

Easy control only with VIERA remote control^{※1}

You can operate this unit using buttons on the TV remote control.

Refer to the operating instructions of the TV about the buttons that you can use.

Using OPTION MENU

By using the TV remote control, you can play discs using the "Control Panel" (⇒ below).

- ① Press [OPTION].
- ② Select an item, then press [OK].

e.g.,

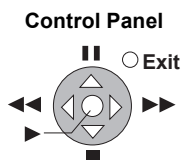


■ Using the Control Panel

Using the Control Panel, you can operate search backward, search forward, stop, etc. with the TV remote control.

Select "Control Panel" from OPTION MENU.

The Control Panel is displayed.



- 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.
- 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.
- These functions may not work normally depending on the equipment condition. About "HDAVI Control" function, read the manual of the connected equipment (e.g., TV) too.
- Use the remote control supplied with this unit if you cannot operate this unit using buttons on the TV remote control.
- The operation of this unit may be interrupted when you press incompatible buttons on the TV remote control.

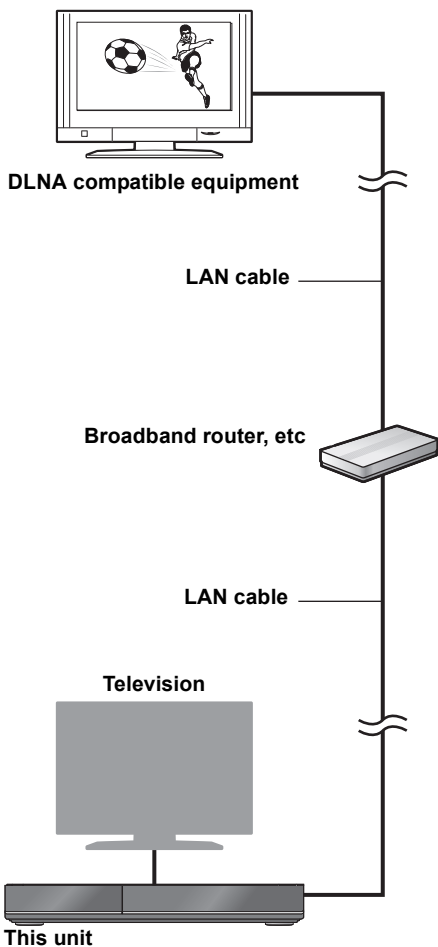
^{※1} This function is available with the TV that supports "HDAVI Control 2" or later.

^{※2} This function is available with the TV that supports "HDAVI Control 3" or later.

DLNA feature

You can enjoy the video and still pictures saved on the HDD of this unit on DLNA compatible equipment connected via a network.

e.g.,



For details regarding connection and operation of equipment connected via a network, refer to their respective operating instructions.

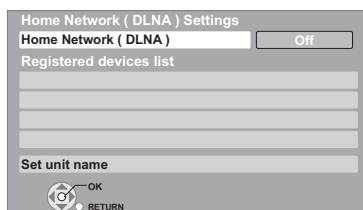
Preparation

- Network connection (⇒ 13)
- Network Easy Settings (⇒ 19, 81)

Playing back from Panasonic DLNA compatible equipment

Register the equipment

- ① While stopped
Press [SETUP].
- ② Select "Network Settings" in "Network", then press [OK].
- ③ Select "Home Network (DLNA) Settings", then press [OK].



- ④ Select "Home Network (DLNA)", then press [OK].
 - ⑤ Select "On", then press [OK].
 - ⑥ Select "Yes", then press [OK].
 - ⑦ Access this unit from the connected DLNA compatible equipment within 10 minutes.
 - Up to 4 devices can be registered.
- Even if it is Panasonic equipment, you may not be able to register from "Home Network (DLNA) Settings". (⇒ 67, Register non-Panasonic equipment)

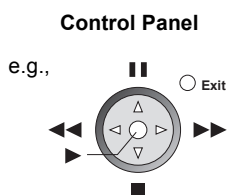
Playing back from the equipment

① Operate the playback equipment to display the list of titles on this unit.

- For operation of the equipment, refer to their respective operating instructions.

② Select the item to playback (folder), then press [OK]

- Menu structure will be different depending on the equipment connected to this unit. Select the contents by repeating the operation.
- Control Panel is displayed once the playback starts. Operation can be performed with [▲, ▼, ◀, ▶], [OK], [RETURN ↵] and [EXIT].

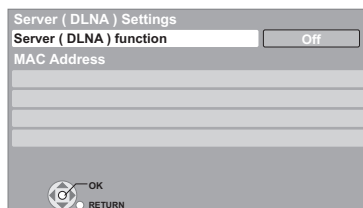


- Press [OK] if the Control Panel is not displayed.

- **Even with Panasonic DLNA compatible equipment, listing of titles or playback method may be different. (⇒ right, Playing back from non-Panasonic equipment)**

■ Register non-Panasonic equipment

- 1 While stopped
Press [SETUP].
- 2 Select "Network Settings" in "Network", then press [OK].
- 3 Select "Server (DLNA) Settings", then press [OK].



- 4 Select "Server (DLNA) function", then press [OK].
- 5 Select "On", then press [OK].
- 6 Select the MAC Address for the connected equipment, then press [OK].
 - Up to 12 devices can display the MAC Address.
 - Up to 4 devices can be registered.
- 7 Select "Yes", then press [OK].

■ Playing back from non-Panasonic equipment

Select the title on this unit from the connected equipment, and start the playback.

- For operation of the equipment, refer to their respective operating instructions.



- You cannot playback the titles on other DLNA compatible equipment from this unit.
- Files not on the HDD cannot be played back.
- Music cannot be played back.
- Editing is not possible. (Only delete can be performed from Panasonic equipment)
- Programme being recorded cannot be played back.
- Playback via DLNA compatible equipment cannot be done when this unit is in the following conditions:
 - While simultaneously recording 2 programmes
 - While playing back a disc
 - While simultaneously performing High speed copy and recording
 - While displaying the Setup menu
 - While executing functions using a network, such as "VIERA CAST"
- There may be some video that cannot be played back on DLNA compatible equipment depending on the equipment.
- You cannot playback simultaneously from 2 or more items of DLNA compatible equipment.

Enjoying VIERA CAST™

You can access a selection of Internet services from the Home screen with VIERA CAST, for example YouTube, Picasa Web Albums. (Current as of December 2009)

Preparation

- Network connection (⇒ 13)
- Network Easy Settings (⇒ 19, 81)

1 Press [VIERA CAST].

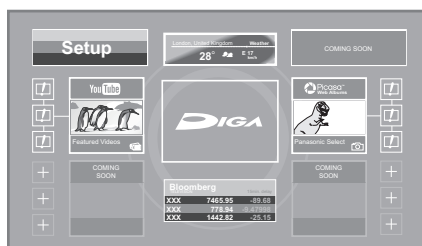
- Message is displayed. Please read these instructions carefully and then press [OK].

2 Press [▲, ▼, ◀, ▶] to select the item, then press [OK].

- You can operate VIERA CAST using the following buttons on the unit's remote control. [▲, ▼, ◀, ▶], [OK], [RETURN ↵], coloured buttons and numbered buttons.

VIERA CAST Home screen;

e.g.,



Images are for illustration purpose, contents may change without notice.



- If using slow Internet connection, the video may not be displayed correctly. A high-speed Internet service with a speed of at least 6 Mbps is recommended.
- Be sure to update the software (firmware) when a software (firmware) update notice is displayed on the screen.
If the software (firmware) is not updated, you will not be able to use the VIERA CAST™ function.
- VIERA CAST™ Home screen is subject to change without notice.
- The services through VIERA CAST™ are operated by their respective service providers, and service may be discontinued either temporarily or permanently without notice. Therefore, Panasonic will make no warranty for the content or the continuity of the services.
- All features of websites or content of the service may not be available.
- Some content may be inappropriate for some viewers.
- Some content may only be available for specific countries and may be presented in specific languages.
- If timer recording starts, VIERA CAST™ will stop.

For details of VIERA CAST Home screen

Refer to a help item on the home screen.

To return to VIERA CAST Home screen

Press [VIERA CAST].

To exit from VIERA CAST

Press [EXIT].

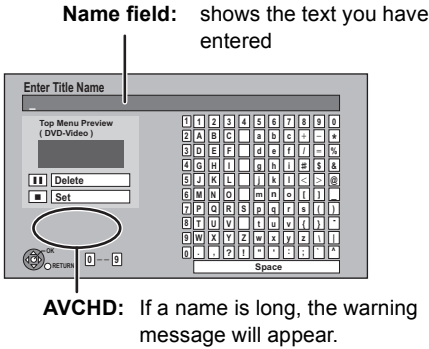
- Set the "Lock" to "On" to restrict using VIERA CAST. (⇒ 81)
- Set the "Automatic Volume Control" to "Off" when the audio is warped while using the VIERA CAST. (⇒ 81)

Entering text

Preparation

- Show Enter Title Name screen.

1 Press [**▲**, **▼**, **◀**, **▶**] to select a character, then press [**OK**].

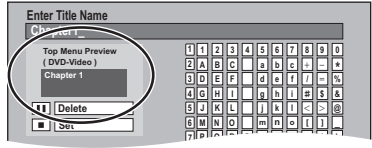


To end partway

Press [**RETURN** **↵**].
Text is not added.

For your reference

The name of the DVD-Video that will be displayed in the top menu after finalisation is previewed.



- The maximum number of characters is different depending on the media.
- If a name is long, parts of it may not be shown in some screens.

Repeat this step to enter other characters.

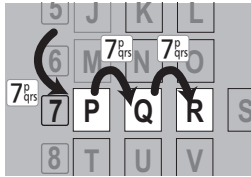
• To delete a character

Press [**▲**, **▼**, **◀**, **▶**] to select the character in the name field, then press [**II**]. (The selected characters are deleted.)

• Using the numbered buttons to enter characters

e.g., entering the letter “R”

- ① Press [**7**] to move to the 7th row.
- ② Press [**7**] twice to highlight “R”.
- ③ Press [**OK**].



2 Press [**■**] (**Set**).

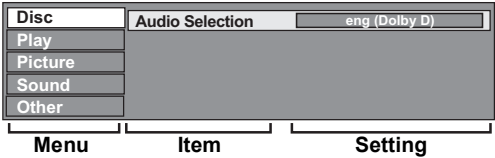
“Writing...” appears then the screen returns to the DIRECT NAVIGATOR screen and so on.

Playback menu

Common procedures

1 Press [DISPLAY].

e.g.,



- The menu is not displayed when playing still pictures.

2 Select the menu, then press [▶].

3 Select the item, then press [▶].

4 Select the setting.

- Some items can be changed by pressing [OK].

To clear the Playback menu

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.

Disc menu—Setting the disc content

Video

The original video recording method appears.
e.g., MPEG4 AVC

Signal Type

•Primary Video

Video:	The original video recording method appears.
Soundtrack:	Select the type of audio or language.

•Secondary Video

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

Soundtrack*

Show or change the soundtrack.

Subtitles*

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

Audio Selection

Switch in the case of multiple audio.

Subtitle Style

Select the subtitle style recorded on the disc.

Angle*

Change the number to select an angle.

Audio Channel

(⇒ 36, Changing audio)

- * With some discs, you may only be able to make changes using the menus (⇒ 32) on the disc.

Audio attribute

LPCM/[Digital]/[Digital+]
[TrueHD]/DTS/DTS-HD/MPEG: Signal type

k (kHz):	Sampling frequency
b (bit):	Number of bits
ch (channel):	Number of channels

Language

ENG: English	DAN: Danish	THA: Thai
FRA: French	POR: Portuguese	POL: Polish
DEU: German	RUS: Russian	CES: Czech
ITA: Italian	JPN: Japanese	SLK: Slovak
ESP: Spanish	CHI: Chinese	HUN: Hungarian
NLD: Dutch	KOR: Korean	FIN: Finnish
SVE: Swedish	MAL: Malay	*: Others
NOR: Norwegian	VIE: Vietnamese	

Play menu—Change the play sequence

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

(Only when playing music)

Select whether or not to play random.

Picture menu—Change the picture quality

Mode

Select the picture quality mode during play.

Normal:	Default setting
Soft:	Soft picture with fewer video artifacts
Fine:	Details are sharper
Cinema:	Mellows movies, enhances detail in dark scenes. (This does not affect the titles in DR mode.)

HD optimizer

It will compensate the mosaic noise in the video and haze around the characters precisely.

