Panasonic®

*e*HELP

English

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eHELP

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■ Meaning of signs

OK :

Letters enclosed in brackets indicate remote control buttons.

Menu :

Letters in cyan indicate on-screen display items.

 → :

References in this eHELP

When the icon (1 - 9) is displayed, you can jump to the page for detailed descriptions pressing Numeric buttons.

 (red) :

Displays the menu related to the description (only for some descriptions)

= Note =

• Design and Specifications are subject to change without notice.

• The images shown in this eHELP are for illustrative purposes only.

Features

4K resolution

You can watch content in 4K format that has twice the horizontal and vertical resolution of the 1080p signal.

 → Watching > 4K resolution > 4K compatible equipment

Home Screen

"Home Screen" is a gateway to the TV programmes, applications and connected devices.

It provides you an easy way to access all the features.

 Home Screen > Home Screen > Information

Info Frame

Info Frame is a convenient feature to provide you relevant information of the watching programme, recommendations, etc. It is displayed on the edge of screen when you need it.

 → Functions > Info Frame > Information

Touch Pad Controller

Touch Pad Controller is designed for the convenient operations on the application, internet content, etc. You can operate the TV intuitively with this controller.

 → Functions > Touch Pad Controller > Information

TV Anytime

You can watch TV and set timer event with the network equipment (smartphone, etc.) from outside the home network.

→ Functions > TV Anytime > How to use

Dual Tuner

You can watch or record 2 programmes simultaneously, watch a programme while recording another programme, etc.

→ Functions > Multi Window > How to use

Easy Mirroring

You can watch display images of other devices (smartphone, etc.) on the TV screen using a mirroring function. You can also start the mirroring function from the other devices without operating the TV.

 ➡ Functions > Mirroring > How to use

Data Service Application

You can enjoy Hybrid Broadcast Broadband TV application that is one of the interactive data services for digital broadcasting.

 → Functions > Data Service Application > Using Data Service Application

Home Screen

Home Screen

Information

"Home Screen" is a gateway to the TV programmes, applications and connected devices.

Home Screen is displayed by pressing HOME and it provides you an easy way to access all the features as shown below (example).
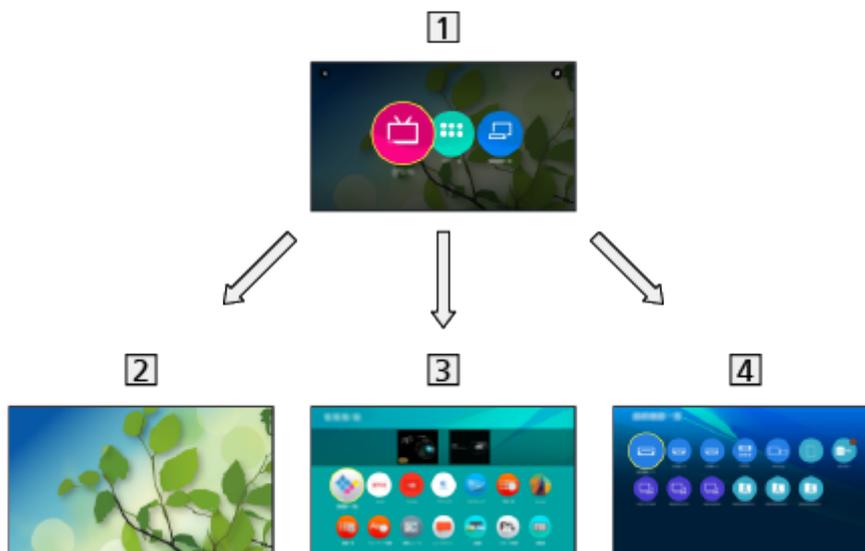
1️⃣ Home Screen

2️⃣ Live TV

– Gateway to TV programmes

📖 ➡ Home Screen > Live TV

3️⃣ Apps

– Gateway to various applications (internet content, etc.)

📖 ➡ Home Screen > Apps

4️⃣ Devices

– Gateway to connected devices (HDMI equipment, USB device, network device, etc.)

📖 ➡ Home Screen > Devices

= Note =

- Be sure to update the software when a software update notice is displayed on the TV screen. If the software is not updated, you may not be able to use Home Screen. You can update the software later manually.

   Network > Network settings > Software Update

How to use

From Home Screen, you can access all the features such as TV programmes, applications and connected devices.

1. Display Home Screen with `HOME`.

   (Example)
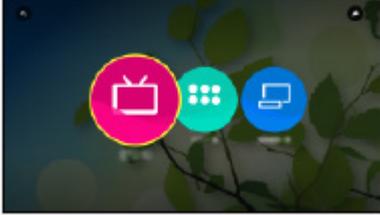
2. Select Live TV / Apps / Devices and press `OK` to access.

   • To watch full-screen TV, select Live TV.

     (Example)

       • Also refer to 🔌 on Home Screen for the operations.

■ Search

You can search the content from various features.

1. Display Home Screen with `HOME`.

2. Select 🔍 for searching and press `OK` to access.

3. Follow the on-screen instructions.

Pin to HOME

You can add a shortcut for a frequently used feature on Home Screen.

1. Display Home Screen with HOME.

2. Select Live TV / Apps / Devices and press OK to access.

3. Select a feature (TV programme / application / device).

4. Display the option menu with OPTION.

5. Select Pin to HOME and press OK to set.

- You can also add a shortcut pressing ★ (Pin to HOME) of Touch Pad Controller.

- To remove a shortcut from Home Screen, set Unpin from HOME.

  📖 → Home Screen > Home Screen > Option menu

Option menu

You can customise Home Screen.

