

# Panasonic®

## Operating Instructions Blu-ray Disc Home Theater Sound System

Model No. **SC-BT228**



### *Dear customer*

Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully.

Before connecting, operating or adjusting this product, please read the instructions completely. Please keep this manual for future reference.



**BD-Video**



**HDMI**

**VIERA Link™**

**AVCHD™**



As an ENERGY STAR® Partner, Panasonic has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

**If you have any questions contact:  
1-800-211-PANA(7262)**

**The warranty can be found on page 42.  
Please return the product registration card (if included),  
or register via the Internet at:  
[www.panasonic.com/register](http://www.panasonic.com/register)**

**CAUTION!**

THIS PRODUCT UTILIZES A LASER.  
 USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE  
 OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN  
 MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.  
 DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF.  
 REFER SERVICING TO QUALIFIED PERSONNEL.

**WARNING:**

TO REDUCE THE RISK OF FIRE, ELECTRIC  
 SHOCK OR PRODUCT DAMAGE,  
 ● DO NOT EXPOSE THIS APPARATUS TO RAIN,  
 MOISTURE, DRIPPING OR SPLASHING AND  
 THAT NO OBJECTS FILLED WITH LIQUIDS,  
 SUCH AS VASES, SHALL BE PLACED ON THE  
 APPARATUS.  
 ● USE ONLY THE RECOMMENDED  
 ACCESSORIES.  
 ● DO NOT REMOVE THE COVER (OR BACK);  
 THERE ARE NO USER SERVICEABLE PARTS  
 INSIDE. REFER SERVICING TO QUALIFIED  
 SERVICE PERSONNEL.

**CAUTION!**

DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE,  
 BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE.  
 ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK  
 OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO  
 OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER  
 MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.

The socket outlet shall be installed near the equipment and  
 easily accessible. The mains plug of the power supply cord  
 shall remain readily operable. To completely disconnect this  
 apparatus from the AC Mains, disconnect the power supply  
 cord plug from AC receptacle.

**FCC Note:**

This equipment has been tested and found to comply with the limits for a  
 Class B digital device, pursuant to Part 15 of the FCC Rules.  
 These limits are designed to provide reasonable protection against  
 harmful interference in a residential installation. This equipment  
 generates, uses and can radiate radio frequency energy and, if not  
 installed and used in accordance with the instructions, may cause  
 harmful interference to radio communications. However, there is no  
 guarantee that interference will not occur in a particular installation. If this  
 equipment does cause harmful interference to radio or television  
 reception, which can be determined by turning the equipment off and on,  
 the user is encouraged to try to correct the interference by one or more of  
 the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to  
 which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any unauthorized changes or modifications to this equipment would void  
 the user's authority to operate this device.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including  
 interference that may cause undesired operation.

Responsible Party:

Panasonic Corporation of North America  
 One Panasonic Way  
 Secaucus, NJ 07094

Support Contact:

Panasonic Consumer Electronics Company  
 Telephone No.: 1-800-211-PANA (7262)

The model number and serial number of this product can be  
 found on either the back or the bottom of the unit.

Please note them in the space provided below and keep for  
 future reference.

MODEL NUMBER \_\_\_\_\_ SC-BT228 \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

User memo:

DATE OF PURCHASE \_\_\_\_\_

DEALER NAME \_\_\_\_\_

DEALER ADDRESS \_\_\_\_\_

TELEPHONE NUMBER \_\_\_\_\_

# IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the applicable safety instructions listed below. Keep these operating instructions handy for future reference.

- 1 Read these instructions.
- 2 Keep these instructions.
- 3 Heed all warnings.
- 4 Follow all instructions.
- 5 Do not use this apparatus near water.
- 6 Clean only with dry cloth.
- 7 Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8 Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9 Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other.  
A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10 Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11 Only use attachments/accessories specified by the manufacturer.
- 12 Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over. 
- 13 Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14 Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

	<b>CAUTION</b> <b>RISK OF ELECTRIC SHOCK</b> <b>DO NOT OPEN</b>	
<b>CAUTION:</b> TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		

 The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

 The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

<b>CAUTION</b>	VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM. FDA 21 CFR Class II (IIa)
<b>CAUTION</b>	CLASS 1M VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS. IEC60825-1 +A2:CLASS 1M
<b>ATTENTION</b>	RAYONNEMENT LASER VISIBLE ET INVISIBLE, CLASSE 1M. EN CAS D'OUVERTURE, NE PAS REGARDER DIRECTEMENT A L'AVEC D'INSTRUMENTS D'OPTIQUE.
<b>FORSIGTIG</b>	SYNLIG OG USYNLIG LASERSTRÅLING KLASSE 1M, NÅR LÅGET ER ÅBENT; UNDGÅ AT SE LIGE PÅ MED OPTISKE INSTRUMENTER.
<b>VARO</b>	AVIITTESSÄ OLET ALTIINA LÖÖKÄÄN 1M NÄKYVÄÄ JA NÄKYMÄTONTA LASERSÄTELYÄ. ÄLÄ KATSO OPTISELLÄ LAITTEELLA SUORAAN SÄTEESEEN.
<b>WARNING</b>	KLASS 1M SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD; BETRÄKTA EJ STRÅLEN DIREKT GENOM OPTISKT INSTRUMENT.
<b>VORSICHT</b>	SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG KLASSE 1M, WENN ABDECKUNG GEÖFFNET, NICHT DIREKT MIT OPTISCHEN INSTRUMENTEN BETRACHTEN.
<b>注意</b>	— 打开时有可见及不可见激光辐射。避免光束照射。
<b>注意</b>	— ここを開くと可視及び不可視レーザー光が出ます。ビームを射たり、発射したりしないでください。 VQL1V70

(Inside of product)

## -If you see this symbol-

	<p><b>Information on Disposal in other Countries outside the European Union</b></p> <p>This symbol is only valid in the European Union.</p> <p>If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.</p>
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- Operations in these instructions are described mainly with the remote control, but you can perform the operations on the main unit if the controls are the same.

<b>System</b>		SC-BT228
<b>Main unit</b>		SA-BT228
<b>Speaker system</b>	<b>Front speakers</b>	SB-HF480
	<b>Center speaker</b>	SB-HC480
	<b>Surround speakers</b>	SB-HS480
<b>Subwoofer</b>		SB-HW480

- Some accessories and external devices mentioned in these operating instructions that are not included with this product may not be on sale in certain regions.

## Accessory

Check the supplied accessories before using this unit.

- 1 Remote control**  
(N2QAQB000092)



- 2 Batteries for remote control**



- 1 Video cable**  
(K2KA2BA00001)



- 1 FM indoor antenna**  
(RSAX0002)



- 1 Sheet of speaker cable stickers**



- Speaker cable (center)**  
[REEX1154]  
with green connector



- Speaker cables (surround)**  
[REEX1155]  
with gray connector  
[REEX1156]  
with blue connector



- Speaker cables (front)**  
[REEX1152A]  
with red connector  
[REEX1153A]  
with white connector

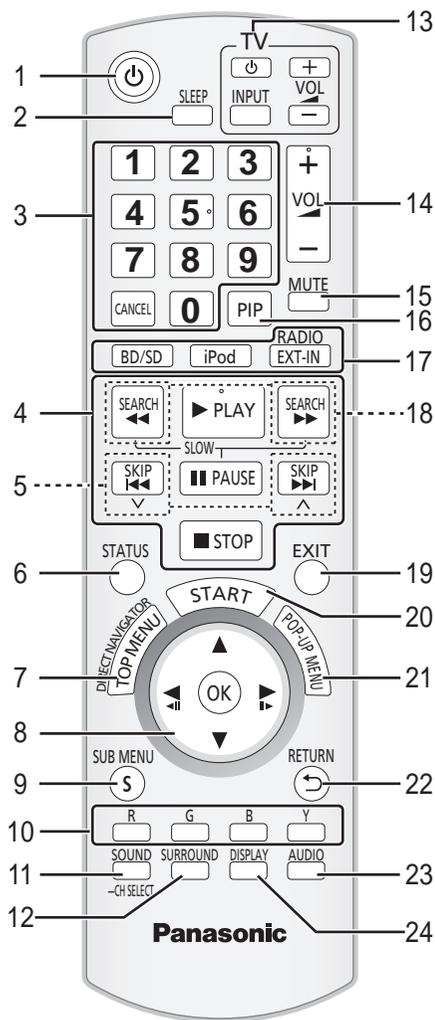


- 1 AC power supply cord**  
(K2CB2CB00021)



- Product numbers correct as of December 2009. These may be subject to change.
- Do not use AC power supply cord with other equipment.
- To order accessories, refer to "Accessory Purchases (United States and Puerto Rico)" on page 42.

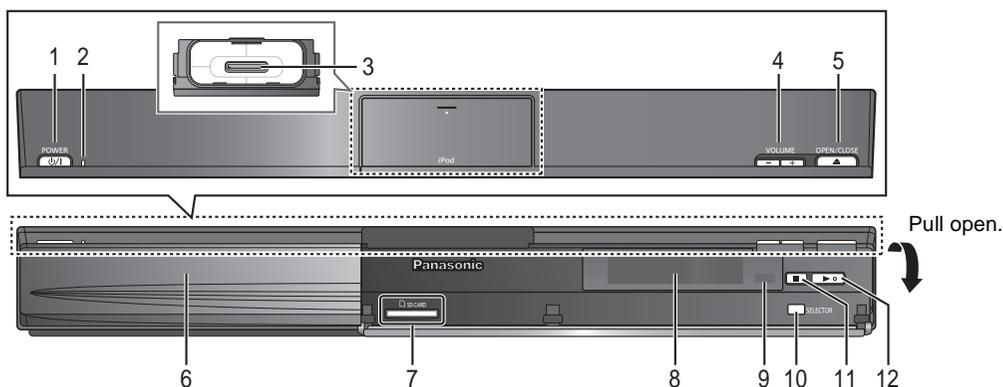
# Control reference guide



## Remote control

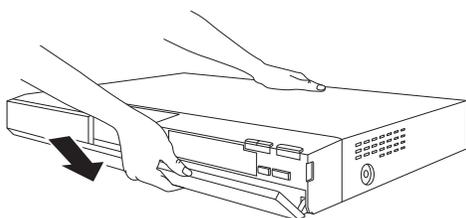
- 1 Turn the unit on and off (⇒ 15)
- 2 Set the sleep timer
  - ① Press [SLEEP].
  - ② While "SLEEP \* \*" is displayed, press [SLEEP] several times to select the time (in minutes).
    - Timer selection is up to 120 minutes.
    - Select "OFF" when cancelling the setting.
    - To confirm the remaining time Press the button again.
- 3 Select title numbers, etc./Enter numbers  
[CANCEL]: Cancel
- 4 Basic playback control buttons (⇒ 19)
- 5 Select preset radio stations
- 6 Show status messages (⇒ 19)
- 7 Show Top Menu/Direct Navigator (⇒ 19)
- 8 [▲, ▼, ◀, ▶]: Menu selection  
[OK]: Selection  
[◀, ▶]: Select preset radio station (⇒ 22)  
[◀◀, ▶▶] (◀◀▶▶): Frame-by-frame (⇒ 19)
- 9 Show sub menu (⇒ 20)
- 10 These buttons are used when;
  - Operating a BD-Video disc that includes Java™ applications (BD-J).
  - Displaying "Title View" and "Album View" screens. (⇒ 20)
- 11 Set the sound mode (⇒ 18)/Select speaker channel (⇒ 18)
- 12 Select surround sound effects (⇒ 18)
- 13 TV operation buttons  
[⏻]: Turn the television on and off  
[INPUT]: Input select  
[+ - VOL]: Adjust the volume
- 14 Adjust the volume of the main unit
- 15 Mute the sound
  - "MUTE" flashes on the unit's display, while the function is on.
  - To cancel, press the button again or adjust the volume.
  - Muting is canceled if the unit is turned off.
- 16 Switch on/off Secondary Video (Picture-in-picture)
- 17 Select the source  
[BD/SD]: Select disc drive or SD card drive (⇒ 17)  
[iPod]: Select iPod as the source (⇒ 17, 26)  
[RADIO/EXT-IN]: Select FM tuner or external audio as the source (⇒ 17, 22, 23)
- 18 Select radio stations manually (⇒ 22)
- 19 Exit the menu screen
- 20 Show START menu (⇒ 17)
- 21 Show Pop-up menu (⇒ 19)
- 22 Return to previous screen
- 23 Select audio (⇒ 19)
- 24 Show Playback menu (⇒ 27)

## Main unit (Front)



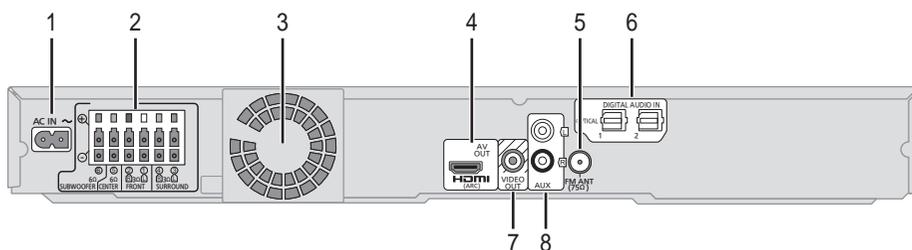
- 1 **Standby/on switch (POWER  $\odot/\text{I}$ )** (⇒ 15)  
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.
- 2 **Power indicator**  
The indicator lights when this unit is turned on.
- 3 **Connect iPod** (⇒ 26)
- 4 **Adjust the volume of the main unit**
- 5 **Open or close the disc tray** (⇒ 16)
- 6 **Disc tray**
- 7 **SD card slot** (⇒ 16)
- 8 **Display (FL Display)**
  - “SRD” (SURROUND) lights when sound is output to the surround speakers.
  - The display is turned off when the volume is adjusted to “0”. (⇒ 30)
- 9 **Remote control signal sensor**  
Distance: Within approx. 7 m (23 ft.)  
Angle: Approx. 20° up and down, 30° left and right
- 10 **Select the source** (⇒ 17)
- 11 **Stop** (⇒ 19)
- 12 **Start play** (⇒ 19)

### ■ If the front cover comes off



- ① Hold rear side of main unit by one hand and match up left or right side protruding hook on the cover first with the corresponding slot on the unit.
- ② Push the hook firmly towards the unit until it clicks into place. Then push the succeeding hooks one by one until all have clicked into place.
- ③ Check that the cover now moves correctly.
  - If it does not, remove it and repeat the above procedure.