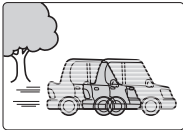
Detail Clarity

The picture is sharp and detailed.

Progressive

Select the method of conversion for progressive output to suit the type of title being played. (⇒ 108)

Auto:	Automatically detects the film and video content, and appropriately converts it.
Video:	Select when using "Auto", and the content is distorted.
Film:	Select this if the edges of the film content appear jagged or rough when "Auto" is selected. However, if the video content is distorted as shown in the illustration to the right, then select "Auto".



Sound menu—Change the sound effect

Sound Effects

- **Re-master 1**
- **Re-master 2**

(Discs record at 48 kHz or less)

This feature gives you a more natural sound by adding higher frequency signals not recorded on the track.

- This function is effective when the Digital Audio Output setting is set to "PCM".

Dialogue Enhancer

The volume of the centre channel is raised to make dialogue easier to hear.

Other menu—Change the display position

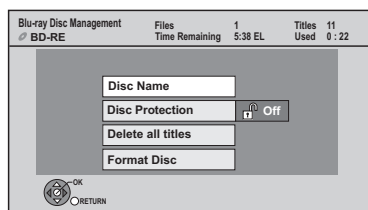
Position

Change where this menu screen appears on your TV.

Disc and card management

BD-RE BD-R RAM -R -R DL -RW(V) +R +R DL +RW
-RW(VR) SD

- 1 While stopped
Press [FUNCTION MENU].
- 2 Select "Others", then press [OK].
- 3 Select "Blu-ray Disc Management",
"DVD Management" or "Card
Management", then press [OK].



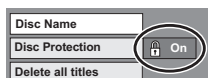
Setting the protection

BD-RE BD-R RAM

After performing steps 1–3 (⇒ above)

- ① Select "Disc Protection", then press [OK].
- ② Select "Yes", then press [OK].

The lock symbol appears
closed when the disc is write-
protected.



Providing a name for a disc

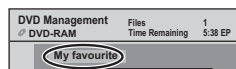
BD-RE BD-R RAM -R -R DL -RW(V) +R +R DL +RW

After performing steps 1–3 (⇒ above)

Select "Disc Name", then press [OK].

(⇒ 69, Entering text)

- The disc name is displayed in the Blu-ray Disc Management/DVD Management window.
- **-R -R DL -RW(V) +R +R DL** With a finalised disc, the name is displayed on the Top Menu.
- **+RW** The disc name is displayed only if you play the disc on other equipment after creating top menu.



- Do not perform this operation when copying HD Video (AVCHD format) to DVD-R or DVD-R DL. (⇒ 49)

Delete all titles

BD-RE BD-R RAM

After performing steps 1–3 (⇒ left)

- ① Select "Delete all titles", then press [OK].
- ② Select "Yes", then press [OK].
- ③ Select "Start", then press [OK].

A message appears when finished.

- ④ Press [OK].



- Still picture data (JPEG) or computer data cannot be deleted.

Format

BD-RE RAM -RW(V) +RW -RW(VR)

BD-R +R +R DL (New disc only)

SD

Formatting deletes all contents (including computer data), and they cannot be restored. Check carefully before proceeding. The contents are deleted when you format a disc or card even if you have set protection.

After performing steps 1–3 (⇒ left)

- ① Select "Format Disc" or "Format Card", then press [OK].
- ② Select "Yes", then press [OK].
- ③ Select "Start", then press [OK].
- ④ Press [OK].

To stop formatting **RAM**

Press [RETURN ↵].

- You can cancel formatting if it takes more than 2 minutes. The disc must be reformatted if you do this.



- Formatting normally takes a few minutes; however, it may take up to a maximum of 70 minutes (**RAM**).
- Do not disconnect the AC mains lead while formatting. This can render the disc or the card unusable.
- When a disc or card has been formatted using this unit, it may not be possible to use it on any other equipment.
- **-RW(V) -RW(VR)** You can format DVD-RW only as DVD-Video format on this unit.

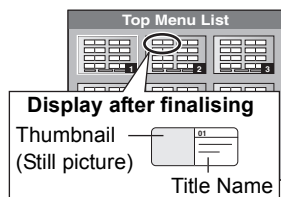
Top Menu

-R -R DL -RW(V) +R +R DL +RW

The background selected here will be displayed as the DVD-Video top menu after finalising or Create Top Menu (**+RW**).

After performing steps 1–3 (⇒ 72)

- ① Select “Top Menu”, then press [OK].
- ② Select the background, then press [OK].



- You can change thumbnails displayed in the top menu. (⇒ 42, Changing thumbnail)

Auto-Play Select

-R -R DL -RW(V) +R +R DL +RW

You can select whether to show the top menu after finalising or creating Top Menu (**+RW**).

After performing steps 1–3 (⇒ 72)

- ① Select “Auto-Play Select”, then press [OK].
- ② Select “Top Menu” or “Title 1”, then press [OK].

Top Menu: The top menu appears first.

Title 1: The disc content is played without displaying the top menu.

Finalise

-R -R DL -RW(V) +R +R DL

You can play these discs on compatible DVD players by finalising it on the unit.

BD-R

Finalising BD-R prevents accidental recording or editing.

After performing steps 1–3 (⇒ 72)

- ① Select “Finalise”, then press [OK].
- ② Select “Yes”, then press [OK].
- ③ Select “Start”, then press [OK].
- ④ Press [OK].

After finalising

- **BD-R -R -R DL +R +R DL** The disc becomes play-only and you can no longer record or edit.
- **-RW(V)** You can record and edit the disc after formatting (⇒ 72).



- You cannot cancel finalising.
- Finalising takes up to 15 minutes.
(**-R DL +R DL** Finalising takes up to 60 minutes.)
- **Do not disconnect the AC mains lead while finalising.** This can render the disc unusable.
- When finalising a high-speed recording compatible disc, it may take longer than displayed on the confirmation screen (approximately four times longer).
- You cannot finalise discs recorded on other manufacturer's equipment.
- **-R -R DL -RW(V) +R +R DL** If you finalise discs recorded on Panasonic equipment other than this unit, the background selected as “Top Menu” may not be displayed.
- Discs finalised on this unit may not be playable on other players due to the condition of the recording.

Create Top Menu

+RW

You can create Top Menu for displaying on other equipment.

Make selections from “Top Menu” and “Auto-Play Select” (⇒ left) before creating top menu.

After performing steps 1–3 (⇒ 72)

- ① Select “Create Top Menu”, then press [OK].
- ② Select “Yes”, then press [OK].
- ③ Select “Start”, then press [OK].
 - Creating Top Menu starts. You cannot cancel creating.
 - Creating Top Menu can take a few minutes.
- ④ Press [OK].



- You cannot use the Top Menu for playing on this unit.
- The created menu is deleted when you record or edit disc.

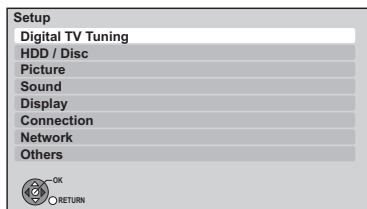
Changing the unit's settings

You can change the unit's settings using Setup menu.

- The settings remain intact even if you switch the unit to standby.

Common procedures

- 1 While stopped**
Press [SETUP].



- 2 Select the menu, then press [OK].**

- 3 Select the item, then press [OK].**

- 4 Select the option, then press [OK].**

- Follow the instruction on the screen if the operation method is different.
- Depending on connection or the status of this unit some items cannot be selected or changed the settings.

About the PIN

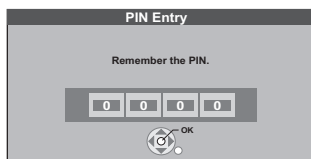
PIN is required to change the following settings. Enter following the instructions on the screen.

- The PIN set here is common for the following items.
 - Child Lock (Parental Rating)
 - BD-Video Parental Control
 - DVD-Video Parental Control
 - Lock (Internet Content Settings)

PIN can be changed via the PIN Entry. (⇒ 82)

- Select the number, then press [▶].
 - You can also use the numbered buttons.
- Press [OK].
- Repeat step ① to enter 4-digit PIN.
- Press [OK] to confirm.

e.g., PIN Entry



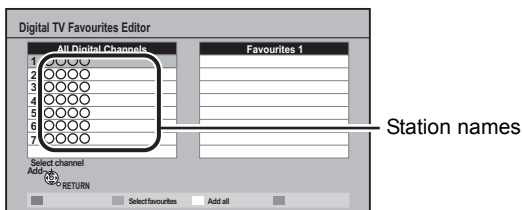
- Make a note of PIN in case you forget it.

Digital TV Tuning

Favourites Edit

You can create four Favourites of channels for viewing and recording easier.

Press the “Green” button to select the Favourites to edit.



To add channels to a Favourites list

- Select the channel in the “All Digital Channels” column, then press [OK].
 - “Green”: Select the “Favourites”.
 - “Yellow”: Add all channels.
- Press [RETURN ↵].
- Press [OK] to save the Favourites.

To change the order of channels

- Select the channel in the “Favourites” column to move, then press the “Green” button.
- Select the new position of the channel, then press the “Green” button.
- Press [RETURN ↵].
- Press [OK] to save the Favourites.

To delete channels in a Favourites list

- Select the channel in the “Favourites” column, then press [OK].
 - Press the “Yellow” button to delete all the channels from the Favourites.
- Press [RETURN ↵].
- Press [OK] to save the Favourites.

To change the name of a Favourites list in the Favourites column

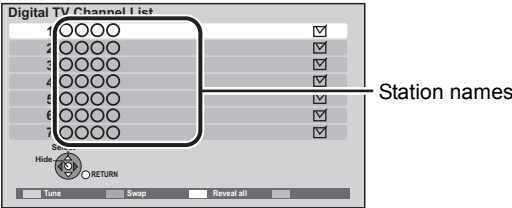
- Press the “Red” button in the “Favourites” column.
- Press [▲, ▼, ◀, ▶] to select a character, then press [OK].

Repeat this step to enter other characters.

 - “Red”: Delete character.
 - “Blue”: Delete all characters.
- Press [RETURN ↵].
- Press [OK] to save the Favourites.

■ Channel List

You can edit the Channel List to change the channel skip setting or channel number assignments.



➤ To skip unwanted channels

- ① Select the channel.
- ② Press [OK].
 - The check mark is removed.
 - "Yellow" : Clear the all skip setting.

➤ To change the channel number assignment

- ① Select the channel in the "Digital TV Channel List", then press the "Green" button.
- ② Enter the channel number you wish to reassign with the numbered buttons.

e.g., 5: [0] ⇒ [0] ⇒ [5]
 15: [0] ⇒ [1] ⇒ [5]
 115: [1] ⇒ [1] ⇒ [5]
- ③ Press [OK].
 - If another channel is already assigned to the channel number you wish to use, the two channels will be switched.

➤ To set the channel manually

Press the "Red" button.
"Digital TV Manual Tuning" screen appears. (⇒ right)



- When channel numbers are added using "Update Channel List" (⇒ right) or "Manual Tuning" (⇒ right), numbers from 800ch will be assigned to the added channels.

■ Auto Setup

■ Download from TV

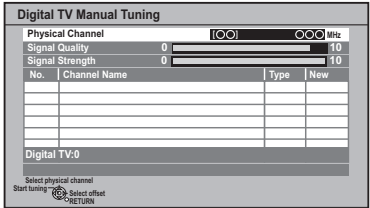
You can restart auto channel setting if set up (⇒ 18) fails for some reason.

Select "Download from TV" when you connect the unit to a VIERA Link (HDAVI Control 3) compatible TV with an HDMI cable.

Select "Yes", then press [OK].

■ Manual Tuning

You can set each channel manually that the Auto Setup could not complete successfully.



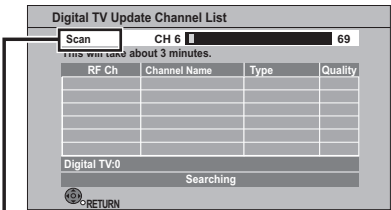
- ① Select the channel.
- ② Adjust the frequency.
 - Adjust the frequency by checking the signal strength and signal quality displays.
- ③ Press [OK] to start scan.

The set channel is displayed in the table.

■ Update Channel List

You can update the terrestrial digital channels to the latest one.

- The unit starts updating the terrestrial digital channels. This takes about 3 minutes.



"Finished" is displayed when the search is finished.
Press [RETURN ↵] to save the newly found channels.

