

# DENON

## AVR-X500

AV SURROUND RECEIVER

# Owner's Manual

You can print more than one page of a PDF onto a single sheet of paper.

[Front panel](#)[Display](#)[Rear panel](#)[Remote](#)[Index](#)

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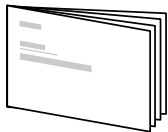


Thank you for purchasing this Denon product. To ensure proper operation, please read this owner's manual carefully before using the product. After reading this manual, be sure to keep it for future reference.

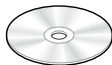
## Accessories

Check that the following parts are supplied with the product.

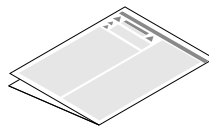
① Getting Started



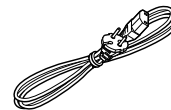
② CD-ROM (Owner's Manual)



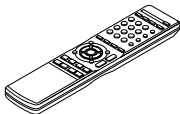
③ Safety Instructions



④ Power cord



⑤ Remote control unit (RC-1180)



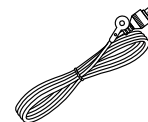
⑥ R03/AAA batteries



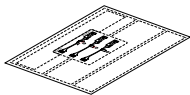
⑦ AM loop antenna



⑧ FM indoor antenna

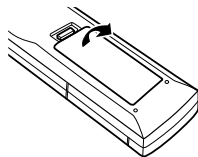


⑨ Cable label

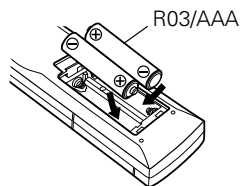


## Inserting the batteries

- 1 Remove the rear lid in the direction of the arrow and remove it.



- 2 Load the two batteries properly as indicated by the ⊕ and ⊖ marks in the battery compartment.



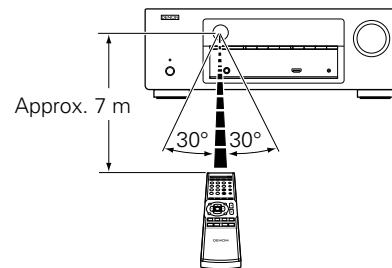
- 3 Put the rear cover back on.

### NOTE

- When inserting the batteries, be sure to do so in the proper direction, following the ⊕ and ⊖ marks in the battery compartment.
- To prevent damage or leakage of battery fluid:
  - Do not use a new battery together with an old one.
  - Do not use two different types of batteries.
- Remove the batteries from the remote control unit if it will not be in use for long periods.
- If the battery fluid should leak, carefully wipe the fluid off the inside of the battery compartment and insert new batteries.

## Operating range of the remote control unit

Point the remote control unit at the remote sensor when operating it.



# Features

## High quality sound

- **With discrete circuit technology, the power amplifier provides identical quality for all 5-channels (110 Watts x 5-channels)**

For optimum realism and stunning dynamic range, the power amplifier section features discrete power devices (not integrated circuitry).

By using high current, high power discrete power devices, the amplifier is able to easily drive high quality speakers.

- **High definition audio support**

The unit is equipped with a decoder which supports high-quality digital audio format for Blu-ray Disc players such as Dolby TrueHD, DTS-HD Master Audio, etc.

## High performance

- **HDMI connections enable quick connection to various digital AV devices (4 inputs, 1 output)**

The unit is equipped with 4 HDMI input connectors for connecting devices with HDMI connectors, such as a Blu-ray Disc player, game console, HD digital camcorder, HDTVs, etc.

- **Supports HDMI (3D, Deep Color and “x.v.Color”) (☞ page 81)**

Advanced HDMI features are supported, including 3D passthrough, Deep Color and “x.v.Color”.

- **Features an PORTABLE input jack on the front panel for connecting portable audio player (☞ page 30)**

Compressed Audio Restorer is Denon technology that restores compressed music sources to their original pre-compressed quality to give you a lively sonic ambience with greater detail and depth.

## Easy operation

- **GUI overlay on HD source**

You can easily make settings for your home theatre system while viewing menus on the TV screen. These menu displays can also be output to the monitor over HDMI.

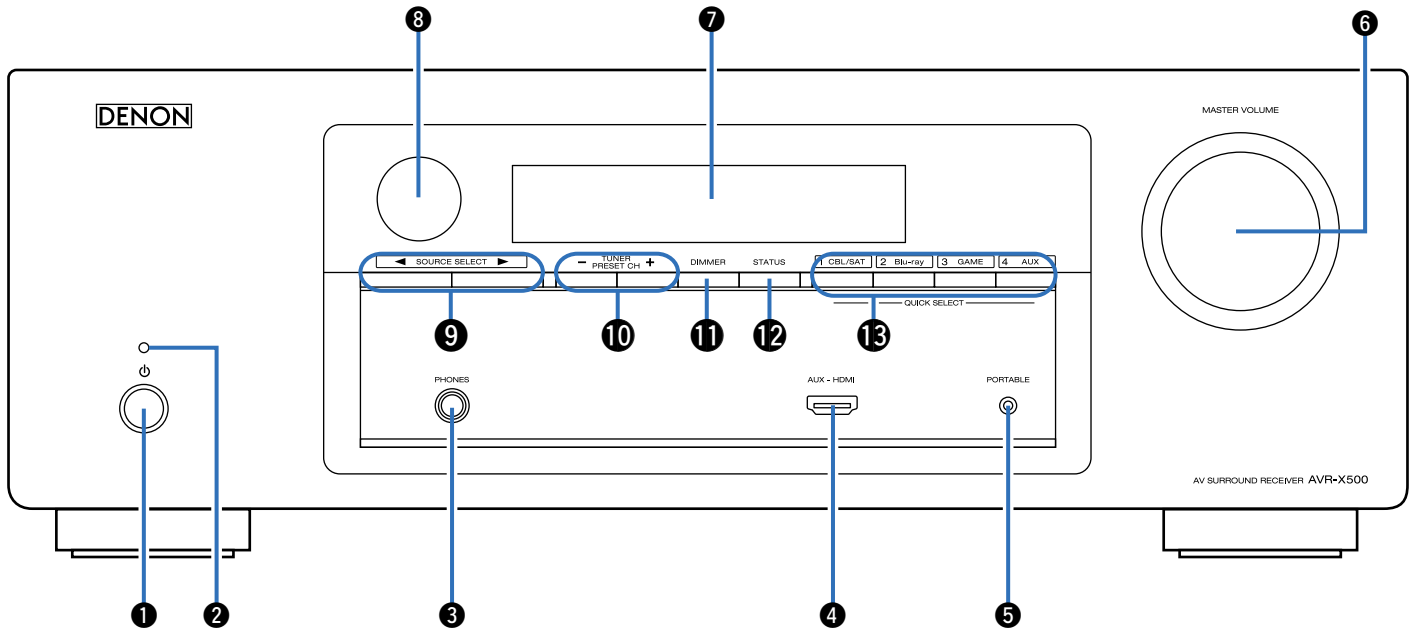
- **Easy to use, screen display**

Simple settings are enabled with the setting menus displayed on the TV screen. When you control the sound volume, the volume level is displayed on the screen, and when you switch the input source, the name of the input source is displayed.

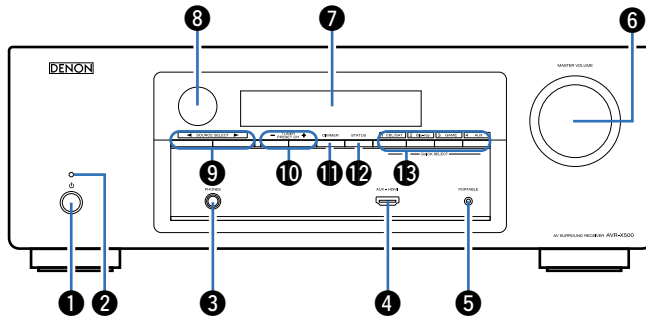


# Part names and functions

## Front panel







### 1 Power operation button (⏻)

This turns the power on/off (standby) (☞ page 35).

### 2 Power indicator

This is lit as follows according to the power status:

- Power on : Green
- Normal standby : Off
- When "Pass Through" (☞ page 61) is set to "On" : Red

### 3 Headphones jack (PHONES)

Used to connect headphones.

When the headphones are plugged into this jack, audio will no longer be output from the connected speakers.

#### NOTE

- To prevent hearing loss, do not raise the volume level excessively when using headphones.

### 4 AUX-HDMI connector

Used to connect devices such as video camcorders and game consoles (☞ page 29).

### 5 PORTABLE input jack

Used to connect portable player (☞ page 30).

### 6 MASTER VOLUME knob

This adjusts the volume level (☞ page 36).

### 7 Display

This displays various pieces of information (☞ page 10).

### 8 Remote control sensor

This receives signals from the remote control unit (☞ page 6).

### 9 SOURCE SELECT buttons (◀ ▶)

This selects the input source (☞ page 35).

### 10 Tuner preset channel buttons (TUNER PRESET CH +, -)

These select preset FM/AM radio stations (☞ page 42).

### 11 DIMMER button

Each press of this switches the brightness of the display (☞ page 36).

### 12 STATUS button

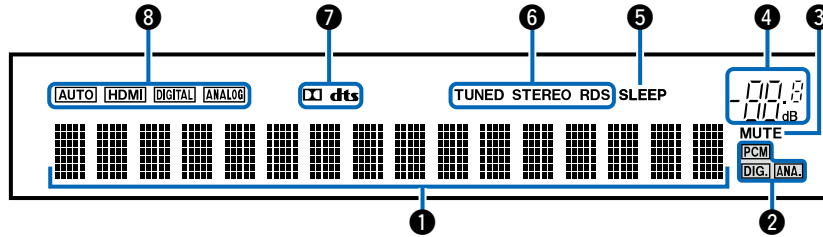
Each press of this switches the status information that is shown on the display (☞ page 70).

### 13 QUICK SELECT buttons

With a single press of any of these buttons, you can call up various settings you've registered to each button such as the input source, volume level and surround mode settings (☞ page 50).



# Display



## 1 Information display

The input source name, surround mode, setting values and other information are displayed here.

## 2 Input signal indicators

## 3 MUTE indicator

This blinks while the sound is muted ([page 36](#)).

## 4 Master volume indicator

## 5 Sleep timer indicator

This lights when the sleep mode is selected ([page 49](#)).

## 6 Tuner reception mode indicators

These light according to the reception conditions when the input source is set to "TUNER".

**STEREO** : In FM mode, this lights up when receiving stereo broadcasts.

**TUNED** : Lights up when the broadcast is properly tuned in.

**RDS** : Lights up when receiving RDS broadcasts.

## 7 Decoder indicator

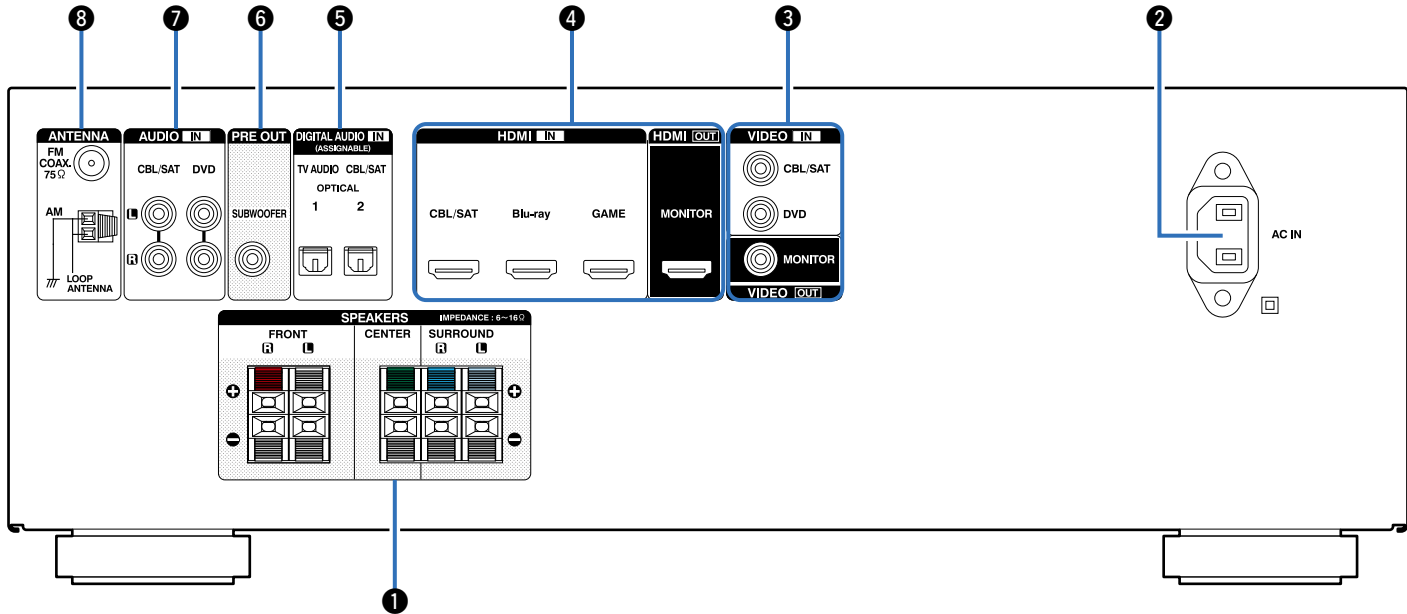
These light when Dolby or DTS signals are input or when the Dolby or DTS decoder is running.

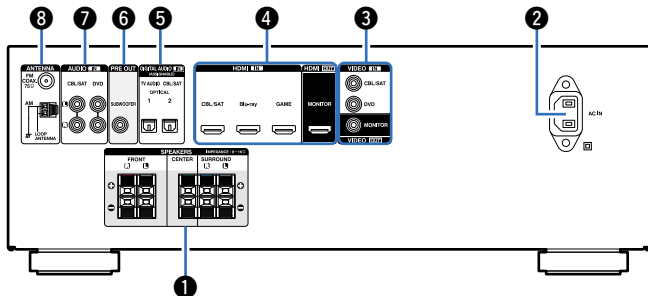
## 8 Input mode indicators

Set the audio input modes for the different input sources ([page 56](#)).



# Rear panel





### 1 Speaker terminals (SPEAKERS)

Used to connect speakers (🔗 page 19).

### 2 AC inlet (AC IN)

Used to connect the power cord (🔗 page 33).

### 3 Video connectors (VIDEO)

Used to connect devices equipped with video connectors (🔗 page 25, 27).

### 4 HDMI connectors

Used to connect devices equipped with HDMI connectors (🔗 page 24, 27, 28).

### 5 Digital audio connectors (DIGITAL AUDIO)

Used to connect devices equipped with digital audio connectors (🔗 page 25, 27).

### 6 PRE OUT connectors

Used to connect a subwoofer with a built-in amplifier (🔗 page 20).

### 7 Analog audio connectors (AUDIO)

Used to connect devices equipped with analog audio connectors (🔗 page 27).

### 8 FM/AM antenna terminals (ANTENNA)

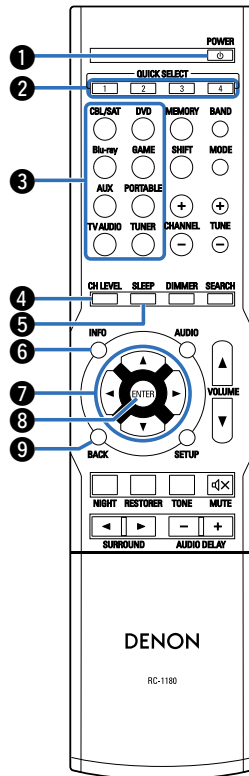
Used to connect FM and AM antennas (🔗 page 37).

