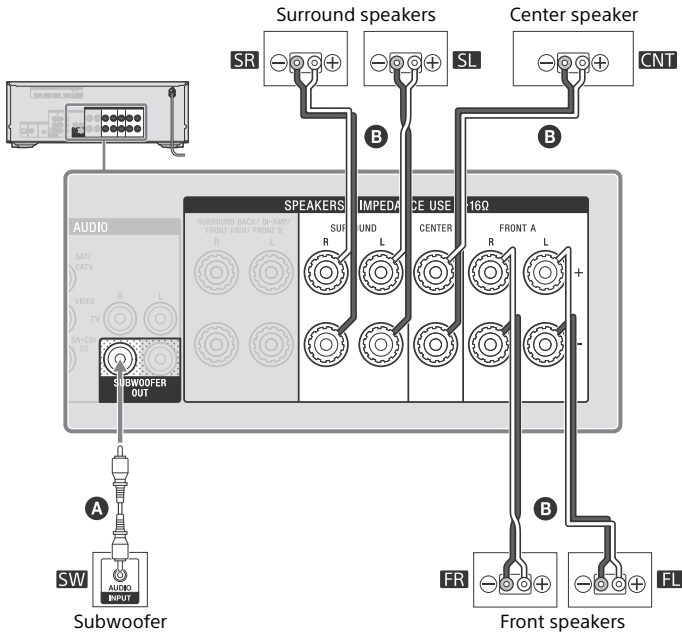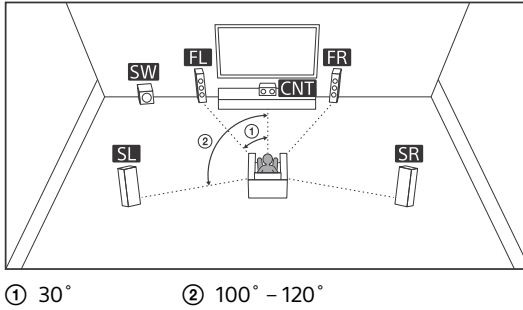


① 30˚          ② 100˚ – 120˚



**Ⓐ** Monaural audio cable (not supplied)
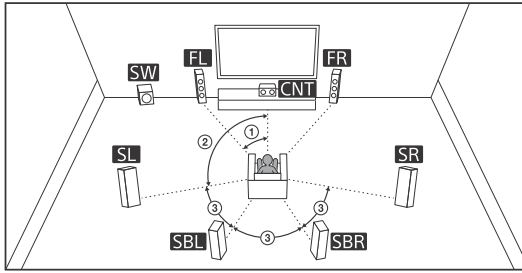**Ⓑ** Speaker cable (not supplied)

After you have made the connection, set [Surround Back Speakers Assign] in [Speaker Setting] to [None Speaker].
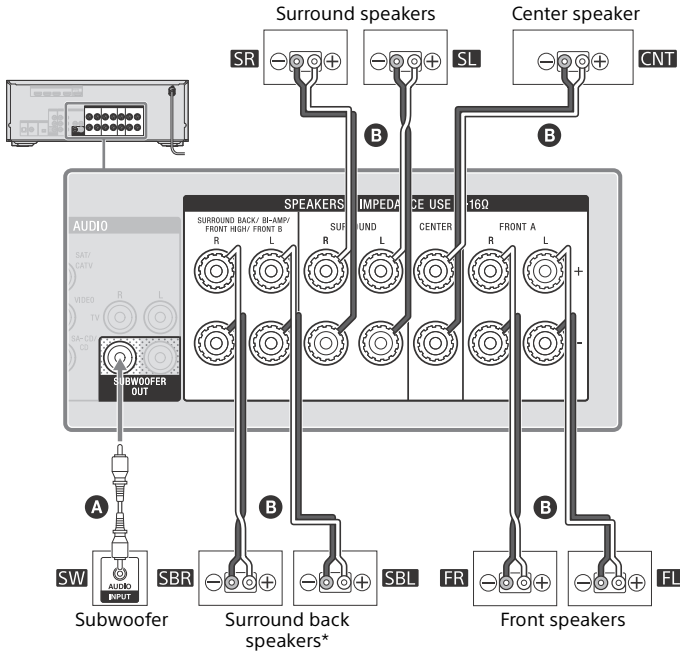
**Tip**

You can also set [SURROUND BACK SPEAKERS ASSIGN] in [Easy Setup] to [No speaker is connected].

# 7.1-channel speaker system using surround back speakers

① 30˚   ② 100˚ – 120˚
③ Same angle.



Surround speakers   Center speaker
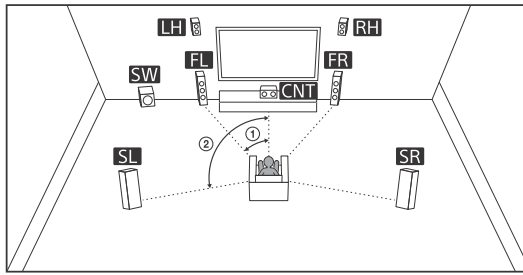
Subwoofer   Surround back speakers*   Front speakers

Ⓐ Monaural audio cable (not supplied)
Ⓑ Speaker cable (not supplied)

\* If you connect only one surround back speaker, connect it to the L (+/−) terminals.
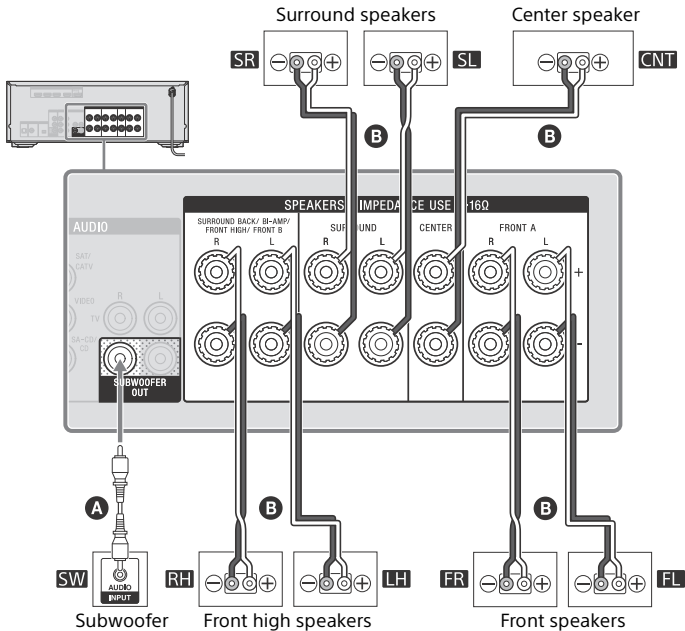
After you have made the connection, set [Surround Back Speakers Assign] in [Speaker Setting] to [Surround Back Speakers].

## 7.1-channel speaker system using front high speakers



① 30˚          ② 100˚ – 120˚



Ⓐ Monaural audio cable (not supplied)
Ⓑ Speaker cable (not supplied)

After you have made the connection, set
[Surround Back Speakers Assign] in [Speaker
Setting] to [Front High Speakers].

# 5.1-channel speaker system with Bi-amplifier connection

You can enhance the sound quality by connecting different amplifiers to both a tweeter and a woofer, using bi-amplifier connection.



① 30˚    ② 100˚ – 120˚



Ⓐ Monaural audio cable (not supplied)
Ⓑ Speaker cable (not supplied)

Make sure that metal fittings of Hi/Lo attached to the speakers have been removed from the speakers to avoid receiver malfunction.
After you have made the connection, set [Surround Back Speakers Assign] in [Speaker Setting] to [Bi-Amplifier Speakers].