Changing the unit's settings

■ Child Lock (Parental Rating)

You can restrict the viewing and recording of channels unsuitable to children.

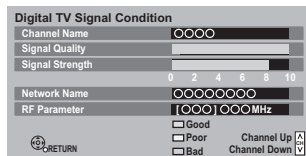
Set a ratings level to limit broadcast viewing and playback.

- Follow the on-screen instructions.
- PIN is required to change. (⇒ 74)

■ Signal Condition

You can check the quality and strength of signals.

Press [∧ ∨ CH] to select the channel.



Signal Quality

Red bar: The signal quality is bad.

Orange bar: The signal quality is poor.

Green bar: The signal quality is good.

Signal Strength

"0": Signal strength is 0%,

"10": Signal strength is 100%.

- When the signal is too strong (red bar), reduce the signal amplification at your aerial.

■ New Channel Message

When a new DVB channel is added, this unit will be informed automatically.

HDD / Disc

■ Settings for Playback

➤ Soundtrack

Choose the language for audio.

- If "Original" is selected, the original language of each disc will be selected.
- Enter a code with the numbered buttons when you select "Other ****". (⇒ 83, Language code list)

➤ Subtitles

Choose the language for subtitle.

- If "Automatic" is selected and the language selected for "Soundtrack" is not available, subtitles of that language will automatically appear if available on that disc.
- Enter a code with the numbered buttons when you select "Other ****". (⇒ 83, Language code list)

➤ Menu

Choose the language for disc menus.

- Enter a code with the numbered buttons when you select "Other ****". (⇒ 83, Language code list)

➤ Play Video (AVCHD) on BD-RE / BD-R

Set when you are playing a disc that has High Definition video (AVCHD) recorded by the Panasonic's video camera, etc. and High Definition quality title that was recorded on this unit.

On	Playback High Definition video (AVCHD)
Off	Playback High Definition quality title

➤ BD-Live

You can restrict Internet access when BD-Live functions are used.

- If "On (Limit)" is selected, Internet access is permitted only for BD-Live contents which have content owner certificates.

➤ BD-Video Parental Control

Set an age limit of BD-Video play.

- Follow the on-screen instructions.
- PIN is required to change. (⇒ 74)

➤ DVD-Video Parental Control

Set a ratings level to limit DVD-Video play.

- Follow the on-screen instructions.
- PIN is required to change. (⇒ 74)

■ Settings for Recording

➤ Recording time in EP mode

Select the maximum number of hours for recording in EP mode (⇒ 101, Recording modes and approximate recording times).

- When recording to DVD-RAM using "8 hours" mode, it may not be possible to play on DVD players.

➤ Aspect for Recording

Sets the aspect ratio when recording or copying in HG, HX, HE, HL, HM, XP, SP, LP, EP, FR mode.

- If "Automatic" is selected, the title will be recorded with the original aspect ratio at the time when recording started (including when recording started at a commercial, etc.).
- In the following cases, the programme will be recorded with the original aspect ratio.
 - **BD-RE** **BD-R** When the recording mode is set to "XP", "SP", "LP", "EP" or "FR"
 - **HDD** **RAM** When the recording mode is set to "XP", "SP", "LP", "EP" or "FR" with the "Rec for High Speed Copy" set to "Off"
- In the following cases, even when set to "Automatic" or "16:9", recordings will be made or copied in 4:3.
 - **-R** **-R DL** **-RW(V)** When the recording mode is set to "EP" or "FR (recordings 5 hours or longer)" mode.
 - When recording to a +R, +R DL and +RW.

➤ Rec for High Speed Copy

You can copy titles recorded in XP, SP, LP, EP or FR mode from the HDD to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW using high speed mode.

We recommend turning the setting "Off" if high speed copy to DVD-R, etc. is not necessary when recording a programme.

This setting is valid for the following cases:

- Recording from an external equipment (including DV equipment)
- Copying from a finalised DVD-Video disc.
- The following restrictions are applied to recorded titles.
 - Recordings are made using the aspect ratio set in "Aspect for Recording" (⇒ above).
 - Select the type of audio in advance from "Bilingual Audio Selection" (⇒ 78).
 - You are no longer able to switch the audio when watching a programme on an input channel on the TV connected to this unit.

➤ BD / DVD Speed for High Speed Copy

Select the speed of high-speed copying.

If "Normal (Silent)" is selected, the time required for copying will double (approximately).

➤ Timer Record Start Buffer

This function sets the timer recording to start earlier than the TV Guide time.

➤ Timer Record Stop Buffer

This function sets the timer recording to stop later than the TV Guide time.

■ HDD Management

Press and hold [OK] for 3 seconds to show the following settings.

➤ Delete all titles

Delete does not work if one or more titles are protected.

➤ Format HDD

Formatting deletes all contents, and they cannot be restored. Check carefully before proceeding.

Changing the unit's settings

Picture

■ Still Mode

Select the type of picture shown when you pause play (⇒ 107, Frames and fields).

Automatic	
Field	Select if jittering occurs when "Automatic" is selected. (The picture is coarser.)
Frame	Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected. (The picture is clearer and finer.)

■ Seamless Play

Select the play mode between playlist chapter segments and partially deleted titles.

- If you set "On" the chapters in playlists are played seamlessly. This does not work when there are several audio types included on the playlist and when using Quick View (PLAY×1.3).

■ NTSC Video Output

Select how the NTSC image is output.

Sound

■ Dynamic Range Compression

BD-V **DVD-V**

Change the dynamic range for late night viewing.

■ Downmix

Select the downmix system of multi-channel to 2-channels sound.

- Select "Surround encoded", when the connected equipment supports the virtual surround function.
- There is no effect on "Bitstream" via HDMI AV OUT and DIGITAL AUDIO OUT.
- The audio will be output in "Stereo" in the following cases.
 - AVCHD playback
 - **BD-V**: Playback of clicking sound on the menu and audio with secondary video in picture-in-picture mode

■ Bilingual Audio Selection

(Only when recording from DV input)

Select whether to record the main or secondary audio type when:

- Copying to a DVD-R, DVD-RW (DVD-Video format), +R and +RW.
- "Rec for High Speed Copy" is enabled. (⇒ 77)
- Recording sound in LPCM (⇒ 79, Audio Type for XP Recording).
- When recording from the unit's DV terminal, select the type of audio recording from "Audio Type for DV Input" (⇒ 79).

■ Digital Audio Output

➤ PCM Down Conversion

- Select how to output audio with a sampling frequency of 96 kHz.
- It will be converted to 48 kHz regardless of the setting in following cases.
 - The signals have a sampling frequency of over 96 kHz.
 - The disc has copy protection.
 - “BD-Video Secondary Audio” is set to “On”. (BD-V)
 - If “Off” is selected, signals are output as 96 kHz
 - If “On” is selected, signals are converted to 48 kHz. (Choose when the connected equipment cannot process signals with a sampling frequency of 96 kHz.)

➤ Dolby D / Dolby D + / Dolby TrueHD

➤ DTS / DTS-HD

➤ MPEG

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

(BD-V with secondary audio)

Turn on/off the clicking sound on the menu and audio with secondary video.

If “Off” is selected, the primary audio only is output.

■ Audio Type for XP Recording

Choose the audio type when recording or copying with XP mode.

- The picture quality of LPCM recordings may be lower than that of normal XP mode recordings.
- The audio recording becomes Dolby Digital even if you selected LPCM when using a recording mode other than XP.

■ Audio Type for DV Input

You can select the kind of audio when recording from the unit’s DV input terminal (⇒ 60).

- If “Mix” is selected, both Stereo 1 and Stereo 2 are recorded.
- When recording bilingual broadcast, select the type of audio in advance from “Bilingual Audio Selection” (⇒ 78).

■ Audio Type for Digital Broadcast

If programme has both Dolby Digital and MPEG audio tracks, priority is given to what you select.

- This setting will give effect in the following conditions.
 - When recorded in HG, HX, HE, HL, HM, XP, SP, LP, EP or FR mode.
 - DR File Conversion (⇒ 43)
 - Normal speed copy from the title recorded in DR mode. (⇒ 45, 47)

Dolby Digital	Apart from stereo (2ch) audio, these signals can also be multi-channel audio.
MPEG	An audio compression method that compresses audio to small size without any considerable loss of audio quality.

■ Audio for HG / HX / HE / HL / HM Recording

If programme has multi channel audio, priority is given to what you select.

- This setting will give effect in the following conditions.
 - Selected audio is recorded when recorded in HG, HX, HE, HL or HM mode.
 - Convert to HG, HX, HE, HL or HM mode in “DR File Conversion” (⇒ 43)
 - Normal speed copy in HG, HX, HE, HL or HM mode from a title recorded in DR mode. (⇒ 45, 47)

Changing the unit's settings

Display

■ On-Screen Information

Choose the approximate time until the digital channel information screen (⇒ 21) disappears automatically.

■ Unit's Display

Changes the brightness of the unit's display.

- If "Automatic" is selected the display turns dark during play and disappears when the unit is turned off. It reappears momentarily if a button is pressed. While using this mode, the standby power consumption can be reduced.

■ Screen Saver

This is to prevent burn-in on the screen.

- When this is set to "On", the masked-off area on the screen becomes grey.

Depending on the condition of the unit (Connection, Setting) the masked-off area on the screen becomes grey.

■ Teletext

Select the Teletext display mode. (⇒ 21)

■ Blue LED

Set the lighting method for the lamp on the SD card slot.

- If "SD inserted" is selected, when this unit is turned on and SD card is inserted, the lamp is lighted.

Connection

Depending on the connected equipment, some items may be shaded in grey on the display and cannot be selected, or you may not be able to change the settings.

■ TV Aspect

Set to match the type of television connected.

Pan & Scan: Side picture is trimmed for 16:9 picture. The pictures may be shown in the letterbox style depending on the content.	
Letterbox: Black bands appear for 16:9 picture.	

■ Aspect for 4:3 Video

To play a 4:3 title, set how to show pictures on a 16:9 widescreen television.

■ TV System

Set in accordance with the TV System for the connected TV.

■ HDMI Connection

➤ HDMI Video Mode

Select "On" when video is output from HDMI AV OUT terminal. Select "Off" for all other conditions.

➤ HDMI Video Format

You can only select items compatible with the connected equipment.

- If "Automatic" is selected, the output resolution best suited to the connected television (1080p, 1080i, 720p or 576p/480p) is automatically selected.
- To enjoy High Quality Video up-converted to 1080p, you need to connect the unit directly to 1080p compatible HDTV. If this unit is connected to an HDTV through other equipment, it must also be 1080p compatible.

➤ 24p Output

When playing BD-Video recorded in 24 frames, this unit displays each frame at 1/24 second intervals—the same interval originally shot with the film movie.

- This item is effective only when this unit is connected to a TV supporting 1080/24p output using an HDMI cable and "HDMI Video Format" is set to "Automatic" or "1080p".
- When BD-Video images other than 24p are played, images are output at 60p.

➤ Deep Colour Output

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

➤ HDMI Audio Output

Select "Off" when connected to TV with HDMI cable, and connected to amplifiers not compatible with HDMI with a DIGITAL AUDIO OUT terminal

➤ 7.1ch Audio Reformatting

BD-V

Surround sound with 6.1 ch or less is automatically expanded and played back at 7.1 ch.

- If "Off" is selected, sound is played over the original number of channels. (Note that in the case of 6.1 ch audio, playback will be at 5.1 ch)

Audio reformatting is enabled in the following cases:

- When you have selected "PCM" in "Digital Audio Output".
- When the audio is Dolby Digital, Dolby Digital Plus, Dolby TrueHD or LPCM.

➤ Contents Type Flag

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

➤ 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".

■ Component Resolution

This sets the video output resolution when using the component video terminal.

- You cannot change the setting while the "HDMI Video Mode" is set to "On".
Set the "HDMI Video Mode" to "Off".
- If it is set to "720p", images other than "720p" will be output as "1080i".
- Even if you select "720p" or "1080i", the video output resolution is restricted to "576p/480p" when HD contents recorded on this unit, DVD-Video discs, DivX and BD-Video discs recorded at a rate of 50 field per second and images via AV1, AV2 or DV input are output from the COMPONENT VIDEO OUT terminals.

Network

■ Network Easy Settings

Press [OK] to start Network Easy Settings. (⇒ 19)

■ Network Settings

➤ IP Address / DNS Settings

Check the connection of the network or set the IP address and DNS.

- Press [OK] to show the respective setting.



- "Connection Speed Setting" is enabled only when "Connection Speed Auto-configure" is turned "Off".