## Main unit (Rear)



- 1 **AC IN terminal** (⇒ 15)
- 2 **Speaker terminals** (⇒ 12)
- 3 **Cooling fan**
- 4 **HDMI AV OUT terminal** (⇒ 12, 13)
- 5 **FM radio antenna terminal** (⇒ 14)
- 6 **DIGITAL AUDIO IN terminals** (⇒ 12, 13, 14)  
Terminal 1 is designated for connection with the TV.  
Terminal 2 can be used with equipment other than the STB.
- 7 **VIDEO OUT terminal** (⇒ 12, 13)
- 8 **AUX terminal** (⇒ 13)

### Saving energy

This unit is designed to conserve its power consumption and save energy.

- This unit will automatically turn to standby mode after 30 minutes if it is inactive.

# Playable discs/Cards

Type	Logo examples	Type detail	Playable contents
<b>BD</b>		<b>BD-Video</b>	Video
		<b>BD-RE</b>	Video JPEG
		<b>BD-R</b>	Video
<b>DVD</b>		<b>DVD-Video</b>	Video
		<b>DVD-RAM</b>	Video AVCHD JPEG
		<b>DVD-R</b>	Video AVCHD MP3 JPEG
		<b>DVD-R DL</b>	
		<b>DVD-RW</b>	Video AVCHD
	—	<b>+R/+RW/+R DL</b>	
<b>CD</b>		<b>Music CD</b>	Music [CD-DA]
	—	<b>CD-R CD-RW</b>	Music [CD-DA] MP3 JPEG
<b>SD</b>		<b>SD Memory Card (8 MB to 2 GB)</b> (Includes miniSD Card and microSD Card) <b>SDHC Memory Card (4 GB to 32 GB)</b> (Includes microSDHC Card) <b>SDXC Memory Card (48 GB, 64 GB)</b> (Includes microSDXC Card) (as of December 2009)	MPEG2 AVCHD JPEG

## ■ Discs that cannot be played in this unit

Any other disc that is not specifically supported or previously described.

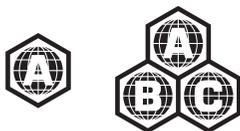
- 2.6 GB and 5.2 GB DVD-RAM
- DVD-RAM that cannot be removed from cartridge
- Super Audio CD
- Photo CD
- DVD-Audio
- Video CD and Super Video CD
- WMA discs
- DivX discs
- PAL discs
- HD DVD
- BD-Video discs recorded at a rate of 50 fields/sec

## ■ Region management information

### BD-Video

This unit plays BD-Video marked with labels containing the region code A.

Example:



### DVD-Video

This unit plays DVD-Video marked with labels containing the region number "1" or "ALL".

Example:



## ■ Finalize

DVD-R/RW/R DL, +R/+RW/+R DL and CD-R/RW recorded by a recorder, etc., needs to be finalized by the recorder to play on this unit. Please refer to the recorder's instructions.

## ■ BD-Video

This unit supports high bit rate audio (Dolby Digital Plus, Dolby TrueHD, DTS-HD High Resolution Audio and DTS-HD Master Audio) adopted in BD-Video. In order to enjoy these audio formats, refer to page 30.

## ■ Music CD

- Operation and sound quality of CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed.
- The digital audio content side of a DualDisc does not meet the technical specifications of the Compact Disc Digital Audio (CD-DA) format so playback may not be possible.

## ■ SD card

- MiniSD Cards, microSD Cards, microSDHC Cards and microSDXC Cards can be used, but must be used with an adaptor card. These are usually supplied with such cards, or otherwise customer provided.
- Keep the Memory Card out of reach of children to prevent swallowing.
- To protect the card's contents, move the record prevention tab (on the SD card) to "LOCK".
- This unit is compatible with SD Memory Cards that meet SD Card Specifications FAT12 and FAT16 formats, as well as SDHC Memory Cards in FAT32 format (Does not support long file name.) and SDXC Memory Cards in exFAT.
- If the SD card is used with incompatible computers or devices, recorded contents may be erased due to the card being formatted etc.
- Useable memory may be slightly less than the card capacity.



- It may not be possible to play the above media in some cases due to the type of media, the condition of the recording, the recording method and how the files were created.
- The producers of the disc can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc's instructions carefully.

# Unit and media care

## ■ Clean this unit with a soft, dry cloth.

- Never use alcohol, paint thinner or benzene to clean this unit.
- Before using chemically treated cloth, carefully read the instructions that came with the cloth.

## ■ Clean the lens with the lens cleaner disc.

Lens cleaner disc: RP-CL720PP (not included)

- This lens cleaner is sold as specific for DIGA, but can be used on this unit as well.

## ■ Clean discs

DO



DO NOT



Wipe with a damp cloth and then wipe dry.

## ■ Disc and card handling precautions

- Handle discs by the edges to avoid inadvertent scratches or fingerprints on the disc.
- Do not attach labels or stickers to discs.
- Do not use record cleaning sprays, benzene, thinner, static electricity prevention liquids or any other solvent.
- Clean any dust, water, or foreign matter from the terminals on the rear side of the card.
- Do not use the following discs:
  - Discs with exposed adhesive from removed stickers or labels (rented discs etc).
  - Discs that are badly warped or cracked.
  - Irregularly shaped discs, such as heart shapes.

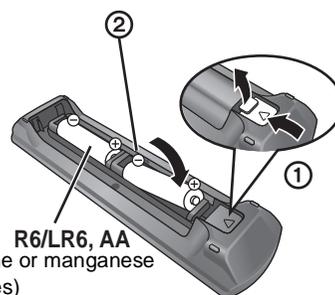
## ■ To dispose or transfer this unit

The unit may keep the user settings information in the unit. If you discard this unit either by disposal or transfer, then follow the procedure to return all the settings to the factory presets to delete the user settings. (⇒ 33, "To return all settings to the factory preset")

- The operation history may be recorded in the memory of this unit.

# Using the remote control

Insert so the poles (+ and -) match those in the remote control.



Point it at the remote control signal sensor on this unit (⇒ 7).



Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire.

- Do not mix old and new batteries or different types at the same time.
  - Do not heat or expose to flame.
  - Do not leave the battery(ies) in an automobile exposed to direct sunlight for a long period of time with doors and windows closed.
  - Do not take apart or short circuit.
  - Do not attempt to recharge alkaline or manganese batteries.
  - Do not use batteries if the covering has been peeled off.
- Remove batteries if the remote control is not going to be used for a long period of time. Store in a cool, dark place.

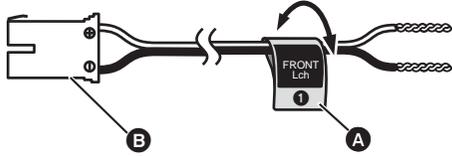
## CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

# STEP 1: Preparing the speakers

## 1 Use of the speaker cable stickers is convenient when making cable connections.

e.g. Front speaker (L)



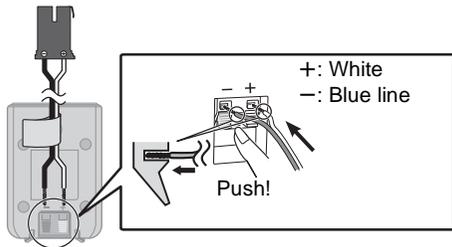
- A** Speaker cable sticker (included)
- B** Connector

Speaker cable sticker	Color
① FRONT (L)	WHITE
② FRONT (R)	RED
③ SURROUND (L)	BLUE
④ SURROUND (R)	GRAY
⑤ CENTER	GREEN
⑥ SUBWOOFER	PURPLE

Be sure to match the number on each sticker with the connector color.

## 2 Connecting the speaker cables. Insert the wire fully, taking care not to insert beyond the wire insulation.

e.g. Surround speaker



- For wall mount, refer to page 32.
- **Be careful not to cross (short-circuit) or reverse the polarity of the speaker wires as doing so may damage the speakers.**
- **Don't use a front speaker as a surround speaker or vice versa. Verify the type of speaker with the label on the rear of the speaker before connecting the appropriate cable.**
- To avoid injury by falling or dropping the speaker, place the speaker cables with care not to stumble or hook.

# STEP 2: Positioning

## Caution



- The main unit and supplied speakers are to be used **only** as indicated in this setup. Failure to do so may lead to damage to the amplifier and/or the speakers, and may result in the risk of fire. Consult a qualified service person if damage has occurred or if you experience a sudden change in performance.
- Do not attempt to attach these speakers to walls using methods other than those described in this manual.
- Do not touch the front netted area of the speakers. Hold by the sides.

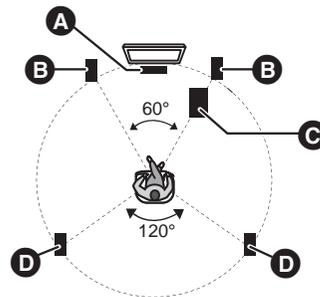
How you set up your speakers can affect the bass and the sound field.

## Setup example

Place the front, center and surround speakers at approximately the same distance from the seating position. The angles in the diagram are approximate.



- Keep your speakers at least 10 mm ( $\frac{13}{32}$ " ) away from the system for proper ventilation.



- A** Center speaker  
Put on a rack or shelf. Vibration caused by the speaker can disrupt the picture if it is placed directly on the TV.
- B** Front speakers
- C** Subwoofer
- D** Surround speakers
  - Place the speakers at the same height or higher than ear level.



- **Use only supplied speakers**  
Using other speakers can damage the unit, and sound quality will be negatively affected.
- You can damage your speakers and shorten their useful life if you play sound at high levels over extended periods.
- **Positioning speakers in front**  
It is possible to locate all the speakers in front of the listening position. However the optimal surround sound effect may not be obtainable.
- Place speakers on flat secure bases.
- Placing speakers too close to floors, walls, and corners can result in excessive bass. Cover walls and windows with thick curtains.
- For optional wall mount, refer to page 32.

## ■ If irregular coloring occurs on your TV, turn the TV off for about 30 minutes.

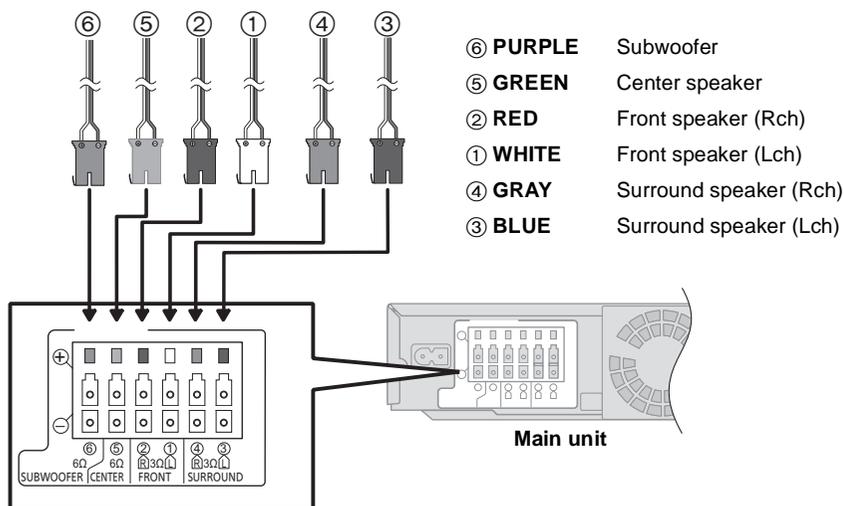
If it persists, move the speakers further away from the TV.

# STEP 3: Connections

Turn off all equipment before connection and read the appropriate operating instructions.  
**Do not connect the AC power supply cord until all other connections are complete.**

## Speaker cable connection

Connect to the terminals of the same color.



## Connection to a TV

The basic connection is shown in the included Easy Setting Guide, however, there are more connection examples to optimize your system setting.



### Do not make the video connections through the VCR.

Due to copy guard protection, the picture may not be displayed properly.

- Turn off all equipment before connection.

### OPTICAL IN

- After making the digital audio connection, make settings to suit the type of audio from your digital equipment (⇒ 23).

### HDMI

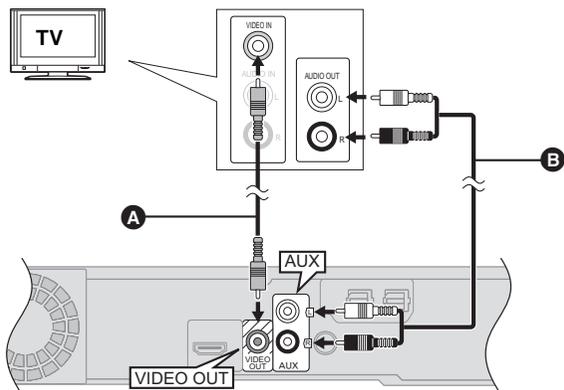
The HDMI connection supports VIERA Link "HDAVI Control" (⇒ 24) when used with a compatible Panasonic TV.

- Please use High Speed HDMI Cables that have the HDMI logo (as shown on the cover). It is recommended that you use Panasonic's HDMI cable. When outputting 1080p signal, please use HDMI cables 5.0 meters (16.4 ft.) or less.

Recommended part number:

RP-CDHS15 (1.5 m/4.9 ft.), RP-CDHS30 (3.0 m/9.8 ft.), RP-CDHS50 (5.0 m/16.4 ft.), etc.

## Basic connection

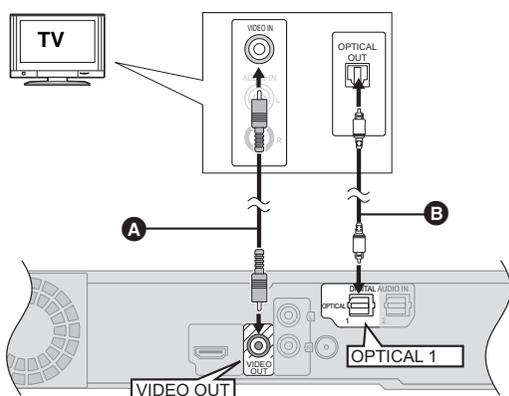


- A** Video cable (included)
- B** Audio cable (not included)



- To enjoy TV audio from this home theater system's speakers, select "AUX (TV)" as a source (⇒ 17).

## Connection for the better audio

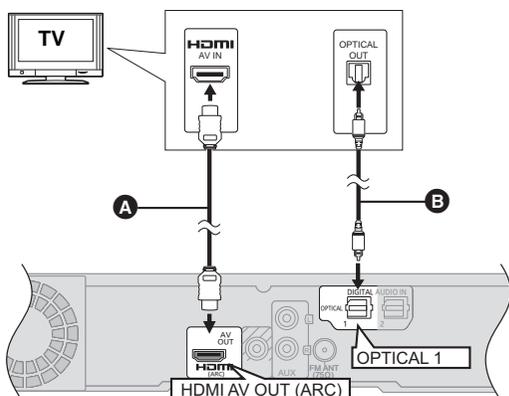


- A** Video cable (included)
- B** Optical digital audio cable (not included)



- To enjoy TV audio from this home theater system's speakers, select "DIGITAL IN 1 (TV)" or "D-IN 1" as a source.