**19**GB

## 5.1-channel speaker system with Front B speakers

If you have an additional front speaker system, connect it to SPEAKERS SURROUND BACK/ BI-AMP/FRONT HIGH/FRONT B terminals.
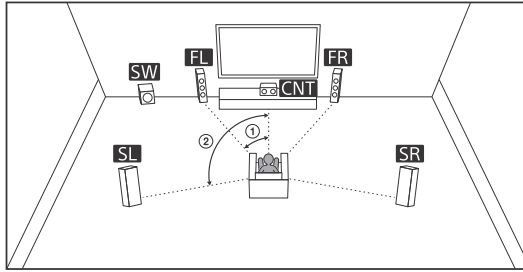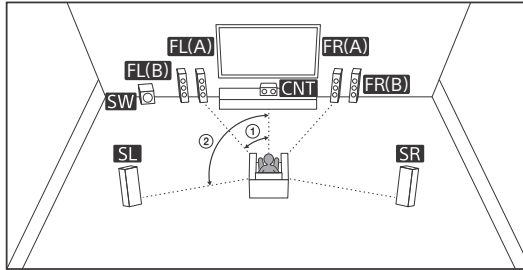


① 30˚          ② 100˚ – 120˚
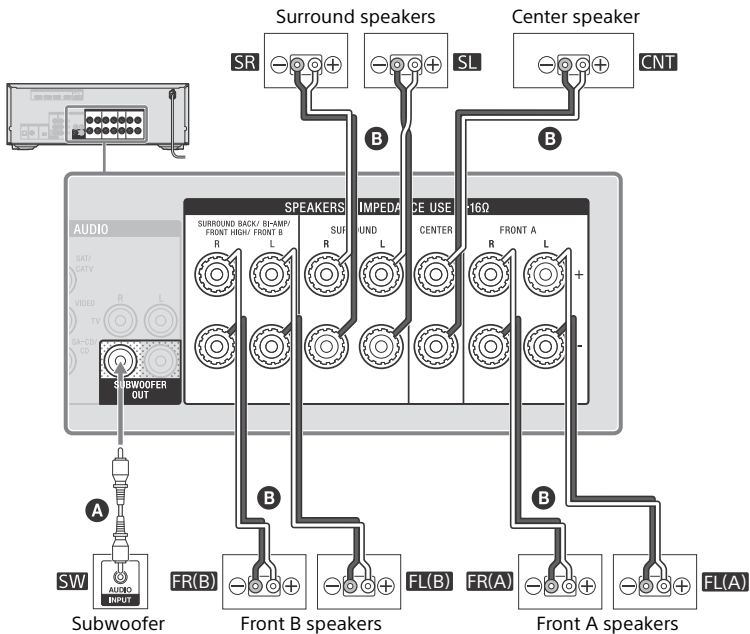


**ⓐ** Monaural audio cable (not supplied)
**ⓑ** Speaker cable (not supplied)

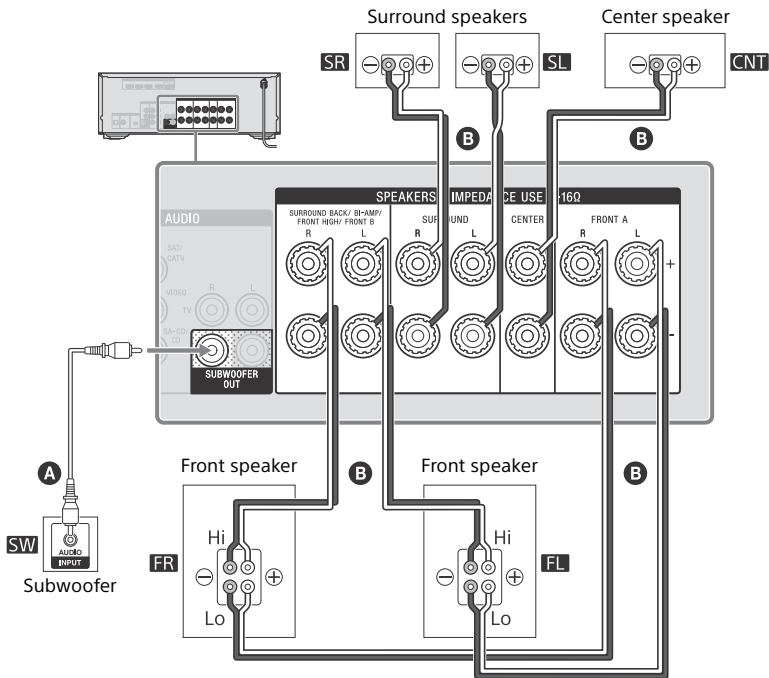After you have made the connection, set [Surround Back Speakers Assign] in [Speaker Setting] to [Front B Speakers].
You can select the front speaker system you want by using the SPEAKERS button on the receiver (page 29).

# Connecting a TV

Connect a TV to the HDMI TV OUT or MONITOR OUT jack. You can operate this receiver using the menu on the TV screen when you connect the TV to the HDMI TV OUT jack.
For a 4K TV connection, visit the Help Guide.

## Notes on connection

- Before connecting cables, be sure to disconnect the AC power cord (mains lead).
- Connect a TV monitor or a projector to the HDMI TV OUT or MONITOR OUT jack on the receiver.
- Sony recommends that you use an HDMI authorized cable or HDMI cable made by Sony. Be sure to use a High Speed HDMI Cable with Ethernet. Premium High Speed HDMI Cable with Ethernet is required for 4K/60p 4:4:4, 4:2:2 and 4K/60p 4:2:0 10 bit etc.
- We do not recommend using an HDMI-DVI conversion cable. If you connect an HDMI-DVI conversion cable to a DVI-D device, the sound and/or image may be lost. Connect separate audio cables or digital connecting cables, then reassign the input jacks if the sound is not output correctly.
- Depending on the status of the connection between the TV and the antenna (aerial), the image on the TV screen may be distorted. If this is the case, place the antenna (aerial) farther away from the receiver.
- When connecting an optical digital cable, insert the plugs straight until they click into place.
- Do not bend or tie optical digital cables.
- All of the digital audio jacks are compatible with 32 kHz, 44.1 kHz, 48 kHz, and 96 kHz sampling frequencies.
- When connecting a TV to the receiver via the TV IN jacks of the receiver, set the sound output jack of the TV to "Fixed" if it can be switched between "Fixed" or "Variable".
- When you use high bandwidth video formats such as 4K/60p 4:4:4, 4:2:2 and 4K/60p 4:2:0 10 bit, be sure to set the HDMI signal format. For details, see "Setting HDMI signal format" (page 32).

## Connecting a TV incompatible with the Audio Return Channel (ARC) function via an HDMI connection

It is not necessary to connect all the cables. HDMI connection for audio/video signals is required.
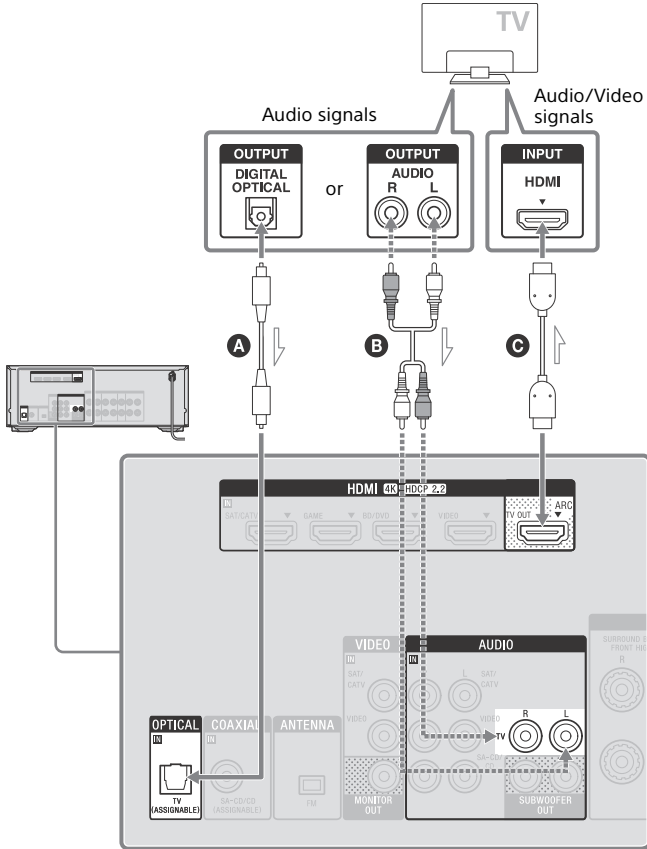


Ⓐ Optical digital cable (not supplied)
Ⓑ Audio cable (not supplied)
Ⓒ HDMI cable (not supplied)

—— Recommended connection
----- Alternative connection

## Connecting a TV compatible with the Audio Return Channel (ARC) function via an HDMI connection

With just one HDMI cable connection, you can listen to the TV audio from the speakers connected to the receiver while the receiver sends audio and video signals to the TV.