➤ Proxy Server Settings

Check and set the connection to the Proxy server.

- Press [OK] to show the respective setting.

➤ Internet Content Settings

➤ Lock

You can restrict using VIERA CAST.

- Follow the on-screen instructions.
- PIN is required to change. (⇒ 74)

➤ Automatic Volume Control

Volume that is different depending on the contents is adjusted automatically to the standard volume while using the VIERA CAST.

- Depending on contents, this function will not work.
- Select "Off" when the audio is warped.

➤ Home Network (DLNA) Settings

You will be able to access this unit from Panasonic DLNA compatible equipment on the network by registering them to this unit. (⇒ 66)

It is also possible to change the name of this unit on the network.

➤ Server (DLNA) Settings

By allowing access from non-Panasonic DLNA compatible equipment on the network, it allows them to access this unit. (⇒ 66)

Others

■ Standby Settings

➤ Power Save in Standby

On	It will go into the Power Save in Standby mode.
On Timer	"Power Save in Standby" is activated when the set time comes.
Off	It is possible to start quickly from the standby mode. (Quick Start mode)

- If the clock has not been set, "Power Save in Standby" is activated at all hours.
- This function cannot be enabled when the DLNA function is enabled in "Home Network (DLNA) Settings" or "Server (DLNA) Settings". (⇒ 81)

➤ Automatic Standby

Set the time to automatically turn the unit off. After the unit has finished operating, the unit will be turned off once the set time has passed.

➤ Automatic Standby after OTR

If "On" is selected, this unit is turned to standby mode when this unit is not operated for approximately 5 minutes after completing One Touch Recording (⇒ 26).

➤ Automatic Standby after Copy

If "On" is selected, this unit is turned to standby mode when this unit is not operated for approximately 5 minutes after completing copy (⇒ 45).

■ Remote Control

Change the remote control code on the main unit and the remote control if you place other Panasonic products close together.

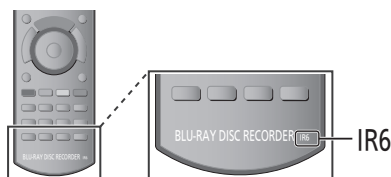
- Use "BD 1", the factory set code, under normal circumstances.

① Select the code, then press [OK].

To change the code on the remote control

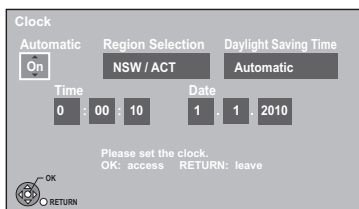
- ② While pressing [OK], press and hold the numbered button ([1] to [6]) for more than 5 seconds.
- ③ Press and hold [OK] for more than 5 seconds.
- ④ Press [OK].

- Operation is possible only with Panasonic remote controls with "IR6" printed at the bottom when the remote control code of this unit is set to "BD 4", "BD 5" or "BD 6".



■ Clock

If the time is not set correctly, use the settings listed in the method below.



● Automatic

This unit usually obtains time and date information from digital broadcasts. But, if the time is not set correctly, set it to "Off" and perform "Manual Setting".

● Region Selection

Select the region where you live to adjust the standard time.

- The time contained in the broadcast signal is UTC (Universal time, coordinated).

● Daylight Saving Time

Select time offset from the standard time for Summer Time.

- If there is a gap between displayed time and actual time, set this function.

● Manual Setting

- ① Select "Off" of "Automatic", then press [OK].
- ② Select the item you want to change.
- ③ Change the setting.
- ④ Press [OK] when you have finished the settings.

■ PIN Entry

You can set/change the PIN. (⇒ 74)

■ System Update (⇒ 84)

➤ Software Update in Standby

When you set this unit to standby mode, software (firmware) updates are downloaded automatically at the time you have specified.

➤ Software Licence

Information about the software licence is displayed.

■ System Information

Display software (firmware) version of this unit.

■ DivX Registration

You need this registration code to purchase and play DivX Video-on-Demand (VOD) content (⇒ 39).

■ Initialize

➤ Shipping Condition

All the settings except for basic settings return to the factory preset. The timer recording programmes are also cancelled.

➤ Default Settings

All the settings other than the tuning settings, clock settings, disc language settings, ratings level, ratings PIN, remote control code, network settings etc. return to the factory presets.

Language code list

Enter the code with the numbered buttons.

Abkhazian:	6566	Gujarati:	7185	Rhaeto-Romance:	
Afar:	6565	Hausa:	7265	Romanian:	8277
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		

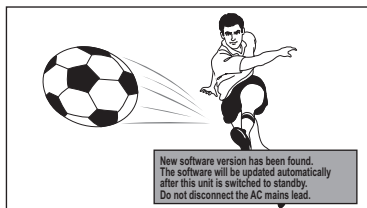
Software (Firmware) Update

Software of this unit can be updated automatically by following method in standby mode at the specified time (Default setting is 3 a.m. ⇒ 83, Software Update in Standby)

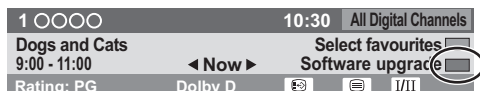
- From broadcasts
- From Internet [network connection and setting is required. (⇒ 13, 19)]
- The time it takes to update depends on the connection.
 - For Broadcast: About 2 to 4 hours
 - For Internet: About 1 hour

The download time differs depending on the network environment.

■ If a software (firmware) update is available, a notification is displayed.



- It is displayed on the Digital channel information (⇒ 21) when the Software (Firmware) can be updated immediately.



To execute, push the “Red” button while the digital channel information is displayed, and follow the instructions on the screen.

- Update of the software (firmware) will start when the power is turned off.

■ The unit's display during the update

e.g.,



- When “FINISH” is displayed, update of the software (firmware) has completed.

You cannot operate the unit until the update is complete. Removing the AC mains lead while the update is in progress may damage the unit. Don't remove the AC mains lead during the update.



- If the timer recording is scheduled within the following time at the start of the download, the download will not be executed.
 - For broadcast: Within 4 hours
 - For Internet: Within 1 hour
- You can also download the latest software (firmware) from the following website and burn it to a CD-R to update the software (firmware).
<http://panasonic.jp/support/global/cs/>
- If you do not want to perform the software (firmware) update, set the “Software Update in Standby” in the Setup menu to “Off”. (⇒ 83)

Other Settings

Switch the aspect ratio of the screen

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.

- 1 Press [OPTION].
- 2 Select “Aspect”, then press [OK].
- 3 Select the item.

Normal:	Normal output
Side cut:	The black bars on the right and left sides of the 16:9 image disappear and the image is enlarged.
Zoom:	The black bars on the top and bottom sides of the 4:3 image disappear and the image is enlarged.

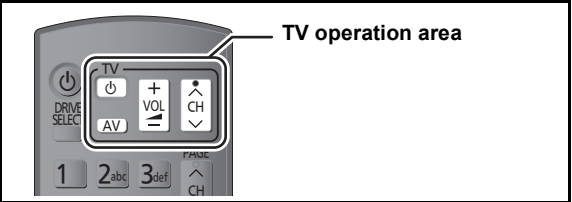
- 4 Press [OK].



- It may also be adjusted using the screen mode of the TV etc.
- The screen mode is switched to “Normal” in the following situations:
 - when you change channel
 - when you start or end the playback of a title
 - when the unit is turned off or on.
- **BD-V DVD-V** “Side cut” does not have any effect.
- When “TV Aspect” (⇒ 80) is set to “Pan & Scan” or “Letterbox”, the “Zoom” effect is disabled.

Television operation

Once set, TV can be operated from the TV operation area of the remote control.



- 1 Point the remote control at the television
While pressing [TV], enter the code (⇒ right) with the numbered buttons.
- 2 Test by turning on the television and changing channels.
 - Repeat the procedure until you find the code that allows correct operation.
 - If your television brand is not listed or if the code listed for your television does not allow control of your television, this remote control is not compatible with your television.



- If your television brand has more than one code listed, select the one that allows correct operation.

Manufacturer and Code No.

Brand	Code	Brand	Code
Panasonic	01/02/03/04	NEC	36
AIWA	35	NOBLEX	33
AKAI	27/30	NOKIA	25/26/27/60/61
BEKO	05/71/72/73/74	NORDMENDE	10
BENQ	58/59	OLEVIA	45
BRANDT	10/15	ONWA	30/39/70
BUSH	05	ORION	05
CENTREX	66	PEONY	49/69
CURTIS	05	PHILCO	41/48/64
DAEWOO	64/65	PHILIPS	05/06/46
DESMET	05	PHONOLA	05
DUAL	05	PIONEER	37/38
ELEMIS	05	PROVIEW	52
FERGUSON	10/34	PYE	05
FINLUX	61	RADIOLA	05
FISHER	21	SABA	10
FUJITSU	53	SALORA	26
FUNAI	63/67	SAMSUNG	32/42/43/65/68
GOLDSTAR	05/50/51	SANSUI	05
GOODMANS	05	SANYO	21/54/55/56
GRADIENTE	36	SCHNEIDER	05/29/30
GRUNDIG	09	SEG	05/69/75/76/77/78
HITACHI	05/22/23/40/41	SELECO	05/25
IRRADIO	30	SHARP	18
ITT	25	SIEMENS	09
JVC	17/30/39/70	SINUDYNE	05
KDS	52	SONY	08
KOLIN	45	TCL	31/33/66/67/69
KONKA	62	TELEFUNKEN	10/11/12/13/14
LG	05/50/51	TEVION	52
LOEWE	07/46	THOMSON	10/15/44
MAG	52	TOSHIBA	16/57
METZ	05/28	WHITE	05
MITSUBISHI	05/19/20/47	WESTINGHOUSE	
MIVAR	24	YAMAHA	18/41

Convenient functions

HOLD function

The HOLD function deactivates all buttons on the unit and remote control.

- Press and hold [OK] and [RETURN ↵] simultaneously until “X HOLD” appears on the unit’s display.



- To cancel the HOLD function
Press and hold [OK] and [RETURN ↵] simultaneously until “X HOLD” disappears.

Messages on the unit's display

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

BD □

("□" stands for a number.)

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



- ① Press and hold [OK] and the indicated number button at the same time for more than 5 seconds. (⇒ 82)
- ② Press and hold [OK] for more than 5 seconds.

GUIDE

- TV Guide data is being downloaded. (⇒ 22)

FINISH

- The software (firmware) update is complete. (⇒ 84)

HARD ERR

- If there is no change after turning the unit on and off, consult the dealer where the unit was purchased.

NoERAS

- You cannot delete items on this disc.
The disc may be damaged. Use a new disc.

NoREAD

- The disc is dirty or badly scratched. The unit cannot record, play, or edit. (⇒ 3)
- This message may appear when the lens cleaner has finished cleaning.
Press [▲ OPEN/CLOSE] on the main unit to eject the disc. (⇒ 16)

NoWRIT

- You cannot write to this disc.
The disc may be damaged. Use a new disc.

PLEASE WAIT

- Displayed when the unit is started and turned off.
- There was a power failure or the AC plug was disconnected while the unit was on. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears.

PROG FULL

- There are already 32 timer programmes. Delete unnecessary timer programmes. (⇒ 31)

REMOVE

- The USB device is drawing too much power. Remove the USB device.

START

- Update of the software (firmware) is started.
You cannot operate the unit until the update is complete. (⇒ 84)

SW-DL

- Software (firmware) is downloading.
Download will stop when the power is turned on, or the timer recording starts. (⇒ 84)

UNSUPPORT

- You have inserted a disc the unit cannot play or record on. (⇒ 6)
You tried to operate with a non-compatible USB memory.

UPD □/□

("□" stands for a number.)

- The software (firmware) is being updated.
You cannot operate the unit until the update is complete. (⇒ 84)

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 cooling fan on the rear of the unit.

U61

- (When a disc is not inserted) Displays when a malfunction has occurred. This is displayed when the unit is in the recovery process to return to normal operation. Once the display clears you can use the unit again.
If it remains displayed, consult the dealer where the unit was purchased.

U72

U73

- The HDMI connection acts unusually.
 - The connected equipment is not HDMI compatible.
 - Please use HDMI cables that have the HDMI logo (as shown on the cover).
 - The HDMI cable is damaged.
-

U76

- HDMI cannot be output because you are connected to a model that does not support copyright protection.
-

U77

- Due to the current disc not having authorised copyright information, video output is not performed.
-

U88

- (When a disc is inserted) Displays when there was something unusual detected with the disc while recording, playback or copy. This is displayed when the unit is in the recovery process to return to normal operation. Once the display clears you can use the unit again. (⇒ 88)
If it remains displayed, consult the dealer where the unit was purchased.
-

U99

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

H□□ or F□□

("□" stands for a number.)