## Connection for the best picture and audio



- A** HDMI cable (not included)
- B** Optical digital audio cable (not included)
- For the TV audio, an audio cable (not included) can be also used by connecting the AUX terminal with the AUDIO OUT terminal on the TV.



- To enjoy TV audio from this home theater system's speakers, select "DIGITAL IN 1 (TV)" or "D-IN 1" as a source (⇒ 17).

### ARC (Audio Return Channel)

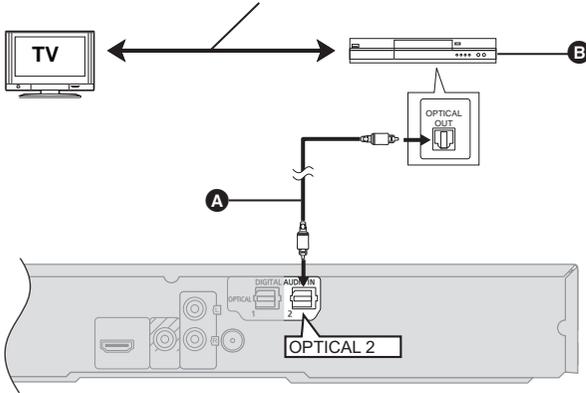
(Available when using an ARC compatible TV)

With this function it is possible to receive the digital audio signal from the TV without connecting any other audio cables.

- Select "ARC (TV)" as the audio input source (⇒ 17).
- Refer to the operating instructions of the TV for the settings to output digital audio.

## Connection with Set Top Box, etc.

Refer to the operating instructions of the respective devices for the optimal connections.



- A** Optical digital audio cable (not included)
- B** Set Top Box, cable TV, VCR, DVD recorder, etc.



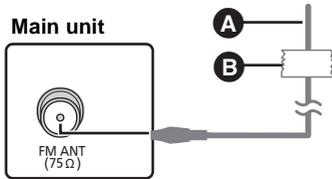
- To enjoy TV audio from this home theater system's speakers, select "DIGITAL IN 2 (CABLE/SAT)" or "D-IN 2" as a source (⇒ 17).

### NECESSARY SETTINGS

- "HDMI Audio Output" : "Off" (⇒ 30)

## Radio antenna connection

### Using an indoor antenna

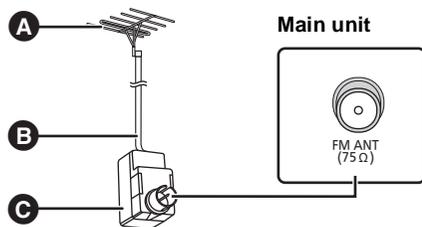


- A** FM indoor antenna (included)
- B** Adhesive tape  
Affix this end of the antenna where reception is best.

### Using an outdoor antenna

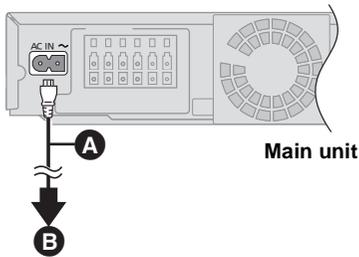
Use outdoor antenna if FM radio reception is poor.

e.g.,



- A** FM outdoor antenna [Using a TV antenna (not included)]  
The antenna should be installed by a competent technician.
- B** 75 Ω coaxial cable (not included)
- C** Antenna plug (not included)

# STEP 4: AC power supply cord connection



- A** AC power supply cord (included)
- B** To a household AC outlet

• **Connect only after all other connections are complete.**

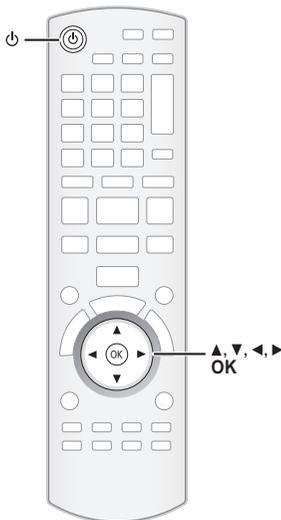
• This unit consumes a small amount of AC power, even when it is turned off (approx. 0.1 W\*). In the interest of power conservation, if you will not be using this unit for a long time, unplug it from the household AC outlet.

\*When the "Quick Start" setting is "Off"

# STEP 5: Easy setup

The Easy setup assists you to make necessary settings.

Follow the on-screen prompts to make basic settings for the system.



## Preparation

- Turn on your TV and select the appropriate video input mode (e.g., VIDEO 1, AV 1, HDMI, etc.) to suit the connections to this unit.

- 1** Press [A].
- 2** Follow the on-screen instructions and make the settings with [▲, ▼, ◀, ▶] and press [B].

### Language

Select the language used on menu screen.

### TV Aspect

Select the aspect to suit your TV and preference.

### Speakers position

Specify the positioning of the surround speakers.

### Speaker check

Check if the connection to each speaker is valid.

### Speaker Output

Make surround sound setting for speaker output.

### Cinema Surround

The function creates the sound of virtual speakers to enhance the realistic surround feeling as if the sound comes from all directions.

(Speakers position: Surround Layout only)

(Effective when playing video with 5.1/7.1 ch audio)

### TV Audio

Select the audio input connection from your TV, [item with "(TV)"].

### Quick Start

Speed of startup from power off is increased.

- 3** Press [B] several times to finish the "Easy setup".



- You can perform this setup anytime by selecting "Easy setup" in the Setup menu. (⇒ 31)
- Language and TV Aspect settings are automatically retrieved if this unit is connected to a Panasonic TV (VIERA) supporting HDAVI Control 2 or later via an HDMI cable.

# STEP 6: Reprogramming the remote control

## When other Panasonic products respond to this remote control

Change "Remote Control Code" (⇒ 31) on the main unit and the remote control (the two must match) if you place other Panasonic products close together and it responds to this remote control.

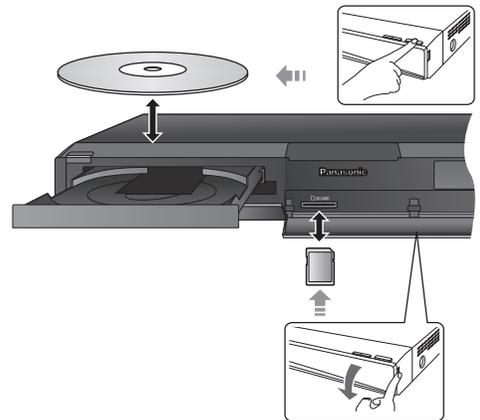
To change the code on the main unit.

- 1 While stopped, press [START].
- 2 Press [▲, ▼] to select "Other Functions" and press [OK].
- 3 Press [▲, ▼] to select "Setup" and press [OK].
- 4 Press [▲, ▼] to select "Others" and press [OK].
- 5 Press [▲, ▼] to select "Remote Control Code" and press [OK].
- 6 Press [▲, ▼] to select the code (1 or 2) and press [OK].

To change the code on the remote control.

- 1 While pressing [OK]  
Press and hold the numbered button (1 or 2), which has the same number you selected in the step 6 for more than 5 seconds.
- 2 Press [OK].

# Inserting or removing a media



- When inserting a media, ensure that it is facing the right way up.
- While the reading indicator is displayed, do not turn off the unit or remove the media. Such action may result in loss of the media's contents.
- When removing the SD card, press on the center of the card and pull it straight out.

## ■ To switch sources

Press [BD/SD] to select "BD/DVD" or "SD".

- If a media is inserted while the unit is stopped, the source switches automatically depending on the inserted media.

# START menu

Major functions of this unit can be operated from the START menu.

- 1 Press [START].
- 2 Press [▲, ▼] to select the item and press [OK].

e.g., BD-Video



<b>Playback</b>	Play back the contents.
<b>Viewing Picture</b>	
<b>Top Menu</b>	(⇒ 19)
<b>Menu</b>	(⇒ 19)
<b>Input Select</b>	Switches to each source.  <b>BD/DVD/CD</b> <b>SD card</b> <b>iPod</b> <b>FM Radio:</b> To enjoy the FM radio (⇒ 22) <b>AUX*1:</b> To enjoy TV broadcasts with this unit's speakers (⇒ 23) <b>ARC*1:</b> To enjoy TV broadcasts with this unit's speakers (⇒ 23) <b>DIGITAL IN 1*1:</b> To enjoy TV broadcasts with this unit's speakers (⇒ 23) *1 "(TV)" is displayed next to items set for TV AUDIO input. <b>DIGITAL IN 2*2:</b> To enjoy audio from other devices with this unit's speakers (⇒ 23) *2 "(CABLE/SAT)" is displayed next to DIGITAL IN when set for CABLE/SAT AUDIO input.  <b>To enjoy sound from the TV</b> Select one source from either "AUX (TV)", "ARC (TV)" or "DIGITAL IN 1 (TV)".
<b>Sound(Equalizer)</b>	(⇒ 18)
<b>Other Functions</b>	<b>Playlists:</b> You can play playlists created on DVD-VR. <b>Setup:</b> (⇒ 29) <b>Card Management:</b> (⇒ 20)

**To exit the screen**  
Press [START].

## ■ Selecting the source by the remote control

Button	Source
BD/SD	BD/DVD or SD card (SD) (⇒ 19)
iPod	iPod (IPOD) (⇒ 26)
RADIO EXT-IN	<b>FM Radio (FM) (⇒ 22)</b> <b>AUX*1 (⇒ 23)</b> <b>ARC*1 (⇒ 23)</b> <b>DIGITAL IN 1*1 (D-IN 1) (⇒ 23)</b> <b>DIGITAL IN 2*2 (D-IN 2) (⇒ 23)</b> *1 "(TV)" is displayed next to items set for TV AUDIO input. *2 "(CABLE/SAT)" is displayed next to DIGITAL IN when set for CABLE/SAT AUDIO input.  <b>To enjoy sound from the TV</b> Select one source from either "AUX (TV)", "ARC (TV)" or "DIGITAL IN 1 (TV)".



- Items to be displayed may vary with the media.

# Enjoying sound effects from all speakers

## Enjoying surround sound effects

### 1 Press [SURROUND] several times to select the effect.

#### STANDARD

Sound is output as it was recorded/encoded.  
Speaker output varies depending on the source.

#### MULTI-CH

You can enjoy sound from the front speakers, as well as the surround even when playing a 2-channel sound or non-surround sound.

#### MANUAL

- The selected effect will only be displayed on the main unit.

### 2 While “MANUAL” is displayed, press [◀, ▶] and select the desired effect.

#### DOLBY PL II MOVIE (Dolby Pro Logic II Movie)

Suitable for movie software, or the one recorded in Dolby Surround.

#### DOLBY PL II MUSIC (Dolby Pro Logic II Music)

Adds 5.1-channel effects to stereo sources.

#### 7.1CH VS (7.1CH Virtual Surround)

You can enjoy 6.1/7.1-channel surround-like effect using 5.1-channel speakers.

#### S.SURROUND (Super Surround)

You can enjoy sound from all speakers with stereo sources.

#### 2CH STEREO

You can play any source in stereo. Sound will be output to the front speakers and the subwoofer only.

### ■ Adjusting speaker level during play

- ① Press and hold [–CH SELECT] to activate the speaker setting mode.
- ② Press [–CH SELECT] several times to select the speaker. Each time you press the button:  
L R → C → RS → LS → SW  
↑

L R: Front speaker (left and right: only the balance is adjustable.)

- Press [◀, ▶] to adjust the balance of the front speakers.

C: Center speaker

RS: Surround speaker (right)

LS: Surround speaker (left)

SW: Subwoofer

- The channels not included in the playing audio will not be displayed (subwoofer is displayed even if it is not included).

- ③ Press [▲] (increase) or [▼] (decrease) to adjust the speaker level for each speaker.  
–6 dB to +6 dB

### ■ Changing the sound modes

- ① Press [SOUND] several times to select the mode.
  - The selected mode will only be displayed on the main unit.
- ② While the selected mode is displayed Press [◀, ▶] and select the desired setting.

#### EQ: (Equalizer)

You can select sound quality settings.

#### FLAT

Cancel (no effect is added).

#### HEAVY

Adds punch to rock.

#### CLEAR

Clarifies higher sounds.

#### SOFT

For background music.

#### SUB W: (Subwoofer level)

You can adjust the amount of base.

1 (Weakest effect) to 4 (Strongest effect)

- The setting you make is retained, and recalled every time you play the same type of source.

#### H.BASS

You can enhance low-frequency sound so that heavy bass sound can be heard clearly, even if the acoustics of your room are not optimal.

- The setting you make is retained, and recalled every time you play the same type of source.

#### C.FOCUS: (Center focus)

(Effective when playing audio containing center channel sound.)

You can make the sound of the center speaker seem like it is coming from within the TV.

#### W.SRND: (Whisper-mode Surround)

You can enhance the surround effect for low volume sound. (Convenient for late night viewing.)



- The sound effects/modes may not be available or have no effect with some sources.
- You may experience a reduction in sound quality when these sound effects/modes are used with some sources. If this occurs, turn the sound effects/modes off.

# Playing video contents

BD DVD CD SD

## Preparation

Turn on the television and select the appropriate video input on the television.

**1 Press [⏻] to turn on the unit.**

**2 Insert the media.**

Play starts.

- If the menu is displayed, press [▲, ▼, ◀, ▶] to select the item and press [OK].
- If play does not start, press [▶ PLAY].

### ■ To show menus

You can show Top Menu, Direct Navigator or Pop-up Menu.

Press [TOP MENU/DIRECT NAVIGATOR] or [POP-UP MENU].

- Press [▲, ▼, ◀, ▶] to select the item and press [OK].
- Pop-up menu also appears by pressing [SUB MENU] and selecting "Pop-up Menu".

### ■ To show the status messages

While playing, press [STATUS].

The status messages give you information about what is currently being played. Each time you press [STATUS], the information displayed will change.

e.g. BD-Video



- DISCS CONTINUE TO ROTATE WHILE MENUS ARE DISPLAYED. Press [■STOP] when you finish to preserve the unit's motor and your television screen.
- Depending on media and contents, the display may change or may not appear.
- It is not possible to playback AVCHD and MPEG2 video which have been dragged and dropped, copied and pasted to the media.

## Other operations during play

These functions may not work depending on the media and contents.

### Stop

Press [■STOP].

The stopped position is memorized.

#### Resume play function

Press [▶ PLAY] to restart from this position.