Audio/Video signals
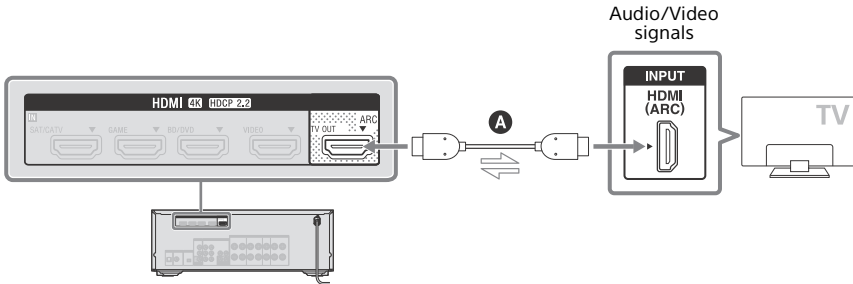


Ⓐ HDMI cable (not supplied)

**Note**

For this connection, you need to turn the Control for HDMI function on. Press AMP MENU, then select "<HDMI>" – "CTRL HDMI" – "CTRL ON".

**Tip**

If the HDMI jack of the TV (labeled "ARC") is already connected to another device, disconnect the device and connect the receiver.

## Connecting a TV without HDMI jacks

It is not necessary to connect all the cables. Connections for video signals are required.
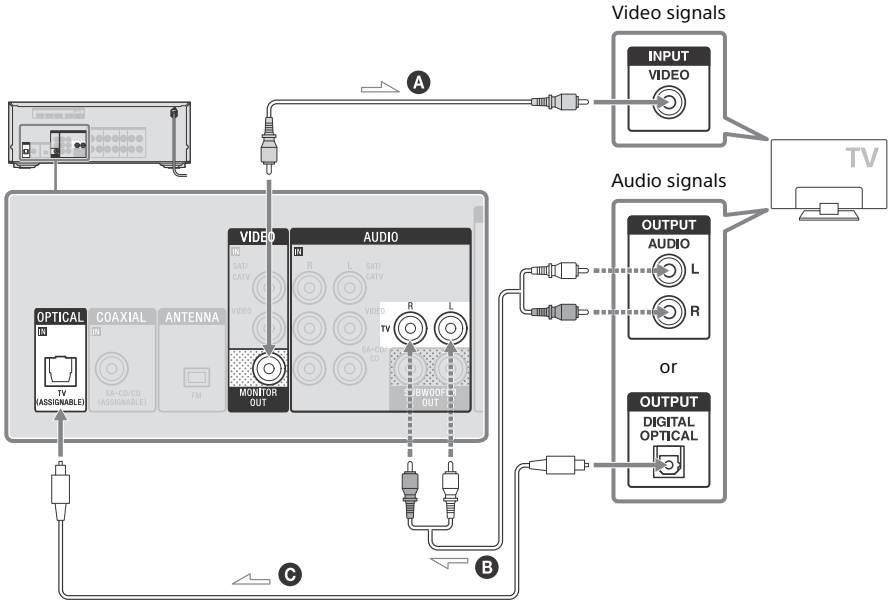


Ⓐ Video cable (not supplied)
Ⓑ Audio cable (not supplied)
Ⓒ Optical digital cable (not supplied)

——— Recommended connection
- - - - - Alternative connection

# Connecting Audio-Visual Devices

## Connecting devices with HDMI jacks

Before connecting cables, be sure to disconnect the AC power cord (mains lead).
The HDMI jacks are compatible with HDCP 2.2. To watch content protected by HDCP 2.2, such as 4K content, connect these HDMI jacks to HDCP 2.2-compatible HDMI jacks on the TV and player. Refer to the operating instructions of the connected device for details.
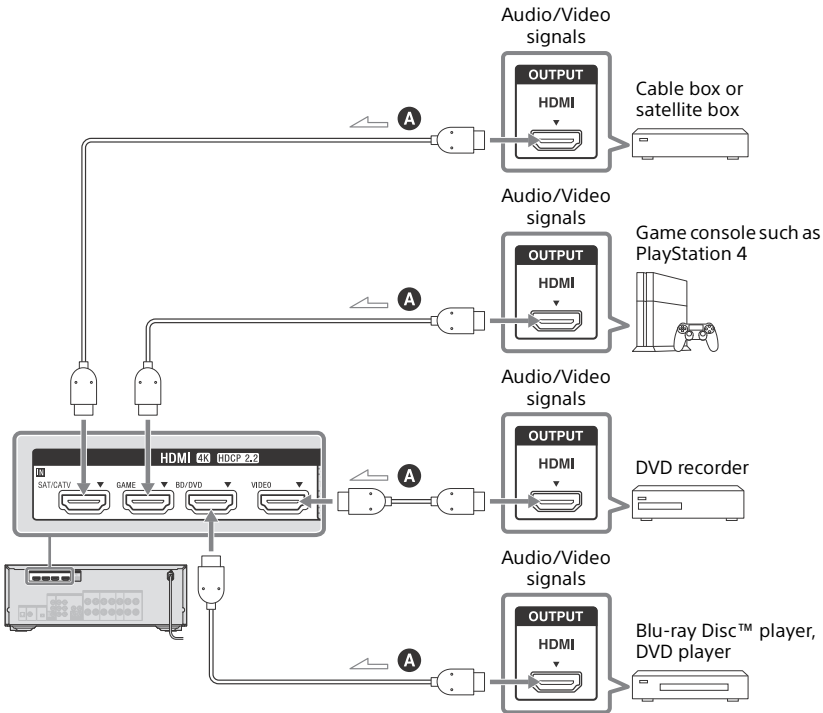


Ⓐ HDMI cable (not supplied)

**Tip**

- This HDMI connection is an example. You can connect each HDMI device to any HDMI input.
- The image quality depends on the connecting jack. We recommend you to connect your devices via an HDMI connection if they have HDMI jacks.

## Connecting devices with jacks other than HDMI jacks

Before connecting cables, be sure to disconnect the AC power cord (mains lead).