#### NOTE

- Do not touch the inner pins of the connectors on the rear panel. Electrostatic discharge may cause permanent damage to the unit.



# Remote control unit



## 1 POWER button (⏻)

This turns the power on/off (☞ page 35).

## 2 QUICK SELECT buttons (1 – 4)

With a single press of any of these buttons, you can call up various settings you've registered to each button such as the input source, volume level and surround mode settings (☞ page 50).

## 3 Input source select buttons

These select the input source (☞ page 35).

## 4 Channel level button (CH LEVEL)

Adjusting the volume of the speakers (☞ page 47).

## 5 Sleep timer button (SLEEP)

This sets the sleep timer (☞ page 35).

## 6 Information button (INFO)

This displays the status information on the TV screen (☞ page 70).

## 7 Cursor buttons (▲▼◀▶)

These select items (☞ page 53).

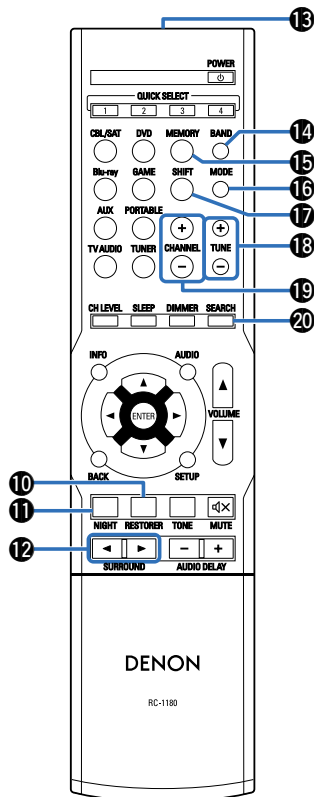
## 8 ENTER button

This determines the selection (☞ page 53).

## 9 BACK button

This returns to the previous screen (☞ page 53).



**10 RESTORER button**

Expands the low and high frequency components of compressed audio content such as MP3 files to enable richer audio playback (🔗 [page 68](#)).

**11 NIGHT button**

Compress dynamic range (difference between loud and soft sounds) (🔗 [page 67](#)).

**12 SURROUND buttons (◀ ▶)**

These select the surround mode (🔗 [page 43](#)).

**13 Remote control signal transmitter**

This transmits signals from the remote control unit (🔗 [page 6](#)).

**14 BAND button**

This switches the reception band (🔗 [page 38](#)).

**15 MEMORY button**

This presets the broadcast station currently being listened to (🔗 [page 38](#)).

**16 MODE button**

This switches the tuning mode (🔗 [page 38](#)).

**17 SHIFT button**

This selects preset channels by block (🔗 [page 38](#)).

**18 Tuning buttons (TUNE +, -)**

These select the receiving frequency for FM/AM radio stations (🔗 [page 38](#)).

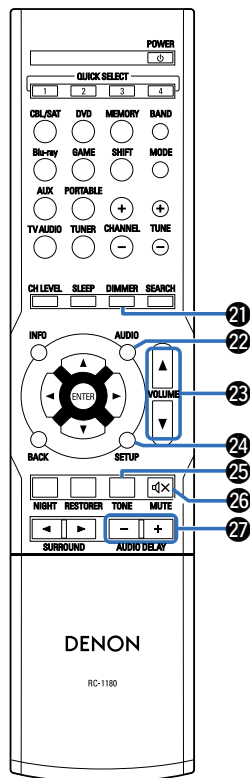
**19 Channel buttons (CHANNEL +, -)**

These select preset radio stations (🔗 [page 42](#)).

**20 SEARCH button**

This displays the RDS search screen (🔗 [page 39](#)).





### 21 DIMMER button

Each press of this switches the brightness of the display (☞ page 36).

### 22 AUDIO button

Adjusting the sound field effects (☞ page 62).

### 23 VOLUME buttons (▲▼)

These adjust the volume level (☞ page 36).

### 24 SETUP button

This displays the menu on the TV screen (☞ page 53).

### 25 TONE button

Adjusts the tonal quality of the sound (☞ page 66).

### 26 MUTE button (🔇)

This mutes the output audio (☞ page 36).

### 27 AUDIO DELAY buttons (+, -)

Compensates for incorrect timing between video and audio (☞ page 69).



# Connections

**Speaker connection** (👉 page 17)

**Connecting a TV** (👉 page 23)

**Connecting a playback device** (👉 page 26)

**Connecting a portable player** (👉 page 30)

**Connecting an FM/AM antenna** (👉 page 31)







**Connecting the power cord** (👉 page 33)

## NOTE

- Do not bundle power cords together with connection cables. Doing so can result in noise.

## ■ Cables used for connections

Provide necessary cables according to the devices you want to connect.

Speaker cable	
Subwoofer cable	
HDMI cable	
Video cable	
Optical cable	
Audio cable	



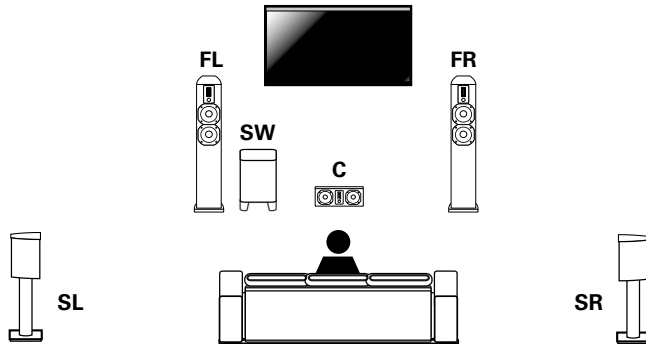


# Speaker connection

Install speakers and connect them to this unit (☞ page 17, 19).

## Speaker installation

Determine the speaker system depending on the number of speakers you are using and install each speaker and subwoofer in the room. Here, we explain how to install the speakers using a typical example.




---

**FL/FR** : Place the FRONT left and right speakers an equal distance from the main listening position. The distance between each speaker and your TV should also be the same.

---

**C** : Place the CENTER speaker in between the front speakers and above or below your TV.

---

**SL/SR** : Place the SURROUND left and right speakers an equal distance to the left and right sides, slightly behind, and aimed at the main listening position.

---

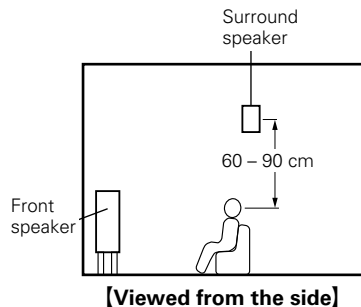
**SW** : Place the SUBWOOFER at a convenient location near the front speakers.

---



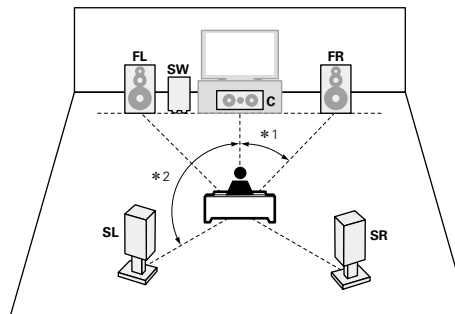


- Use the illustration below as a guide for how high each speaker should be installed. The height does not need to be exactly the same.



### ■ When 5.1-channel speakers are installed

- \*1 22° - 30°
- \*2 120°



#### **[Speaker abbreviations]**

<b>FL</b>	Front speaker (L)	<b>SW</b>	Subwoofer
<b>FR</b>	Front speaker (R)	<b>SL</b>	Surround speaker (L)
<b>C</b>	Center speaker	<b>SR</b>	Surround speaker (R)



## Speaker connection

Here we connect the speakers in the room to this unit.  
This section explains how to connect them using typical examples.

### NOTE

- Disconnect this unit's power plug from the power outlet before connecting the speakers. Also, turn off the subwoofer.
- Connect so that the speaker cable core wires do not protrude from the speaker terminal. The protection circuit may be activated if the core wires touch the rear panel or if the + and – sides touch each other (see page 89 "Protection circuit").
- Never touch the speaker terminals while the power cord is connected. Doing so could result in electric shock.
- Use speakers with an impedance of 6 – 16 Ω/ohms.

### ■ Connecting the speaker cables

Carefully check the left (L) and right (R) channels and + (red) and – (black) polarities on the speakers being connected to this unit, and be sure to connect the channels and polarities correctly.

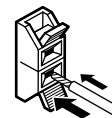
- 1 Peel off about 10 mm of sheathing from the tip of the speaker cable, then either twist the core wire tightly or terminate it.**



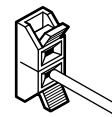
- 2 Press the lever on the speaker terminal.**



- 3 Holding the lever on the speaker terminal, insert the core wire of the speaker cable all the way into the speaker terminal.**

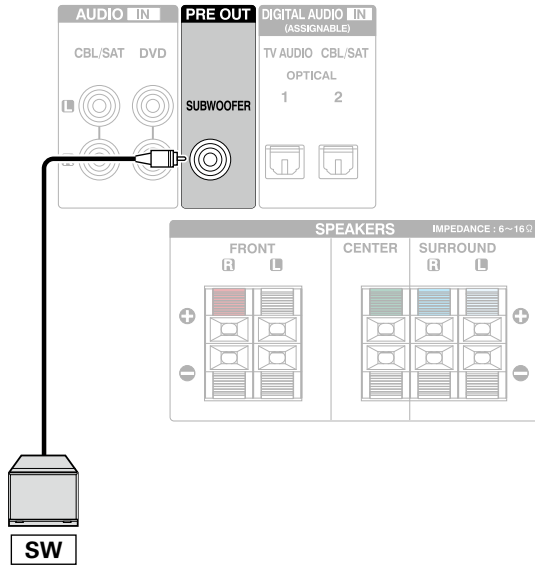


- 4 Release your finger from the lever on the speaker terminal.**



## ■ Connecting the subwoofer

Use a subwoofer cable to connect the subwoofer.



## ■ About the speaker cable label (supplied) for channel identification

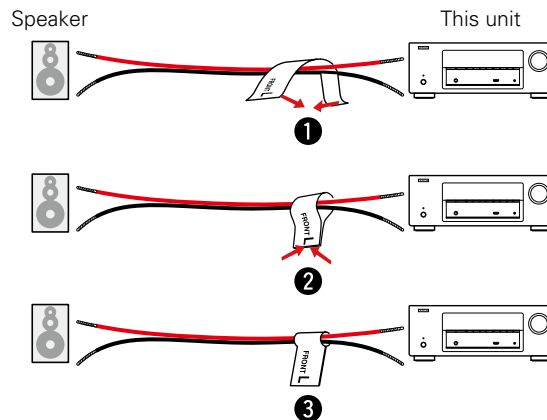
The channel display section for speaker terminals on the rear panel is color-coded for each channel to be identifiable.

Speaker terminals	Color
FRONT L	White
FRONT R	Red
CENTER	Green
SURROUND L	Light blue
SURROUND R	Blue

Attach the speaker cable label for each channel to its speaker cable as shown in the diagram.

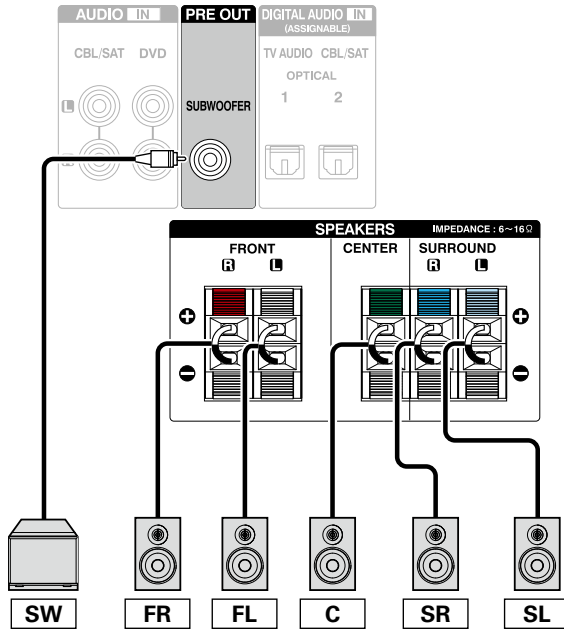
Then, make connection so that the color of the speaker terminal matches that of the speaker cable label.

### [How to attach the speaker cable label]



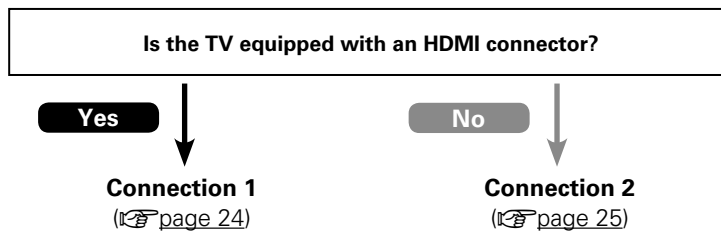
## ■ Standard speaker connection

The figure below shows an example of standard speaker connection.



## Connecting a TV

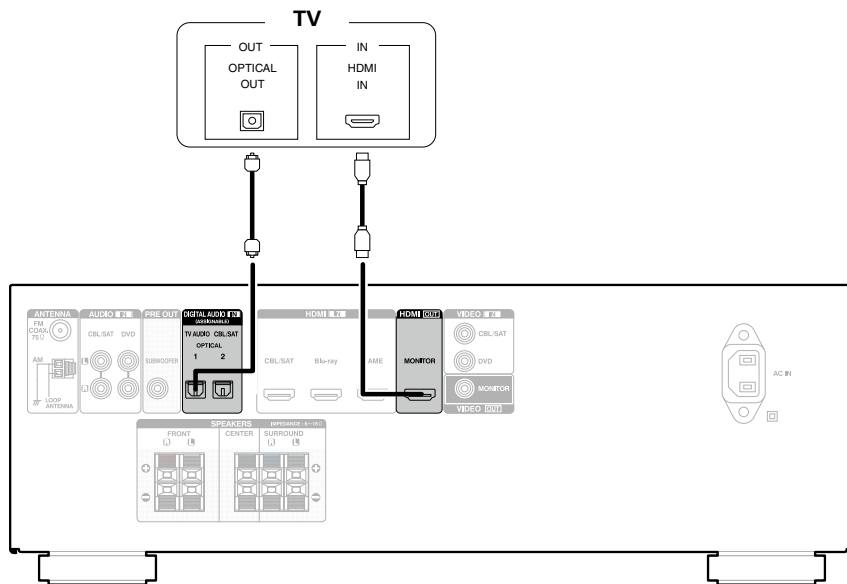
Connect a TV to this unit so that the input video is output to the TV. You can also enjoy audio from the TV on this unit. How to connect a TV depends on the connectors and functions equipped on the TV.



## Connection 1 : TV equipped with an HDMI connector

Use an HDMI cable to connect the TV to this unit.

To listen to audio from TV on this unit, use an optical cable to connect the TV to this unit.



- To output audio signals that are input from the HDMI input connector to a TV connected via HDMI, set "HDMI Audio Out" (page 60) to "TV".