- There is something unusual. (The service number displayed after H and F depends on the unit's condition.)
 - Check the unit using the troubleshooting guide. If the service number does not disappear, do the following.
(⇒ 88–93)
 1. Disconnect the plug from the household mains socket, wait a few seconds, then reconnect it.
 2. Press [⏻/I] to turn the power on. (The unit may be fixed.)If the service number does not disappear despite after doing the above, request service from the dealer. Inform the dealer of the service number when requesting service.
-

X HOLD

- The HOLD function is activated.
Press and hold [OK] and [RETURN ↵] at the same time until "X HOLD" disappears. (⇒ 85)

Troubleshooting guide

Before requesting service, make the following checks. If you are in doubt about some of the check points, or if the solutions indicated in the chart do not solve the problem, consult your dealer for instructions.

Updating to the latest software (firmware) may solve the problem. (⇒ 84)

The following do not indicate a problem with this unit:

- Regular disc rotating sounds or louder rotating sounds when recording or high speed copying.
- Poor reception due to atmospheric conditions.
- Image disturbance during search.
- Interruptions in reception due to periodic terrestrial broadcasting breaks.
- When the unit is turned on or off, there may be an unexpected sound. This does not indicate a problem with this unit.

■ The unit doesn't work.

One of the unit's safety devices may have been activated.

Reset the unit as follows:

- ① Press [⏻/I] on the main unit to switch the unit to standby.
 - If the unit doesn't switch to standby, press [⏻/I] on the main unit for about 3 seconds. The unit is forcibly switched to standby.

Alternatively, disconnect the AC mains lead, wait one minute, then reconnect it.
- ② Press [⏻/I] on the main unit to switch it on. If the unit still cannot be operated, consult the dealer.

■ Cannot eject disc.

The unit may have a problem. While the unit is off, press and hold [■] and [CH ^] on the main unit at the same time for about 5 seconds.

Power

The power is turned off automatically.

- If you connected this unit to a "HDAVI Control" compatible TV with an HDMI cable, this unit will be automatically set to standby mode when the TV is set to standby mode.

Displays

The display is dim.

- Change "Unit's Display" in the Setup menu. (⇒ 80)

"0:00" is flashing on the unit's display.

- Set the clock. (⇒ 82)

The time recorded on the disc and the available time shown do not add up.

- **BD-R -R -R DL +R +R DL** The remaining capacity does not increase even if titles are deleted.
- Available recording space on DVD-RW (DVD-Video format) or +RW increases only when the last recorded title is deleted. It does not increase if other titles are deleted.
- If you record or edit about 200 times or more, the remaining capacity of DVD-R, DVD-R DL, +R, and +R DL is reduced and then recording or editing may be disabled (for the second layer on DVD-R DL and +R DL, this happens after about 60 times).
- While searching, the elapsed time may not display correctly.

Compared to the actual recorded time, the elapsed time displayed is less. (Only when recording in NTSC)

- The displayed recording/play time is converted from the number of frames at 29.97 frames (equal to 0.999 seconds) to one second. There will be a slight difference between the time displayed and the actual elapsed time (e.g., actual one-hour elapsed time may display as approximately 59 minutes 56 seconds). This does not affect the recording.

The clock does not display on the unit when switched to standby.

- The clock does not display when "Power Save in Standby" is activated. Ensure "Power Save in Standby" is set to "Off". (⇒ 82)

Available disc space display is showing different from what was used

- Available disc space display may be different from actual. Varying may be large especially when recorded in DR mode.

TV screen and video

Screen size is wrong.

- Use the television to change the aspect. If your television does not have that function, set "HDMI Video Mode" in the Setup menu to "Off" (⇒ 80) and "Component Resolution" to "576i/480i". (⇒ 81)
- Check the following setting in the Setup menu.
 - "TV Aspect" (⇒ 80), "Aspect for 4:3 Video" (⇒ 80)
- Check "Aspect for Recording" before recording or file conversion. (⇒ 77)
- If you connect an HDMI cable, set "Aspect for 4:3 Video" in the Setup menu to "16:9". (⇒ 80)

It may be possible to adjust the display mode on the TV. Refer to your television's operating instructions.

Pictures do not appear with the HD quality although HD setting was made.

- The pictures are output with 576p/480p depending on the programme.

The screen changes automatically.

- If there is no operation for 5 minutes or more, the displayed screen switches to the other states automatically. (only when the "Screen Saver" in Setup menu is set to "On".) (⇒ 80)

The recorded title is stretched vertically.

- It may have been recorded with 4:3 aspect ratio. You will be able to view in 16:9 aspect ratio by setting the "Aspect for 4:3 Video" in Setup menu to "4:3". (⇒ 80)
 - If the 16:9 aspect ratio image is output to a 4:3 TV connected with the COMPONENT VIDEO OUT terminal or the HDMI AV OUT terminal, it will be stretched vertically. Adjust by the aspect ratio setting on the TV. If you cannot make the adjustment, set the "Component Resolution" in the Setup menu to "576p/480p" and "HDMI Video Format" to "576p/480p". (⇒ 80, 81)
 - 16:9 aspect programmes are recorded in 4:3 aspect in the following cases.
 - **[R] [R DL] [RW(V)]** If you recorded or copied using "EP" or "FR (recordings 5 hours or longer)" recording mode.
 - If you recorded or copied to a +R, +R DL or +RW.
 - If you recorded with the "Aspect for Recording" (⇒ 77) set to "4:3" in the Setup menu.
- When you want to record 16:9 programme in the same aspect, set "Rec for High Speed Copy" (⇒ 77) to "On", and set the "Aspect for Recording" (⇒ 77) to "16:9".
- It may be possible to adjust the display mode on the TV. Refer to your television's operating instructions.

There is a lot of after-image when playing video.

- Set "HD optimizer" in the Picture menu to "Off". (⇒ 71)

The images from this unit do not appear on the television.

- Check the connection and the television's input settings.
- When the connected television is not progressive compatible, press and hold **[■]** and **[▶]** (PLAY/× 1.3) on the main unit at the same time for more than 5 seconds. The output will be changed to interlace.
- The unit's "TV System" setting differs from the TV system used by the disc now playing. While stopped, keep pressing **[■]** and **[▲ OPEN/CLOSE]** on the main unit for 5 or more seconds. The system switches from PAL to NTSC or vice versa. (⇒ 80)
- Picture may not be seen when more than 4 devices are connected with HDMI cables. Reduce the number of connected devices.

The picture is distorted during play, or video will not play correctly.

- The picture may be distorted or a black screen may appear between scenes recorded with different aspect ratios.
- DVD-R DL (Dual Layer, single-sided) and +R DL (Double Layer, single-sided) discs have two writable layers on one side. Video and audio may momentarily cut out when the unit is switching layers.

Sound

No sound.

Distorted sound.

- Check the connections or amplifier's settings. (⇒ 12, 13, 14, 15)
- Press **[AUDIO]** to select the audio. (⇒ 36)
- To output audio from a device connected with an HDMI cable, set "HDMI Audio Output" to "On" in the Setup menu. (⇒ 81)

Cannot switch audio.

- You cannot switch the audio if "Digital Audio Output" is set to "Bitstream" (⇒ 79)

Operation

The remote control doesn't work.

- The remote control and main unit are using different codes. Change the code on the remote control. (⇒ 82)



- ① **Press and hold [OK] and the indicated number button at the same time for more than 5 seconds.**
- ② **Press and hold [OK] for more than 5 seconds.**

- Software (firmware) is updating when "UPD □/□" is displaying on the unit's display. Wait until the update is completed. (⇒ 84)
- The HOLD function is activated. (⇒ 85)

The unit is on but cannot be operated.

- Drive has not been selected properly.

Cannot tune channels.

Cannot download channel presets from the television.

- Check the connections.
- You must connect to a VIERA Link (HDAVI Control 3 or later) compatible TV with a HDMI cable to download channel presets. (⇒ 12)

Startup is slow.

- Startup takes time in the following situations:
 - A disc is inserted.
 - The clock is not set.
 - Immediately after a power failure or the AC mains lead is connected.
 - When the unit is connected with an HDMI cable.
 - When the BD-J (⇒ 106) application is executing.

Recording, timer recording and copying

Cannot record.

Cannot copy.

- Some broadcasts are copyright protected.
- You can not record to the disc by pressing the [● REC] or timer recording.
- The disc is protected with DVD Management or Blu-ray Disc Management. (⇒ 72)
- **-R -R DL -RW(V) +R +R DL +RW** Since it will copy to HDD temporarily, copying is not possible if there is insufficient available capacity on the HDD. Delete unnecessary titles on the HDD (⇒ 40)
- You cannot record and copy on finalised discs.
- **-R -R DL -RW(V) +R +R DL +RW** Recording or editing may not be possible on these discs after ejecting and loading the disc or turning the power on/off for approximately 30 times after being recorded to.
- Discs recorded on equipment other than this unit may not be able to be recorded to.
- This unit cannot record/copy NTSC signals to discs that already have PAL signal recordings. Play of discs recorded with both PAL and NTSC on another unit is not guaranteed.

Cannot record from external equipment.

- Check that the connection and input channel is correct. (⇒ 13, 60)

Cannot record 2 programmes simultaneously.

- There are conditions that 2 programmes simultaneous recording is possible. (⇒ 25)

Timer recording does not work properly.

- Refer to "Notes on timer recording" (⇒ 30)

A part or whole of a recorded title has been lost.

- If there is a power failure or the AC mains lead is disconnected from the household mains socket while recording or editing, the title may be lost or the HDD/disc may become unusable. We cannot offer any guarantee regarding lost programmes or discs. (⇒ 72, 77)

An unusually loud sound is coming from the rotating disc.

- If you want copy to perform more quietly, select "Normal (Silent)" in "BD/DVD Speed for High Speed Copy" in the Setup menu. (⇒ 77)

The DV automatic recording function does not work.

- If images cannot be recorded or if the recording is aborted, check the connections and DV equipment settings. (⇒ 60)
- You cannot start recording until the images from the DV equipment appear on the television.
- Depending on the equipment, the DV automatic recording may not operate properly.

Play

Cannot playback.

- The disc is dirty, scratched or marked. (⇒ 3)
- You tried to play a +RW that needs to have a top menu on the equipment used for recording.
- You cannot playback while executing the "Flexible Recording via AV input" or when recording from the DV input.
- **BD-R** **BD-RE**
Set "Play Video (AVCHD) on BD-RE / BD-R" to "On" and the playback may be possible.

Audio and video momentarily pause.

- **-R DL** **+R DL** When playing a title recorded on both layers, the unit automatically switches between layers and plays the title in the same way as a normal programme. However, video and audio may momentarily cut out when the unit is switching layers.

BD-Video or DVD-Video is not played.

- You have set a ratings level. (⇒ 76)
- Ensure the disc is for the correct BD-Video region code or DVD-Video region number, and is not defective. (⇒ 8)
- **BD-V** You cannot playback while recording from external equipment.

Cannot playback BD-Live

- Playback of BD-Live is required for Internet access and SD card.

You have forgotten your ratings PIN. You want to cancel the ratings level.

- The ratings level returns to the factory preset. While the disc tray is open, press [DRIVE SELECT] to select the BD drive, then press and hold [● REC] and [▶] (PLAY/ ×1.3) on the main unit at the same time for 5 or more seconds ("INIT" will appear on the unit's display).

Image for the Quick View is not smooth.

- Image may not be played back smoothly in case of DR, HG, HX, HE, HL, HM mode titles, AVCHD format titles or BD-Video.
- This function does not work when recording is in XP or FR mode.

The resume play function does not work.

- Memorized positions are cancelled when
 - open the disc tray.
 - **CD** **SD** **USB** turn off the power.
(**HDD** will not be cancelled)
- This function does not work for some BD-Video disc that contains BD-J.

Cannot play the disc on other players.

- **BD-RE** **BD-R** Titles may not playback on other Blu-ray Disc player.
- **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** The disc must be finalised or created top menu after recording or copying (⇒ 73).
- **-R** **-R DL** The disc created in AVCHD format can only be played back on AVCHD compatible equipment.

Edit

The available recording time doesn't increase even after deleting titles on the disc.