Super Audio CD player, CD player
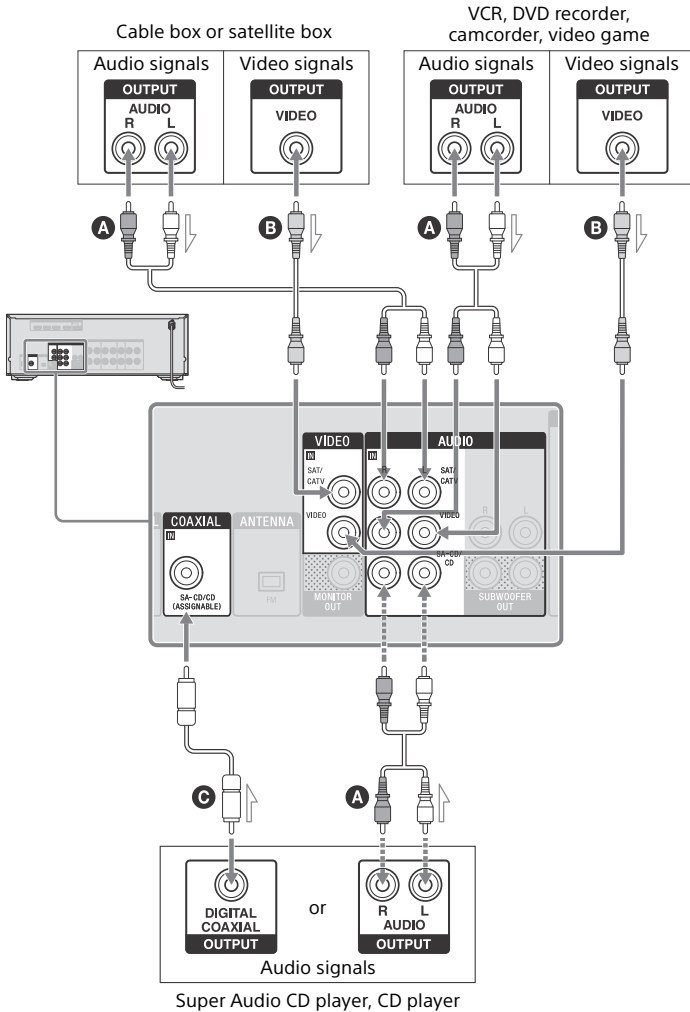
Ⓐ Audio cable (not supplied)
Ⓑ Video cable (not supplied)
Ⓒ Coaxial digital cable (not supplied)

——— Recommended connection
- - - - Alternative connection

**Tip**

You can rename each input so that the name can be displayed on the display panel of the receiver. For details on the setting, refer to "Changing the name for each input (NAME IN)" in Help Guide.

# Connecting the Antenna (aerial)

Before connecting the antenna (aerial), be sure to disconnect the AC power cord (mains lead).



ANTENNA

FM

FM wire antenna (aerial) (supplied)
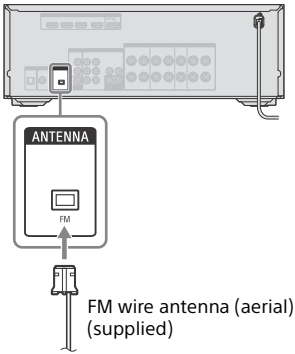
**Note**
• Be sure to fully extend the FM wire antenna (aerial).
• After connecting the FM wire antenna (aerial), keep it as horizontal as possible.

# Connecting the AC Power Cord (mains lead)

Before connecting the AC power cord (mains lead), be sure to make connections for speakers and the other devices.

## 1 Connect the AC power cord (mains lead) to a wall outlet.



To the wall outlet
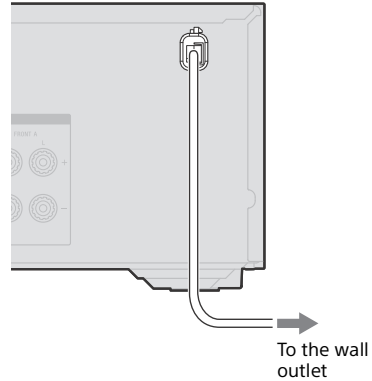
## 2 Press ⏻ (power) to turn on the receiver.
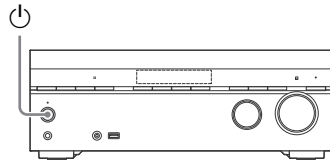


You can also turn on the receiver using ⏻ (power) on the remote control. To turn off the receiver, press ⏻ (power) again.

**Note**
After you turn off the receiver, "STANDBY" flashes on the display panel. Do not disconnect the AC power cord (mains lead) while "STANDBY" is flashing. This may cause a malfunction.

# Setting up the Receiver using the Easy Setup

To perform initial setup of the receiver, make sure a TV is connected to the receiver (page 22, 23). Then, switch the input of the TV to the input to which the receiver is connected.

**Note**

It is not possible to perform the Easy Setup procedure using the indications on the display panel.

When you turn on the receiver for the first time or after the receiver is initialized, the Easy Setup screen appears on the TV screen.

```
        E a s y   S e t u p

              W e l c o m e !
    S e l e c t   y o u r   l a n g u a g e

            E n g l i s h
            E s p a n o l              ▷
            F r a n c a i s
            D e u t s c h


        ↑↓ : S e l e c t
        ← : G o   b a c k
        → : C o n t i n u e
```

If the Easy Setup screen does not appear or you want to display the Easy Setup screen manually, you can display it by pressing HOME, then select [Easy Setup].

```
                H o m e


    ┌────┐   ┌────┐   ┌────┐   ┌────┐
    │    │   │    │   │    │   │ ◎  │
    └────┘   └────┘   └────┘   └────┘
    Watch    L i s t e n   E a s y    S p e a k e r
                          S e t u p   S e t t i n g
```
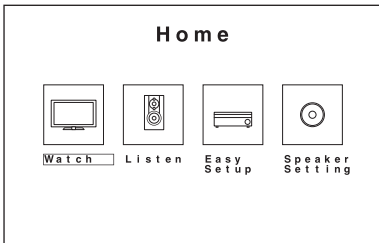
## What you can do with Easy Setup

By performing Easy Setup, you can complete:
1: Selecting the language
2: Selecting the Surround Back Speakers Assign

Set the assignment for the SPEAKERS SURROUND BACK/BI-AMP/FRONT HIGH/FRONT B terminals.
3: Performing the Auto Calibration

Perform automatic calibration according to the configuration and arrangement of your speaker system.

## Before you perform Auto Calibration

- Disconnect the headphones.
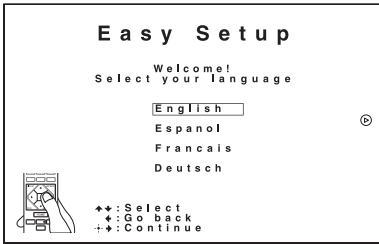- Remove any obstacles between the calibration microphone and the speakers.
- For accurate measurement, make sure the environment is quiet and free from noise.
- Set the speaker output to a setting other than "SPK OFF". For details, see "Selecting the front speakers" (page 29).
- Confirm the active subwoofer setup
  − When a subwoofer is connected, turn on the subwoofer and turn up the volume prior to activating the subwoofer. Turn the LEVEL to just before the mid-point.
  − If you connect a subwoofer with a crossover frequency function, set the value to maximum.
  − If you connect a subwoofer with an auto standby function, set it to off (deactivated).
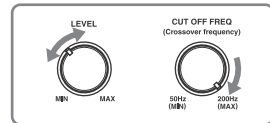


**Note**

Depending on the characteristics of the subwoofer you are using, the setup distance value may be different from the actual position.

## Selecting the front speakers

SPEAKERS



**Press SPEAKERS on the receiver repeatedly.**
The indicators on the display panel shows
which set of terminals are selected.
- **SP A**: Speakers connected to the SPEAKERS
  FRONT A terminals.
- **SP B\***: Speakers connected to the
  SPEAKERS SURROUND BACK/BI-AMP/
  FRONT HIGH/FRONT B terminals.
- **SP A B\***: Speakers connected to both the
  SPEAKERS FRONT A and SPEAKERS
  SURROUND BACK/BI-AMP/FRONT HIGH/
  FRONT B terminals (parallel connection).
- (None): "SPK OFF" appears on the display
  panel. No audio signals are output from any
  speaker terminals.