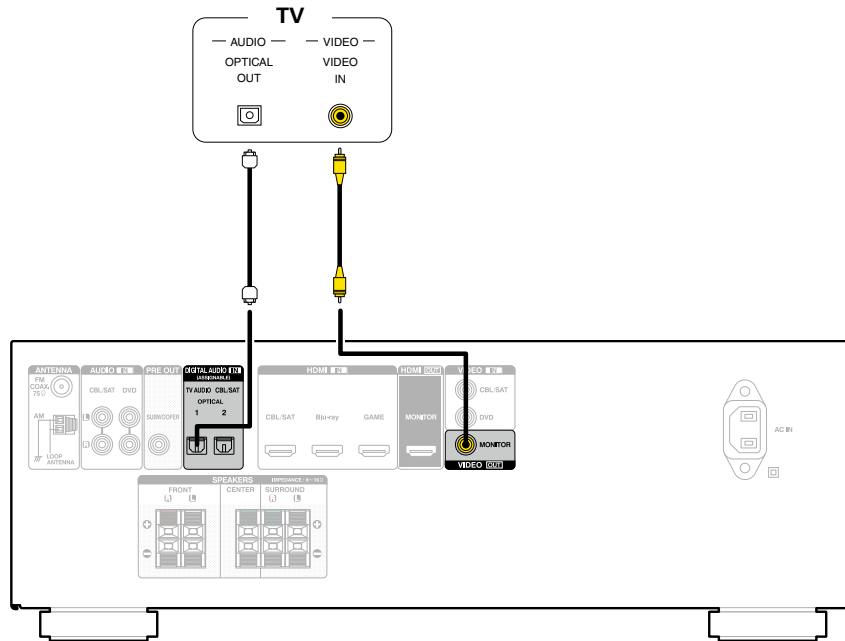




## Connection 2 : TV without an HDMI connector

Use a video cable to connect the TV to this unit.

To listen to audio from TV on this unit, use an optical cable to connect the TV to this unit.







## Connecting a playback device

This unit is equipped with two types of video input connectors (HDMI and composite video) and two types of video output connectors (HDMI and composite video).


Select input connectors on this unit according to the connectors equipped on the device you want to connect.

If the device connected to this unit is equipped with an HDMI connector, it is recommended to use HDMI connections.

In the HDMI connection, audio and video signals can be transmitted through a single HDMI cable.

- Connecting a set-top box (Satellite tuner/cable TV) ( [page 27](#))
- Connecting a DVD player ( [page 28](#))
- Connecting a video camcorder or other device ( [page 29](#))
- Connecting a portable player ( [page 30](#))

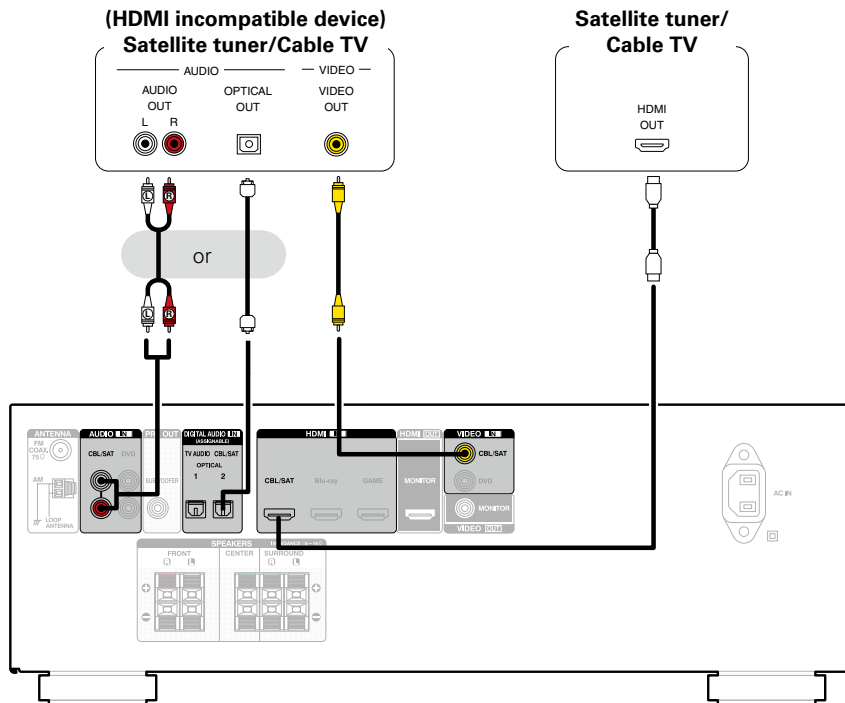


- Connect devices to this unit as indicated by the input sources printed on the audio/video input connectors of this unit.
- This unit can change the source that is assigned to the DIGITAL AUDIO IN connectors.  
How to change the source assigned to connectors ( [page 54](#) "Input Assign").



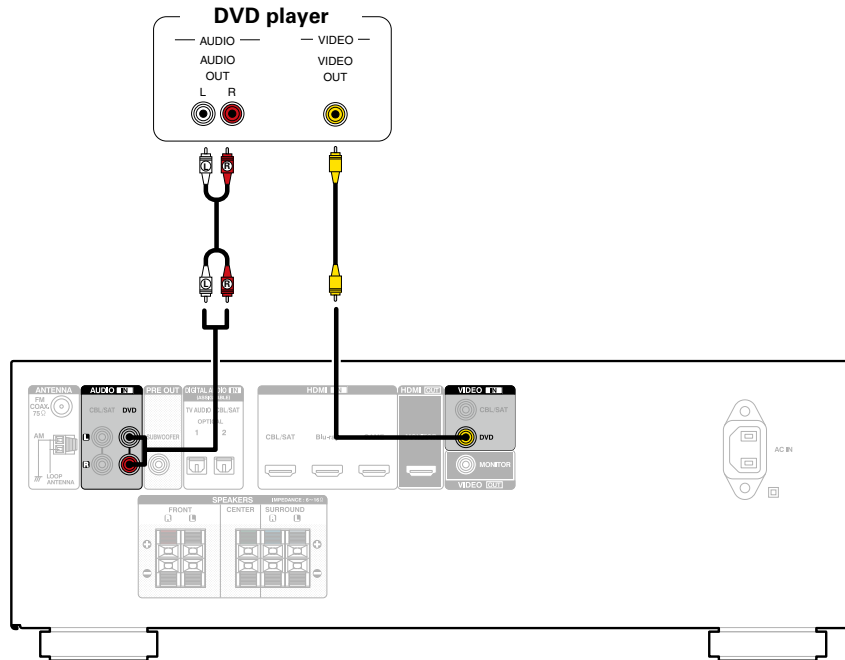
## Connecting a set-top box (Satellite tuner/cable TV)

This explanation uses the connection with a satellite tuner/cable TV STB as an example.  
 Select input connectors on this unit according to the connectors equipped on the device you want to connect.



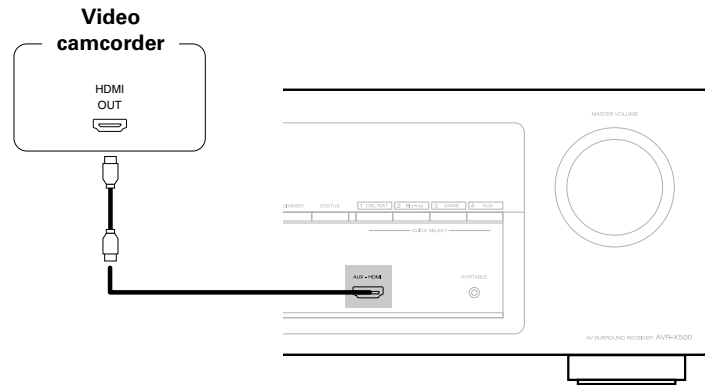
## Connecting a DVD player

This explanation uses the connection with a DVD players as an example.



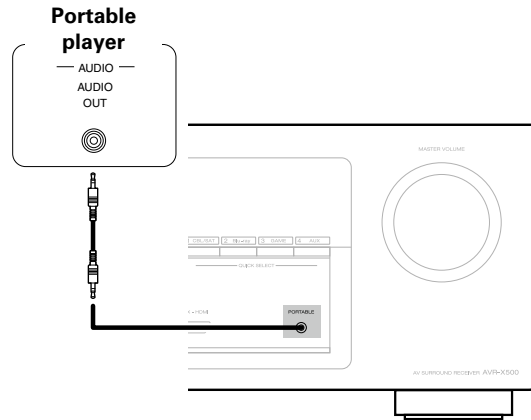
## Connecting a video camcorder or other device

This explanation uses the connection with a video camcorders as an example.



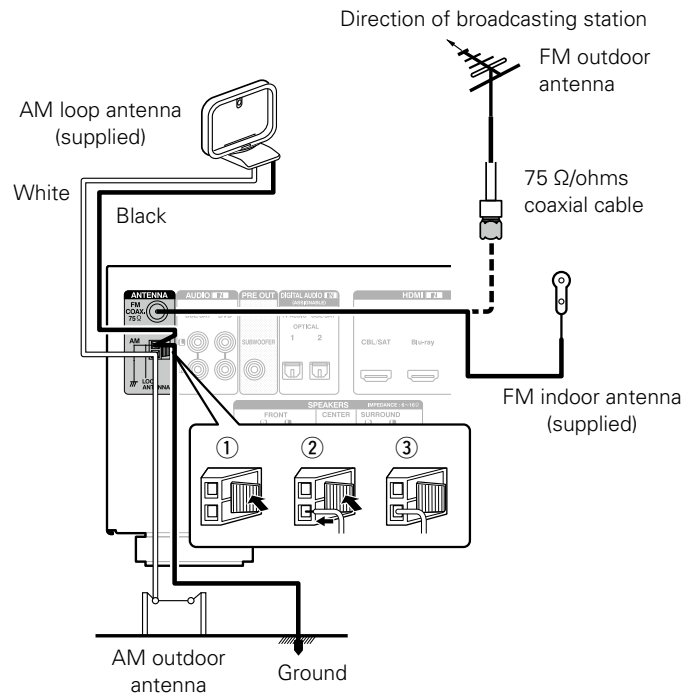
## Connecting a portable player

If a portable player is connected via the PORTABLE input jack of the unit, music from the portable player can be played.



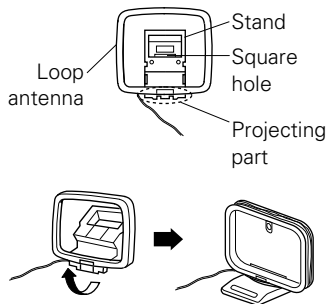
## Connecting an FM/AM antenna

After connecting the antenna and receiving a broadcast signal (☞ page 38 “Listening to FM/AM broadcasts”), fix the antenna with tape in a position where the noise level becomes minimal.



## ■ AM loop antenna assembly

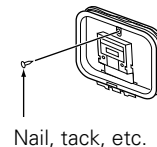
- 1 Put the stand section through the bottom of the loop antenna from the rear and bend it forward.
- 2 Insert the projecting part into the square hole in the stand.



## ■ Using the AM loop antenna

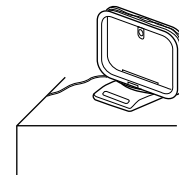
### Suspending on a wall

Suspend directly on a wall without assembling.



### Standing alone

Use the procedure shown above to assemble.



#### NOTE

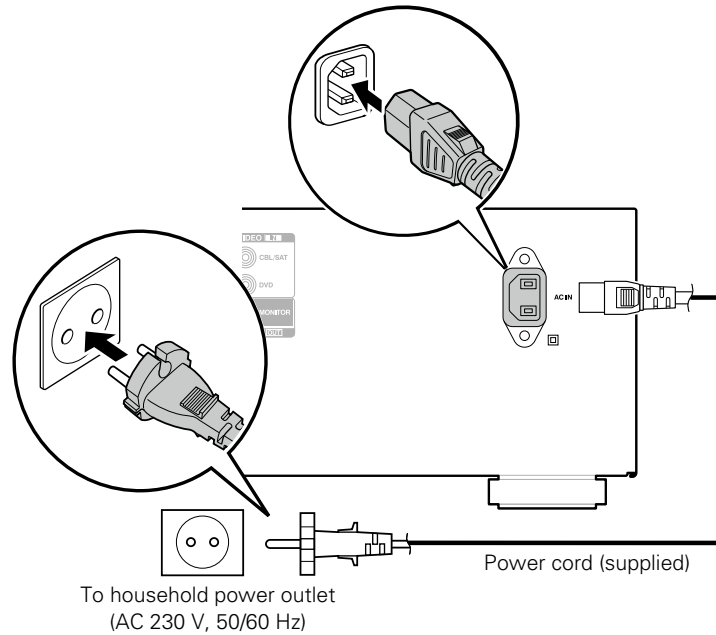
- Do not connect two FM antennas simultaneously.
- Even if an external AM antenna is used, do not disconnect the AM loop antenna.
- Make sure the AM loop antenna lead terminals do not touch metal parts of the panel.
- If the signal has noise interference, connect the ground terminal (GND) to reduce noise.
- If you are unable to receive a good broadcast signal, we recommend installing an outdoor antenna. For details, inquire at the retail store where you purchased the unit.





## Connecting the power cord

After completing all the connections, insert the power plug into the power outlet.



# Playback

**Turning the power on** (👉 page 35)

**Selecting the input source** (👉 page 35)

**Adjusting the master volume** (👉 page 36)

**Turning off the sound temporarily** (👉 page 36)

**Switching the brightness of the display** (👉 page 36)

**Playing a DVD player/Blu-ray Disc player** (👉 page 36)

**Listening to FM/AM broadcasts** (👉 page 37)

**Selecting a surround mode** (👉 page 43)

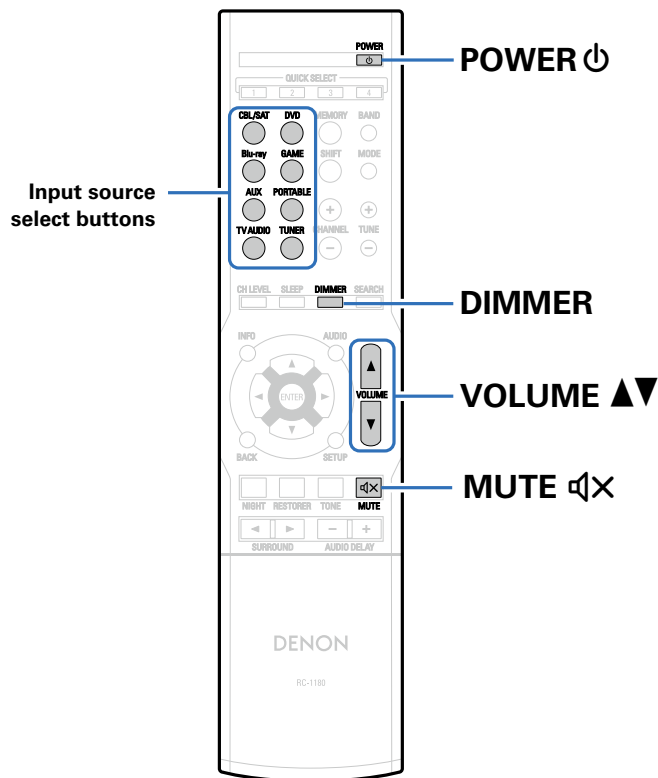
**Adjusting the volume of the speakers** (👉 page 47)

**Sleep timer function** (👉 page 49)

**Quick select function** (👉 page 50)



# Basic operation



## Turning the power on

- 1 Press **POWER** ⏻ to turn on power to the unit.



- You can also switch the power to standby by pressing ⏻ on the main unit.

## Selecting the input source

- 1 Press the **input source select button** to be played back. The desired input source can be selected directly.



- You can also select the input source by using **SOURCE SELECT** ◀▶ on the main unit.