- The position is cleared if the tray is opened or you press [■STOP] several times to display "STOP" on unit's display.
- On BD-Video discs including BD-J (⇒ 39), the resume play function does not work.

### Pause

Press [⏸PAUSE].

- Press [⏸PAUSE] again or [▶ PLAY] to restart play.

### Search/Slow-motion

#### Search

While playing, press [SEARCH◀◀] or [SEARCH▶▶].

- Music and MP3: The speed is fixed to a single step.

#### Slow-motion

While paused, press [SEARCH◀◀] or [SEARCH▶▶].

- BD-Video and AVCHD: Forward direction [SEARCH▶▶] only.

The speed increases up to 5 steps.

- Press [▶ PLAY] to revert to normal playback speed.

### Skip

While playing or paused, press [SKIP◀◀] or [SKIP▶▶].

Skip to the title, chapter or track you want to play.

- Each press increases the number of skips.

### Frame-by-frame

While paused, press [◀] (◀◀) or [▶] (▶▶).

- Press and hold to change in succession forward or backward.
- Press [▶ PLAY] to revert to normal playback speed.
- BD-Video and AVCHD: Forward direction [▶] (▶▶) only.

### Changing audio

Press [AUDIO].

You can change the audio channel number or soundtrack language (⇒ 37), etc.

## Useful functions

### 1 Press [SUB MENU]

### 2 Select an item and press [OK].

While DIRECT NAVIGATOR screen is displayed

<b>Properties</b>	To display the titles properties (recording date, etc.)
<b>View Chapters</b>	To select the chapter
<b>To picture</b>	Playing still pictures (⇒ right)
<b>Select Folder</b>	To switch to another folder

While playing

<b>Screen Aspect</b>	When black bars are shown at the top, bottom, left, and right sides of the screen, you can enlarge the image to fill the screen.
<b>Top Menu</b>	To display Top Menu.
<b>Pop-up Menu</b>	To display Pop-up Menu.
<b>Menu</b>	To display Menu.

- Depending on the played contents if you perform “Screen Aspect”, there may be no effect.
- When “TV Aspect” (⇒ 30) is set to “4:3” or “4:3 Letterbox”, the “Zoom” effect is disabled.



- Depending on the media and contents, displayed items are different.

## Enjoying BONUSVIEW in BD-Video

### What is BONUSVIEW?

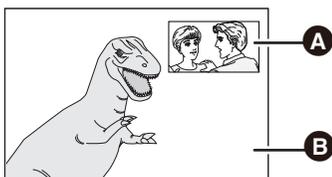
BONUSVIEW allows you to enjoy functions such as picture-in-picture or secondary audio etc.

- The usable functions and the operating method may vary with each disc, please refer to the instructions on the disc and/or visit their website.

## Playing picture-in-picture

### To turn on/off secondary video

Press [PIP].



- A** Secondary video
- B** Primary video

### To turn on/off secondary audio

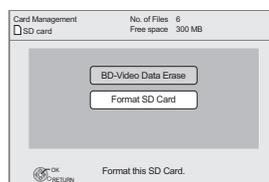
- ① Press [DISPLAY].
- ② Press [▲, ▼] to select the “Disc” menu and press [▶].
- ③ Press [▲, ▼] to select the “Signal Type” menu and press [OK].
- ④ Press [▲, ▼] to select the “Soundtrack” under “Secondary Video” menu and press [▶].
- ⑤ Press [▲, ▼] to select the “On” or “Off”.  
When “On” is selected, press [▶] and then press [▲, ▼] to select the language.
- ⑥ Press [RETURN] to exit.



- During search/slow-motion or frame-by-frame, only the primary video is displayed.
- When “BD-Video Secondary Audio” in “Digital Audio Output” is set to “Off”, secondary audio will not be played (⇒ 30).

### Deleting data/Formatting SD cards

- ① Insert an SD card.
- ② Press [START].
- ③ Press [▲, ▼] to select “Other Functions” and press [OK].
- ④ Press [▲, ▼] to select “Card Management” and press [OK].
- ⑤ Press [▲, ▼] to select “BD-Video Data Erase” or “Format SD Card” and press [OK].



- ⑥ Press [◀, ▶] to select “Yes” and press [OK].
- ⑦ Press [◀, ▶] to select “Start” and press [OK].



- To use the above functions, it is recommended that you format the card on this unit. If the SD card you use is formatted, all data on the card will be erased. It cannot be recovered.

## Playing still pictures

### BD DVD CD SD

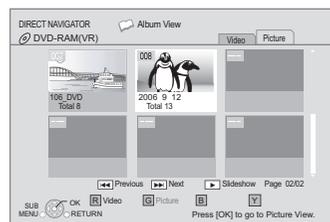
(BD-RE, DVD-RAM/R/R DL, CD-R/RW, SD Card)

### 1 Insert a disc or SD card.

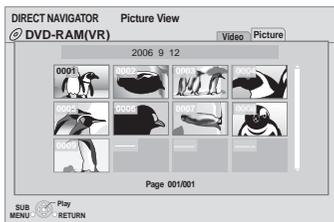
If the menu is displayed, press [▲, ▼] to select the item and press [OK].

### 2 BD-RE, DVD-RAM

Press [▲, ▼, ◀, ▶] to select the album and press [OK].



### 3 Press [▲, ▼, ◀, ▶] to select the still picture and press [OK].



Press [◀, ▶] to display the previous or next still picture.

#### To exit the screen

Press [TOP MENU/DIRECT NAVIGATOR].

### ■ To show the picture properties

While playing, press [STATUS] twice.

e.g. JPEG on DVD-RAM  
Shooting date



#### To exit the screen

Press [STATUS].

## Useful functions

### 1 Press [SUB MENU]

### 2 Select an item and press [OK].

While “Album View” or “Picture View” screen is displayed

<b>Start Slideshow</b>	You can display still pictures one by one at a constant interval.
<b>Slideshow Settings</b>	<p><b>Display Interval</b> Change the display interval.</p> <p><b>Transition Effect</b> Set display method.</p> <p><b>Repeat Play</b> Repeat slideshow.</p> <p><b>Soundtrack</b> Music files on an iPod or a music CD can be played back as Background Music during the slideshow. Press [▲, ▼, ◀, ▶] to select “Set” and press [OK].</p>
<b>Select Root folder</b>	To switch to another higher folder <ul style="list-style-type: none"> <li>Only if there is a multiple number of higher folders recognizable</li> </ul>
<b>Select Folder</b>	To select the still pictures in another folder
<b>To Video</b>	Playing video contents (⇒ 19)
<b>To album view</b>	To display album view.

### While playing (except for slideshow)

<b>Rotate Right</b>	Rotate the still picture.
<b>Rotate Left</b>	
<b>Zoom out</b>	Reduce the still picture <ul style="list-style-type: none"> <li>This function is only available for small-sized still pictures.</li> </ul>
<b>Zoom in</b>	Cancel “Zoom out”



- Depending on the media and contents, displayed items are different.
- When a still picture with large number of pixels is played, the display interval may become longer. Even if the setting is changed, the display interval may not become shorter.
- When both a music CD and an iPod is inserted to this unit, the iPod has a priority to be played back as Background Music.

## Playing music

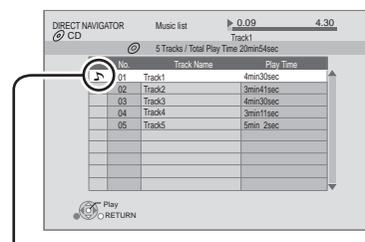
### DVD CD

(DVD-R/R DL, music CD, CD-R/RW)

### 1 Insert a disc.

If the menu is displayed, press [▲, ▼] to select the item and press [OK].

### 2 Press [▲, ▼] to select the track and press [OK].



“” indicates the track currently playing.

### ■ Playing a track in another folder

- While the “Music list” is displayed  
Press [SUB MENU].
- Press [▲, ▼] to select “Select Folder” and press [OK].



- You cannot select folders that contain no compatible tracks.

# Listening to the Radio

## Presetting stations automatically

Up to 30 stations can be set.

- 1 Press [RADIO] to select "FM".
- 2 Press [STATUS] to select the position to start the auto preset search.  
**LOWEST:**  
To begin auto preset with the lowest frequency (FM87.9 or FM87.5).  
**CURRENT:**  
To begin auto preset with the current frequency.\*  
\* To change the frequency, refer to "Presetting stations manually".
- 3 Press and hold [OK].  
Release the button when "AUTO" is displayed.  
  
The tuner starts to preset all the stations it can receive into the channels in ascending order.



- "SET OK" is displayed when the stations are set, and the radio tunes to the last preset station.
- "ERROR" is displayed when automatic presetting is unsuccessful. Preset the stations manually.

## Presetting stations manually

### Preparation

Select a radio broadcast.

- ① Press [RADIO] to select "FM".
  - ② Press [SEARCH◀◀] or [SEARCH▶▶] to select the frequency.
- To start automatic tuning, press and hold [SEARCH◀◀], [SEARCH▶▶] until the frequency starts scrolling. Tuning stops when a station is found.

- 1 While listening to the radio broadcast Press [OK].
- 2 While "P" is flashing on the display Press the numbered buttons to select a channel.

To select a 1-digit number  
e.g., 1: [1] ⇒ [OK].  
To select a 2-digit number  
e.g., 12: [1] ⇒ [2]



- A station previously stored is overwritten when another station is stored in the same channel preset.

## Listening/confirming the preset channels

- 1 Press [RADIO] to select "FM".
- 2 Press the numbered buttons to select the channel.

To select a 1-digit number  
e.g., 1: [1] ⇒ [OK].

To select a 2-digit number  
e.g., 12: [1] ⇒ [2].

Alternatively, press [^, v] or [◀, ▶].

### ■ Display on the main unit

**TUNED/STEREO:** Displayed when receiving stereo broadcasting

**TUNED:** Displayed when receiving monaural broadcasting or monaural sound is selected.

### ■ If noise is excessive

Press [AUDIO] to display "MONO".

The sound becomes monaural.

Press the button again to cancel the mode. "AUTO ST" will be displayed on the main unit. Depending on the broadcast system, stereo or monaural will be selected.

"MONO" is also canceled when you change the frequency.

- This setting can be preset for each broadcasting station.

### ■ FM frequency step

**Main unit:**

The factory setting is set to 0.2 MHz, it can be changed to receive broadcasts allocated in 0.1 MHz. You may need to change this setting if the tuner seems to skip over the correct frequency for stations in your area.

- ① Press [SELECTOR] to select "FM".
- ② Press and hold [SELECTOR].

After a few seconds the display changes to show the current lowest frequency. Continue to hold the button down. The lowest frequency changes and the step is changed.

To return to the original settings, repeat steps ① and ②.



- After changing the setting, previously preset frequencies will be cleared. Preset them again.

# Enjoying TV with unit's speakers

## Preparation

Turn on your TV and select the appropriate audio input mode [AUX, ARC, D-IN 1 or D-IN 2] to suit the connections to this unit. (⇒ 17)

## Surround sound effects

You can enhance stereo sources with surround sound effect.

- 1 Press [SURROUND] several times to select the effect.**
- 2 While "MANUAL" is displayed on the unit's display Press [◀, ▶] and select the desired effect.**

### Surround modes to enjoy TV audio or stereo sources from all speakers:

- DOLBY PL II MOVIE
- DOLBY PL II MUSIC
- S.SURROUND
- Cinema Surround (⇒ 15)

For more detailed information on this operation, please refer to the "Enjoying surround sound effects" section on page 18.

## Sound modes

You can adjust the mode depending on the source or situation.

- 1 Press [SOUND] several times to select the mode.**
- 2 While the selected mode is displayed on the unit's display Press [◀, ▶] and select the desired setting.**

For more detailed information on this operation, please refer to the "Changing the sound modes" section on page 18.

## Making settings for digital audio input

Select to suit the type of audio from the DIGITAL AUDIO IN terminals on the main unit.

**Press [EXT-IN] several times to select "D-IN 1" (DIGITAL IN 1) or "D-IN 2" (DIGITAL IN 2).**

### ■ DIGITAL IN 1/DIGITAL IN 2

Press [AUDIO].

MAIN

SAP\*

M+S\* (stereo audio)

\* "SAP" = Secondary Audio Program

(Only works with Dolby Dual Mono)

- "MAIN" or "SAP" is not available if "On" is selected in "Digital Audio Input". (⇒ 30)

### ■ DIGITAL IN 2

Press [STATUS].

CABLE/SAT AUDIO:

Select when an HDMI connected STB is selected on the TV, "D-IN 2" input is automatically selected.(⇒ 24, "Setting the audio link with the STB").



- Audio that is input through the DIGITAL AUDIO IN or AUX terminals are not output from the HDMI AV OUT terminal.

# Linked operations with the TV

(VIERA Link™ “HDAVI Control™”)

## What is VIERA Link “HDAVI Control”?

VIERA Link™ is a new name for EZ Sync™.

VIERA Link “HDAVI Control” is a convenient function that offers linked operations of this unit, and a Panasonic TV (VIERA) under “HDAVI Control”.

You can use this function by connecting the equipment with an HDMI cable. See the operating instructions for connected equipment for operational details.

## Preparation

- ① Set “VIERA Link” to “On” (⇒ 31).  
(The default setting is “On”.)
- ② Set the “HDAVI Control” operations on the connected equipment (e.g., TV).
- ③ Turn on all “HDAVI Control” compatible equipment and select this unit’s input channel on the connected TV so that the “HDAVI Control” function works properly.

**Also when the connection or settings are changed, repeat this procedure.**

## Setting the audio link

### ■ Setting the audio link with the TV

With the remote control;

- Select the actual TV audio connection on the main unit.

- ① Press [START] and press [▲, ▼] to select “Other Functions” and press [OK].
- ② Press [▲, ▼] to select “Setup” and press [OK].
- ③ Press [▲, ▼] to select “TV / Device Connection” and press [OK].
- ④ Press [▲, ▼] to select “TV Audio Input”.
- ⑤ Press [◀, ▶] to switch “AUX”, “ARC” or “DIGITAL IN 1”.

Whenever the connection or settings are changed, reconfirm the points above.

### ■ Setting the audio link with the STB

With the remote control;

- Select the STB input channel on the TV.

- ① Press [EXT-IN] to select “D-IN 2”.
- ② Press [STATUS] to select “CABLE/SAT AUDIO ON”.

- If the input channel of the STB on the TV is changed or if you want to change the device allocated for the linked operations, select “CABLE/SAT AUDIO OFF” in step ② above and then repeat steps ① to ②.