\* To select "SP B" or "SP A B", set [Surround Back
Speakers Assign] in [Speaker Setting] to [Front B
Speakers].

**Note**

This setting is not available when headphones are
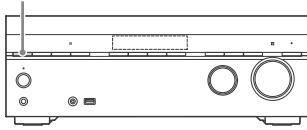connected.

## 1: Selecting the language



E a s y   S e t u p

W e l c o m e !
S e l e c t   y o u r   l a n g u a g e

E n g l i s h
E s p a n o l
F r a n c a i s
D e u t s c h

: S e l e c t
: G o   b a c k
: C o n t i n u e
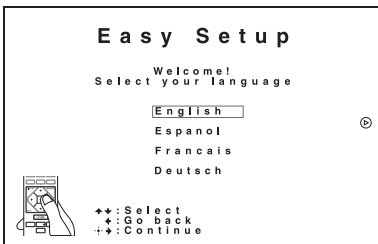
**Press /  to select the language,
then press .**

## 2: Selecting the Surround Back Speakers Assign

E a s y   S e t u p

S U R R O U N D   B A C K   S P E A K E R S   A S S I G N

S e l e c t   h o w   s p e a k e r s   a r e   u s e d   o n
S U R R O U N D   B A C K   s p e a k e r   t e r m i n a l s

S u r r o u n d   B a c k   S p e a k e r s
B i - A m p l i f i e r   S p e a k e r s
F r o n t   B   S p e a k e r s
F r o n t   H i g h   S p e a k e r s
N o   s p e a k e r   i s   c o n n e c t e d

C o n n e c t   a s   s u r r o u n d   b a c k
s p e a k e r s .
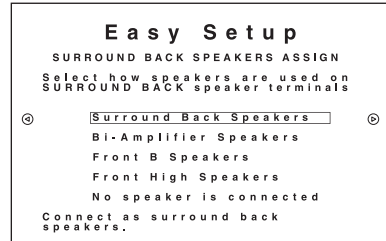
**Press /  to select the Surround
Back Speakers Assign, then press
.**

Select the Surround Back Speakers Assign
according to the speaker configuration that
you are using (page 16 – 20).

## 3: Performing the Auto Calibration

E a s y   S e t u p

A U T O   C A L I B R A T I O N

M e a s u r e   d i s t a n c e ,   l e v e l   a n d
c h a r a c t e r i s t i c s   o f   s p e a k e r s
c o n n e c t e d   t o   r e c e i v e r

S t a r t
S k i p

P r o c e e d   w i t h   A u t o   C a l i b r a t i o n .
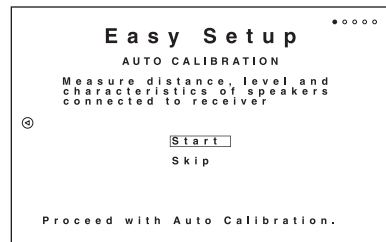
## 1 Press /  to select [Start], then press .

**Tip**

If you wish to perform Auto Calibration later,
select [Skip].

**2** **Connect the supplied calibration microphone to CALIBRATION MIC jack. Set up the calibration microphone at your listening position.**



CALIBRATION MIC

Calibration microphone (supplied)
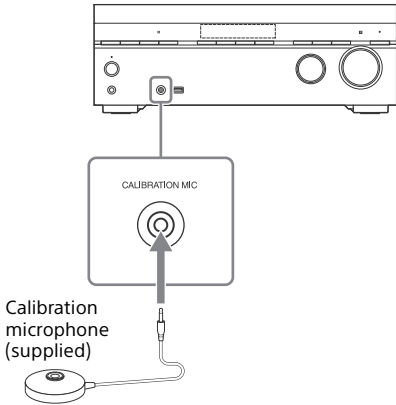
Note

- The speakers emit very loud sound during the calibration and the volume cannot be adjusted. Be considerate of your neighbors and any children who are present.
- If the muting function has been activated before you perform Auto Calibration, the muting function will shut off automatically.
- It may not be possible to take the correct measurements or to perform Auto Calibration at all if special speakers such as dipole speakers are used.

**3** **Select [Proceed].**



Easy Setup
AUTO CALIBRATION

Remove obstacles in between calibration microphone and speakers to get more accurate calibration.

Proceed

**4** **Select [Proceed] again.**



Easy Setup
AUTO CALIBRATION
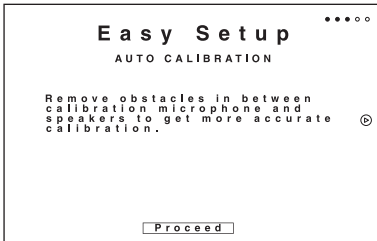
Starting Soon

The measurement process will take approximately 30 seconds with a test tone.
When the measurement ends, a beep sounds and the screen switches.

Note

If the measurement fails, follow the message, then select [Retry]. For details on the error code and warning message, see "List of messages after Auto Calibration measurements" (page 37).

**5** **Confirm the measurement results.**



Easy Setup
AUTO CALIBRATION
The measurement is completed

Retry
Save&Exit
Exit

Retry to perform Auto Calibration.
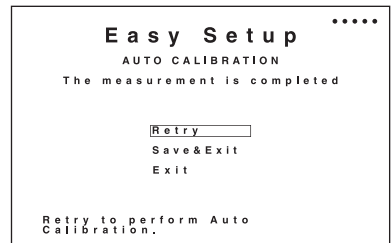
- [Retry]: Performs the Auto Calibration again.
- [Save&Exit]: Save the measurement results and exits the setting process.
- [Exit]: Exits the setting process without saving the measurement results.

Tip

The measurement results may vary depending on the position of the subwoofer. However, continuing to use the receiver with that value does not cause problems.

## 6 Select [Save&Exit].

```
E a s y   S e t u p


C o m p l e t e d




E x i t
```

## 7 The Auto Calibration is completed. Disconnect the calibration microphone, then select [Exit].

### To cancel Auto Calibration

The Auto Calibration function will be canceled when you perform the following during the measurement process:
− Press ⏻ (power).
− Press the input buttons on the remote control or turn the INPUT SELECTOR on the receiver.
− Press ⊠.
− Press SPEAKERS on the receiver.
− Change the volume level.
− Connect the headphones.

---

### Listening/Watching

# Enjoying Sound and Video

## Playing AV devices

## 1 Turn the TV on, and then switch the input of the TV to the input to which the receiver is connected.

## 2 Press HOME.

The home menu is displayed on the TV screen.
Depending on the TV, the home menu may take some time to appear on the TV screen.

```
H o m e

┌─────┐  ┌─────┐  ┌─────┐  ┌─────┐
│     │  │  ◎  │  │     │  │  ◎  │
│     │  │ ▤▤ │  │─────│  │     │
└─────┘  └─────┘  └─────┘  └─────┘
 Watch    Listen    Easy    Speaker
                    Setup   Setting
```
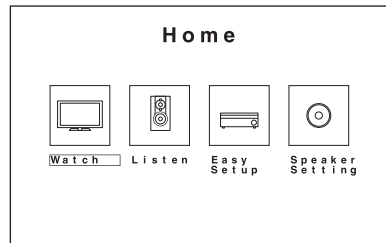
## 3 Press ←/→ to select [Watch] or [Listen], then press ⊡.

The menu item list appears on the TV screen.

## 4 Select the device you want to play.

## 5 Turn on the device and start playback.

## 6 Press ∠ +/− to adjust the volume.

You can also use MASTER VOLUME on the receiver.

**Tip**

- You can turn INPUT SELECTOR on the receiver or press the input buttons on the remote control to select the device you want.
- You can adjust the volume differently using the MASTER VOLUME knob on the receiver or the ⊿ +/– buttons on the remote control.
  To turn the volume up or down quickly
  − Turn the knob quickly.
  − Press and hold one of the buttons.
  To make fine adjustments
  − Turn the knob slowly.
  − Press one of the buttons and release it immediately.