## Adjusting the master volume

- 1 Use **VOLUME ▲▼** to adjust the volume.
  - The variable range differs according to the input signal and channel level setting.





- You can also adjust the master volume by turning MASTER VOLUME on the main unit.

## Turning off the sound temporarily

- 1 Press **MUTE** .
  - “MUTE” indicator on the display flashes.
  -  appears on the TV screen.



- The sound is reduced to the level set at “Mute Level” ( [page 60](#)).
- To cancel, press MUTE  again. Muting can also be cancelled by adjusting the master volume.

## Switching the brightness of the display

- 1 Press **DIMMER**.  
Adjust the display brightness of this unit.

---

**Bright** : Normal display brightness.

---

**Dim** : Reduced display brightness.

---

**Dark** : Very low display brightness.

---

**Off** : Turns the display off.


---



- When the brightness of the display is set to “Off”, the display turns off and appears as if there is no electricity.

## Playing a DVD player/Blu-ray Disc player

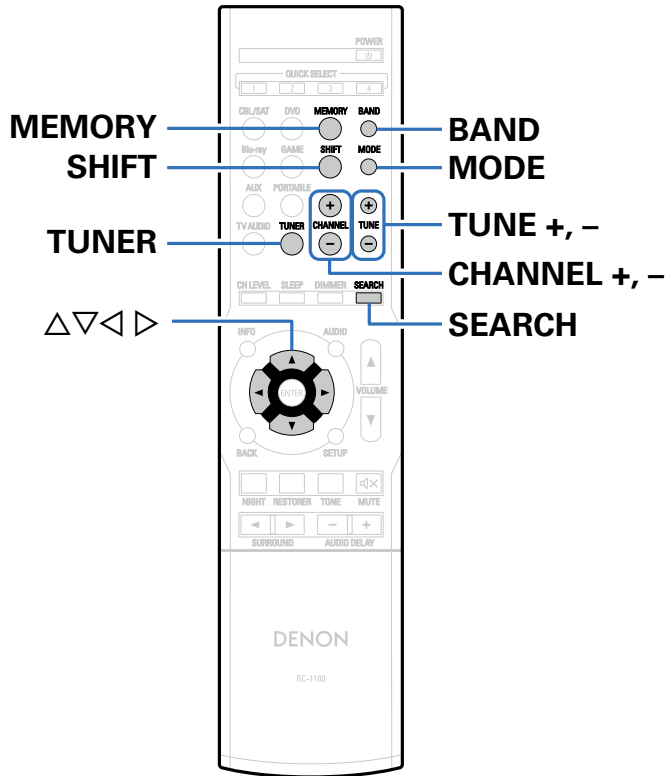
The following describes the procedure for playing DVD player/ Blu-ray Disc player.

- 1 **Prepare for playback.**
  - ① Turn on the power of the TV, subwoofer and player.
  - ② Change the TV input to the input of this unit.
- 2 **Press POWER  to turn on power to the unit.**
- 3 **Press DVD or Blu-ray to switch an input source for a player used for playback.**
- 4 **Play the DVD player or Blu-ray Disc player.**



# Listening to FM/AM broadcasts

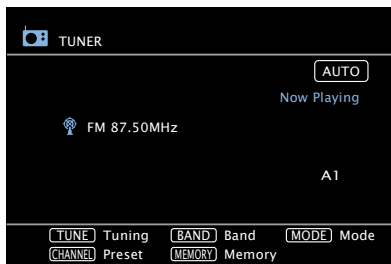
For antenna connections, see “Connecting an FM/AM antenna” (🔗 page 31).



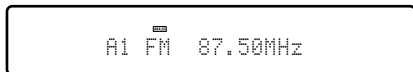
## Listening to FM/AM broadcasts

### 1 Press TUNER to switch the input source to “TUNER”.

[TV Screen]



[Display of this unit]



### 2 Press BAND to select “FM” or “AM”.

**FM** : When listening to an FM broadcast.

**AM** : When listening to an AM broadcast.

### 3 Press MODE to select tuning mode.

**AUTO** : Automatically search for and tune to a receivable radio station.

**MANUAL** : Manually change the frequency one step at a time each time the button is pressed.

### 4 Use TUNE + or TUNE – to select the station you want to hear.

Scanning is performed until it finds an available radio station. When it finds a radio station, it stops the scan automatically and tunes in.



- The modes for receiving FM broadcasts consists of “AUTO” mode that automatically searches available broadcast stations and “MANUAL” mode that lets you tune in using buttons to change the frequency. In “AUTO” mode, you cannot tune in to radio stations if the reception is not good. If this is the case, then use the “MANUAL” mode to tune in.

Operation buttons	Function
MEMORY	Preset memory registration
BAND	Reception band switching
SHIFT	Preset channel block selection
MODE	Tuning mode switching
CHANNEL +, –	Preset channel selection
TUNE +, –	Tuning (up/down)
SEARCH	RDS search screen display



## RDS search

RDS (works only on the FM band) is a broadcasting service which allows a station to send additional information along with the regular radio program signal.

Use this function to automatically tune to FM stations that provide the RDS service.

Note that the RDS function only works when receiving RDS compatible stations.

- 1** Press **TUNER** to switch the input source to “**TUNER**”.
- 2** Press **SEARCH** to select “**RDS**”.
- 3** Use **CHANNEL +** or **CHANNEL -**.  
The search for RDS stations begins automatically.

## PTY search

Use this function to find RDS stations broadcasting a designated program type (PTY).

PTY identifies the type of RDS program.

The program types and their displays are as follows:

<b>NEWS</b>	News	<b>WEATHER</b>	Weather
<b>AFFAIRS</b>	Current Affairs	<b>FINANCE</b>	Finance
<b>INFO</b>	Information	<b>CHILDREN</b>	Children's program
<b>SPORT</b>	Sports	<b>SOCIAL</b>	Social Affairs
<b>EDUCATE</b>	Education	<b>RELIGION</b>	Religion
<b>DRAMA</b>	Drama	<b>PHONE IN</b>	Phone In
<b>CULTURE</b>	Culture	<b>TRAVEL</b>	Travel
<b>SCIENCE</b>	Science	<b>LEISURE</b>	Leisure
<b>VARIED</b>	Varied	<b>JAZZ</b>	Jazz Music
<b>POP M</b>	Pop Music	<b>COUNTRY</b>	Country Music
<b>ROCK M</b>	Rock Music	<b>NATION M</b>	National Music
<b>EASY M</b>	Easy Listening Music	<b>OLDIES</b>	Oldies Music
<b>LIGHT M</b>	Light Classical	<b>FOLK M</b>	Folk Music
<b>CLASSICS</b>	Serious Classical	<b>DOCUMENT</b>	Documentary
<b>OTHER M</b>	Other Music		



- 1 Press TUNER to switch the input source to "TUNER".**
- 2 Press SEARCH to select "PTY".**
- 3 Use  $\Delta$ / $\nabla$  to call out the desired program type.**
- 4 Use CHANNEL + or CHANNEL -.**  
PTY search begins automatically.

## TP search

TP identifies programs that carry traffic announcements.

This allows you to easily find out the latest traffic conditions in your area before leaving home.

Use this function to find RDS stations broadcasting traffic programs (TP stations).

- 1 Press TUNER to switch the input source to "TUNER".**
- 2 Press SEARCH to select "TP".**
- 3 Use CHANNEL + or CHANNEL -.**  
TP search begins automatically.





## Radio Text

RT allows RDS stations to send text messages that appear on the display. "Radio Text" appears on the display when radio text data is received.

- 1 Press TUNER to switch the input source to "TUNER".**
- 2 Press SEARCH to select "RT".**
- 3 Use ◀▶ to select "On".**
  - While receiving an RDS broadcast station, the text data broadcast from the station is displayed.
  - If no text data is being broadcast, "NO TEXT DATA" is displayed.

## Presetting the current broadcast station (Preset Memory)

Your favorite broadcast stations can be preset so that you can tune them in easily. Up to 56 stations can be preset.

- 1 Tune in the broadcast station you want to preset (☞ [page 37](#) "Listening to FM/AM broadcasts").**
- 2 Press MEMORY.**
- 3 Press SHIFT to select the memory block (A – G) you want to preset.**
- 4 Use CHANNEL + or CHANNEL – to select the channel you want to preset.**
- 5 Press MEMORY.**

The current broadcast station that is preset.

  - To preset other stations, repeat steps 1 to 5.



- This unit can preset broadcast stations by automatically selecting them (☞ [page 55](#) "Auto Preset").



Block (A – G) and Channel (1 – 8)	Default settings
A1 – A8	87.50 / 89.10 / 98.10 / 108.00 / 90.10 / 90.10 / 90.10 / 90.10 MHz
B1 – B8	522 / 603 / 999 / 1404 / 1611 kHz, 90.10 / 90.10 / 90.10 MHz
C1 – C8	90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 MHz
D1 – D8	90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 MHz
E1 – E8	90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 MHz
F1 – F8	90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 MHz
G1 – G8	90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 / 90.10 MHz

## Listening to preset stations

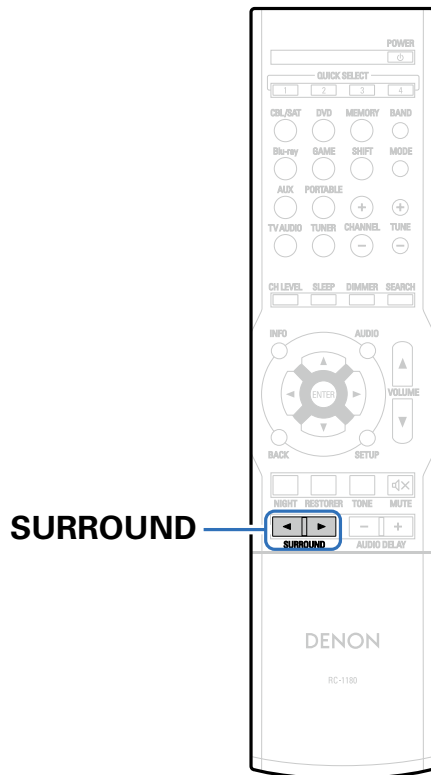
- 1 Press **SHIFT** to select the memory block (A – G).
- 2 Use **CHANNEL +** or **CHANNEL –** to select the channel you want to preset.



- You can also select preset broadcast stations by pressing TUNER PRESET CH + or TUNER PRESET CH – on the main unit.



## Selecting a surround mode



This unit allows you to enjoy various kinds of surround and stereo playback modes.

Multi-channel audio formats are adopted for various movies and music contents not only on Blu-ray discs and DVD but also via digital broadcasting. This unit supports playback of almost all of these multi-channel audio formats. It also supports surround playback of audio formats other than multi-channel audio such as 2-channel stereo audio.



- For audio formats recorded on a disc, see the disc jacket or label.

### Selecting a surround mode

**1** Use **SURROUND** ◀▶ to select a surround mode.



- If the content played back does not support the previously selected surround mode, the most appropriate surround mode for the content is automatically selected.



## ■ Description of surround mode types

### Dolby surround mode

Surround mode type	Description
DOLBY PLII	This mode can be selected when the Dolby Pro Logic II decoder is used to play back 2-channel sources in 5.1-channel surround sound with an enveloping surround sound experience.
DOLBY DIGITAL	This mode can be selected when playing sources recorded with Dolby Digital.
DOLBY TrueHD	This mode can be selected when playing sources recorded in Dolby TrueHD.
DOLBY DIGITAL Plus	This mode can be selected when playing sources recorded with Dolby Digital Plus.

### DTS surround mode

Surround mode type	Description
DTS NEO:6	This mode can be selected when a DTS NEO:6 decoder is used to play back 2-channel source in 5.1-channel surround sound. There is a "Cinema" mode optimized for movie playback, and a "Music" mode optimized for music playback.
DTS SURROUND	This mode can be selected when playing sources recorded in DTS.
DTS 96/24	This mode can be selected when playing sources recorded in DTS 96/24.
DTS-HD	This mode can be selected when playing sources recorded in DTS-HD.
DTS Express	This mode can be selected when playing sources recorded in DTS Express.



### PCM multi-channel surround mode

Surround mode type	Description
MULTI CH IN	This mode can be selected when playing multi-channel PCM sources.

### Original surround mode

Surround mode type	Description
MULTI CH STEREO	This mode is for enjoying stereo sound from all speakers. Stereo audio (2-channel) sources are played back via the front (L/R) speakers, the surround speakers.
VIRTUAL	This mode lets you experience an expansive surround sound effect when playing back through just the front (L/R) speakers only, and when listening with stereo headphones.

### Stereo surround mode

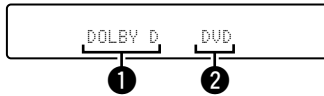
Surround mode type	Description
STEREO	This mode plays 2-channel stereo audio with no additional surround sound processing. <ul style="list-style-type: none"> <li>• Sound is output from the front left and right speakers, and subwoofer if connected.</li> <li>• When multi-channel signals are inputted, they are mixed down to 2-channel audio and are played back with no additional surround sound processing.</li> </ul>

### Direct surround mode

Surround mode type	Description
DIRECT	This mode provides a direct input-to-output path with minimal audio processing, bypassing any unnecessary stages for purest sound.



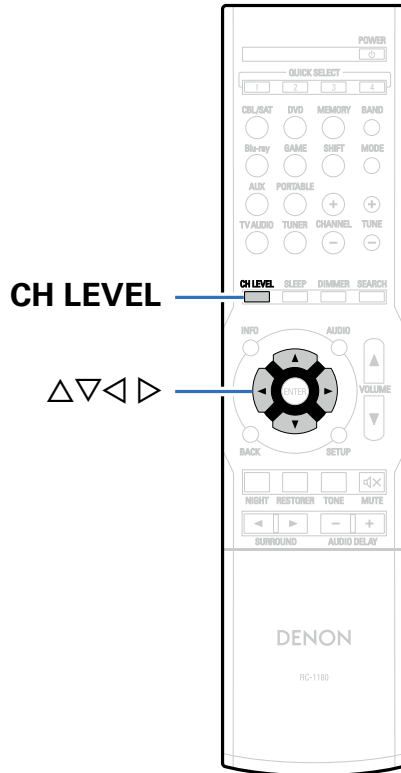
## ■ Views on the display



- 1 Shows a decoder to be used.
  - A DOLBY DIGITAL decoder is displayed as "DOLBY D".
  - A DOLBY DIGITAL Plus decoder is displayed as "DOLBY D+".
- 2 Shows the name of the input source being played back.



# Adjusting the volume of the speakers



You can adjust the channel level either according to the playback sources or to suit your taste, as described below.

## Adjusting the volume of the different speakers

- 1 Press CH LEVEL.**  
The “Levels” screen is displayed on the TV screen.
- 2 Use Δ▽ to select the speaker.**
- 3 Use ◀▶ to adjust the volume.**
  - In the case of a subwoofer, pressing ◀ when it is at “-12 dB” will change the setting to “Off”.



- When a headphone jack is inserted, the headphone channel level can be adjusted.



## Adjusting the volume of groups of speakers (Fader function)

This function lets you adjust (fade) the sound all at once from the front (front speaker / center speaker) or rear (surround speaker). The fader can be adjusted until the volume of the speaker is adjusted to the lowest value of -12 dB.