- Available space on BD-R, DVD-R, DVD-R DL, +R, or +R DL does not increase even after deleting titles.
- Available space on DVD-RW (DVD-Video format) or +RW increases when you delete the last title.

Cannot edit.

- You may not be able to edit on the HDD if there is no available space.
Delete any unwanted titles to create empty space. (⇒ 40)

Cannot create a playlist.

- Creation or editing of playlists cannot be done on this unit.

Still pictures

The contents of the card cannot be read.

- Remove the card from the slot and then insert again. If this does not solve the problem, turn off and turn on the unit again.

Copying, deleting and setting protection takes a long time.

- When there are a lot of folders and files, it may sometimes take a few hours.

Still pictures (JPEG) do not playback normally.

- The images that were edited on the PC, such as Progressive JPEG, etc., may not play back. (⇒ 100)

Music

Tracks could not be copied to the HDD.

- If there are copyright protected tracks such as SCMS restrictions, they will not be copied.
- Recording from CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed.

USB

The contents of the USB memory cannot be read.

- Remove the USB memory from the USB port and then insert again. If this does not solve the problem, turn off and turn on the unit again. If it cannot be operated after that, set "VIERA Link" to "Off" and turn the power of this unit off again, and turn it back on. (⇒ 81)
- USB memories connected using a USB extension cable or a USB hub may not be recognized by this unit.

TV Guide

The TV Guide System does not receive any data.

- Set the clock. (⇒ 82)
- If signal quality is bad (ghost images or limited reception), the TV Guide system may not be able to receive any data.

The empty field is displayed for some or all stations.

- Some stations are not supported by the TV Guide system.

The TV Guide information is not displayed properly.

- There was a programme change, or TV Guide information from a broadband cast station was possibly not correctly transmitted.
Check the current programme, e.g. on the Web site for the TV Guide system provider or station provider.

The TV Guide data transfer was interrupted.

- The TV Guide system shows the data that was received up to the interruption.
- The programme information may be incomplete.

The TV Guide data is not updated.

- Make sure that the time is set correctly. (⇒ 82)

Broadcast

Picture regularly breaks up on some channels.

- Adjust the aerial reception with "Manual Tuning" in the Setup menu. (⇒ 75)

Picture very infrequently breaks up on some or all channels.

- Electrical atmospheric interference caused by local or distant lightning storms or heavy rain with wind in "leafy" locations may cause pictures to break up and audio to mute or distort momentarily.

After the Auto-setup, there aren't any stations in the station list.

- The Auto-setup was started and interrupted. Do an Auto-setup again.

VIERA Link

VIERA Link doesn't work.

- Some functions may not work depending on the version of "HDAVI Control" of the connected equipment. This unit supports "HDAVI Control 5" functions.
- If the connection for the equipment connected with HDMI was changed, or if there was a power failure or the plug was removed from the household mains socket, "HDAVI Control" may not work.
In this case, change TV (VIERA) setting for "HDAVI Control" again.

Network

You cannot access this unit from DLNA compatible equipment on the network.

- Check the network connection and the network settings. (⇒ 13, 19, 66, 81)
- It may not be possible to connect depending on the types of the equipment or the status of the equipment.

To reset this unit

To return all the settings other than the main ones to the factory preset

- Perform "Shipping Condition" or "Default Settings" in the setup menu. (⇒ 83)

To reset the ratings level settings

- While the disc tray is open, press [DRIVE SELECT] to select the BD drive, then press and hold [● REC] and [▶] (PLAY/× 1.3) on the main unit at the same time for 5 or more seconds.

Unit care

■ When cleaning this unit

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

■ When cleaning this unit's lens

Use the **Lens cleaner** (not included) to clean the unit's lens

Lens cleaner: RP-CL720E

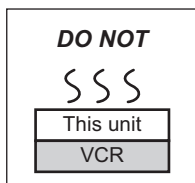
- This lens cleaner may not be for sale depending on the region.

■ Setup precautions

- **Place the unit on a surface that is flat and not subject to vibration or impact.**
 - **Do not place on anything that generates heat like a video cassette recorder, etc.**
 - **Place in an area where condensation does not occur.**
- Conditions where condensation may occur**

- When there is an extreme change in temperature (moving from a very hot location to a very cold location, or vice versa, or when subjected to an air conditioner or when cooled air directly impacts the unit).
- When there is high humidity or a lot of steam in the room.
- During the rainy season.

In the above situation, **without turning the unit on**, let the unit adjust to the room temperature and wait 2–3 hours until condensation is gone.



■ Cigarette smoke etc. causes malfunction or breakdown

The unit may breakdown if cigarette smoke or bug spray/vapor, etc. gets inside the unit.

■ When moving the unit

Before moving the unit, ensure the disc tray is empty.

- ① Turn the unit off. (Wait until "BYE" disappears from the display.)
- ② Remove the AC mains lead from the household mains socket.
- ③ Move only after the unit has come to a complete stop (approx. 3 minutes) in order to avoid subjecting to vibration and shock. (Even after turning the unit off, the HDD continues operating for a short time.)

HDD (Hard disk drive) handling care

The HDD is a high precision recording instrument and because of its long recording capability and high speed operation it is a very special device that is easily susceptible to damage.

As a basic rule, save important content to a disc as backup.

■ The HDD is a device that is not built to withstand vibration/shock or dust

Depending on the setup environment and handling of the HDD some content may become damaged and play and recording may no longer be possible. Especially during operation, do not subject the unit to any vibration, shock, or remove the AC mains lead from the household mains socket. In the event of a power failure during recording or play, the content may be damaged.

■ The HDD is a temporary storage device

The HDD is not an everlasting storage device for recorded content. Use the HDD as a temporary storage place for one-off viewing, editing, or copying. It is recommended to save the recorded content on a disc or to keep the original data or CDs that they were copied from.

■ Immediately save (backup) all content as soon as you feel there may be a problem with the HDD

If there is an irregularity within the HDD, repetitive strange sounds or problems with picture (block noise, etc.) may result. Using the HDD in this condition may worsen the problem and in the worst case the HDD may no longer be usable. As soon as you notice this type of problem, copy all content to disc and request service. Recorded content (data) on a HDD that has become unusable is unrecoverable.

- When the unit is turned on or off, there may be an unexpected sound. This does not indicate a problem with this unit.

Operations that can be performed simultaneously

Operations that can be performed while recording or copying a title

(○: Possible, –: Impossible)

	Playback of HDD	Playback of discs	Playback of still pictures	Playback of music recorded on HDD
While recording to HDD in DR mode	○	○ ^{*1}	–	○
While recording to HDD in HG, HX, HE, HL, HM, XP, SP, LP, EP or FR modes	○	○ ^{*1, 2, 3}	–	○
While recording from DV input	–	–	–	–
While copying in normal speed mode	–	–	–	–
While copying in high speed mode [With finalising or creating Top Menu (+RW)]	–	–	–	–
While copying in high speed mode [Without finalising or creating Top Menu (+RW)]	○	–	–	–

^{*1} DivX video cannot playback.

^{*2} AVCHD format titles cannot playback.

^{*3} BD-Video cannot playback.

● Simultaneous operation is not possible while executing the “DV Automatic Recording” or “Flexible Recording via AV input”.

Starting of the timer recording while executing other operation

Starting of timer recording possible during the following operations	Starting of timer recording not possible during the following operations
● Recording the title^{*1} ● Playing the title^{*2} ● Editing the title ● Copying a title in high speed mode (without finalising or creating Top Menu) – Only 1 programme can be recorded ● Executing “DV Automatic Recording”^{*3} ● Executing “Flexible Recording via AV input”^{*3} ● Executing Pause Live TV^{*1}	● Copying a title in normal speed mode ● Copying a title in high speed mode (with finalising or creating Top Menu) ● Copying HD Video (AVCHD format) ● Editing still pictures or music ● Copying still pictures ● Copying music ● Formatting ● Finalising/Creating Top Menu (+RW)

^{*1} Executing operation will terminate when 2 programme simultaneous recording cannot be performed.

^{*2} Playback of disc will terminate when the timer recording to disc is started while playing back from the disc or when the timer recording other than the DR mode has started while playing BD-Video.

^{*3} Executing operation will be terminated.

Audio information

The digital audio output might be different depending on the terminal connected to the amplifier/receiver and the setting of this unit. (⇒ 79, Digital Audio Output)

● The number of channels listed is the maximum possible number of output channels.

HDMI AV OUT/DIGITAL AUDIO OUT

Terminal	HDMI AV OUT				DIGITAL AUDIO OUT			
“Dolby D/Dolby D +/Dolby TrueHD”/“DTS/DTS-HD”	“Bitstream”※1		“PCM”※2		“Bitstream”		“PCM”	
“BD-Video Secondary Audio”	“On”※3	“Off”	“On”※4	“Off”	“On”	“Off”	“On”	“Off”
Dolby Digital/ Dolby Digital EX※5	Dolby Digital	Output original audio	DVD-Video: 5.1ch: PCM		Dolby Digital/ Dolby Digital EX※7		Down-mixed 2ch PCM	
			BD-Video: 7.1ch: PCM※6					
Dolby Digital Plus			7.1ch PCM		Dolby Digital			
Dolby TrueHD								
DTS Digital Surround/ DTS ES※5	DTS Digital Surround		DVD-Video: 5.1ch PCM		DTS Digital Surround/ DTS ES※7			
			BD-Video: 7.1ch PCM※8					
DTS-HD High Resolution Audio			7.1ch PCM※8		DTS Digital Surround			
DTS-HD Master Audio								
7.1ch LPCM	7.1ch PCM				Down-mixed 2ch PCM			

※1 When the connected equipment is not supported with these audio formats, the audio is output as Dolby Digital bitstream, DTS Digital Surround bitstream or down-mixed 2ch PCM (e.g., TV).

※2 When the connected equipment is not supported with multi channel surround, the audio is output as down-mixed 2ch PCM.

※3 **BD-V** When playing BD-Video without secondary audio or button click sound, the audio is output as the same format as if “BD-Video Secondary Audio” was set to “Off”.

※4 **BD-V** When playing BD-Video with secondary audio or button click sound, the audio is output as 5.1ch.

※5 With PCM output, Dolby Digital EX becomes PCM audio decoded as Dolby Digital, DTS ES recorded to DVD-Video becomes PCM audio decoded as DTS Digital Surround, and DTS ES recorded to BD-Video becomes PCM audio decoded as DTS ES.

※6 **BD-V** When BD-Video is played and “7.1ch Audio Reformatting” is set to “Off”, the audio is output as 5.1ch.

※7 **BD-V** When “BD-Video Secondary Audio” is set to “On”, Dolby Digital EX is output as Dolby Digital and DTS ES is output as DTS Digital Surround, however if playing BD-Video without secondary audio or button click sound, the audio is output as the original format.

※8 **BD-V** When BD-Video is played and the connected equipment is supported with 7.1 channel surround, the audio output is amplified from 5.1ch or 6.1ch to 7.1ch depending on the DTS, Inc. specifications.

Structure of folders displayed by this unit

You can play DivX, MP3 and still pictures (JPEG) on this unit by making 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.

BD-R

Structure of DivX folders

-R

-R DL

CD

USB

Structure of MP3, still picture or DivX folders

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

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

MP3

Root

001 Folder

(file=track)

001track.mp3

002track.mp3

003track.mp3

002 Folder

001track.mp3

002track.mp3

003track.mp3

004track.mp3

003 Folder

001track.mp3

002track.mp3

003track.mp3

Order of play

Still picture

Root

P0000001.jpg

P0000002.jpg

002 Folder

P0000003.jpg

P0000004.jpg

P0000005.jpg

003 Folder

P0000006.jpg

P0000007.jpg

P0000008.jpg

P0000009.jpg

004 Folder

P0000010.jpg

P0000011.jpg

P0000012.jpg

Order of play

DivX

Root

P0000001.divx

P0000002.divx

002 Folder

P0000003.divx

P0000004.divx

P0000005.divx

003 Folder

P0000006.divx

P0000007.divx

P0000008.divx

P0000009.divx

004 Folder

P0000010.divx

P0000011.divx

P0000012.divx

Order of play

BD-RE

RAM

***: Numbers XXX: Letters

Root

XXXX*.JPG

JPEG

DCIM***

***XXXXX

XXXX*.JPG

DCIM

***XXXXX

XXXX*.JPG

* Folders can be created on other equipment. However, these folders cannot be selected as a copying destination.

● If a folder name or file name has been input using other equipment, the name may not be displayed properly or you may not be able to play or edit the data.