## Setting HDMI signal format

### Press AMP MENU, then select "<HDMI>" – "SIGNAL FMT.". Select the input you want, then press ⊕.

- **STANDARD:** Selects this when you do not use high bandwidth video format.
- **ENHANCED:** Selects this when you use high bandwidth video formats such as 4K/60p 4:4:4, 4:2:2 and 4K/60p 4:2:0 10 bit.

**Note**

- For details on the high bandwidth video format, visit the Help Guide.
- When "ENHANCED" is selected, we recommend you to use a Premium High Speed HDMI Cable with Ethernet, which can support bandwidth up to 18 Gbps.
- Some devices (cable box or satellite box, Blu-ray Disc player, and DVD player) does not work well with "ENHANCED" setting. In this case, select "STANDARD".
- If your TV have similar menu for high bandwidth video format, check the setting on the TV menu when you select "ENHANCED" on this receiver. For details on the TV menu setting, refer to the operating instructions of the TV.

# Enjoying Sound Effects

## Selecting a sound field

You can select from a variety of sound field modes according to speaker connections or input sources.

### Press FRONT SURROUND, 2CH/MULTI, MOVIE, or MUSIC to select a sound field you want.

You can also use 2CH/MULTI, MOVIE, or MUSIC on the receiver.
For details on each sound field, visit the Help Guide.

**Note**

- When listening with headphones, only the sound field for headphones appear.
- The sound fields for movie and music may not work, depending on the input or the speaker pattern you select, or with audio formats.
- The receiver may play signals at a lower sampling frequency than the actual sampling frequency of the input signals, depending on the audio format.
- "PLIIX MV" or "PLIIX MS" may not appear, depending on the speaker pattern you select.
- Some speakers or the subwoofer may not output sound, depending on the sound field setting.
- If there is any noise present, the noise may be different, depending on the sound field you select.

## Relations between sound fields and speaker outputs

The list below shows which speaker outputs sound when a certain sound field is selected.

## 2-channel contents

| Sound field | | Display panel | Front speakers | Center speaker | Surround speakers | Surround back speakers | Subwoofer | Front high speakers |
|---|---|---|---|---|---|---|---|---|
| 2CH/ MULTI | 2ch Stereo | 2CH STEREO | ◎ | – | – | – | – | – |
| | Multi Channel Stereo | MULTI ST. | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Direct (Analog input) | DIRECT | ◎ | – | – | – | – | – |
| | Direct (Others) | DIRECT | ◎ | – | – | – | ○*1 | – |
| MOVIE | HD-Digital Cinema Sound (Dynamic/ Theater/Studio) | HD-D.C.S. | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Pro Logic II Movie | PLII MV | ◎ | ○ | ○ | – | ○ | – |
| | Pro Logic IIx Movie | PLIIX MV | ◎ | ○ | ○ | ○ | ○ | – |
| | Neo:6 Cinema | NEO6.CINEMA | ◎ | ○ | ○ | ○ | ○*2 | – |
| | Front Surround | FRONT SUR. | ◎ | – | – | – | ○*2 | – |
| MUSIC | Audio Enhancer | A. ENHANCER | ◎ | – | – | – | ○ | – |
| | Concert Hall | HALL | ◎ | ○ | ○ | ○ | ○*2 | ○ |
| | Jazz Club | JAZZ | ◎ | ○ | ○ | ○ | ○*2 | ○ |
| | Live Concert | CONCERT | ◎ | ○ | ○ | ○ | ○*2 | ○ |
| | Stadium | STADIUM | ◎ | ○ | ○ | ○ | ○*2 | ○ |
| | Sports | SPORTS | ◎ | ○ | ○ | ○ | ○*2 | ○ |
| | Pro Logic II Music | PLII MS | ◎ | ○ | ○ | – | ○ | – |
| | Pro Logic IIx Music | PLIIX MS | ◎ | ○ | ○ | ○ | ○ | – |
| | Neo:6 Music | NEO6.MUSIC | ◎ | ○ | ○ | ○ | ○*2 | – |

– : No sound is output.
◎ : Outputs sound.
○ : Outputs sound depending on the speaker pattern setting.
*1 USA and Canadian models: Outputs sound.
 Other models: Outputs sound depending on the speaker pattern setting only when [Small] is selected for [Size] in [Speaker Setting].
*2 Outputs sound depending on the speaker pattern setting only when [Small] is selected for [Size] in [Speaker Setting].

# Multi-channel contents

| Sound field | | Display panel | Front speakers | Center speaker | Surround speakers | Surround back speakers | Subwoofer | Front high speakers |
|---|---|---|---|---|---|---|---|---|
| 2CH/ MULTI | 2ch Stereo | 2CH STEREO | ◎ | – | – | – | – | – |
| | Multi Channel Stereo | MULTI ST. | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Direct | DIRECT | ◎ | ○ | ○ | ○ | ○ | ○ |
| MOVIE | HD-Digital Cinema Sound (Dynamic/ Theater/Studio) | HD-D.C.S. | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Pro Logic II Movie | PLII MV | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Pro Logic IIx Movie | PLIIX MV | ◎ | ○ | ○ | ○ | ○ | – |
| | Neo:6 Cinema | NEO6.CINEMA | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Front Surround | FRONT SUR. | ◎ | – | – | – | ○ | – |
| MUSIC | Audio Enhancer | A. ENHANCER | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Concert Hall | HALL | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Jazz Club | JAZZ | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Live Concert | CONCERT | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Stadium | STADIUM | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Sports | SPORTS | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Pro Logic II Music | PLII MS | ◎ | ○ | ○ | ○ | ○ | ○ |
| | Pro Logic IIx Music | PLIIX MS | ◎ | ○ | ○ | ○ | ○ | – |
| | Neo:6 Music | NEO6.MUSIC | ◎ | ○ | ○ | ○ | ○ | ○ |

– : No sound is output.
◎ : Outputs sound.
○ : Outputs sound depending on the speaker pattern setting and the channels included in the input source.

**Note**

When no sound is heard, check that all the speakers are securely connected to the correct speaker terminals (page 15), and the correct speaker pattern (page 14) is selected.

# Troubleshooting

If a problem occurs while operating the receiver, check the following to resolve the problem before consulting your nearest Sony dealer.

- Check to see if the problem is listed in this "Troubleshooting" section.
- Visit the Help Guide for detailed examples. You can search by a keyword using the online troubleshooting guide.

  For the customers in Europe:
  http://rd1.sony.net/help/ha/strdh77/h_eu/

  For the customers in Taiwan:
  http://rd1.sony.net/help/ha/strdh77/zh-tw/

  For the customers in other areas:
  http://rd1.sony.net/help/ha/strdh77/h_zz/

If the problem persists after doing all of the above, consult your nearest Sony dealer.

## General

**The receiver is turned off automatically.**
- "AUTO STBY" is set to "STBY ON".
- The sleep timer function was activated.
- "PROTECTOR" was activated (page 36).

**The display panel is turned off.**
- If the PURE DIRECT indicator on the front panel lights up, press PURE DIRECT to turn off this function.
- Press DIMMER on the receiver to adjust the brightness of the display panel.

## Image

**No image appears on the TV screen.**
- Select the appropriate input using the input buttons.
- Set your TV to the appropriate input mode.
- Move your audio device away from the TV.
- Make sure that cables are correctly and securely connected to devices.

- Set "SIGNAL FMT." of the selected input to "STANDARD" in the "<HDMI>" menu.
- Some playback devices need to be set up. Refer to the operating instructions supplied with each device.
- Be sure to use a High Speed HDMI Cable with Ethernet when you view images or listen to sound, especially for 1080p, Deep Color (Deep Colour), 4K or 3D transmission. Premium High Speed HDMI Cable with Ethernet is required for 4K/60p 4:4:4, 4:2:2 and 4K/60p 4:2:0 10 bit etc.
- If you want to play HDCP 2.2 content, connect the receiver to an HDMI input jack of a TV that is compatible with HDCP 2.2.