- 1 Press CH LEVEL.**  
The "Levels" screen is displayed on the TV screen.
- 2 Press  $\nabla$  to select "Fader".**
- 3 Use  $\triangleleft \triangleright$  to select the speaker.**
- 4 Use  $\triangleleft \triangleright$  to adjust the volume.**

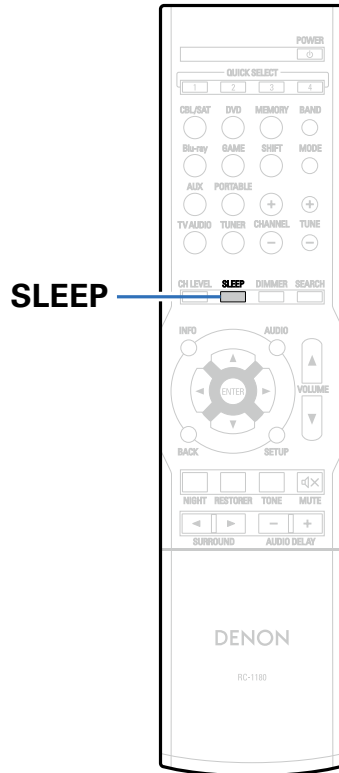


- The fader function does not affect the subwoofer.





# Sleep timer function



You can have the power automatically switched to standby once a set time has elapsed. This is convenient for viewing and listening while going to sleep.

## Using the sleep timer

- 1 **Press SLEEP and display the time you want to set.**
  - The SLEEP indicator on the display lights.
  - You can set the sleep timer in the range from 10 to 120 minutes in steps of 10 minutes.

### ■ To cancel the sleep timer

Press SLEEP to set "Off".

The SLEEP indicator on the display turns off.



- The sleep timer is also cancelled when this unit is set to the standby mode or the power is turned off.

#### NOTE

- The sleep timer function cannot turn off the power of devices connected to this unit. To turn off the power of those connected devices, set up sleep timers on the connected devices themselves.



## Quick select function

You can save settings such as the input source selection, volume level, and surround mode at the QUICK SELECT 1 – 4 buttons.

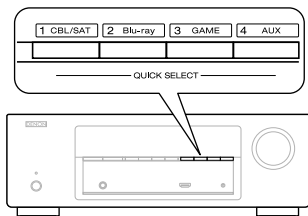
You can simply press one of the set QUICK SELECT buttons for subsequent playback to switch to various saved settings all at once.

By saving frequently used settings at the QUICK SELECT 1 – 4 buttons, you will always be able to easily call up the same playback environment.

### Calling up the Quick Select

#### 1 Press QUICK SELECT.

The Quick Select settings for the button you pressed are called up.



- The default settings of each Quick Select function are as shown below.

Button	Input source	Volume
QUICK SELECT 1	CBL/SAT	40
QUICK SELECT 2	Blu-ray	40
QUICK SELECT 3	GAME	40
QUICK SELECT 4	AUX	40

### Changing the settings

#### 1 Set the items below to the settings you want to save.

- ① Input source (☞ page 35)
- ② Volume (☞ page 36)
- ③ Surround mode (☞ page 43)
- ④ Video Source (☞ page 56)

#### 2 Press and hold the desired QUICK SELECT until “Quick\* Memory” appears on the display.

The current settings will be memorized.

\* The number for the QUICK SELECT button you pressed is displayed.



# Settings

## Menu map

For menu operation, connect a TV to this unit and display the menu on the TV screen. For menu operations, see the following page. By default, this unit has recommended settings defined. You can customize this unit based on your existing system and your preferences.

### ■ Inputs

Setting items	Description	Page
<b>Input Assign</b>	Changes input connector assignment.	<a href="#">54</a>
<b>Auto Preset</b>	Automatically selects and presets broadcast stations.	<a href="#">55</a>
<b>Preset Skip</b>	When tuning preset broadcast stations, you can set groups or individual broadcast stations that you don't want to display in advance.	<a href="#">55</a>
<b>Source Level</b>	Adjusts the playback level of the audio input.	<a href="#">55</a>
<b>Input Select</b>	Sets the audio input mode and decode mode.	<a href="#">56</a>
<b>Input Mode</b>	Set the audio input modes for input sources.	<a href="#">56</a>
<b>Decode Mode</b>	Set the audio decode mode for input source.	<a href="#">56</a>
<b>Video Source</b>	Video of another input source is played back combined with the playing audio.	<a href="#">56</a>



## ■ Speakers

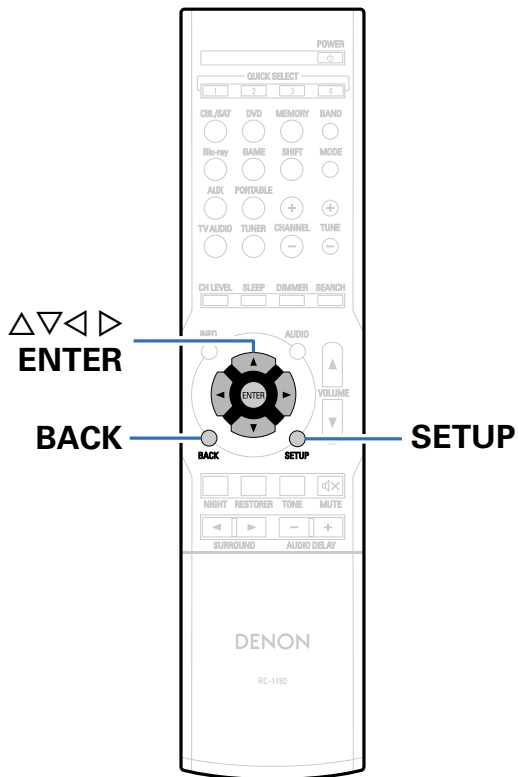
Setting items	Description	Page
<b>Speaker Config.</b>	Indicate speaker presence and select speaker size categories based on bass reproduction capability.	<a href="#">57</a>
<b>Distances</b>	Set distance from listening position to speakers.	<a href="#">58</a>
<b>Levels</b>	Set the volume of the test tone to be the same when it is output from each speaker.	<a href="#">58</a>
<b>Crossovers</b>	Set the maximum frequency of the bass signal output from each channel to the subwoofer.	<a href="#">59</a>
<b>Bass</b>	Set subwoofer and LFE signal range playback.	<a href="#">59</a>

## ■ General

Setting items	Description	Page
<b>Volume</b>	Set the volume setting.	<a href="#">60</a>
<b>HDMI</b>	Makes settings for HDMI video/audio output.	<a href="#">60</a>
<b>Other</b>	Makes various other settings.	<a href="#">61</a>



## Menu operation



- 1 Press SETUP.**  
The menu is displayed on the TV screen.
- 2 Use  $\Delta$ / $\nabla$  to select the menu to be set or operated, then press ENTER.**
- 3 Use  $\triangleleft$ / $\triangleright$  to change to desired setting.**
- 4 Press ENTER to enter the setting.**
  - To return to the previous item, press BACK.
  - Exiting the Menu, press SETUP while the menu is displayed. The menu display disappears.



# Inputs

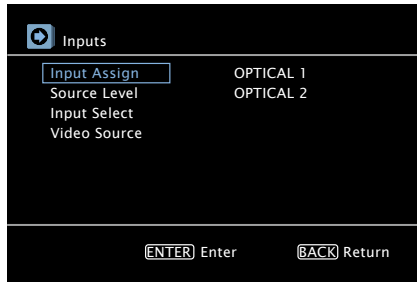
Perform settings related to input source playback.

You do not have to change the settings to use the unit. Make settings when needed.

## Input Assign

This unit has certain input sources such as “CBL/SAT” assigned to audio and video connectors by default. By making the default connections, you can simply press an input source select button to play back audio or video from the connected device with ease.

If you have made connections that are different to the default settings, the digital audio input connectors assigned to each input source can be changed using these items.



- By default, each item is set as follows.

Input source / Input connector	CBL/SAT	DVD	Blu-ray	GAME	AUX	TV AUDIO
OPTICAL 1						<input type="radio"/>
OPTICAL 2	<input type="radio"/>					

## Set Defaults

The “Input Assign” settings are returned to the default settings.



## Auto Preset

A maximum of 56 radio stations can be automatically preset.

### ■ Start

The unit starts to tune in to radio stations automatically and preset them.

- When presetting is completed, "Completed" is displayed for about 5 seconds.



- The preset memory is overwritten.
- When radio stations cannot be preset automatically, manually select and preset desired broadcast stations (see page 41 "Presetting the current broadcast station (Preset Memory)").

## Preset Skip

When tuning preset broadcast stations, you can set blocks (A – G) or individual broadcast stations that you don't want to display in advance.

### ■ Block A – Block G

Select a block to be skipped from among preset blocks (from A to G).

**On** (Default) : Display the selected preset memory block.

**SKIP** : Do not display the selected preset memory block.

## Source Level

This function corrects the playback level of the selected input source's audio input.

Make this setting if there are differences in the input volume levels between the different sources.

### ■ Source Level

**-12dB – +12dB** (Default : 0dB)



## Input Select

Set the audio input mode and decode mode of each input source. The input modes available for selection may vary depending on the input source.

### Input Mode

Set the audio input modes for the different input sources.

It is normally recommended to set the audio input mode to "Auto".

**Auto** (Default) : Automatically detect input signal and perform playback.

**HDMI** : Play only signals from HDMI input.

**Digital** : Play only signals from digital audio input (OPTICAL 1 / OPTICAL 2).

**Analog** : Play only signals from analog audio input.



- When digital signals are properly input, the **DIG.** indicator lights on the display. If the **DIG.** indicator does not light, check the digital audio input connector assignment and the connections.

### Decode Mode

Set the audio decode mode for input source.

**Auto** (Default) : Detect type of digital audio input signal and decode and play automatically.

**PCM** : Decode and play only PCM input signals.

**DTS** : Decode and play only DTS input signals.



- This item can be set for input sources for which "OPTICAL 1" or "OPTICAL 2" is assigned at "Input Assign" (see page 54).
- Normally set this mode to "Auto". It is recommended to set "PCM" or "DTS" when audio is missing at the beginning or a noise occurs.

## Video Source

This unit can display video from a different source on TV during audio playback.

### Video Select

**Default** (Default) : Play the picture and sound of the input source.

**CBL/SAT / DVD** : The video of the selected input source is played along with the audio currently being played. This can be set for individual input sources.



- It is not possible to select HDMI input signals.





# Speakers

For optimum surround playback, adjustment of the distance of speakers and sound level of each channel, using the test tone, are required, depending on the environment for speakers to be used.

## Speaker Config.

Indicate speaker presence and select speaker size categories based on bass reproduction capability.

### ■ Front

Set the front speaker size.

**Large** (Default) : Use a large speaker that can adequately play back very low bass frequencies.

**Small** : Use a small speaker that has inadequate playback capacity for very low bass frequencies.



- When "Subwoofer" is set to "No", "Front" is automatically set to "Large".
- When "Front" is set to "Small", "Center" and "Surround" can not be set to "Large".

### ■ Center

Set the presence and size of the center speaker.

**Large** : Use a large speaker that can adequately play back very low bass frequencies.

**Small** (Default) : Use a small speaker that has inadequate playback capacity for very low bass frequencies.

**None** : Select when a center speaker is not connected.

### ■ Surround

Set the presence and size of the surround speakers.

**Large** : Use a large speaker that can adequately play back very low bass frequencies.

**Small** (Default) : Use a small speaker that has inadequate playback capacity for very low bass frequencies.

**None** : Select when the surround speakers are not connected.

### ■ Subwoofer

Set the presence of a subwoofer.

**Yes** (Default) : Use a subwoofer.

**No** : Select when a subwoofer is not connected.



## Distances

Set distance from listening position to speakers.  
Measure beforehand the distance from the listening position to each speaker.

### ■ Step

Set the minimum variable width of the distance.

**0.1m** (Default) / **0.01m**

### ■ Set the distance

**0.00m – 18.00m**



- The speakers that can be selected differ depending on the “Speaker Config.” (page 57) settings.
- Default settings :  
Front L / Front R / Center / Subwoofer : 3.60 m  
Surround L / Surround R : 3.00 m
- Set the difference in the distance between the speakers to less than 6.00 m.

## Levels

Set the volume of the test tone to be the same when it is output from each speaker.

### ■ Test Tone Start

Output test tone. A test tone is output from the selected speaker. While listening to the test tone, adjust the volume output from the selected speaker.

**-12.0dB – +12.0dB** (Default : 0.0dB)



- When “Levels” is adjusted, the adjusted values are set for all the surround modes.
- When headphones are connected to the PHONES connector on this unit, you cannot set “Levels”.

### ■ Set Defaults

The “Levels” settings are returned to the default settings.



## Crossovers

Set in accordance with the lower limit frequency of the base frequencies that can be played back through each speaker.

### ■ Set the crossover frequency

**40Hz / 60Hz / 80Hz (Default) / 90Hz / 100Hz / 110Hz / 120Hz / 150Hz / 200Hz / 250Hz**



- “Crossovers” can be set when the “SW Mode” (🔧 page 59) setting is “LFE+Main”, or when you have a speaker that is set to “Small”.
- The default crossover frequency is “80Hz”, which will work best with the widest variety of speakers. We recommend setting to a higher frequency that the crossover frequency when small speakers are used. For example, set to “250Hz” when the frequency range of the speakers is 250 Hz – 20 kHz.
- For speakers set to “Small”, low frequency content below the crossover frequency is attenuated to the speakers and the low bass content is then re-delivered to the subwoofer, or the front (L/R) speakers if they have been set to Large.

## Bass

Set subwoofer and LFE signal range playback.

### ■ LPF for LFE

Set LFE signal playback range. Set this when you want to change the playback frequency (low pass filter point) of the subwoofer.

**80Hz / 90Hz / 100Hz / 110Hz / 120Hz (Default) / 150Hz / 200Hz / 250Hz**

### ■ SW Mode

Select low range signals to be reproduced by subwoofer.

**LFE** : The low range signal of the channel set to “Small” speaker size is added to the LFE signal output from the subwoofer.

**LFE+Main (Default)** : The low range signal of all channels is added to the LFE signal output from the subwoofer. This is usually the best setting for most systems.



- “SW Mode” can be set when “Speaker Config.” – “Subwoofer” (🔧 page 57) is set to other than “No”.
- Play music or a movie source and select the mode offering the strongest bass.
- If “Front” and “Center” for “Speaker Config.” (🔧 page 57) are set to “Large”, and “SW Mode” is set to “LFE”, no sound may be output from the subwoofers, depending on the input signal or selected surround mode. Select “LFE+Main” if you want the bass signals to always be produced from the subwoofer.



## General

Make various other settings.

### Volume

Set the volume setting.

#### ■ Scale

Set how volume is displayed.

**0 – 98 (Default)** : Display in the range 0 (Min) to 98.

**-79.5dB – 18.0dB** : Display –dB (Min), in the range -79.5 dB to 18.0 dB.

#### ■ Limit

Make a setting for maximum volume.

**60 (-20dB) / 70 (-10dB) / 80 (0dB)**

**Off (Default)**



- If "Scale" is set to "-79.5dB – 18.0dB", the value in ( ) is displayed.

#### ■ Power On Level

Define the volume setting that is active when the power is turned on.

**Last (Default)** : Use the memorized setting from the last session.

**Mute** : Always use the muting on condition when power is turned on.

**1 – 98 (-79dB – 18dB)** : The volume is adjusted to the set level.

#### ■ Mute Level

Set the amount of attenuation when muting is on.

**Full (Default)** : The sound is muted entirely.

**-40dB** : The sound is attenuated by 40 dB down.

**-20dB** : The sound is attenuated by 20 dB down.

### HDMI

Make settings for HDMI video/audio output.