- VIERA Link “HDAVI Control”, based on the control functions provided by HDMI which is an industry standard known as HDMI CEC (Consumer Electronics Control), is a unique function that we have developed and added. As such, its operation with other manufacturers’ equipment that supports HDMI CEC cannot be guaranteed.
- This unit supports “HDAVI Control 5” function. “HDAVI Control 5” is the newest standard (current as of December, 2009) for Panasonic’s HDAVI Control compatible equipment. This standard is compatible with Panasonic’s conventional HDAVI equipment.
- Please refer to individual manuals for other manufacturers’ equipment supporting VIERA Link function.

## One touch play

You can turn on this unit and the TV, and start play with a single press of a button.

While the unit and the TV are in standby mode;  
Press [▶ PLAY].

## Speaker control

You can select whether audio is output from the unit's speakers or the TV speakers by using the TV menu settings.

### Home theater

This unit's speakers are active.

- When this unit is in standby mode, changing the TV speakers to this unit's speakers in the TV menu will automatically turn the unit on and select "AUX"<sup>1</sup>, "ARC"<sup>1</sup> or "D-IN 1" (DIGITAL IN 1)<sup>1</sup> as the source.
- You can control the volume setting using the volume or mute button on the TV's remote control.
- If you turn off this unit, TV speakers will be automatically activated.

### TV

TV speakers are active.

- The volume of this unit is set to "0".
- Audio output is 2-channel audio.



- When switching between this unit's speakers and TV speakers, the TV screen may be blank for several seconds.

## Automatic input switching (Power on link)

When the following operations are performed, the television will automatically switch the input channel and display the corresponding action. When the TV is off, the TV will automatically turn on.

- When play starts on the unit
- When an action that uses the display screen is performed (e.g., Direct Navigator screen)
- When you switch the TV input to TV tuner mode, this unit will automatically switch to "AUX"<sup>1</sup>, "ARC"<sup>1</sup> or "D-IN 1" (DIGITAL IN 1)<sup>1</sup> or "D-IN 2" (DIGITAL IN 2)<sup>2</sup>.
- This function does not work when the iPod selector is chosen. (⇒ 26)

## Automatic lip-sync function (for HDAVI Control 3 or later)

Delay between audio and video is automatically adjusted, enabling you to enjoy smooth audio for the picture (⇒ 30, "Audio Delay").

- This function works only when "BD/DVD", "SD", "AUX"<sup>1</sup>, "ARC"<sup>1</sup>, "D-IN 1" (DIGITAL IN 1)<sup>1</sup> or "D-IN 2" (DIGITAL IN 2)<sup>2</sup> is selected as the source on this unit.

\*1 "AUX", "ARC" or "D-IN 1" works depending on the setting in "Setting the audio link with the TV".

\*2 "D-IN 2" works depending on the setting in "Setting the audio link with the STB".

## Power off link

All connected equipment compatible with "HDAVI Control", including this unit, automatically turns off when you switch the television off.

### Playing music continuously even after turning off the TV

(When the unit is connected to a Panasonic TV (VIERA) that supports HDAVI Control 2 or later.)

Select "Video" in "Power Off Link" (⇒ 31)

## Easy control only with VIERA remote control

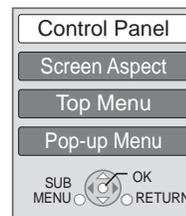
### Only TV supports "HDAVI Control 2" or later

By using the TV remote control, you can play discs using the "Control Panel" and display the Top Menu or Pop-up Menu, etc.

- This works only during "BD/DVD" or "SD" playback and resume modes.

### 1 Press [SUB MENU].

### 2 Select an item and press [OK].



- You cannot use the sub menu while the Top Menu for BD-Video or DVD-Video is displayed.



- The buttons that you can use for this unit vary depending on the TV. For details, refer to the operating instructions of the TV.
- The operation of this unit may be interrupted when you press incompatible buttons on the TV remote control.
- Depending on the menu, some button operations cannot be performed from the TV's remote control.

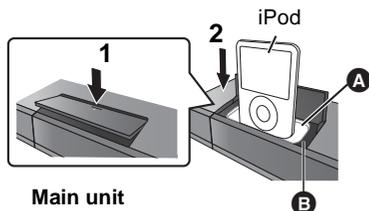
# Using the iPod

## iPod Connection

### Preparation

- Before connecting/disconnecting the iPod, turn the main unit off or reduce the volume of the main unit to its minimum.
- Make sure that the video cable connection is made to view photos/videos from the iPod.

- 1 Push  $\Delta$  to open the iPod lid.
- 2 Connect the iPod (not included) firmly.



- A** Dock adapter (not included)
- Attach the dock adapter until firmly fitting into the dock. The adapter should be supplied with your iPod for the stable use.
  - If you need an adapter, consult your iPod dealer.
- B** Dock for iPod



### About recharging the battery

- iPod will start recharging regardless of whether this unit is on or off.
- "IPOD \*" will be shown on the main unit's display during iPod charging in main unit standby mode.
- Once fully recharged, additional recharging will not occur.

### Compatible iPod (as of December 2009)

- Compatibility depends on the software version of your iPod.

Name	Memory size
iPod nano 5th generation (video camera)	8 GB, 16 GB
iPod touch 2nd generation	8 GB, 16 GB, 32 GB, 64 GB
iPod classic	120 GB, 160 GB (2009)
iPod nano 4th generation (video)	8 GB, 16 GB
iPod classic	160 GB (2007)
iPod touch 1st generation	8 GB, 16 GB, 32 GB
iPod nano 3rd generation (video)	4 GB, 8 GB
iPod classic	80 GB
iPod nano 2nd generation (aluminum)	2 GB, 4 GB, 8 GB
iPod 5th generation (video)	60 GB, 80 GB
iPod 5th generation (video)	30 GB
iPod nano 1st generation	1 GB, 2 GB, 4 GB
iPod 4th generation (color display)	40 GB, 60 GB
iPod 4th generation (color display)	20 GB, 30 GB
iPod 4th generation	40 GB
iPod 4th generation	20 GB
iPod mini	4 GB, 6 GB

## iPod Playback

### Preparation

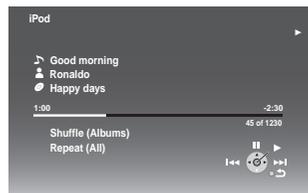
- Make sure that the "IPOD" source is selected. Press [iPod] to select the source.
- To view photos/videos from the iPod  
Operate the iPod menu to make the appropriate photo/video output settings for your TV.
- To display the picture, turn on the TV and select the appropriate video input mode.

## Enjoy music/video

### To use the iPod touch features

- ① Press the Home button on the iPod touch.
- ② Select the iPod touch features on the touch screen to operate.

- 1 Press [iPod] to select "IPOD".
- 2 Press [STATUS] several times to select the music menu or videos menu.
- 3 Press [ $\blacktriangle$ ,  $\blacktriangledown$ ] to select an item and press [OK].
  - Repeat this step until the selected title starts playback.
  - Press [ $\blacktriangleleft$ ,  $\blacktriangleright$ ] to display the previous or next page. e.g., music playback screen



To exit, press [TOP MENU/DIRECT NAVIGATOR].

## Enjoy photos

- 1 Press [iPod] to select "IPOD".
- 2 Press [STATUS] several times to select "ALL" on the unit's display.
- 3 Switch the TV input to video in.
- 4 Play a slideshow on your iPod.  
The picture will be displayed on your TV.

### You can use the remote control to operate the iPod menu.

The operation may vary among iPod models.

- [ $\blacktriangle$ ,  $\blacktriangledown$ ]: To navigate menu items
- [OK]: To go to the next menu.
- [RETURN]: To return to the previous menu.

- 1 Press [START].
- 2 Press [▲, ▼] to select “Menu” and then press [OK].
- 3 Press [▲, ▼] to select “Playback Mode” and then press [OK].
- 4 Press [▲, ▼] to select an item and press [OK].

### Shuffle (For music playback only.)

Songs:

Play all songs on iPod in random order.

Albums:

Play all songs on an album in random order.

### Repeat

One:

Play a single song/video repeatedly.

All:

Play all songs/videos from selected items (e.g., Playlists, Albums, etc.) repeatedly.

- 5 Press [▲, ▼] to select the setting and press [OK].



- The setting of the playback mode will be kept until changes are made on the same iPod.
- This function does not work when “All (iPod display)” is selected.

## Basic controls

(For music and video playback only)

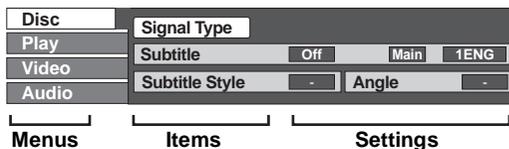
Buttons	Functions
[▶ PLAY]	Play
[■ STOP]	Pause
[   PAUSE]	
[SKIP ◀◀, SKIP ▶▶]	Skip
(Press and hold) [SEARCH ◀◀, SEARCH ▶▶]	Search



- Surround sound effect and sound mode are available (⇒ 18).

## Playback menu

- 1 Press [BD/SD] to select “BD/DVD”.
- 2 Press [DISPLAY].  
e.g., BD-Video



- 3 Press [▲, ▼] to select the menu and press [▶].
- 4 Press [▲, ▼, ◀, ▶] to select the item and press [▶].
- 5 Press [▲, ▼] to select the setting.

Some items can be changed by pressing [OK].

### To exit the screen

Press [DISPLAY].

Depending on the condition of the unit (playing, stopped, etc.) and media contents, there may be some items that you cannot select or change.

Regarding Language, Audio attribute and Video attribute:  
(⇒ 37)

## Disc

### Signal Type

#### Primary Video

<b>Video</b>	The recording method of original video appears.
<b>Soundtrack</b>	Select the type of audio or language.

#### Secondary Video

<b>Video</b>	Select on/off of images. The recording method of original video appears.
<b>Soundtrack</b>	Select on/off of audio and the language.

#### Video

The recording method of original video appears.

#### Soundtrack

Show or change the soundtrack.

#### Subtitle

Turn the subtitle on/off, and change the language depending on the media.

#### Subtitle Style

Select the subtitle style.

#### Audio channel

Select the audio channel number.  
(⇒ 19, "Changing audio")

#### Angle

Select the number of the angle.

Some items may be changed only on the disc specific menu. (⇒ 19)

## Play

### Repeat Play

(Only when the elapsed time is being displayed on the unit's display.)

Select the item which you want to repeat. The items displayed differ depending on the type of media.

Select "Off" to cancel.

### Random

Select whether or not to play random.

### Playback Information Window

Displays the following.

	Audio/video attribute information of disc.
	Settings status of "Digital Audio Output"(⇒ 30).
	HDMI output information.

Press [RETURN] to exit.

## Video

### Picture

Select the picture quality mode during play.

### Detail Clarity

The picture is sharp and detailed.

### Progressive

Select the method of conversion for progressive output to suit the type of material being played.

- When the content is distorted change the settings from "Auto" to "Video".

### 24p

Movies and other material recorded on DVD-Video at 24p are output at 24p.

- Only when you have selected "On" in "24p Output" (⇒ 30)

## Audio

### Sound Effects\*1, \*2

(Discs recorded at 48 kHz or less)

This feature gives you brighter sound by increasing the high frequency portion of the audio.

<b>Re-master 1</b>	Pop and rock
<b>Re-master 2</b>	Jazz
<b>Re-master 3</b>	Classical

### Dialog Enhancer\*1

The volume of the center channel is raised to make dialog easier to hear.

### High Clarity Sound

When connected to TV via HDMI AV OUT terminal for outputting image, it produces clearer sound because the analog video circuit (via VIDEO OUT terminal) can be stopped.

- Only when you have selected "Enable" in "High Clarity Sound" (⇒ 30).

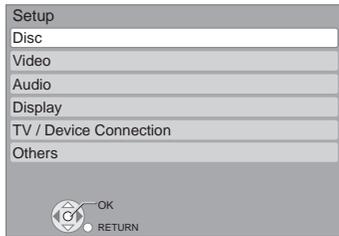
\*1 When audio is output from the HDMI AV OUT terminal this function is effective only when "Dolby D/Dolby D +/Dolby TrueHD" or "DTS/DTS-HD" is set to "PCM". (⇒ 30)

\*2 This function has no effect when the type of audio is Dolby Pro Logic II.

# Setup menu

Change the unit's settings if necessary. The settings remain intact even if you switch the unit to standby.

- 1 Press [START] and press [▲, ▼] to select "Other Functions" and press [OK].
- 2 Press [▲, ▼] to select "Setup" and press [OK].



- 3 Press [▲, ▼] to select the menu and press [OK].
- 4 Press [▲, ▼] to select the item and press [OK].  
If there are any other items, repeat these steps.
- 5 Press [▲, ▼, ◀, ▶] to select the option and press [OK].

- There may be differences in operation methods. If this happens, follow the on-screen instructions for the operation.

## About the password

The password of the following items are common.  
Don't forget your password.

- "DVD-Video Ratings"
- "BD-Video Ratings"

## Disc

### DVD-Video Ratings

Set a ratings level to limit DVD-Video play.

- Follow the on-screen instructions. Enter a 4-digit password with the numbered buttons when the password screen is shown.

### BD-Video Ratings

Set an age limit of BD-Video play.

- Follow the on-screen instructions. Enter a 4-digit password with the numbered buttons when the password screen is shown.

### Audio Language

Choose the language for audio.

- If "Original" is selected, the original language of each disc will be selected.
- Enter a code (⇒ 37) with the numbered buttons when you select "Other \*\*\*\*".

### Subtitle Language

Choose the language for subtitle.

- If "Automatic" is selected and the language selected for "Audio Language" is not available, subtitles of that language will automatically appear if available on that disc.
- Enter a code (⇒ 37) with the numbered buttons when you select "Other \*\*\*\*".

### Menu Language

Choose the language for disc menus.

- Enter a code (⇒ 37) with the numbered buttons when you select "Other \*\*\*\*".

## Video

### Still Mode (paused video)

Select the type of picture shown when you pause playback.

<b>Auto</b>	Automatically selects the type of picture shown.
<b>Field</b>	Select if jittering occurs when "Auto" is selected.
<b>Frame</b>	Select if small text or fine patterns cannot be seen clearly when "Auto" is selected.

### Seamless Play

The chapters segment in playlists are played seamlessly.

- Select "On", when the picture freezes for a moment at the chapters segment in playlists.

### Black Level Control

Select lighter or darker for adjusting the black level control to the desired setting for picture enhancement.

## Audio

### Dynamic Range Compression

You can listen at low volumes but still hear dialog clearly. (Dolby Digital, Dolby Digital Plus and Dolby TrueHD only)

- "Auto" is effective only when playing Dolby TrueHD.

## Digital Audio Output

Press [OK] to show the following settings.