**No 3D content appears on the TV screen.**
- Depending on the TV or the video device, 3D content may not be displayed. For details on the 3D HDMI video format supported by the receiver, visit the Help Guide.
- Be sure to use a High Speed HDMI Cable with Ethernet.

**No 4K content appears on the TV screen.**
- Depending on the TV or the video device, 4K content may not be displayed. Check the video capability and settings of your TV and video device.
- Be sure to use a High Speed HDMI Cable with Ethernet.
- When you use high bandwidth video formats such as 4K/60p 4:4:4, 4:2:2 and 4K/60p 4:2:0 10 bit, we recommend you to use a Premium High Speed HDMI Cable with Ethernet.
- If your TV have similar menu for high bandwidth video format, check the setting on the TV menu when you select "ENHANCED" (page 32) on this receiver. For details on the TV menu setting, refer to the operating instructions of the TV.
- Be sure to connect the receiver to an HDMI input jack of a TV or video device that is supporting 4K. You have to connect an HDMI cable to an HDMI jack that supports HDCP 2.2 when you use a playback device for 4K resolution video content, etc.

**The home menu does not appear on the TV screen.**
- The home menu can only be used when you connect the TV to the HDMI TV OUT jack.
- Press HOME to display the home menu.
- Check that the TV is connected correctly.
- The home menu may take some time to appear on the TV screen depending on the TV.

## Audio

**No sound or only a very low level of sound is heard, no matter which device is selected.**
- Check that all connecting cables are inserted to their input/output jacks on the receiver, speakers and the devices.
- Check that the receiver and all devices are turned on.
- Check that MASTER VOLUME on the receiver is not set to "VOL MIN".
- Check that SPEAKERS on the receiver is not set to "SPK OFF" (page 29).
- Check that headphones are not connected to the receiver.
- Press ⓘ☓ to cancel the muting function.
- Try pressing the input button on the remote control or turning INPUT SELECTOR on the receiver to select the device of your choice.
- If you want to listen to sound from the TV speaker, set "AUDIO OUT" to "TV + AMP" in the "<HDMI>" menu. If you cannot play multi-channel audio source, set to "AMP". However, the sound will not be output through the TV speaker.
- Sound may be interrupted when the sampling frequency, number of channels or audio format of audio output signals from the playback device is switched.

**There is no sound from the TV via the HDMI TV OUT (ARC) jack when using the Audio Return Channel function.**
- Set "CTRL HDMI" to "CTRL ON" in the "<HDMI>" menu.
- Make sure that your TV is compatible with the Audio Return Channel function.
- Make sure that the HDMI cable is connected to a jack on your TV that is compatible with the Audio Return Channel function.

**The surround effect cannot be obtained.**
- Make sure you have selected a sound field for "MOVIE" or "MUSIC" (page 32).
- "PLII MV", "PLII MS", "PLIIX MV", "PLIIX MS", "NEO6.CINEMA", and "NEO6.MUSIC" do not work when the speaker pattern is set to "2/0" or "2/0.1" (page 14).

## Error messages

PROTECTOR
The receiver will automatically turn off after a few seconds. Check the followings:
- There may be an electrical surge or power failure. Unplug the AC power cord (mains lead) and then plug in the cord again after 30 minutes.
- The receiver is covered and the ventilation holes are blocked. Remove the object covering the ventilation holes of the receiver.
- The impedance of the connected speakers is below the rated impedance range indicated on the back panel of the receiver. Reduce the volume level.
- Unplug the AC power cord (mains lead) and let the receiver cool down for 30 minutes while performing the following troubleshooting:
  − Disconnect all of the speakers and subwoofer.
  − Check that the speaker wires are tightly twisted on both ends.
  − Connect the front speaker first, increase the volume level and operate the receiver for at least 30 minutes until it completely warms up. Then, connect each additional speaker one by one and test each additional speaker until you detect which speaker is causing the protection error.

After checking the above items and fixing any problems, plug in the AC power cord (mains lead) and turn on the receiver. If the problem persists, consult your nearest Sony dealer.

## List of messages after Auto Calibration measurements

### Error 30

• Headphones are connected to the PHONES jack on the receiver. Remove the headphones and perform the Auto Calibration again.

### Error 31

• Front speakers are not selected properly. Select the front speakers using SPEAKERS on the receiver and perform the Auto Calibration again. For details on selecting the front speakers, see "Selecting the front speakers" (page 29).

### Error 32, Error 33

• Speakers were not detected or not connected properly.
  − None of the front speakers are connected or only one front speaker is connected.
  − Either the surround left or surround right speaker is not connected.
  − Surround back speakers or front high speakers are connected even though surround speakers are not connected. Connect the surround speaker(s) to the SPEAKERS SURROUND terminals.
  − A surround back speaker is connected only to the SPEAKERS SURROUND BACK/ BI-AMP/FRONT HIGH/FRONT B R terminal. If connecting only one surround back speaker, connect it to the SPEAKERS SURROUND BACK/BI-AMP/FRONT HIGH/ FRONT B L terminal.
  − Either the front high left or front high right speaker is not connected.
• The calibration microphone is not connected. Make sure that the calibration microphone is connected properly and perform the Auto Calibration again. If the calibration microphone is connected properly but the error code still appears, the calibration microphone cable may be damaged.

### Warning 40

• The measurement process has been completed and a high noise level has been detected. You may be able to achieve better results if you try the process again in a quiet environment.

### Warning 41, Warning 42

• The input from the microphone is too large.
• The distance between the speaker and the microphone may be too short. Set them further apart and perform the measurement again.

### Warning 43

• The distance and position of a subwoofer cannot be detected. This may be caused by noise. Try performing the measurement in a quiet environment.

# Precautions

## On safety

Should any solid object or liquid fall into the cabinet, unplug the receiver and have it checked by qualified personnel before operating it any further.

## On power sources

• Before operating the receiver, check that the operating voltage is identical with your local power supply.
The operating voltage is indicated on the nameplate on the back of the receiver.
• If you are not going to use the receiver for a long time, be sure to disconnect the receiver from the wall outlet. To disconnect the AC power cord (mains lead), grasp the plug itself; never pull the cord.
• The AC power cord (mains lead) must be changed only at a qualified service shop.

## On heat buildup

Although the receiver heats up during operation, this is not a malfunction. If you continuously use this receiver at a large volume, the cabinet temperature of the top, side and bottom rises considerably. To avoid burning yourself, do not touch the cabinet.

## On placement

- Place the receiver in a location with adequate ventilation to prevent heat buildup and prolong the life of the receiver.
- Do not place the receiver near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.
- Do not place anything on top of the cabinet that might block the ventilation holes and cause malfunctions.
- Do not place the receiver near device such as a TV, VCR, or tape deck. (If the receiver is being used in combination with a TV, VCR, or tape deck, and is placed too close to that device, noise may result, and picture quality may suffer. This is especially likely when using an indoor antenna (aerial).)
- Use caution when placing the receiver on surfaces that have been specially treated (with wax, oil, polish, etc.) as staining or discoloration of the surface may result.

## On operation

Before connecting other device, be sure to turn off and unplug the receiver.

## On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder, or solvent, such as alcohol or benzine.

## On BLUETOOTH communication

## Supported BLUETOOTH version and profiles

Profile refers to a standard set of functions for various BLUETOOTH product features. See "BLUETOOTH section" in "Specifications" (page 40) for the BLUETOOTH version and profiles supported by this receiver.