#### NOTE

- When "Pass Through" is set to "On", it consumes more standby power. If you are not using this unit for an extended period, it is recommended that you unplug the power cord from the power outlet.

#### ■ HDMI Audio Out

Select HDMI audio output device.

**AVR (Default)** : Play back through speakers connected to the unit.

**TV** : Play back through TV connected to the unit.



- If "TV" is selected, only an HDMI audio signal is output from the TV.



## ■ Pass Through

Selects how the AV receiver will pass HDMI signals to the HDMI output in standby power mode.

**On** : Passes the selected HDMI input through the AV receiver's HDMI output when the AV receiver is in standby power mode.

**Off (Default)** : No HDMI signals are passed through the AV receiver's HDMI output in standby power mode.

## ■ Pass Source

The AV receiver will "pass through" the source's HDMI signal when in standby.

**Last (Default)** : Choose this option to "pass through" the last used HDMI input video source.

**CBL/SAT / Blu-ray / GAME / AUX** :

Choose this option to "pass through" the selected input source when in standby.



- "Pass Source" can be set when "Pass Through" is set to "On".

## Other

Make various other settings.

### ■ Auto Standby

Sets the time after which the unit automatically enters standby mode when there are no audio or video signals input, and the unit is not operated. Before it enters the standby mode, "Auto Standby" is displayed on the display of this unit and the menu screen.

**2Hours** : The unit goes into standby after 2 hours.

**4Hours** : The unit goes into standby after 4 hours.

**8Hours (Default)** : The unit goes into standby after 8 hours.

**Off** : The unit does not go into standby automatically.

### ■ Setup Lock

Protect settings from inadvertent changes.

**On** : Turn protection on.

**Off (Default)** : Turn protection off.



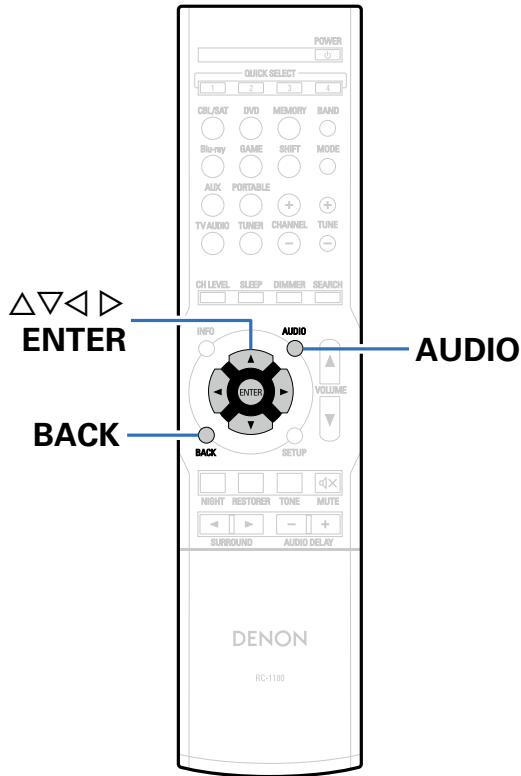
- To turn "Off" the "Setup Lock", follow the procedure below.
  1. Press and hold SETUP for at least 3 seconds.  
"Setup Lock: ◀On ▶" appears on the display.
  2. Use ◀▶ to select "Off", and then press ENTER.

#### NOTE

- When "Setup Lock" is set to "On", no setting items are displayed except for "Setup Lock".



## Adjusting the sound field effects (Audio Adjust)



You can adjust the surround audio sound field effects to match your preferences.

The items (parameters) that can be adjusted depend on the signal being input and the currently set sound mode. For details on the adjustable parameters, see “Surround modes and surround parameters” ([page 85](#)).



- Some setting items cannot be set while playback is stopped. Make the settings during playback.



## Menu operation

- 1 Press AUDIO, then press ENTER.**
- 2 Use  $\Delta$ / $\nabla$  to select the menu to be set or operated.**
- 3 Use  $\triangleleft$ / $\triangleright$  to change to desired setting.**
- 4 Press ENTER to enter the setting.**
  - To return to the previous item, press BACK.
  - Exiting the Menu, press AUDIO while the menu is displayed. The menu display disappears.

## Mode

Set the play modes for the different surround modes.

### ■ In the PLII mode

**Cinema** (Default) : Switches to the surround mode suitable for enjoying movies and TV programs.

**Music** : Switches to the sound mode suitable for enjoying music.

**Game** : Switches to the sound mode suitable for enjoying games.

**Pro Logic** : Dolby Pro Logic playback mode.

### ■ In the DTS NEO:6 mode

**Cinema** (Default) : Switches to the surround mode suitable for enjoying movies and TV programs.

**Music** : Switches to the sound mode suitable for enjoying music.



- The "Music" mode is also effective for movie sources including a lot of stereo music.



## D.Comp

Compress dynamic range (difference between loud and soft sounds).

**Low / Mid / High** : These set the compression level.

**Off** (Default) : Dynamic range compression is always off.

## DRC

Compress dynamic range (difference between loud and soft sounds).

**Auto** (Default) : Automatic dynamic range compression on/off control according to source.

**Low / Mid / High** : These set the compression level.

**Off** : Dynamic range compression is always off.

## LFE

Adjust the low-frequency effects level (LFE).

**-10dB – 0dB** (Default)



• For proper playback of the different sources, we recommend setting to the values below.

- Dolby Digital sources : 0dB
- DTS movie sources : 0dB
- DTS music sources : -10dB

## Center Image

Distributes the dialogue output from the center channel to the front left and right channels and widens the sound image in the front.

**0.0 – 1.0** (Default : 0.3)



- You can set this when the sound mode is set to DTS NEO:6 Music.
- The smaller the value, the more dialogue is concentrated on the center channel. The larger the value, the more dialogue is distributed to front left and right channels, and the more the sound image widens in the front.

## Panorama

Assign front L/R signals to also go to the surround channels for wider sound.

**On** : Set.

**Off** (Default) : Do not set.



- You can set this when the sound mode is Dolby PLII in the "Music" mode.





## Dimension

Shift sound image center to front or rear to adjust playback balance.

**0 – 6** (Default : 3)



- You can set this when the sound mode is Dolby PLII in the “Music” mode.
- As you set a smaller number, the surround sound field shifts backward; as you set a larger number, the surround sound field shifts forward.

## Center Width

Distributes the dialogue output from the center channel to left and right channels and widens the sound image in the front.

**0 – 7** (Default : 3)



- You can set this when the sound mode is Dolby PLII in the “Music” mode.
- The smaller the value, the more dialogue is concentrated on the center channel. The larger the value, the more dialogue is distributed to front left and right channels, and the more the sound image widens in the front.



## Subwoofer

Turn subwoofer output on and off.

**On** (Default) : The subwoofer is used.

**Off** : The subwoofer is not used.



- This can be set when the surround mode is “DIRECT” ( [page 43](#)) and the “SW Mode” ( [page 59](#)) is “LFE+Main”.

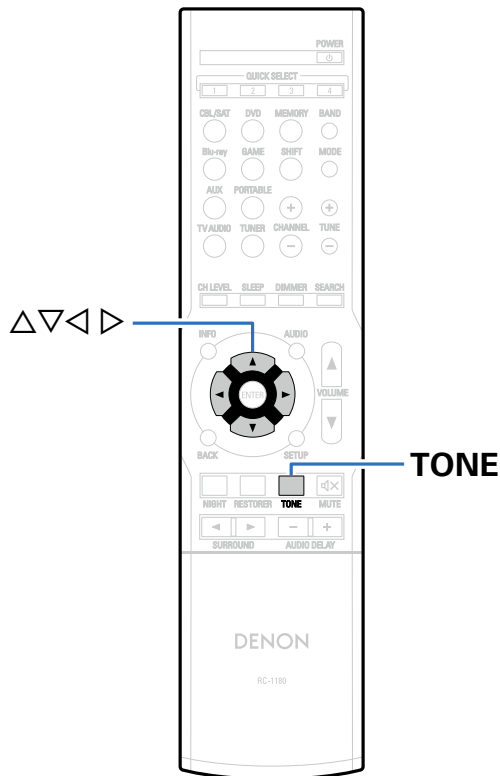
## Defaults

The “Audio Adjust” settings are returned to the default settings.



# Adjusting the tone

Adjust the tonal quality of the sound.



**1 Press TONE.**  
The "Tone" screen is displayed on the TV screen.

**2 Use ◀ ▶ to select "On".**

**On** : Allow tone adjustment (bass, treble).

**Off (Default)** : Playback without tone adjustment.

**3 Use ▲ ▼ to select the item.**

**Bass** : Adjust bass.

**Treble** : Adjust treble.

**4 Use ◀ ▶ to change to desired setting.**

**-6dB – +6dB (Default : 0dB)**

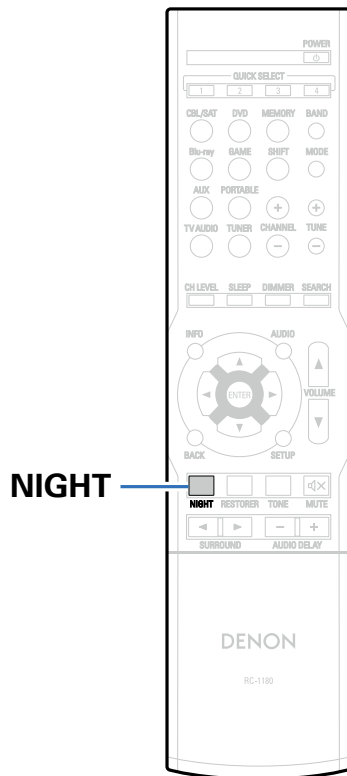


• This cannot be set when the surround mode is set to "DIRECT".



# Setting the Night mode

Compress dynamic range (difference between loud and soft sounds).



## 1 Press NIGHT.

The "NIGHT MODE" screen is displayed on the TV screen.

**Low** : Set the adjusted value to "Low".

**Mid** : Set the adjusted value to "Middle".

**High** : Set the adjusted value to "High".

**Auto** : Automatic dynamic range compression on/off control according to the source.

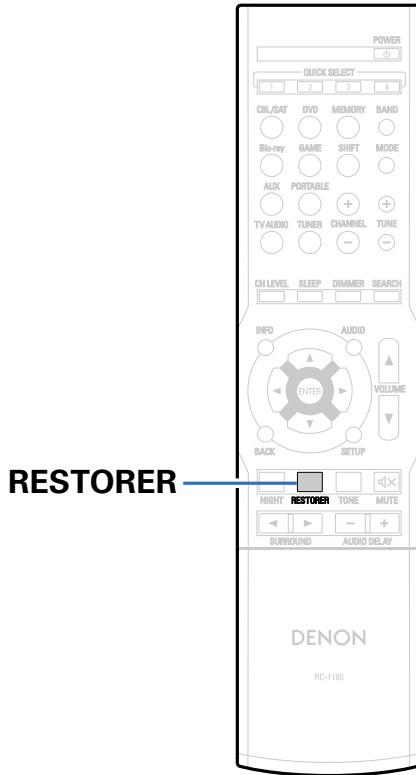
**Off** : Not set.



- You can set "Auto" only for the Dolby TrueHD source.
- The default setting is "Off". When the input signal is Dolby TrueHD source, the default setting is "Auto".



# Setting the RESTORER mode



Compressed audio formats such as MP3, WMA (Windows Media Audio) and MPEG-4 AAC reduce the amount of data by eliminating signal components that are hard for the human ear to hear. The RESTORER mode generates the signals eliminated upon compression, restoring the sound to conditions near those of the original sound before compression. It also restores the original bass characteristics for a rich and expanded tonal range.

## 1 Press RESTORER.

The RESTORER mode screen is displayed on the TV screen.

**On** : Use RESTORER mode.

**Off (Default)** : Do not use RESTORER mode.

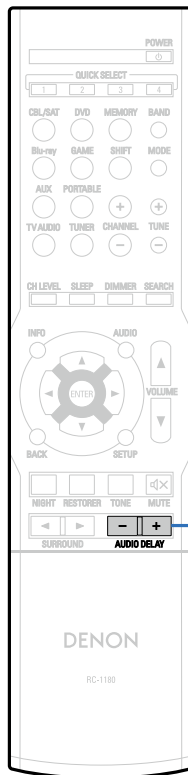


- This item can be set with analog signals or PCM signal (Sample Rate = 44.1/48 kHz) is input.
- "RESTORER" settings are stored for each input source.
- This cannot be set when the surround mode is set to "DIRECT".



# Setting the Audio Delay mode

While viewing video, manually adjust the time to delay audio output so that the video and audio are synchronized.



**AUDIO DELAY**

- 1 Use AUDIO DELAY + or AUDIO DELAY –.**  
The “Audio Delay” screen is displayed on the TV screen.

**0ms (Default) – 200ms**

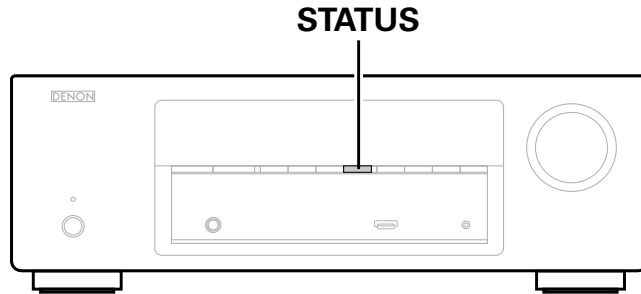


- “Audio Delay” settings are stored for each input source.



# Checking the information

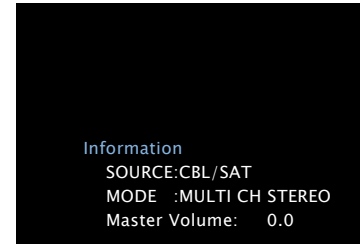
Information on the main unit's various settings (Status) and on input signals (Audio Input Signal) is shown on the display.



- 1 **Press STATUS on the main unit.**  
The "Information" screen is displayed on the TV screen.



- Press INFO on the remote control unit to display current source name, volume, surround mode name, and other information at the bottom of the screen.



#### NOTE

- The status display screen cannot be displayed at a computer's resolution (e.g. VGA) is being played.

#### Dialogue normalization function

This function is automatically activated when playing Dolby Digital sources.

It automatically corrects the standard signal level for individual program sources.

The correction value can be checked using the main unit's STATUS.

Offset: - 4dB

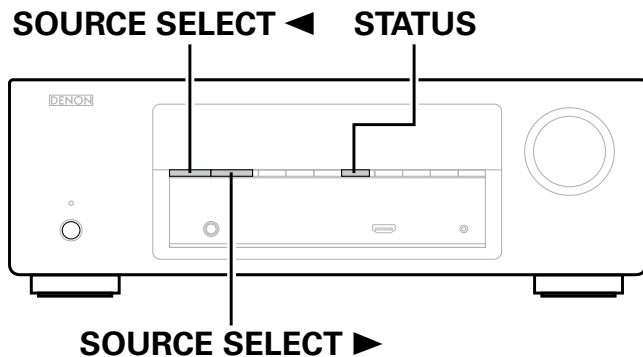
The figure is the corrected value. This cannot be changed.



## Switching between PAL and NTSC signal formats

Set the video signal format to be output for the TV you are using.

- The factory setting is "PAL".



- 1 Press and hold STATUS and SOURCE SELECT ◀ for at least 3 seconds.**

"V.Format:<PAL>" appears on the display.