### Dolby D/Dolby D +/Dolby TrueHD DTS/DTS-HD

Select the audio signal to output.

- Select "PCM", when the connected equipment cannot decode the respective audio format.
- Not making the proper settings may result in noise.

### BD-Video Secondary Audio

Select whether to mix or not mix the primary audio and secondary audio (including the button click sound). (⇒ 20)

- If "Off" is selected, the unit outputs the primary audio only.

## Digital Audio Input

Select whether to receive the digital sound as PCM or the original sound format.

Select "On" if the sound is cut off intermittently.

## Downmix

Select the downmix system to enjoy multi-channel or 2-channel sound.

- Select "Surround encoded" to enjoy the surround sound.
- There is no downmix effect on the bitstream audio signal.
- The audio will be output in "Stereo" in the following cases.
  - AVCHD playback
  - Playback of secondary audio (including the button click sound).

## High Clarity Sound

When connected to TV via HDMI AV OUT terminal for outputting image, it produces clearer sound because the analog video circuit (via VIDEO OUT terminal) can be stopped.

- Set to "Enable" and then set "High Clarity Sound" on the playback menu to "On". (⇒ 28)

## Audio Delay

Mis-sync between the video and audio is corrected by delaying the audio output.

## Speaker

Refer to page 31

# Display

## Status Messages

Choose whether to show status messages automatically.

## On-screen Language

Choose the language for these menus and on-screen messages.

## Screen Saver Function

This is to prevent burn-in on the screen.

- When this is set to "On":
  - If there is no operation for 5 minutes or more, the displayed screen switches to the other states automatically.

## FL Display

Changes the brightness of the unit's display.

- If "Auto" is selected, the display is dimmed but brightens when you perform some operations.

## FL Control (Vol 0)

- If "On" is selected, the unit's display will turn off when the volume is adjusted to "0".

## License

Information about the software used by this unit is displayed.

# TV / Device Connection

## TV Aspect

Set to match the type of television connected.

When connected to a 4:3 aspect television and playing 16:9 ratio image:

<b>4:3</b>	The sides are cut off so the picture fills the screen. When playing BD-Video, video is output as "4:3 Letterbox".	
<b>4:3 Letterbox</b>	Black bands appear at the top and bottom of the picture.	

When connected to a 16:9 widescreen television and playing 4:3 ratio image:

<b>16:9</b>	Video is displayed as a 4:3 ratio image in the center of the screen.
-------------	--

## HDMI Connection

Press [OK] to show the following settings.

### HDMI Resolution

The items supported by the connected devices are indicated on the screen as "✳". When any item without "✳" is selected, the images may be distorted.

- If "Auto" is selected, automatically selects the output resolution best suited to the connected television.
- To enjoy high definition video up-converted to 1080p, you need to connect the unit directly to 1080p compatible HDTV (High Definition Television). If this unit is connected to an HDTV through other equipment, it must also be 1080p compatible.

### 24p Output

When this unit is connected to a TV supporting 1080/24p output using an HDMI cable, movies and other material recorded at 24p are output at 24p.

- When playing DVD-Video, set to "On" and then also set "24p" in "Video" (⇒ 28) to "On".
- When BD-Video images other than 24p are played, images are output at 60p.

### HDMI Color Mode

This setting is for selecting color-space conversion of the image signal when the unit is connected using an HDMI cable.

### HDMI Audio Output

This setting selects whether or not to output audio from HDMI. Audio will be output through the system's speakers when "Off" is selected.

## VIERA Link

Set to use "HDAVI Control" function when connected with an HDMI cable to a device that supports "HDAVI Control".

- Select "Off" when you do not want to use "HDAVI Control".

## Deep Color Output

This setting is for selecting whether to use Deep Color output when a television that supports Deep Color is connected.

## Contents Type Flag

Depending on the playback content, the TV will output adjusting to the optimal method when a TV that supports this function is connected.

## Power Off Link

Select the desired power off link setting of this unit for VIERA Link operation (⇒ 25). (This works depending on the settings of the connected VIERA Link "HDAVI Control" compatible equipment.)

## Video/Audio:

When the TV is turned off, this unit will turn off automatically.

## Video:

When the TV is turned off, this unit will turn off except during the following conditions:

- CD or MP3 audio playback
- iPod mode
- Radio mode
- "AUX", "ARC" or "D-IN 1" (DIGITAL IN 1) mode (non-selected TV AUDIO setting for VIERA Link)
- "D-IN 2" (DIGITAL IN 2) mode (non-selected CABLE/SAT AUDIO setting for VIERA Link)

## TV Audio Input

Select the TV audio input to work with the VIERA Link operations.

## Others

### Remote Control Code

Change the remote control code, when other Panasonic products react to this remote control.

### Quick Start\*

Speed of startup from power off is increased.

- Internal control unit will be powered when it is set to "On", so contents of the following will be different from the time it is set to "Off".
  - Idle power consumption will increase. (about the power consumption ⇒ 40)

\*The cooling fan may turn slowly to prevent overheating of internal parts.

\* Depending on the power conserving setting activated on the TV, this function may have less effect when the unit is started by the power on link function. (⇒ 25)

### Easy setup (⇒ 15)

You can execute basic settings to optimize your home theater system.

### Restore Default Settings

This returns all values in the Setup menu and the playback menu, except for "Remote Control Code", "On-screen Language", "DVD-Video Ratings" and "BD-Video Ratings" to the default settings.

### System Information

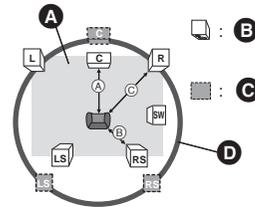
Display firmware version of this unit.

## Speaker settings

### Delay time

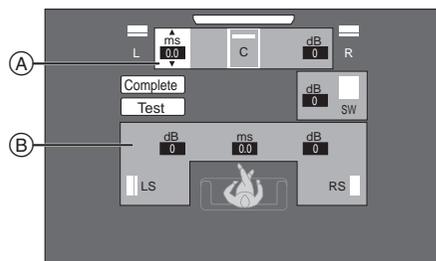
For optimum listening with 5.1-channel sound, all the speakers, except for the subwoofer, should be the same distance from the seating position.

If either distance (A) or (B) is less than (C) (⇒ below), find the difference in the relevant table and adjust the delay time to make up for the difference.



- (A) (B) (C): Primary listening distance
- (A) Approximate room dimensions
- (B) Actual speaker position
- (C) Ideal speaker position
- (D) Circle of constant primary listening distance

### 1 Press [▲, ▼, ◀, ▶] to select the distance box (ms) and press [OK].



- (A) Center (C)
- (B) Left Surround (LS), Right Surround (RS)

### 2 Press [▲, ▼] to select the setting and press [OK].

- (A) Center speaker

Difference	Setting
Approx. 34 cm (1 ft. 1 in.)	1.0 ms
Approx. 68 cm (2 ft. 2 in.)	2.0 ms
Approx. 102 cm (3 ft. 4 in.)	3.0 ms
Approx. 136 cm (4 ft. 5 in.)	4.0 ms
Approx. 170 cm (5 ft. 6 in.)	5.0 ms

- (B) Surround speakers

Difference	Setting
Approx. 170 cm (5 ft. 6 in.)	5.0 ms
Approx. 340 cm (11 ft. 1 in.)	10.0 ms
Approx. 510 cm (16 ft. 8 in.)	15.0 ms

## Adjusting speaker level

**Volume (Channel balance)** (dB)   
(Effective when playing multi-channel audio)

### 1 Select “Test” and press [OK].

A test signal is output.

### 2 While listening to the test signal

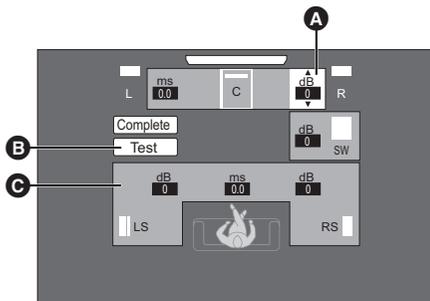
**Press [▲, ▼] to adjust the volume of each speaker.**

The volume can be adjusted between +6 dB to -6 dB.

- Set each speaker level according to the volume of the Front (L) and Front (R) speaker volume respectively.
- No signal is output for the subwoofer. To adjust its volume, see page 18, “Adjusting speaker level during play”.

### 3 Press [OK].

The test signal stops.



- A** Center (C)
- B** Test
- C** Left Surround (LS), Right Surround (RS)

### To finish the speaker setting

Press [▲, ▼, ◀, ▶] to select “Complete” and press [OK].

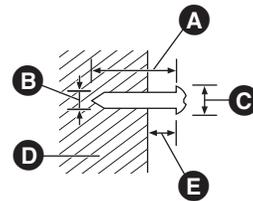
# Speaker installation option

## Attaching to a wall

You can attach all of the speakers (except subwoofer) to a wall.

- The wall or pillar on which the speakers are to be attached should be capable of supporting 10 kg (22 lbs) per screw. Consult a qualified building contractor when attaching the speakers to a wall. Improper attachment may result in damage to the wall and speakers.
- Do not attempt to attach these speakers to walls using methods other than those described in this manual.

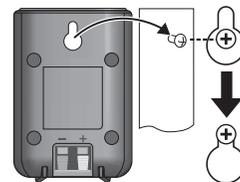
### 1 Drive a screw (not included) into the wall.



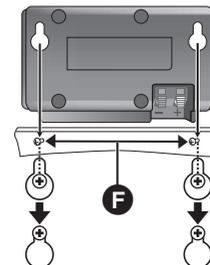
- A** At least 30 mm (1 3/16")
- B**  $\varnothing$  4.0 mm (5/32")
- C**  $\varnothing$  7.0 mm to 9.4 mm (9/32" to 3/8")
- D** Wall or pillar
- E** 5.5 mm to 7.5 mm (7/32" to 5/16")

### 2 Fit the speaker securely onto the screw(s) with the hole(s).

#### Front speaker and surround speaker



#### Center speaker



- F** 100 mm (3 15/16")

# Troubleshooting guide

Before requesting service, please perform the following steps.

**Make the following checks and visit our website for more information.**

<http://www2.panasonic.com/consumer-electronics/support/>  
Enter the model number.

Even so, you still have trouble,

**Visit our website to find a service center.**

You can find a service center near you easily on our website.

**Other support information:**

“Customer Services Directory (United States and Puerto Rico)” (⇒ 42).

**The following do not indicate a problem with this unit:**

- Regular disc rotating sounds.
- Image disturbance during search.

## ■ Unit does not respond to the remote control or front panel buttons.

Press and hold [POWER ⏻/⏻] on the main unit for 5 seconds.  
– If still unable to power the unit off, disconnect the power cord, wait 1 minute, then reconnect the power cord.

## ■ Cannot eject disc.

**The unit may have a problem.**

While the unit is off, press and hold [SKIP ▶▶] on the remote control and [▲ OPEN/CLOSE] on the unit at the same time for more than 5 seconds.

## General operation

**To return to the factory preset**

- Select “Yes” in “Restore Default Settings” in the Setup menu. (⇒ 31)

**To return all settings to the factory preset**

- Reset the unit as follows:  
While the unit is off, press and hold [+ VOLUME], [▲ OPEN/CLOSE] and [POWER ⏻/⏻] on the main unit at the same time for more than 5 seconds.

**The remote control doesn't work properly.**

- The remote control and main unit are using different codes. Change the code on the remote control. (⇒ 16)
- It may be necessary to set the code of the remote control again after changing the batteries for remote control. (⇒ 16)

**Disc cannot be played.**

- The disc is dirty. (⇒ 10)

**Still pictures (JPEG) do not playback normally.**

- The images that were edited on the PC, such as Progressive JPEG, etc., may not playback.

**The TV tuner mode is not displayed when the TV is switched on.**

- This phenomenon may occur, depending on the TV setting, when “Quick Start” is set to “On”.
- Depending on the TV, this phenomenon may be prevented by reconnecting the HDMI cable to a different HDMI input terminal or by changing the HDMI auto connection setting.

**You have forgotten your ratings password.**

**You want to cancel the ratings level.**

- While the disc tray is empty and “BD/DVD” is selected as a source, press and hold [SKIP ◀◀] on the remote control and [▶] (Play) on the unit at the same time for more than 5 seconds. The ratings level returns to the factory preset.

## Power

**No power.**

- Insert the AC power supply cord securely into a household AC outlet. (⇒ 15)

**The unit switches to standby mode.**

- When the time set for the sleep timer has passed, the power will be turned off. (⇒ 6)
- One of the unit's safety devices is activated. Press [POWER ⏻/⏻] on the main unit to turn the unit on.
- This unit will automatically turn to standby mode after 30 minutes if it is inactive. (⇒ 7)

**Power of this unit is turned off when the input for the TV is changed.**

- This is a normal phenomenon when using VIERA Link (HDMI Control 4 or later). For details please read the operating instructions for the TV.

## Displays

**The display is dim.**

- Change “FL Display” in the Setup menu. (⇒ 30)

## TV screen and video

**The images from this unit do not appear on the TV.**

**Picture is distorted.**

**Jittering occurs.**

- An incorrect resolution is selected in “HDMI Resolution”.  
Reset the setting as follows:  
While the disc tray is empty and “BD/DVD” is selected as a source, press and hold [▶] (Play) and [■] (Stop) on the main unit at the same time for more than 5 seconds to cancel the setting.  
– When Dolby Digital Plus, Dolby TrueHD, and DTS-HD audio are not output in bitstream, select “Yes” in “Restore Default Settings” and make proper settings. (⇒ 31)

**Video is not output.**

- Set the “High Clarity Sound” in the playback menu to “Off” to use the VIDEO OUT terminal. (⇒ 28)

**Video is not output in high definition.**

- Confirm that “HDMI Resolution” in the Setup menu are set properly. (⇒ 30)

**No subtitles.**

- When progressive output is on, closed captions cannot be displayed.

### The subtitles overlap closed captions recorded on discs.

- Turn off the subtitles or turn off the closed caption setting on the TV. (⇒ 28)

### A black band is displayed around the edge of the screen. The aspect ratio of the screen is abnormal.

- Confirm the “TV Aspect” is set properly. (⇒ 30)
- Adjust the aspect setting on the television.  
(Adjustment using “Screen Aspect” (⇒ 20) on the unit is also possible.)