## Effective communication range

BLUETOOTH devices should be used within approximately 10 meters (33 feet) (unobstructed distance) of each other. The effective communication range may become shorter under the following conditions.

- When a person, metal object, wall or other obstruction is between the devices with a BLUETOOTH connection.
- Locations where a wireless LAN is installed.
- Around microwave ovens that are in use.
- Locations where other electromagnetic waves are generated.

## Effects of other devices

BLUETOOTH devices and wireless LAN (IEEE 802.11b/g/n) device use the same frequency band (2.4 GHz). When using your BLUETOOTH device near a device with wireless LAN capability, electromagnetic interference may occur. This could result in lower data transfer rates, noise, or inability to connect. If this happens, try the following remedies:

- Use this receiver at least 10 meters (33 feet) away from the wireless LAN device.
- Turn off the power of the wireless LAN device when using your BLUETOOTH device within 10 meters (33 feet).
- Install this receiver and BLUETOOTH device as closer to each other as possible.

## Effects on other devices

The radio waves broadcast by this receiver may interfere with the operation of some medical devices. Since this interference may result in malfunction, always turn off the power on this receiver and BLUETOOTH device in the following locations:

- In hospitals, on trains, in airplanes, at gas stations, and any place where flammable gasses may be present.
- Near automatic doors or fire alarms.

**Note**

- This receiver supports security functions that comply with the BLUETOOTH specification to ensure secure connection during communication using BLUETOOTH technology. However, this security may be insufficient depending on the setting contents and other factors, so always be careful when performing communication using BLUETOOTH technology.

- Sony shall not be held liable in any way for damages or other loss resulting from information leaks during communication using BLUETOOTH technology.
- BLUETOOTH communication is not necessarily guaranteed with all BLUETOOTH devices that have the same profile as this receiver.
- BLUETOOTH devices connected with this receiver must comply with the BLUETOOTH specification prescribed by the Bluetooth SIG, Inc., and must be certified to comply. However, even when a device complies with the BLUETOOTH specification, there may be cases where the characteristics or specifications of the BLUETOOTH device make it impossible to connect, or may result in different control methods, display or operation.
- Noise may occur or the audio may cut off depending on the BLUETOOTH device connected with this receiver, the communications environment, or surrounding conditions.

If you have any questions or problems concerning your receiver, please consult your nearest Sony dealer.

# Specifications

## AUDIO POWER SPECIFICATIONS

### POWER OUTPUT AND TOTAL HARMONIC DISTORTION: (USA models only)

With 6 ohm loads, both channels driven, from 20 Hz – 20,000 Hz; rated 90 watts per channel minimum RMS power, with no more than 0.09% total harmonic distortion from 250 milliwatts to rated output.

### Amplifier section[1]
Minimum RMS Output Power
(6 ohms, 20 Hz – 20 kHz, THD 0.09%)
    90 W + 90 W

Stereo Mode Output Power
(6 ohms, 1 kHz, THD 1%)
    105 W + 105 W

Surround Mode Output Power[2]
(6 ohms, 1 kHz, THD 0.9%)
    145 W per channel

[1] Measured under the following conditions:

| Area | Power requirements |
|---|---|
| USA, Canada, Taiwan | 120 V AC, 60 Hz |
| Oceania, Europe | 230 V AC, 50 Hz |

[2] Reference power output for front, center, surround, surround back and front high speakers. Depending on the sound field settings and the source, there may be no sound output.

Frequency response
    Analog
        10 Hz – 100 kHz, +0.5/−2 dB (with sound field and equalizer bypassed)
Input
    Analog
        Sensitivity: 500 mV/50 kilohms
        S/N[3]: 105 dB (A, 500 mV[4])
    Digital (Coaxial)
        Impedance: 75 ohms
        S/N: 100 dB (A, 20 kHz LPF)
    Digital (Optical)
        S/N: 100 dB (A, 20 kHz LPF)
Output (Analog)
    SUBWOOFER
        Voltage: 2 V/1 kilohm
Equalizer
    Gain levels
        ±10 dB, 1 dB step

[3] INPUT SHORT (with sound field and equalizer bypassed).
[4] Weighted network, input level.

### FM tuner section
Tuning range
    USA and Canadian models:
    87.5 MHz – 108.0 MHz (100 kHz step)
    Other models:
    87.5 MHz – 108.0 MHz (50 kHz step)
Antenna (aerial)
    FM wire antenna (aerial)
Antenna (aerial) terminals
    75 ohms, unbalanced

### Video section
Inputs/Outputs
    Video:
        1 Vp-p, 75 ohms

## HDMI Video

Resolution
- 480p/60 Hz
- 576p/50 Hz
- 720p/60 Hz, 50 Hz, 24 Hz
- 1080i/60 Hz, 50 Hz
- 1080p/60 Hz, 50 Hz, 30 Hz, 25 Hz, 24 Hz
- 4K/60 Hz, 50 Hz, 30 Hz, 25 Hz, 24 Hz

Support
HDCP2.2, HDR, 3D, Deep Color (Deep Colour), ITU-R BT.2020, ARC.

## iPhone/iPod section

BLUETOOTH technology works with iPhone 6s Plus, iPhone 6s, iPhone 6 Plus, iPhone 6, iPhone 5s, iPhone 5c, iPhone 5, and iPod touch (5th and 6th generation).

You can use "SongPal" app with this receiver via BLUETOOTH.

iPhone/iPod playback via $\Psi$ (USB) port is not possible.

## USB section

Supported format*
MP3/WMA/AAC/WAV

\* Compatibility with all encoding/writing software, recording devices and recording media cannot be guaranteed.

Supported USB device
Mass Storage Class

Maximum current
1 A

## BLUETOOTH section

Communication system
BLUETOOTH Specification version 4.2

Output
BLUETOOTH Specification Power Class 1

Maximum communication range
Line of sight approx. 30 m (98.4 feet)[1]

Frequency band
2.4 GHz band (2.4000 GHz – 2.4835 GHz)

Modulation method
FHSS (Freq Hopping Spread Spectrum)

Compatible BLUETOOTH profiles[2]
A2DP 1.3 (Advanced Audio Distribution Profile)
AVRCP 1.5 (Audio Video Remote Control Profile)
SPP 1.2 (Serial Port Profile)
DID (Device Identification Profile)

Supported Codecs[3]
SBC[4], AAC

Transmission range (A2DP)
20 Hz – 20,000 Hz (Sampling frequency 32 kHz, 44.1 kHz, 48 kHz)

[1] The actual range will vary depending on factors such as obstacles between devices, magnetic fields around a microwave oven, static electricity, cordless phone, reception sensitivity, antenna's performance, operating system, software application, etc.
[2] BLUETOOTH standard profiles indicate the purpose of BLUETOOTH communication between devices.
[3] Codec: Audio signal compression and conversion format
[4] Subband Codec

## General

Power requirements

| Area | Power requirements |
|---|---|
| USA, Canada, Taiwan | 120 V AC, 60 Hz |
| Oceania | 230 V AC, 50 Hz |
| Europe | 230 V AC, 50/60 Hz |

Power consumption
240 W

Power consumption (during standby mode)
0.3 W or less (When "CTRL HDMI" is set to "CTRL OFF", "STBY THRU" is set to "OFF", and "BT STANDBY" is set to "STBY OFF".)
0.5 W (When "CTRL HDMI" is set to "CTRL ON", "BT STANDBY" is set to "STBY ON", and "STBY THRU" is set to "OFF".)

Dimensions (width/height/depth) (Approx.)
430 mm × 156 mm × 329.4 mm (17 in × 6 1/4 in × 13 in) including projecting parts and controls

Mass (Approx.)
7.8 kg (17 lb 4 oz)

Design and specifications are subject to change without notice.

Made for
iPod  iPhone

HDMI

http://www.sony.net/

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