- 2 Use SOURCE SELECT ◀ ▶ and set the video signal format.**

- 3 Press STATUS to complete the setting.**



- When a format other than the video format of the connected TV is set, the picture will not be displayed properly.



# Tips

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## Tips

### **I want the volume not to become too loud by mistake.**

- Set the volume upper limit for “Limit” in the menu beforehand. This prevents children or others from increasing the volume too much by mistake (🔍 [page 60](#)).

### **I want to keep the volume at the same level when I turn the power on.**

- By default, the volume setting when power was previously set to standby is applied at next power on. To use a fixed volume level, set the volume level at power on for “Limit” in the menu (🔍 [page 60](#)).

### **I want to have the subwoofer always output audio.**

- Depending on the input signals and surround mode, the subwoofer may not output audio. When “SW Mode” in the menu is set to “LFE+Main”, you can have the subwoofer always output audio (🔍 [page 59](#)).

### **I want to combine a desired video with the current music.**

- Set “Video Select” in the option menu to “On”. You can combine the current music with your desired video source from Set-top Box or DVD, etc. while listening to music from Tuner (🔍 [page 56](#)).



## Troubleshooting

If a problem should arise, first check the following:

1. Are the connections correct?
2. Is the set being operated as described in the owner's manual?
3. Are the other devices operating properly?

If this unit does not operate properly, check the items listed in the table below. Should the problem persist, there may be a malfunction. In this case, disconnect the power immediately and contact your store of purchase.

### ■ Power does not turn on / Power is turned off

Symptom	Cause / Solution	Page
Power does not turn on.	<ul style="list-style-type: none"> <li>• Check whether the power plug is correctly inserted into the power outlet.</li> </ul>	<a href="#">33</a>
Power automatically turns off.	<ul style="list-style-type: none"> <li>• The sleep timer is set. Turn on the power again.</li> <li>• "Auto Standby" is set. "Auto Standby" is triggered when there is no operation for a set amount of time. To disable "Auto Standby", set "Auto Standby" on the menu to "Off".</li> </ul>	<a href="#">49</a> <a href="#">61</a>
Power turns off and the power indicator flashes in red approx. every 2 seconds.	<ul style="list-style-type: none"> <li>• The protection circuit has been activated due to a rise in temperature within this unit. Turn the power off, wait about an hour until this unit cools down sufficiently, and then turn the power on again.</li> <li>• Please re-install this unit in a place having good ventilation.</li> </ul>	<a href="#">89</a> -
Power turns off and the power indicator flashes in red approx. every 0.5 seconds.	<ul style="list-style-type: none"> <li>• Check the speaker connection. The protection circuit may have been activated because speaker cable core wires came in contact with each other or a core wire was disconnected from the connector and came in contact with the rear panel of this unit. After unplugging the power cord, take corrective action such as firmly re-twisting the core wire or taking care of the connector, and then reconnect the wire.</li> <li>• Turn down the volume and turn on the power again.</li> <li>• This unit's amplifier circuit has failed. Unplug the power cord and contact our customer service center.</li> </ul>	<a href="#">19</a> <a href="#">35</a> , <a href="#">36</a> -



## ■ Operations cannot be performed through the remote control unit

Symptom	Cause / Solution	Page
Operations cannot be performed through the remote control unit.	• Batteries are worn out. Replace with new batteries.	<u>6</u>
	• Operate the remote control unit within a distance of about 7 m from this unit and at an angle of within 30°.	<u>6</u>
	• Remove any obstacle between this unit and the remote control unit.	–
	• Insert the batteries in the proper direction, checking the ⊕ and ⊖ marks.	<u>6</u>
	• The set's remote control sensor is exposed to strong light (direct sunlight, inverter type fluorescent bulb light, etc.). Move the set to a place in which the remote control sensor will not be exposed to strong light.	–
	• When using a 3D video device, the remote control unit of this unit may not function due to effects of infrared communications between units (such as TV and glasses for 3D viewing). In this case, adjust the direction of units with the 3D communications function and their distance to ensure they do not affect operations from the remote control unit of this unit.	–

## ■ Display on this unit shows nothing

Symptom	Cause / Solution	Page
Display is off.	• Press the DIMMER button on this unit or remote control unit to set the display brightness to a setting other than "Off".	<u>36</u>



## ■ No sound comes out

Symptom	Cause / Solution	Page
No sound comes out of speakers.	• Check the connections for all devices.	<a href="#">19</a> , <a href="#">24</a> , <a href="#">25</a> , <a href="#">27</a> , <a href="#">28</a> , <a href="#">29</a> , <a href="#">30</a> , <a href="#">31</a>
	• Insert connection cables all the way in.	–
	• Check that input connectors and output connectors are not reversely connected.	–
	• Check cables for damage.	–
	• Check that speaker cables are properly connected. Check that cable core wires come in contact with the metal part on speaker terminals. Also, securely tighten speaker terminals. Check speaker terminals for looseness.	<a href="#">19</a>
	• Check that a proper input source is selected.	<a href="#">35</a>
	• Adjust the master volume.	<a href="#">36</a>
	• Cancel the mute mode.	<a href="#">36</a>
	• Check the digital audio input connector setting.	<a href="#">54</a>
	• Check the digital audio output setting on the connected device. On some devices, the digital audio output is set to off by default.	–
• No sound is output from the speakers when headphones are connected.	<a href="#">9</a>	
No sound comes out when using the DVI-D connection.	• When this unit is connected to a device equipped with a DVI-D connector, no sound is output. Make a separate audio connection.	–



## ■ Desired sound does not come out

Symptom	Cause / Solution	Page
The volume does not increase.	<ul style="list-style-type: none"> <li>• The maximum volume is set too low. Set the maximum volume using "Limit" on the menu.</li> <li>• Appropriate volume correction processing is performed according to the input audio format and settings, so the volume may not reach the upper limit.</li> </ul>	<a href="#">60</a> -
No sound comes out with the HDMI connection.	<ul style="list-style-type: none"> <li>• Check the connection of the HDMI connectors.</li> <li>• When outputting HDMI audio from the speakers, set "HDMI Audio Out" on the menu to "AVR". To output from the TV, set "TV".</li> </ul>	<a href="#">24</a> , <a href="#">27</a> , <a href="#">28</a> , <a href="#">29</a> <a href="#">60</a>
No sound comes out of a specific speaker.	<ul style="list-style-type: none"> <li>• Check that the speaker cable is properly connected.</li> <li>• Check that a selection other than "None" is set for the "Speaker Config." setting in menu.</li> <li>• When the surround mode is "STEREO" and "VIRTUAL", audio is only output from the front speakers and subwoofer.</li> </ul>	<a href="#">19</a> <a href="#">57</a> -
No sound is produced from subwoofer.	<ul style="list-style-type: none"> <li>• Check the subwoofer connections.</li> <li>• Turn on the subwoofer's power.</li> <li>• Set "Speaker Config." - "Subwoofer" on the menu to "Yes".</li> <li>• When "Speaker Config." - "Front" in the menu is set to "Large", depending on the input signal and the surround mode, no sound may be output from the subwoofer.</li> <li>• When no subwoofer audio signal (LFE) is included in the input signals, no sound may be output from the subwoofer.</li> <li>• You can make the subwoofer always output sound by setting the subwoofer mode to "LFE+Main".</li> </ul>	<a href="#">20</a> - <a href="#">57</a> <a href="#">57</a> <a href="#">59</a> <a href="#">59</a>
DTS sound is not output.	<ul style="list-style-type: none"> <li>• Check that the digital audio output setting on the connected device is set to "DTS".</li> <li>• Set "Decode Mode" on the menu to "Auto" or "DTS".</li> </ul>	- <a href="#">56</a>



Symptom	Cause / Solution	Page
Dolby TrueHD, DTS-HD, Dolby Digital Plus audio is not output.	<ul style="list-style-type: none"> <li>• Make HDMI connections.</li> <li>• Check the digital audio output setting on the connected device. On some devices, "PCM" is set by default.</li> </ul>	<u>27, 28</u> –
Dolby PLII mode or DTS NEO:6 mode cannot be selected.	<ul style="list-style-type: none"> <li>• It cannot be selected when "None" is set for "Speaker Config." – "Center" and "Surround".</li> <li>• These cannot be selected when using the headphones.</li> </ul>	<u>57</u> –
"RESTORER" cannot be selected.	<ul style="list-style-type: none"> <li>• Check that an analog signal or PCM signal (Sample Rate=44.1/48 kHz) is input. For playback of multichannel signals such as Dolby Digital or DTS surround, "Restorer" cannot be used.</li> <li>• Switch the surround mode to other than "DIRECT".</li> </ul>	<u>68</u> <u>43</u>

## ■ Sound is interrupted or noise occurs

Symptom	Cause / Solution	Page
Noise often occurs in FM/AM broadcasting.	<ul style="list-style-type: none"> <li>• Change the antenna orientation or position.</li> <li>• Separate the AM loop antenna from the unit.</li> <li>• Use an FM outdoor antenna.</li> <li>• Separate the antenna from other connection cables.</li> </ul>	<u>31</u> <u>31</u> <u>31</u> <u>31</u>



## ■ No video is shown on the TV

Symptom	Cause / Solution	Page
No picture appears.	<ul style="list-style-type: none"> <li>• Check the connections for all devices.</li> <li>• Insert connection cables all the way in.</li> <li>• Check that input connectors and output connectors are not reversely connected.</li> <li>• Check cables for damage.</li> <li>• Match the input settings to the input connector of the TV connected to this unit.</li> <li>• Check that the proper input source is selected.</li> <li>• Check the video input connector setting.</li> </ul>	<a href="#">24</a> , <a href="#">25</a> , <a href="#">27</a> , <a href="#">28</a> , <a href="#">29</a> – – – <a href="#">54</a> <a href="#">35</a> <a href="#">54</a>
While the menu is being displayed, no video is shown on the TV.	<ul style="list-style-type: none"> <li>• When the menu is operated during playback of some 3D video contents or of video at some computer resolutions (such as VGA), no playback video is shown in the background of the menu.</li> </ul>	–

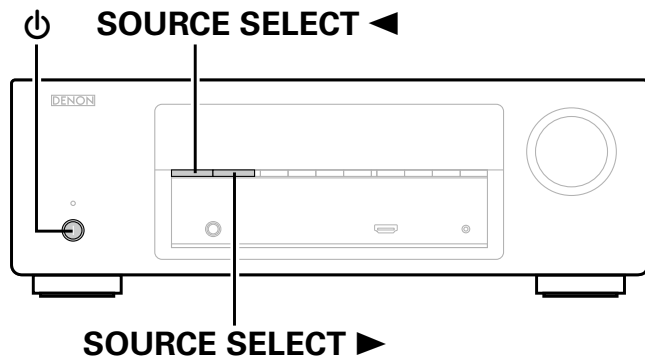
## ■ The menu screen is not displayed on the TV



Symptom	Cause / Solution	Page
The menu screen or status information screen is not displayed on the TV.	<ul style="list-style-type: none"> <li>• The menu screen is only displayed on this unit and a TV connected by HDMI cable. If this unit is connected to a TV using a different video output connector, operate while watching the display on this unit.</li> <li>• No status information is displayed for some 3D videos or videos with a computer resolution such as VGA.</li> <li>• When a 2D video is converted to a 3D video on the TV, the menu screen or status information screen is not properly displayed.</li> </ul>	–  <a href="#">70</a> –



## Resetting factory settings

Perform this procedure if the display is abnormal or if operations cannot be performed. Various settings are reset to the factory default values. Make settings again.



- 1** Turn off the power using .
- 2** Press  while simultaneously pressing SOURCE SELECT ◀ and SOURCE SELECT ▶.
- 3** Once the display starts flashing at intervals of about 1 second, release the two buttons.



- If in step 3 the display does not flash at intervals of about 1 second, start over from step 1.





# Appendix

## About HDMI

HDMI is an abbreviation of High-Definition Multimedia Interface, which is an AV digital interface that can be connected to a TV or amplifier.

With the HDMI connection, high definition video and high quality audio formats adopted by Blu-ray disc players (Dolby Digital Plus, Dolby TrueHD, DTS-HD, DTS-HD Master Audio) can be transmitted, which is not possible with the analog video transmission.

Furthermore, in the HDMI connection, audio and video signals can be transmitted through a single HDMI cable, while in conventional connections it is necessary to provide audio and video cables separately for connection between devices.

This allows you to simplify the wiring configuration that tends to be quite complex in a home theater system.

This unit supports the following HDMI functions.

- **Deep Color**

An imaging technology supported by HDMI. Unlike RGB or YCbCr, which uses 8 bits (256 shades) per color, it can use 10 bits (1024 shades), 12 bits (4096 shades), or 16 bits (65536 shades) to produce colors in higher definition. Both devices linked via HDMI must support Deep Color.

- **“x.v.Color”**

This function lets HDTVs display colors more accurately. It enables display with natural, vivid colors.

“x.v.Color” is trademark of Sony Corporation.

- **3D**

This unit supports input and output of 3D (3 dimensional) video signals of HDMI.

To play back 3D video, you need a TV and player that provide support for the HDMI 3D function and a pair of 3D glasses.

- **Adobe RGB color, Adobe YCC601 color**

The color space defined by Adobe Systems Inc. Because it is a wider color space than RGB, it can produce more vivid and natural images.

- **sYCC601 color**

Each of these color spaces defines a palette of available colors that is larger than the traditional RGB color model.

- **HDMI pass through**

Even when the power to this unit is set to standby, signals input from the HDMI input connector are output to a TV or other device that is connected to the HDMI output connector.



## ■ Supported audio formats

2-channel Linear PCM	2-channel, 32 kHz – 192 kHz, 16/20/24 bit
Multi-channel Linear PCM	7.1-channel, 32 kHz – 192kHz, 16/20/24 bit
Bitstream	Dolby Digital / DTS / Dolby TrueHD / Dolby Digital Plus / DTS-HD Master Audio / DTS-HD High Resolution Audio / DTS Express

## ■ Supported video signals

- 480i
- 480p
- 576p
- 720p 60/50Hz
- 1080i
- 1080p 60/50/24Hz

### Copyright protection system

In order to play back digital video and audio such as BD-Video (Blu-ray Disc) or DVD-Video via HDMI connection, both this unit and TV and the player need to support the copyright protection system known as HDCP (High-bandwidth Digital Content Protection System). HDCP is copyright protection technology comprised of data encryption and authentication of the connected AV devices. This unit supports HDCP.

- If a device that does not support HDCP is connected, video and audio are not output correctly. Read the owner's manual of your television or player for more information.



- When connecting this unit to a device that is compatible with the Deep Color, use a "High Speed HDMI cable with Ethernet".



## Personal memory plus function

---

This function sets the settings (input mode, surround mode, HDMI output mode, audio delay etc.) last selected for the individual input sources.



- The tone control settings are stored for the individual surround modes.

## Last function memory

---

This function stores the settings which were made before going into the standby mode.



## Surround modes and channel output

- This indicates the audio output channels or surround parameters that can be set.  
 ◎ This indicates the audio output channels. The output channels depend on the settings of “Speaker Config.” (☞ page 57).

Surround mode (☞ page 43)	Channel output			
	Front L/R	Center	Surround L/R	Subwoofer
DIRECT (2-channel)	○			◎*
DIRECT (Multi-channel)	○	◎	◎	◎
STEREO	○			◎
MULTI CH IN	○	◎	◎	◎
DOLBY PRO LOGIC II	○	◎	◎	◎
DTS NEO:6	○	◎	◎	◎
DOLBY DIGITAL	○	◎	◎	◎
DOLBY DIGITAL Plus	○	◎	◎	◎
DOLBY TrueHD	○	◎	◎	◎
DTS SURROUND	○	◎	◎	◎
DTS 96/24	○	◎	◎	◎
DTS-HD	○	◎	◎	◎
DTS Express	○	◎	◎	◎
MULTI CH STEREO	○	◎	◎	◎
VIRTUAL	○			◎

\* Audio is output when “SW Mode” (☞ page 59) in the menu is set to “LFE+Main”.