## Sound

### No sound.

#### Low volume.

#### Distorted sound.

#### Cannot hear the desired audio type.

- Check connections to speakers and other equipment.  
(⇒ 11–14)
- Ensure the speaker settings for your speakers are correct.  
(⇒ 31)
- To output audio from a device connected with an HDMI cable, set “HDMI Audio Output” to “On” in the Setup menu.  
(⇒ 30)
- When “BD-Video Secondary Audio” is set to “On”, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio and DTS-HD High Resolution Audio are output as Dolby Digital or DTS Digital Surround.
- Re-master will not work when the bitstream signal is output from the HDMI AV OUT terminal. (⇒ 28)
- Depending on the connected equipment, the sound may be distorted if this unit is connected with an HDMI cable.
- The multi-channel audio from a device connected to the TV is not output in its original multi-channel form.  
– If the device has an optical audio output terminal, connect the device to this unit’s “OPTICAL 2” terminal. (⇒ 14, 23)

#### No surround sound.

- Press [SURROUND] to select a surround effect. (⇒ 18)

#### Cannot switch audio.

- When audio is output from the HDMI AV OUT terminal, set “Dolby D/Dolby D +/Dolby TrueHD” or “DTS/DTS-HD” to “PCM”. (⇒ 30)

#### No sound from the TV.

- Press [EXT-IN] to select the corresponding source. (⇒ 17)
- The ARC (Audio Return Channel) function is not available. Instead, use an optical digital audio cable or an audio cable to have the TV sound. (⇒ 12, 13)
- If the TV is not ARC compatible and only the HDMI connection is used, an extra audio connection is necessary (⇒ 12, 13, 14).

## iPod operation

### Cannot charge or operate.

- Check that the iPod is connected firmly. (⇒ 26)
- The battery of the iPod is depleted. Charge the iPod, and then operate again.

### Cannot display iPod videos/photos on the TV.

- Make sure that TV is connected to the VIDEO OUT terminal on this unit. (⇒ 12, 13)
- Operate the iPod menu to make the appropriate video/photo output settings for your TV. (Refer to operating instructions for your iPod.)

### The TV input channel unintentionally changes to HDMI input.

- When the main unit is connected with an “HDAVI Control” compatible TV and VIDEO IN is selected for iPod video or photo playback, the TV input channel will automatically change to the HDMI input channel when [START] is pressed.  
– Re-select the TV’s VIDEO IN input channel.

## Radio

### Distorted sound or noise is heard.

- Adjust the position of the antenna.
- Use an outdoor antenna. (⇒ 14)

### A beat sound is heard.

- Try to keep a certain amount of distance between the antenna and the TV.

## Other difficulties with playback

### BD-Video or DVD-Video is not played.

- Ensure the disc is for the correct BD-Video region code or DVD-Video region number, and is not defective. (⇒ 9)
- You have set a ratings level to limit BD-Video or DVD-Video play. Change this setting. (⇒ 29)
- Some BD-Video can only be output with HDMI.

### Alternative soundtrack and subtitles cannot be selected.

- The languages are not recorded on the disc.
- You may not be able to use the playback menu to change the soundtrack and subtitles on some discs. Use the disc’s menus to make changes. (⇒ 19)

### Angle cannot be changed.

- Angles can only be changed during scenes where different angles are recorded.

# Messages

The following messages or service numbers appear on the television or unit's display when something unusual is detected during startup and use.

## On the television

### Cannot play.

- You inserted an incompatible disc. (Discs recorded in PAL video, etc.)

### Cannot display on this unit.

- You tried to play a non-compatible image.

### No disc is inserted.

- The disc may be upside down.

### ⊘ This operation is not available.

- Some operations are unsupported by the unit. For example;
  - BD-Video: During playback, reverse slow-motion or reverse frame-by-frame is not possible.

### No Video

- Depending on the connected iPod, video menu may not be available on the TV. Select "ALL" on the unit's display and operate video playback from your iPod menu. (⇒ 26)

## On the unit's display

### F99

- The unit fails to operate properly. Press [POWER ⏻/I] on the main unit to switch the unit to standby for 3 seconds. Now press [POWER ⏻/I] on the main unit again to turn the unit on.

### U59

- The unit is hot.  
The unit switches to standby for safety reasons. Wait for about 30 minutes until the message disappears.  
Select a position with good ventilation when installing the unit. Do not block the ventilation hole on the rear and side of the unit.

### U72

### U73

- The HDMI connection acts unusually.
  - Turn the unit and TV off.
  - Disconnect the HDMI cable between the player and the TV.

### HDMI ONLY

- Some BD-Video discs can only be output with HDMI.

### No PLAY

- There is a viewing restriction on a BD-Video or DVD-Video. (⇒ 29)

### No READ

- The media is dirty or badly scratched. The unit cannot play.

### PLEASE WAIT

- The unit is carrying out an internal process. This is not a malfunction. You cannot operate the unit while "PLEASE WAIT" is displayed.

### SET □

("□" stands for a number.)

- The remote control and main unit are using different codes. Change the code on the remote control. (⇒ 16)

### H□□ or F□□

("□" stands for a number.)

- Check and correct the speaker cable connections.
- There is something unusual.
- Check the unit using the troubleshooting guide. If the service number does not disappear, do the following.
  - ① Disconnect the plug from the household AC outlet, wait a few seconds, then reconnect it.
  - ② Press [POWER ⏻/I] to turn the power on.  
If the service number does not disappear despite doing the above, request service from the dealer. Inform the dealer of the service number when requesting service.

### IPOD OVER CURRENT ERROR

- The iPod is drawing too much power. Remove the iPod, and turn the unit off and on again.

### NOT CONDITIONAL

- The requested operation cannot be conducted.

# About MP3/JPEG/AVCHD/MPEG2 files

## Structure of folders that can be played in this unit

### MP3

<b>File format</b>	<b>MP3</b>
<b>Extension</b>	Files must have the extension “.mp3” or “.MP3”.
<b>Compression rate</b>	32 kbps to 320 kbps
<b>Sampling rate</b>	44.1 kHz/48 kHz
<b>Reference</b>	ID3 tags: version 1, 2.2, 2.3, 2.4 (Only titles and the names of artists)

### JPEG

<b>File format</b>	<b>JPEG</b>
<b>Extension</b>	Files must have the extension “.jpg” or “.JPG”.
<b>Picture resolution</b>	between 34×34 and 8192×8192 pixels (sub sampling is 4:2:2 or 4:2:0)
<b>Reference</b>	JPEG conforming DCF* is supported. ● MOTION JPEG and Progressive JPEG is not supported

- \* Design rule for Camera File system: unified standard established by Japan Electronics and Information Technology Industries Association (JEITA).
- DVD-RAM must conform to UDF 2.0.
  - BD-RE must conform to UDF 2.5.

### AVCHD

<b>File format</b>	<b>AVCHD format (V1.0) used on High Definition Video Camera</b> (Panasonic and some other's)
<b>Codec</b>	MPEG-4 AVC/H.264
	● Discs must conform to UDF 2.5.

### MPEG2

<b>File format</b>	<b>SD-Video format* used on Standard Definition Video Camera</b> (Panasonic and some other's)
<b>Codec</b>	MPEG2
	* SD-Video Entertainment Video Profile



- With certain recording states and folder structures, the play order may differ or playback may not be possible.
- CD-R, CD-RW: ISO9660 level 1 or 2 (except for extended formats), Joliet  
This unit is compatible with multi-session.  
This unit is not compatible with packet writing.
- DVD-R, DVD-R DL (except for AVCHD): ISO9660 level 1 or 2 (except for extended formats), Joliet, UDF bridge (UDF 1.02/ISO9660)  
This unit is not compatible with multi-session.  
This unit is not compatible with packet writing.

You can play files on this unit by structure of folders as shown below. However depending on the method of writing data (writing software), play may not be in the order you numbered the folders.

Folder which can be displayed with this unit

\*\*\*: Numbers

XXX: Letters

\*1 \*\*\*: from 001 to 999

\*2 \*\*\*: from 100 to 999

XXXXX: 5 figures

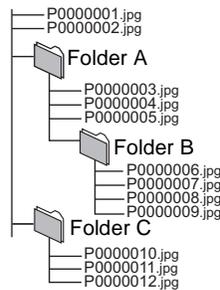
\*3 \*\*\*\*: from 0001 to 9999

#### Structures of still picture (JPEG) folders

##### in DVD-R<sup>\*4</sup>/DVD-R DL<sup>\*4</sup>/CD-R<sup>\*5</sup>/CD-RW<sup>\*5</sup>

Files inside a folder are displayed in the order they were updated or taken.

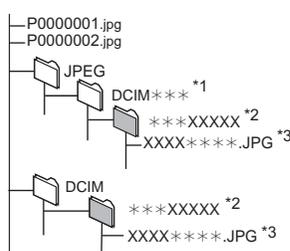
Root e.g.,



##### in BD-RE<sup>\*6</sup>/DVD-RAM<sup>\*4</sup>

● Folder structure is not displayed.

Root e.g.,

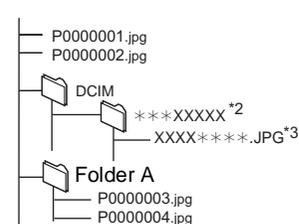


##### in SD card<sup>\*4</sup>

Displays JPEG files in all folders.

● Folder structure is not displayed.

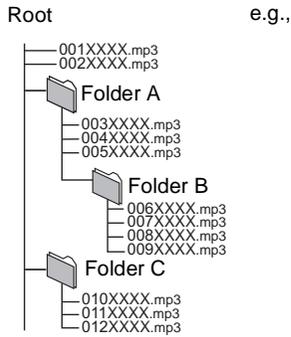
Root e.g.,



## Structure of MP3 folders

### in DVD-R/DVD-R DL/CD-R/CD-RW

Prefix the file names with 3-digit numbers in the order you want to play them.



- \*4 The total combined maximum number of recognizable picture contents and folders: 3000 picture contents and 300 folders.
- \*5 The total combined maximum number of recognizable picture contents and folders: 999 picture contents and 99 folders.
- \*6 The total combined maximum number of recognizable picture contents and folders: 9999 picture contents and 300 folders.

# Supplemental information

## ■ Display languages list

Display Language	Display Language	Display Language			
ENG	English	JPN	Japanese	ARA	Arabic
FRA	French	CHI	Chinese	HIN	Hindi
DEU	German	KOR	Korean	PER	Persian
ITA	Italian	MAL	Malay	IND	Indonesian
ESP	Spanish	VIE	Vietnamese	MRI	Maori
NLD	Dutch	THA	Thai	BUL	Bulgarian
SVE	Swedish	POL	Polish	RUM	Romanian
NOR	Norwegian	CES	Czech	GRE	Greek
DAN	Danish	SLK	Slovak	TUR	Turkish
POR	Portuguese	HUN	Hungarian	*	Others
RUS	Russian	FIN	Finnish		

## ■ Video attribute

Display	Meaning
MPEG-2/MPEG-4 AVC/VC-1	Video recording method
480/576/720/1080	Video Format
24p/50i/60i/50p/60p	Video Frame rate
YCbCr4:2:2/YCbCr4:4:4/RGB	Color Space
bps (bit per second)	Transfer rate of bit

## ■ Audio attribute

Display	Meaning
PCM/ <input type="checkbox"/> Digital/ <input type="checkbox"/> Digital+	
<input type="checkbox"/> TrueHD/DTS/DTS 96/DTS-HD HI RES/ DTS-HD MSTR/MPEG	Signal type
ch (channel)	Number of channels
k (kHz)	Sampling frequency
b (bit)	Number of bits
bps (bit per second)	Transfer rate of bit

## ■ Language code list

Language	Code	Language	Code	Language	Code
Abkhazian	6566	Gujarati:	7185	Rhaeto-Romance:	
Afar:	6565	Hausa:	7265	Romanian:	8279
Afrikaans:	6570	Hebrew:	7387	Russian:	8285
Albanian:	8381	Hindi:	7273	Samoan:	8377
Amharic:	6577	Hungarian:	7285	Sanskrit:	8365
Arabic:	6582	Icelandic:	7383	Scots Gaelic:	7168
Armenian:	7289	Indonesian:	7378	Serbian:	8382
Assamese:	6583	Interlingua:	7365	Serbo-Croatian:	8372
Aymara:	6589	Irish:	7165	Shona:	8378
Azerbaijani:	6590	Italian:	7384	Sindhi:	8368
Bashkir:	6665	Japanese:	7465	Singhalese:	8373
Basque:	6985	Javanese:	7487	Slovak:	8375
Bengali; Bangla:		Kannada:	7578	Slovenian:	8376
	6678	Kashmiri:	7583	Somali:	8379
Bhutani:	6890	Kazakh:	7575	Spanish:	6983
Bihari:	6672	Kirghiz:	7589	Sundanese:	8385
Breton:	6682	Korean:	7579	Swahili:	8387
Bulgarian:	6671	Kurdish:	7585	Swedish:	8386
Burmese:	7789	Laotian:	7679	Tagalog:	8476
Byelorussian:	6669	Latin:	7665	Tajik:	8471
Cambodian:	7577	Latvian, Lettish:	7686	Tamil:	8465
Catalan:	6765	Lingala:	7678	Tatar:	8484
Chinese:	9072	Lithuanian:	7684	Telugu:	8469
Corsican:	6779	Macedonian:	7775	Thai:	8472
Croatian:	7282	Malagasy:	7771	Tibetan:	6679
Czech:	6783	Malay:	7783	Tigrinya:	8473
Danish:	6865	Malayalam:	7776	Tonga:	8479
Dutch:	7876	Maltese:	7784	Turkish:	8482
English:	6978	Maori:	7773	Turkmen:	8475
Esperanto:	6979	Marathi:	7782	Twi:	8487
Estonian:	6984	Moldavian:	7779	Ukrainian:	8575
Faroese:	7079	Mongolian:	7778	Urdu:	8582
Fiji:	7074	Nauru:	7865	Uzbek:	8590
Finnish:	7073	Nepali:	7869	Vietnamese:	8673
French:	7082	Norwegian:	7879	Volapük:	8679
Frisian:	7089	Oriya:	7982	Welsh:	6789
Galician:	7176	Pashto, Pushto:	8083	Wolof:	8779
Georgian:	7565	Persian:	7065	Xhosa:	8872
German:	6869	Polish:	8076	Yiddish:	7473
Greek:	6976	Portuguese:	8084	Yoruba:	8979
Greenlandic:	7576	Punjabi:	8065	Zulu:	9085
Guarani:	7178	Quechua:	8185		

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# Glossary

## **AVCHD**

AVCHD is a new format (standard) for high definition video cameras that can be used to record and play high-resolution HD images.

## **BD-J**

Some BD-Video discs contain Java applications, and these applications are called BD-J. You can enjoy various interactive features in addition to playing normal video.

## **Bitstream**

This is the digital form of multi-channel audio data (e.g., 5.1 channel) before it is decoded into its various channels.