SD

***: Numbers XXX: Letters

Card

DCIM

***XXXXX

(Picture folder)

XXXX*.JPG

Any folder with JPEG files

e.g.,

001

P0000001.JPG

P0000002.JPG

SD_VIDEO (MPEG2 folder)

PRG***

MOV***.MOD

MOV***.MOI

PRG***.PGI

MGR_INFO

(MPEG2 information folder)

PRIVATE

AVCHD (AVCHD folder)

Reference

97

VQT2J69

Specifications

Specifications are subject to change without notice.

■ General

Dimensions (W×H×D):

BW880

430 mm×66 mm×238 mm
(excluding the projecting parts)
430 mm×66 mm×249 mm
(including the projecting parts)

BW780

430 mm×59 mm×238 mm
(excluding the projecting parts)
430 mm×59 mm×249 mm
(including the projecting parts)

Mass:

Approx. 3.0 kg

Power supply:

AC 220 to 240 V, 50 Hz

Power consumption:

BW880 Approx. 36 W

BW780 Approx. 35 W

Power consumption in standby mode:

Power Save in Standby mode

Activated: Approx. 1.1 W

Deactivated: Approx. 8 W

Operating temperature: 5 °C to 40 °C

Operating humidity range: 10 % to 80 % RH
(no condensation)

■ Television system

Tuner System	Channel Coverage
DVB-T	VHF: 6 to 12
Australia	UHF: 27 to 69

RF converter output:

Not provided

■ Video

Video system: PAL (colour signal, 625 lines, 50 fields)/
NTSC (colour signal, 525 lines, 60 fields)

Recording system: MPEG2 (Hybrid VBR)/
MPEG-4 AVC/H.264

Video in (PAL/NTSC):
AV1/AV2 (pin jack)
1 Vp-p 75 Ω, termination

S-Video in (PAL/NTSC):
AV1 (S terminal) 1 Vp-p 75 Ω, termination

Video out (PAL/NTSC):
Video Out (pin jack) 1 Vp-p 75 Ω, termination

S-Video out (PAL/NTSC):
S-Video Out (S terminal) 1 Vp-p 75 Ω, termination

Component video output
(PAL 576i/576p/720p/1080i, NTSC 480i/480p/720p/
1080i)

Y: 1.0 Vp-p 75 Ω, termination

P_B: 0.7 Vp-p 75 Ω, termination

P_R: 0.7 Vp-p 75 Ω, termination

■ Audio

Recording system:

Dolby Digital 2ch
(XP, SP, LP, EP mode),
Linear PCM (XP mode),
Dolby Digital Max 5.1ch (DVB-T)
(DR, HG, HX, HE, HL, HM mode)
MPEG 2ch (DR mode)

Audio in:
Input level: AV1/AV2 (pin jack)
Standard: 0.5 Vrms,
Full scale: 2.0 Vrms at 1 kHz

Input impedance: More than 10 kΩ
Audio out: Audio Out (pin jack)
Output level: Standard: 0.5 Vrms,
Full scale: 2.0 Vrms at 1 kHz

Output impedance: Less than 1 kΩ

Digital audio out:

Optical terminal (PCM, Dolby Digital, DTS, MPEG)

Coaxial terminal (PCM, Dolby Digital, DTS, MPEG)

HDMI terminal
(PCM, Dolby Digital, DTS, MPEG, Dolby Digital Plus,
Dolby TrueHD, DTS-HD Master Audio,
DTS-HD High Resolution Audio)

■ HDMI Output

19 pin type A: 1 pc

HDMI™ (V.1.3a with Deep Colour, x.v.Colour™,
High Bit Rate Audio)

● This unit supports "HDAVI Control 5" function.

■ Other terminals

DV Input IEEE 1394 Standard, 4 pin: 1 pc

USB Port Type A: 1 pc

SD Card Slot 1 pc

LAN (Ethernet) Port 10BASE-T/100BASE-TX

■ Internal HDD capacity

BW880 :	500 GB
BW780 :	250 GB

■ Optical pick-up

System with 2 lens, 3 integration units
(405 nm wavelength for BDs,
661 nm wavelength for DVDs,
783 nm wavelength for CDs)

■ LASER specification

Class 1 LASER Product

Wave length:

783 nm (CDs)

661 nm (DVDs)

405 nm (BDs)

Laser power:

No hazardous radiation is emitted with the safety
protection

■ Recording system

BD-RE (SL/DL): Blu-ray Disc Rewritable Format

BD-R (SL/DL): Blu-ray Disc Recordable Format

DVD-RAM: DVD Video Recording format

DVD-R: DVD-Video format

DVD-R DL (Dual Layer): DVD-Video format

DVD-RW: DVD-Video format

+R, +R DL (Double Layer), +RW

■ **Region code:**

DVD: #4
BD: Region B

■ **Playable discs**

BD-RE (SL/DL): BD-RE Ver. 2.1 conforming, JPEG
BD-R (SL/DL): BD-R LTH TYPE Ver. 1.3 conforming,
BD-R Ver. 1.3 conforming
BD-Video
DVD-RAM^{*1}: DVD Video Recording format,
AVCHD format, JPEG
DVD-R: DVD-Video format^{*2}, AVCHD format^{*2}, MP3^{*2,3},
JPEG^{*2,3}, DivX^{*2,3}
DVD-R DL (Dual Layer): DVD-Video format^{*2},
AVCHD format^{*2}, MP3^{*2,3}, JPEG^{*2,3}, DivX^{*2,3}
DVD-RW: DVD-Video format^{*2},
DVD Video Recording format, AVCHD format^{*2}
+R^{*2}, +R DL (Double Layer)^{*2}, +RW
DVD-Video, CD-Audio (CD-DA)
CD-R/CD-RW: CD-DA^{*2}, MP3^{*2,3}, JPEG^{*2,3},
DivX^{*2,3}

^{*1} Remove the disc from cartridge case (TYPE1 cannot be used).

^{*2} Finalising is necessary for compatible playback.

^{*3} ISO9660 level 1 or 2 (except for extended formats) and Joliet
This unit is compatible with multi-session/border (except for DVD-R DL).
This unit is not compatible with packet-writing.

■ **Maximum writing speed of discs**

BD-RE (DL): Up to 2x Speed
BD-RE: Up to 2x Speed
BD-R (DL): Up to 6x Speed
BD-R: Up to 6x Speed
DVD-RAM: Up to 5x Speed
DVD-R: Up to 12x Speed
DVD-R DL: Up to 4x Speed
DVD-RW: Up to 4x Speed
+R: Up to 8x Speed
+R DL: Up to 4x Speed
+RW: Up to 4x Speed

Maximum supporting speed of drive for each disc:
Refer "Recordable discs" (⇒ right).

■ **Copying speed from HDD to BD-R in High Speed Copy**

Approx.

HDD		6X Speed BD-R (DL, 50 GB/SL, 25 GB)	
Recording Mode	Recorded Programme	Required time	Speed
HM	1 hour	1 min.	60x

- The above rate in the list indicates the shortest time and fastest speed required for copying one-hour title from HDD to the disc by High-Speed copying.
- The required amount of time and speed may vary depending on the conditions such as the area where information is written or unique feature on the disc.

■ **Recordable discs**

BD-RE (SL/DL): 1-2X SPEED (Ver. 2.1)
BD-R (SL/DL): 1-2X SPEED (Ver. 1.1),
1-4X SPEED (Ver. 1.2),
1-6X SPEED (Ver. 1.3),
1-2X SPEED LTH type (Ver. 1.2),
1-6X SPEED LTH type (Ver. 1.3)
DVD-RAM: 2X SPEED (Ver. 2.0),
2-3X SPEED (Ver. 2.1), 2-5X SPEED (Ver. 2.2)
DVD-R (SL): 1X SPEED (Ver. 2.0),
1-4X SPEED (Ver. 2.0),
1-8X SPEED (Ver. 2.0), 1-16X SPEED (Ver. 2.1)
DVD-R (DL): 2-4X SPEED (Ver. 3.0),
2-8X SPEED (Ver. 3.0)
DVD-RW: 1X SPEED (Ver. 1.1),
1-2X SPEED (Ver. 1.1),
2-4X SPEED (Ver. 1.2), 2-6X SPEED (Ver. 1.2)
+R (SL): 2.4X SPEED (Ver. 1.0),
2.4-4X SPEED (Ver. 1.1),
2.4-8X SPEED (Ver. 1.2), 2.4-16X SPEED (Ver. 1.3)
+R (DL): 2.4X SPEED (Ver. 1.0),
2.4-8X SPEED (Ver. 1.1),
2.4X SPEED (Ver. 1.1),
2.4-4X SPEED (Ver. 1.2)

■ **SD Card**

Slot: SD Memory Card slot: 1 pc
Compatible media: SD Memory Card
Format: FAT12^{*1}, FAT16^{*1} (In case of SD Memory Card)
FAT32^{*1} (In case of SDHC Memory Card)
exFAT (In case of SDXC Memory Card)

Data that can be played: JPEG,
SD (Standard Definition)-Video^{*2},
HD (High Definition)-Video

^{*1} Long file name is unsupported.

^{*2} Video Recording conversion and transfer is possible from SD card to HDD or DVD-RAM disc.
After Video Recording conversion and transfer to HDD or DVD-RAM disc is completed, the playback becomes possible.

■ **USB device**

USB standard: USB 2.0 High Speed
Format: FAT16, FAT32
Data that can be played: MP3, JPEG, DivX,
SD (Standard Definition)-Video^{*1},
HD (High Definition)-Video^{*2}

^{*1} Video Recording conversion and transfer is possible from USB device to HDD or DVD-RAM disc.

After Video Recording conversion and transfer to HDD or DVD-RAM disc is completed, the playback becomes possible.

^{*2} Video Recording conversion and transfer is possible from USB device to HDD, BD-RE (SL/DL) or BD-R (SL/DL) disc.

After Video Recording conversion and transfer to HDD, BD-RE (SL/DL) or BD-R (SL/DL) disc is completed, the playback becomes possible.

■ DivX

Maximum number of files recognizable: 200 files

* DivX VOD contents cannot be played back.

After Video Recording conversion and transfer to HDD, BD-RE (SL/DL) or BD-R (SL/DL) disc is completed, the playback becomes possible.

- JPEG files must have the extension “.jpg” or “.JPG”.
- MOTION JPEG and PROGRESSIVE JPEG are not supported.

※ Design rule for Camera File system: unified standard established by Japan Electronics and Information Technology Industries Association (JEITA).

3000 files

- MP3 files must have the extension “.mp3” or “.MP3”.

Recording modes and approximate recording times

Depending on the content being recorded, the recording times may become shorter than indicated.

Recording Mode	HDD		BD-RE	BD-R	RAM		-R -RW(V) +R +RW (4.7 GB)	-R DL +R DL (8.5 GB)
	BW880 (500 GB)	BW780 (250 GB)	Single Layer (25 GB)	Dual Layer (50 GB)	Single- sided (4.7 GB)	Double- sided (9.4 GB)		
DR* ¹ (High Definition (HD) quality: estimated bit rate is 15 Mbps)	72 hours	36 hours	3 hours 20 min.	6 hours 40 min.	—	—	—	—
DR* ¹ (Standard Definition (SD) quality: estimated bit rate is 8 Mbps)	135 hours	66 hours	6 hours 30 min.	13 hours	—	—	—	—
HG	80 hours	40 hours	4 hours	8 hours	—	—	—	—
HX	120 hours	60 hours	6 hours	12 hours	—	—	—	—
HE	180 hours	90 hours	9 hours	18 hours	—	—	—	—
HL	240 hours	120 hours	12 hours	24 hours	—	—	—	—
HM	350 hours	175 hours	17 hours 30 min.	35 hours	—	—	—	—
XP	110 hours	55 hours	5 hours 15 min.	10 hours 30 min.	1 hour	2 hours	1 hour	1 hour 45 min.
SP	220 hours	110 hours	10 hours 30 min.	21 hours	2 hours	4 hours	2 hours	3 hours 35 min.
LP	442 hours	221 hours	21 hours	42 hours	4 hours	8 hours	4 hours	7 hours 10 min.
EP	885 hours (664 hours ^{*2})	441 hours (331 hours ^{*2})	42 hours (31 hours 30 min. ^{*2})	84 hours (63 hours ^{*2})	8 hours (6 hours ^{*2})	16 hours (12 hours ^{*2})	8 hours (6 hours ^{*2})	14 hours 20 min. (10 hours 45 min. ^{*2})

*1 Recording time of DR mode may vary depending on bit rate of broadcasting.