## Surround modes and surround parameters

Surround mode ( <a href="#">page 43</a> )	Audio Adjust ( <a href="#">page 62</a> )								Tone ( <a href="#">page 66</a> )	RESTORER *4 ( <a href="#">page 68</a> )	
	Mode ( <a href="#">page 63</a> )	D. Comp *1 ( <a href="#">page 64</a> )	DRC *2 ( <a href="#">page 64</a> )	LFE *3 ( <a href="#">page 49</a> )	Subwoofer ( <a href="#">page 65</a> )	PRO LOGIC II Music mode only					NEO:6 Music mode only
						Panorama ( <a href="#">page 64</a> )	Dimension ( <a href="#">page 65</a> )	Center Width ( <a href="#">page 65</a> )			Center Image ( <a href="#">page 64</a> )
DIRECT (2-channel)		<input type="radio"/>	<input type="radio"/>		<input type="radio"/> *5						
DIRECT (Multi-channel)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>							
STEREO		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					<input type="radio"/>	<input type="radio"/>	
MULTI CH IN				<input type="radio"/>					<input type="radio"/>		
DOLBY PRO LOGIC II	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
DTS NEO:6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
DOLBY DIGITAL		<input type="radio"/>		<input type="radio"/>					<input type="radio"/>		
DOLBY DIGITAL Plus		<input type="radio"/>		<input type="radio"/>					<input type="radio"/>		
DOLBY TrueHD				<input type="radio"/>					<input type="radio"/>		
DTS SURROUND		<input type="radio"/>		<input type="radio"/>					<input type="radio"/>		
DTS 96/24		<input type="radio"/>		<input type="radio"/>					<input type="radio"/>		
DTS-HD		<input type="radio"/>		<input type="radio"/>					<input type="radio"/>		
DTS Express		<input type="radio"/>		<input type="radio"/>					<input type="radio"/>		
MULTI CH STEREO		<input type="radio"/>		<input type="radio"/>					<input type="radio"/>	<input type="radio"/>	
VIRTUAL		<input type="radio"/>		<input type="radio"/>					<input type="radio"/>	<input type="radio"/>	

\*1 This item can be selected when a Dolby Digital or DTS signal is played.

\*2 This item can be selected when a Dolby TrueHD signal is played.

\*3 This item can be selected when a Dolby Digital or DTS signal or DVD-Audio is played.

\*4 This item can be set when the input signal is analog, PCM 48 kHz or 44.1 kHz.

\*5 This setting is available when "SW Mode" ([page 59](#)) in the menu is set to "LFE+Main".



# Types of input signals, and corresponding surround modes

- This indicates the default surround mode.
- This indicates the selectable surround mode.

Surround mode (see page 43)	Input signal types and formats											
	ANALOG	PCM		DTS-HD		DTS			DOLBY		DOLBY DIGITAL	
		PCM (Multi-channel)	PCM (2-channel)	DTS-HD Master Audio	DTS-HD High Resolution Audio	DTS EXPRESS	DTS (5.1-channel)	DTS 96/24	DOLBY TrueHD	DOLBY DIGITAL Plus	DOLBY DIGITAL (5.1-channel)	DOLBY DIGITAL (2-channel)
<b>DTS SURROUND</b>												
DTS-HD MSTR				●								
DTS-HD HI RES					●							
DTS SURROUND							●					
DTS 96/24								●				
DTS Express						●						
DTS NEO:6 CINEMA	○											○
DTS NEO:6 MUSIC	○											○
<b>DOLBY SURROUND</b>												
DOLBY TrueHD									●			
DOLBY DIGITAL+										●		
DOLBY DIGITAL											●	
DOLBY PRO LOGIC II CINEMA	○											○
DOLBY PRO LOGIC II MUSIC	○											○
DOLBY PRO LOGIC II GAME	○											○
DOLBY PRO LOGIC	○											○
<b>MULTI CH IN</b>												
MULTI CH IN			●									
<b>DIRECT</b>												
DIRECT	○	○	○	○	○	○	○	○	○	○	○	○
<b>DSP SIMULATION</b>												
MULTI CH STEREO	○	○	○					○	○		○	○
VIRTUAL	○	○	○					○	○		○	○
<b>STEREO</b>												
STEREO	●	○	●	○	○	○	○	○	○	○	○	○



# Explanation of terms

## D

### Dolby Digital

Dolby Digital is a multi-channel digital signal format developed by Dolby Laboratories.

A total of 5.1-channels are played: 3 front channels (“FL”, “FR” and “C”), 2 surround channels (“SL” and “SR”) and the “LFE” channel for low frequency effects.

Because of this, there is no crosstalk between channels and a realistic sound field with a “three-dimensional” feeling (sense of distance, movement and positioning) is achieved. This delivers a thrilling surround sound experience in the home.

### Dolby Digital Plus

Dolby Digital Plus is an improved Dolby Digital signal format that is compatible with up to 7.1-channels of discrete digital sound and also improves sound quality thanks to extra data bit rate performance. It is upwardly compatible with conventional Dolby Digital, so it offers greater flexibility in response to the source signal and the conditions of the playback device.

### Dolby Pro Logic II

Dolby Pro Logic II is a matrix decoding technology developed by Dolby Laboratories.

Regular music such as that on CDs is encoded into 5-channels to achieve an excellent surround effect.

The surround channel signals are converted into stereo and full band signals (with a frequency response of 20 Hz to 20 kHz or greater) to create a “three-dimensional” sound image offering a rich sense of presence for all stereo sources.

### Dolby TrueHD

Dolby TrueHD is a high definition audio technology developed by Dolby Laboratories, using lossless coding technology to faithfully reproduce the sound of the studio master.

This format provides the facility to support up to 8 audio channels with a sampling frequency of 96 kHz/24 bit resolution and up to 6 audio channels with a sampling frequency of 192 kHz/24 bit resolution. Dolby TrueHD is adopted for applications that put very high importance on sound quality.

### Downmix

This function converts the number of channels of surround audio to a lower number of channels and plays back according to the system’s configuration.

### DTS

This is an abbreviation of Digital Theater System, which is a digital audio system developed by DTS.

DTS delivers a powerful and dynamic surround sound experience, and is found in the world’s finest movie theaters and screening rooms.

### DTS 96/24

DTS 96/24 is a digital audio format enabling high sound quality playback in 5.1-channels with a sampling frequency of 96 kHz and 24 bit quantization on DVD-Video.

### DTS Digital Surround

DTS Digital Surround is the standard digital surround format of DTS, Inc., compatible with a sampling frequency of 44.1 or 48 kHz and up to 5.1-channels of digital discrete surround sound.

### DTS Express

DTS Express is an audio format supporting low bit rates (max. 5.1-channels, 24 to 256 kbps).



**DTS-HD**

This audio technology provides higher sound quality and enhanced functionality than the conventional DTS and is adopted as an optional audio for Blu-ray Disc. This technology supports multi-channel, high data transfer speed, high sampling frequency, and lossless audio playback. Maximum 7.1-channels are supported in Blu-ray Disc.

**DTS-HD High Resolution Audio**

DTS-HD High Resolution Audio is an improved version of the conventional DTS, DTS-ES and DTS 96/24 signals formats, compatible with sampling frequencies of 96 or 48 kHz and up to 7.1-channels of discrete digital sound. High data bit rate performance provides high quality sound. This format is fully compatible with conventional products, including conventional DTS digital surround 5.1-channel data.

**DTS-HD Master Audio**

DTS-HD Master Audio is a lossless audio format created by Digital Theater System (DTS). This format provides the facility to support up to 8 audio channels with a sampling frequency of 96 kHz/24 bit resolution and up to 6 audio channels with a sampling frequency of 192 kHz/24 bit resolution. It is fully compatible with conventional products, including conventional DTS digital surround 5.1-channel data.

**DTS NEO:6™ Surround**

DTS NEO:6™ is a matrix decoding technology for achieving 6.1-channel surround playback with 2-channel sources. It includes “DTS NEO:6 Cinema” suited for playing movies and “DTS NEO:6 Music” suited for playing music.

**Dynamic range**

The difference between the maximum undistorted sound level and the minimum discernible level above the noise emitted by the device.

**H****HDCP**

When transmitting digital signals between devices, this copyright protection technology encrypts the signals to prevent content from being copied without authorization.

**L****LFE**

This is an abbreviation of Low Frequency Effect, which is an output channel that emphasizes low frequency effect sound. Surround audio is intensified by outputting 20 Hz to 120 Hz deep bass to the system subwoofer(s).

**M****MP3 (MPEG Audio Layer-3)**

This is an internationally standardized audio data compression scheme, using the “MPEG-1” video compression standard. It compresses the data volume to about one eleventh its original size while maintaining sound quality equivalent to a music CD.

**MPEG (Moving Picture Experts Group), MPEG-2, MPEG-4**

These are the names for digital compression format standards used for the encoding of video and audio. Video standards include “MPEG-1 Video”, “MPEG-2 Video”, “MPEG-4 Visual”, “MPEG-4 AVC”. Audio standards include “MPEG-1 Audio”, “MPEG-2 Audio”, “MPEG-4 AAC”.





**P****Protection circuit**

This is a function to prevent damage to devices within the power supply when an abnormality such as an overload, excess voltage occurs or over temperature for any reason.

If a malfunction occurs in this unit, the power indicator blinks red and the unit switches to standby mode.

**S****Sampling frequency**

Sampling involves taking a reading of a sound wave (analog signal) at regular intervals and expressing the height of the wave at each reading in digitized format (producing a digital signal).

The number of readings taken in one second is called the “sampling frequency”. The larger the value, the closer the reproduced sound is to the original.

**Speaker impedance**

This is an AC resistance value, indicated in  $\Omega$  (Ohms). Greater power can be obtained when this value is smaller.

**W****WMA (Windows Media Audio)**

This is audio compression technology developed by Microsoft Corporation. WMA data can be encoded using Windows Media® Player.

To encode WMA files, only use applications authorized by Microsoft Corporation. If you use an unauthorized application, the file may not work properly.



## Trademark information



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## HDMI

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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# Specifications

## ■ Audio section

### • Power amplifier

#### Rated output:

Front:

75 W + 75 W (8  $\Omega$ /ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)

110 W + 110 W (6  $\Omega$ /ohms, 1 kHz with 0.7 % T.H.D.)

Center:

75 W (8  $\Omega$ /ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)

110 W (6  $\Omega$ /ohms, 1 kHz with 0.7 % T.H.D.)

Surround:

75 W + 75 W (8  $\Omega$ /ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)

110 W + 110 W (6  $\Omega$ /ohms, 1 kHz with 0.7 % T.H.D.)

6 – 16  $\Omega$ /ohms

#### Output connectors:

### • Analog

#### Input sensitivity/Input impedance:

200 mV/47 k $\Omega$ /kohms

#### Frequency response:

10 Hz – 100 kHz — +1, -3 dB (DIRECT mode)

#### S/N:

98 dB (IHF-A weighted, DIRECT mode)



## ■ Video section

### • Standard video connectors

**Input/output level and impedance:**

1 V<sub>p-p</sub>, 75 Ω/ohms

**Frequency response:**

5 Hz – 10 MHz — 0, –3 dB

## ■ Tuner section

**Receiving Range:**

### [FM]

(Note: μV at 75 Ω/ohms, 0 dBf = 1 x 10<sup>-15</sup> W)

87.50 MHz – 108.00 MHz

### [AM]

522 kHz – 1611 kHz

**Usable Sensitivity:**

1.2 μV (12.8 dBf)

18 μV

**50 dB Quieting Sensitivity:**

MONO 2.8 μV (20.2 dBf)

**S/N :**

MONO 70 dB (IHF–A weighted, DIRECT mode)

STEREO 67 dB (IHF–A weighted, DIRECT mode)

**Total harmonic Distortion (at 1 kHz):**

MONO 0.7 % (1 kHz)

STEREO 1.0 % (1 kHz)

## ■ General

**Power supply:**

AC 230 V, 50/60 Hz

**Power consumption:**

330 W

**Power consumption in standby mode:**

0.3 W

For purposes of improvement, specifications and design are subject to change without notice.



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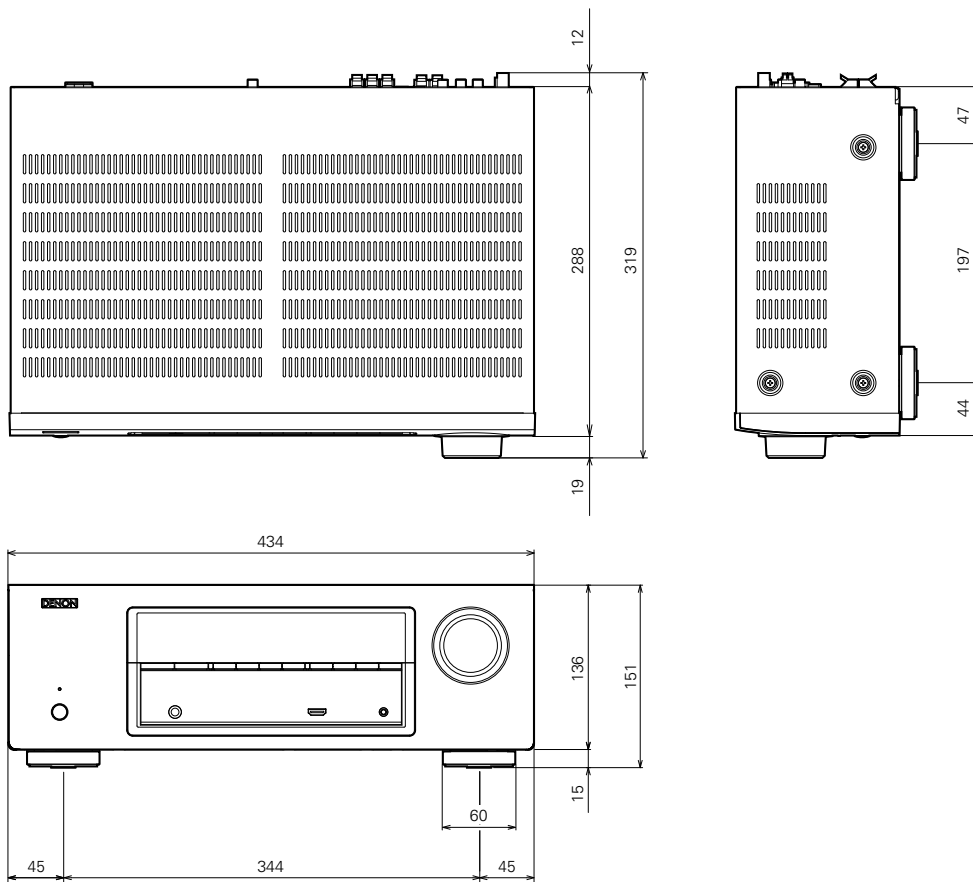
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## ■ Dimensions

Unit : mm



## ■ Weight : 7.9 kg

Front panel

Display

Rear panel

95

Remote

Index



**DENON**

[www.denon.com](http://www.denon.com)

D&M Holdings Inc.  
3520 10206 10AD