## **Deep Color**

Deep Color is a name for a device that can reproduce greater color gradation (4096 steps) when connected to a TV that supports the Deep Color with HDMI cable. You can enjoy exceptionally rich, natural-looking colors, with smooth, detailed gradation and minimal color banding. [A lower color gradation (256 steps), without Deep Color, will be reproduced if connected to a TV which does not support Deep Color. The unit will automatically set appropriate output to suit the connected TV.]

## **Dolby Digital**

This is a method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2-channel) audio, these signals can also be multi-channel audio.

## **Dolby Digital Plus**

Multi-channel audio and higher audio quality is made possible using Dolby Digital Plus. BD-Video supports up to 7.1 channel output.

## **Dolby Pro Logic II**

Dolby Pro Logic II enables you to play stereo sources on 5.1 channel.

## **Dolby TrueHD**

Dolby TrueHD is a very high quality audio format that reproduces the studio master audio. BD-Video supports up to 7.1 channel output.

## **Down-mixing**

This is the process of remixing the multi-channel audio found on some discs into fewer channels.

## **DTS (Digital Theater Systems)**

This surround system is used in many movie theaters. There is good separation between the channels, so realistic sound effects are possible.

## **DTS-HD**

DTS-HD is a high-quality, sophisticated audio format used in movie theaters. Previous DTS Digital Surround-compatible equipment can play DTS-HD as DTS Digital Surround audio. BD-Video supports up to 7.1 channel output.

## **DTS-HD High Resolution Audio**

This is a signal format achieved by improving the previous DTS, DTS-ES and DTS 96/24 formats. It is compatible with sampling frequency 96 kHz/48 kHz. BD-Video supports up to 7.1 channel output.

## **DTS-HD Master Audio**

This is a lossless audio format and compatible with 96 kHz/7.1 ch or less. In addition, faithful reproduction of the master audio is enabled using lossless audio encoding technology. BD-Video supports up to 7.1 channel output.

## **Dynamic range**

Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs.

Dynamic range compression means reducing the gap between the loudest and softest sounds. This means you can listen at low volumes but still hear dialog clearly.

## **HDMI (High-Definition Multimedia Interface)**

HDMI is a digital interface for consumer electronic products. Unlike conventional connections, it transmits uncompressed digital video and audio signals on a single cable.

## **LPCM (Linear PCM)**

These are a kind of PCM format.

These are uncompressed digital signals, similar to those found on CDs.

## **PCM (Pulse Code Modulation)**

This is one format for converting analog audio into digital audio, enabling you to enjoy digital audio with no hassle.

## **P4HD (Pixel Precision Progressive Processing for HD)**

This is a processor which makes use of an exclusive Panasonic algorithm. Various processing is supported, including a high-level conversion of the TV scanning format from interlace to progressive and a high-level conversion of standard resolution (480i or 576i) video signal to a 1080 High Definition video signal.

Consequently, this unit is able to provide video of optimal resolution to the connected TV.

## **x.v.Color™**

x.v.Color™ is a name for devices that are compatible with the xvYCC format, an international standard for expanded color in motion pictures, and that follow the rules for signal transmission.

You can enjoy vivid colors of wider color ranges for a more realistic picture when connected to a TV that supports the x.v.Color™ with HDMI cable.

## **24p**

This is a progressive image recorded at a rate of 24 frames per second (motion-picture film). Many BD-Video movie contents are recorded in 24 frames/second in accordance with the film materials.

# Specifications

## GENERAL

<b>Power consumption:</b>	90 W
<b>Power consumption in standby mode:</b>	Approx. 0.1 W
<b>Power supply:</b>	AC 120 V, 60 Hz

<b>iPod Connector:</b>	DC OUT 5 V 500 mA MAX
<b>Dimensions (W×H×D):</b>	430 mm×54 mm×287 mm (16 <sup>15</sup> / <sub>16</sub> "×2 <sup>1</sup> / <sub>8</sub> "×11 <sup>5</sup> / <sub>16</sub> "
<b>Mass (Weight):</b>	Approx. 3.2 kg (7.1 lbs) (Dimensions and Weight do not include the speakers.)
<b>Operating temperature range:</b>	0 °C to 40 °C (32 °F to 104 °F)
<b>Operating humidity range:</b>	35 % to 80 % RH (no condensation)

## AMPLIFIER SECTION

<b>RMS TTL POWER OUTPUT:</b>	1000 W
<b>1 kHz, 10 % total harmonic distortion</b>	
<b>FRONT:</b>	125 W per ch (3 Ω)
<b>CENTER:</b>	250 W per ch (6 Ω)
<b>SURROUND:</b>	125 W per ch (3 Ω)
<b>100 Hz, 10 % total harmonic distortion</b>	
<b>SUBWOOFER:</b>	250 W per ch (6 Ω)
<b>FTC TTL Power Output:</b>	446 W
<b>120 Hz to 20 kHz, 1.0 % total harmonic distortion</b>	
<b>FRONT:</b>	60 W per ch (3 Ω)
<b>CENTER:</b>	106 W per ch (6 Ω)
<b>SURROUND:</b>	60 W per ch (3 Ω)
<b>45 Hz to 120 Hz, 1.0 % total harmonic distortion</b>	
<b>SUBWOOFER:</b>	100 W per ch (6 Ω)
<b>Audio Input</b>	
<b>AUX:</b>	× 1
<b>Digital Audio Input</b>	
<b>Optical:</b>	× 2
<b>Sampling frequency:</b>	32 kHz, 44.1 kHz, 48 kHz
<b>Audio Format:</b>	PCM, Dolby Digital

## FM TUNER SECTION

<b>Frequency range:</b>	87.9 MHz to 107.9 MHz (200 kHz step), 87.5 MHz to 108.0 MHz (100 kHz step)
<b>Antenna terminals:</b>	75 Ω (unbalanced)

## SPEAKER SECTION

### FRONT SPEAKERS

<b>SB-HF480</b>	1 WAY 1 SPEAKER Bass-ref.
<b>Type:</b>	6.5 cm (2 <sup>1</sup> / <sub>2</sub> " ) CONE TYPE
<b>Full range:</b>	3 Ω
<b>Impedance:</b>	78 dB/W (1 m)
<b>Output sound pressure:</b>	105 Hz to 25 kHz (–16 dB), 130 Hz to 22 kHz (–10 dB)
<b>Frequency range:</b>	80 mm×119 mm×68 mm (3 <sup>5</sup> / <sub>32</sub> "×4 <sup>11</sup> / <sub>16</sub> "×2 <sup>11</sup> / <sub>16</sub> "
<b>Dimensions (W×H×D):</b>	Approx. 0.4 kg (0.88 lbs)
<b>Mass (Weight):</b>	

### CENTER SPEAKER

<b>SB-HC480</b>	1 WAY 1 SPEAKER Bass-ref.
<b>Type:</b>	6.5 cm (2 <sup>1</sup> / <sub>2</sub> " ) CONE TYPE
<b>Full range:</b>	6 Ω
<b>Impedance:</b>	79 dB/W (1 m)
<b>Output sound pressure:</b>	90 Hz to 25 kHz (–16 dB), 115 Hz to 22 kHz (–10 dB)
<b>Frequency range:</b>	145 mm×85 mm×71.5 mm (5 <sup>23</sup> / <sub>32</sub> "×3 <sup>11</sup> / <sub>32</sub> "×2 <sup>13</sup> / <sub>16</sub> "
<b>Dimensions (W×H×D):</b>	Approx. 0.6 kg (1.32 lbs)
<b>Mass (Weight):</b>	

### SURROUND SPEAKERS

<b>SB-HS480</b>	1 WAY 1 SPEAKER Bass-ref.
<b>Type:</b>	6.5 cm (2 <sup>1</sup> / <sub>2</sub> " ) CONE TYPE
<b>Full range:</b>	3 Ω
<b>Impedance:</b>	78 dB/W (1 m)
<b>Output sound pressure:</b>	105 Hz to 25 kHz (–16 dB), 130 Hz to 22 kHz (–10 dB)
<b>Frequency range:</b>	80 mm×119 mm×68 mm (3 <sup>5</sup> / <sub>32</sub> "×4 <sup>11</sup> / <sub>16</sub> "×2 <sup>11</sup> / <sub>16</sub> "
<b>Dimensions (W×H×D):</b>	Approx. 0.4 kg (0.88 lbs)
<b>Mass (Weight):</b>	

### SUBWOOFER

<b>SB-HW480</b>	1 WAY 1 SPEAKER (Bass reflex)
<b>Type:</b>	16 cm (6 <sup>1</sup> / <sub>2</sub> " ) CONE TYPE
<b>Woofers:</b>	6 Ω
<b>Impedance:</b>	78 dB/W (1 m)
<b>Output sound pressure:</b>	40 Hz to 220 Hz (–16 dB), 45 Hz to 180 Hz (–10 dB)
<b>Frequency range:</b>	145 mm×289.5 mm×258 mm (5 <sup>23</sup> / <sub>32</sub> "×11 <sup>13</sup> / <sub>32</sub> "×10 <sup>5</sup> / <sub>32</sub> "
<b>Dimensions (W×H×D):</b>	Approx. 2.8 kg (6.17 lbs)
<b>Mass (Weight):</b>	

## VIDEO SECTION

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<b>Signal system:</b>	NTSC
<b>Video output</b>	
<b>Output level:</b>	1.0 Vp-p (75 Ω)
<b>Output connector:</b>	Pin jack (1 system)
<b>HDMI AV output</b>	
<b>Output format:</b>	1080p/1080i/720p/480p
<b>Output connector:</b>	Type A (19 pin) HDMI (Deep Color, x.v.Color™, High Bit rate Audio) This unit supports "HDAVI Control 5" function.

### LASER Specification

#### Class I LASER Product

<b>Wave length:</b>	790 nm (CDs)/650 nm (DVDs)/ 405 nm (BDs)
<b>Laser power:</b>	No hazardous radiation is emitted with the safety protection

## TERMINAL SECTION

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<b>SD card slot:</b>	Connector: 1 system
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Specifications are subject to change without notice.

# Limited Warranty (ONLY FOR U.S.A. AND PUERTO RICO)

Panasonic Consumer Electronics Company,  
Division of Panasonic Corporation of North America  
One Panasonic Way, Secaucus, New Jersey 07094

## Panasonic Blu-ray and DVD Products Limited Warranty

### Limited Warranty Coverage (For USA and Puerto Rico Only)

If your product does not work properly because of a defect in materials or workmanship, Panasonic Consumer Electronics Company (referred to as "the warrantor") will, for the length of the period indicated on the chart below, which starts with the date of original purchase ("warranty period"), at its option either (a) repair your product with new or refurbished parts, (b) replace it with a new or a refurbished equivalent value product, or (c) refund your purchase price. The decision to repair, replace or refund will be made by the warrantor.

Product or Part Name	Parts	Labor
Blu-ray Disc Player, Portable Blu-ray Disc Player	1 year	90 days
Blu-ray Home Theater System	1 year	1 year
DVD Player, Portable DVD Player	1 year	90 days
DVD Recorder	1 year	90 days
Rechargeable Batteries (pack), DVD-RAM Disc (defective exchange)	10 days	Not Applicable

During the "Labor" warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. This Limited Warranty excludes both parts and labor for non-rechargeable batteries, antennas, and cosmetic parts (cabinet). This warranty only applies to products purchased and serviced in the United States or Puerto Rico. This warranty is extended only to the original purchaser of a new product which was not sold "as is".

### Mail-In Service

For assistance in the U.S.A. and Puerto Rico in obtaining repairs, please ship the product prepaid to:

**Panasonic Exchange Center**  
4900 George McVay Drive  
Suite B  
McAllen, TX 78503  
[panacare@us.panasonic.com](mailto:panacare@us.panasonic.com)

When shipping the unit, carefully pack, include all accessories, and send it prepaid, adequately insured and preferably in the original carton. If Lithium Ion batteries are shipped by air the package must be labeled "Contains Lithium Ion Battery (No lithium metal)". Damaged batteries are prohibited from shipment by US Mail. Batteries must be securely packed in a manner to prevent short-circuiting and a package cannot contain more than 3 Lithium Ion batteries. Include a letter detailing the complaint, a return address and provide a daytime phone number where you can be reached. A valid registered receipt is required under the Limited Warranty.

**IF REPAIR IS NEEDED DURING THE WARRANTY PERIOD, THE PURCHASER WILL BE REQUIRED TO FURNISH A SALES RECEIPT/PROOF OF PURCHASE INDICATING DATE OF PURCHASE, AMOUNT PAID AND PLACE OF PURCHASE. CUSTOMER WILL BE CHARGED FOR THE REPAIR OF ANY UNIT RECEIVED WITHOUT SUCH PROOF OF PURCHASE.**

### Limited Warranty Limits And Exclusions

This warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty

installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, introduction of sand, humidity or liquids, commercial use such as hotel, office, restaurant, or other business or rental use of the product, or service by anyone other than a Factory Service Center or other Authorized Servicer, or damage that is attributable to acts of God.

**THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY COVERAGE".**

**THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY.**

(As examples, this excludes damages for lost time, travel to and from the servicer, loss of or damage to media or images, data or other memory or recorded content. The items listed are not exclusive, but for illustration only.)

**ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.**

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or Service Center. If the problem is not handled to your satisfaction, then write to the warrantor's Consumer Affairs Department at the addresses listed for the warrantor.

**PARTS AND SERVICE, WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY, ARE YOUR RESPONSIBILITY.**

### Customer Services Directory (United States and Puerto Rico)

Obtain Product Information and Operating Assistance; locate your nearest Dealer or Service Center; purchase Parts and Accessories; or make Customer Service and Literature requests by visiting our Web Site at:

<http://www.panasonic.com/help>

or, contact us via the web at:

<http://www.panasonic.com/contactinfo>

You may also contact us directly at:

1-800-211-PANA (7262)

Monday-Friday 9am-9pm,

Saturday-Sunday 10am-7pm EST

**For hearing or speech impaired TTY users, TTY: 1-877-833-8855**

### Accessory Purchases (United States and Puerto Rico)

Purchase Parts, Accessories and Instruction Books online for all Panasonic Products by visiting our Web Site at:

<http://www.pstc.panasonic.com>

Or, send your request by E-mail to:

[npccparts@us.panasonic.com](mailto:npccparts@us.panasonic.com)

You may also contact us directly at:

1-800-332-5368 (Phone) 1-800-237-9080 (Fax Only)

(Monday-Friday 9am-9pm EST)

Panasonic Service and Technology Company

20421 84th Avenue South, Kent, WA 98032

(We accept Visa, MasterCard, Discover Card, American Express, and Personal Checks)

**For hearing or speech impaired TTY users, TTY: 1-866-605-1277**

As of November 2009



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