*2 When "Recording time in EP mode" is set to "6 hours" in the Setup menu (⇒ 77).

Maximum number of titles that can be recorded

HDD :	999 titles (When continuously recording for long durations, titles are automatically divided every 8 hours.)
BD-RE BD-R :	200 titles on one disc.
RAM -R -R DL -RW(V) :	99 titles on one disc.
+R +R DL +RW :	49 titles on one disc.

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Contact Information
cdrequest@am-linux.jp

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Safety precautions

Placement

Set the unit up on an even surface away from direct sunlight, high temperatures, high humidity, and excessive vibration.

These conditions can damage the cabinet and other components, thereby shortening the unit's service life.

Do not place heavy items on the unit.

Voltage

Do not use high voltage power sources. This can overload the unit and cause a fire.

Do not use a DC power source. Check the source carefully when setting the unit up on a ship or other place where DC is used.

AC mains lead protection

Ensure the AC mains lead is connected correctly and not damaged. Poor connection and lead damage can cause fire or electric shock. Do not pull, bend, or place heavy items on the lead.

Grasp the plug firmly when unplugging the lead. Pulling the AC mains lead can cause electric shock.

Do not handle the plug with wet hands. This can cause electric shock.

Foreign matter

Do not let metal objects fall inside the unit. This can cause electric shock or malfunction.

Do not let liquids get into the unit. This can cause electric shock or malfunction. If this occurs, immediately disconnect the unit from the power supply and contact your dealer.

Do not spray insecticides onto or into the unit. They contain flammable gases which can ignite if sprayed into the unit.

Service

Do not attempt to repair this unit by yourself. If sound is interrupted, indicators fail to light, smoke appears, or any other problem that is not covered in these instructions occurs, disconnect the AC mains lead and contact your dealer or an authorized service centre. Electric shock or damage to the unit can occur if the unit is repaired, disassembled or reconstructed by unqualified persons.

Extend operating life by disconnecting the unit from the power source if it is not to be used for a long time.

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-If you see this symbol-

Information on Disposal in other Countries outside the European Union



This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Panasonic Warranty

1. The product is warranted for 12 months from the date of purchase. Subject to the conditions of this warranty Panasonic or its Authorised Service Centre will perform necessary service on the product without charge for parts or labour if, in the opinion of Panasonic, the product is found to be faulty within the warranty period.
2. This warranty only applies to Panasonic products purchased in Australia and sold by Panasonic Australia or its Authorised Distributors or Dealers and only where the products are used and serviced within Australia or its territories. Warranty cover only applies to service carried out by a Panasonic Authorised Service Centre and only if valid proof of purchase is presented when warranty service is requested.
3. This warranty only applies if the product has been installed and used in accordance with the manufacturer's recommendations (as noted in the operating instructions) under normal use and reasonable care (in the opinion of Panasonic). The warranty covers normal domestic use only and does not cover damage, malfunction or failure resulting from use of incorrect voltages, incorrect installation, accident, misuse, neglect, build-up of dirt or dust, abuse, maladjustment of customer controls, mains supply problems, thunderstorm activity, infestation by insects or vermin, tampering or repair by unauthorised persons (including unauthorised alterations), exposure to abnormally corrosive conditions or any foreign object or matter having entered the product.
4. This warranty does not cover the following items unless the fault or defect existed at the time of purchase:
 - (a) Video or Audio Tapes
 - (b) DVD Video, Blu Ray, or Recordable Discs
 - (c) SD cards or USB devices
 - (d) Video or audio Heads from wear and tear in normal use
 - (e) Cabinet Part
 - (f) Information stored on the Hard Disk Drive
 - (g) User replaceable Batteries
5. Some products may be supplied with ethernet connection hardware. The warranty is limited on such products and will not cover
 - (a) Internet connection related problems
 - (b) Access fees or charges incurred for the internet
 - (c) the use of incompatible software or software not specifically stipulated in the product operations manual; and
 - (d) any indirect or consequential costs associated with the incorrect use or misuse of the hardware, its connection to the internet or any other device.
6. If warranty service is required you should:
 - Telephone Panasonic's Customer Care Centre on 132600 or visit our website and use the Service Centre Locator for the name/address of the nearest Authorised Service Centre.
 - Send or bring the product to a Panasonic Authorised Service Centre together with your proof of purchase receipt as a proof of purchase date. Please note that freight and insurance to and / or from your nearest Authorised Service Centre must be arranged by you.
7. The warranties hereby conferred do not extend to, and exclude, any costs associated with the installation, de-installation or re-installation of a product, including costs related to the mounting, de-mounting or remounting of any screen, (and any other ancillary activities), delivery, handling, freight, transportation or insurance of the product or any part thereof or replacement of and do not extend to, and exclude, any damage or loss occurring by reason of, during, associated with, or related to such installation, de-installation, re-installation or transit.

Panasonic Authorised Service Centres are located in major metropolitan areas and most regional centres of Australia, however, coverage will vary dependant on product. For advice on exact Authorised Service Centre locations for your product, please telephone our Customer Care Centre on 132600 or visit our website and use the Service Centre Locator.

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May 2008

**THIS WARRANTY CARD AND THE PURCHASE DOCKET (OR SIMILAR PROOF OF PURCHASE)
SHOULD BE RETAINED BY THE CUSTOMER AT ALL TIMES**

**If you require assistance regarding warranty conditions or any other enquiries,
please contact our Customer Care Centre via the Panasonic website www.panasonic.com.au or
by phone on 132 600. If phoning in, please ensure you have your operating instructions available.**

Panasonic Australia Pty. Limited

ACN 001 592 187 ABN 83 001 592 187

Locked Bag 505, Frenchs Forest, NSW 2086

PRO-031-F11 Issue: 1.0

29-05-2008

RQA0245

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.

BONUSVIEW

With the new play function of the BD-Video, you can enjoy the secondary video recorded on the disc, in addition to the main movie.

CPRM (Content Protection for Recordable Media)

CPRM is technology used to protect broadcasts that are allowed to be recorded only once. Such broadcasts can be recorded only with CPRM compatible recorders and discs.

Decoder

A decoder restores the coded audio signals on discs to normal. This is called decoding.

Deep Colour

This unit incorporates HDMI™ (V.1.3a with Deep Colour) technology that can reproduce greater colour gradation (4096 steps) when connected to a compatible TV. You can enjoy exceptionally rich, natural-looking colours, with smooth, detailed gradation and minimal colour banding. [A lower colour gradation (256 steps), without Deep Colour, will be reproduced if connected to a TV which does not support Deep Colour. The unit will automatically set appropriate output to suit the connected TV.]

DivX

DivX is a popular media technology created by DivX, Inc. DivX media files contain highly compressed video with high visual quality that maintains a relatively small file size.

DLNA (Digital Living Network Alliance)

DLNA is a standard that makes DLNA Certified digital electronics easier and more convenient to use on a home network.

DNS Server

A server which acts like a telephone directory and translates Internet domain names into IP addresses.

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 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.

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 dialogue clearly.

Film and video

DVD-Videos are recorded using either film or video. This unit can determine which type has been used, then uses the most suitable method of progressive output.

- Film: Recorded at 25 frames per second (PAL discs) or 24 frames per second (NTSC discs). (NTSC discs recorded at 30 frames per second as well.) Generally appropriate for motion picture films.
- Video: Recorded at 25 frames/50 fields per second. (PAL discs) or 30 frames/60 fields per second (NTSC discs). Generally appropriate for TV drama programmes or animation.

Finalise

A process that makes play of a recorded CD-R, CD-RW, DVD-R, etc. possible on equipment that can play such media. You can finalise BD-R, DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL on this unit.

After finalising, the disc becomes play-only and you can no longer record or edit. However, finalised DVD-RW can be formatted for recording again.

Formatting

Formatting is the process of making media such as DVD-RAM recordable on recording equipment.

You can format BD-RE, DVD-RAM, DVD-RW (only as DVD-Video format), +RW, SD cards and the HDD or unused BD-R, +R and +R DL on this unit.

Formatting permanently deletes all contents.

Frames and fields

Frames refer to the single images that constitute the video you see on your television. Each frame consists of two fields.



- A frame still shows two fields, so there may be some blurring, but picture quality is generally better.
- A field still shows less picture information so it may be rougher, but there is no blurring.

Gateway

IP address of the electronic device providing Internet access.

Usually called a router IP address. (e.g., 192.168.0.1)

HDD (Hard disk drive)

This is a mass data storage device used in computers, etc. A disk with a surface that has been treated with magnetic fluid is spun and a magnetic head is brought in close proximity to facilitate the reading and writing of large amounts of data at high speed.

HDMI (High-Definition Multimedia Interface)

Unlike conventional connections, it transmits uncompressed digital video and audio signals on a single cable. This unit supports high-definition video output [720p (750p), 1080i (1125i), 1080p (1125p)] from HDMI AV OUT terminals. To enjoy high-definition video a High Definition compatible television is required.

IP address

A set of numbers which distinguish each PC on the network when, for example, connected to the Internet. When using a PC in a LAN to access a PC or device that is not included in the LAN, the IP address is called the local IP address. (e.g., 192.168.0.10)

JPEG (Joint Photographic Experts Group)

This is a system used for compressing/decoding colour still pictures. If you select JPEG as the storage system on digital cameras, etc., the data will be compressed to 1/10–1/100 of its original size. The benefit of JPEG is less deterioration in picture quality considering the degree of compression.

LAN (Local Area Network)

A group of linked devices in a company, school or home. Indicates the boundaries of a particular network.

Local storage

This storage area is used as a destination for sub contents for playing virtual packages on BD-Video.

LPCM (Linear PCM)

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

MPEG2 (Moving Picture Experts Group)

A standard for efficiently compressing and expanding colour video. MPEG2 is a compression standard used for DVD and satellite based digital broadcasting.

MPEG-4 AVC/H.264

A standard for efficiently compressing and expanding colour video. MPEG-4 AVC/H.264 is an encoding method used for recording of the High Definition videos.

MP3 (MPEG Audio Layer 3)

An audio compression method that compresses audio to approximately one tenth of its size without any considerable loss of audio quality.

Pan&Scan/Letterbox

In general, BD-Video and DVD-Video are produced with the intention that they be viewed on a widescreen television (16:9 aspect ratio), so images often don't fit regular (4:3 aspect ratio) televisions. Two styles of picture, "Pan & Scan" and "Letterbox", deal with this problem.

Pan & Scan: The sides are cut off so the picture fills the screen.



Letterbox: Black bands appear at the top and bottom of the picture so the picture itself appears in an aspect ratio of 16:9.



Progressive/Interlace

Interlace is a conventional image signal that displays the image in 2 phases by splitting the display into odd and even scans.

Progressive will display whole image in 1 scan. Therefore, it will give High Definition image without flickering compared with interlace.

Protection

You can prevent accidental deletion by setting writing protection or deletion protection.

Router

Distinguishes the IP address assigned to each device, such as the PC, and relays the flow of data within the network.

Sampling frequency

Sampling is the process of converting the heights of sound wave (analog signal) samples taken at set periods into digits (digital encoding). Sampling frequency is the number of samples taken per second, so larger numbers mean more faithful reproduction of the original sound.

Signal Quality

This is the guide for checking the aerial direction. The numbered values displayed do not indicate the strength of the signal, but the quality of the signal (the signal to noise ratio, or "S/N"). The channels you can receive are affected by weather conditions, seasons, time (day/night), region, length of the cable that is connected to the aerial, etc.

Subnet mask

Enables efficient network use. A set of numbers which identify which part of the IP address allocated to every device connected to the router is the network portion.

Thumbnail

This refers to a miniature representation of a picture used to display multiple pictures in the form of a list.

x.v.Colour™

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

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

1080i

In one High Definition image, 1080 (1125) alternating scan lines pass every 1/50th of a second to create an interlace image. Because 1080i (1125i) more than doubles current television broadcasts of 480i (525i), the detail is much clearer and creates a more realistic and rich image.

1080p

In one High Definition image, 1080 (1125) scan lines pass at the same time every 1/50th of a second to create a progressive image. Since progressive video does not alternate scan lines like interlace, there is a minimal amount of screen flicker.

24p

This is a progressive image recorded at a rate of 24 frames per second.

720p

In one High Definition image, 720 (750) scan lines pass at the same time every 1/50th of a second to create a progressive image. Since progressive video does not alternate scan lines like interlace, there is a minimal amount of screen flicker.

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