1. Display the option menu with OPTION.

2. Select one of the following items and press OK to access.

   Unpin from HOME / Move

3. Set the item and press OK to store.

Unpin from HOME

Remove a shortcut from Home Screen.

Move

Arranges the position of the icons.

Live TV

How to use

Live TV is a gateway to the TV programmes.

1. Display Home Screen with HOME.

2. Select Live TV.

   (Example)
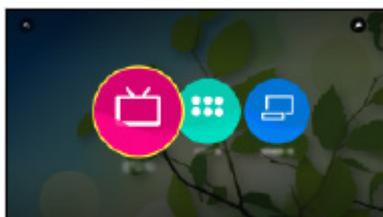
3. Press OK to access.

   (Example)

   - For details of watching TV

      ➔ Watching > Basic

   - To add a shortcut icon

      ➔ Home Screen > Home Screen > Pin to HOME

Option menu

1. Display the option menu with OPTION.

2. Select one of the following items and press OK to access.

   Pin to HOME / Unpin from HOME / Accessibility / AV Options

3. Set the item and press OK to store.

Pin to HOME, Unpin from HOME

Adds / removes a shortcut for a frequently used feature on Home Screen.

> 📖 ➡ Home Screen > Home Screen > Pin to HOME

- The label (channel position, channel name, etc.) of shortcut is not updated by broadcasters automatically. Remove and add the shortcut again to update the label.

Accessibility

Guidance settings for visually impaired users

> 📖 ➡ Watching > For best audio > Voice Guidance Settings

AV Options

Easy optional setting for viewing, sound, etc.

> 📖 ➡ Watching > Basic > AV Options

- Menu items and selectable options vary depending on the TV mode.

Apps

How to use

Various applications (internet content, etc.) can be accessed easily from Apps.

1. Display Home Screen with HOME.

2. Select Apps and press OK to access.

   (Example)
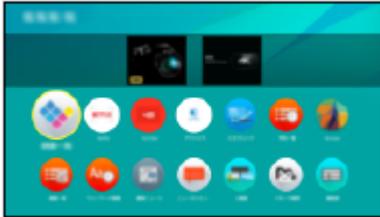
   - To exit Apps

     EXIT

   - To add a shortcut icon

      ➡ Home Screen > Home Screen > Pin to HOME

3. Select an application and press OK to access.

4. Follow the on-screen instructions.

= Note =

- A broadband network environment is required to be able to use this function fully.

- Design and specifications are subject to change without notice.

Option menu

1. Display the option menu with `OPTION`.

2. Select one of the following items and press `OK` to access.

   Pin to HOME / Unpin from HOME / Move / Lock / Unlock / Uninstall / Show Info.

3. Set the item and press `OK` to store.

Pin to HOME, Unpin from HOME

Adds / removes a shortcut for a frequently used feature on Home Screen.

📖 ➡ Home Screen > Home Screen > Pin to HOME

Move

Arranges the position of the applications.

Lock, Unlock

Locks / unlocks the specific applications to restrict access to them (if available).

- Child Lock PIN number is required to access to locked application.

  📖 ➡ Functions > Child Lock > PIN number

Uninstall

Deletes an application from Apps (if available).

Show Info.

Displays the information about the selected application.

Devices

How to use

Connected devices (HDMI equipment, USB device, network device, etc.) can be accessed easily from Devices.

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

    (Example)

    - To exit Devices

        EXIT

    - To add a shortcut icon

        📖 ➡ Home Screen > Home Screen > Pin to HOME

3. Select a device and press OK to access.

    - For external equipment

        📖 ➡ Watching > External equipment

    - For USB device, network device for Media Player

        📖 ➡ Media Player

    - For network equipment for DLNA

        📖 ➡ Network > DLNA

    - For mirroring function

        📖 ➡ Functions > Mirroring

= Note =

- Design and specifications are subject to change without notice.

Option menu

1. Display the option menu with OPTION.

2. Select one of the following items and press OK to access.

   Pin to HOME / Unpin from HOME / Accessibility / Show Info.

3. Set the item and press OK to store.

Pin to HOME, Unpin from HOME

Adds / removes a shortcut for a frequently used feature on Home Screen.

   📖 ➡ Home Screen > Home Screen > Pin to HOME

Accessibility

Guidance settings for visually impaired users

   📖 ➡ Watching > For best audio > Voice Guidance Settings

Show Info.

Displays the information about the selected device.

Watching

Basic

Basic connection

Please ensure that the unit is disconnected from the mains socket before attaching or disconnecting any cables.

- External equipment and cables shown are not supplied with this TV.

■ Aerial
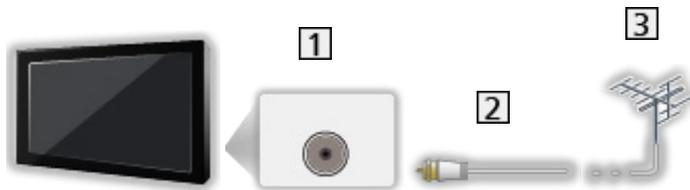
1 Aerial terminal

2 RF cable

3 Aerial

- Keep RF (antenna) cable away from the mains lead to avoid and minimise mains interference pickup.

- Do not place the RF cable under the TV.

- An aerial, correct cable (75 Ω coaxial) and correct terminating plug are required to obtain optimum quality picture and sound.

- If a communal aerial system is used, you may require the correct connection cable and plug between the wall aerial socket and the TV.

- Your local Television Service Centre or dealer may be able to assist you in obtaining the correct aerial system for your particular area and the accessories required.

- Any matters regarding aerial installation, upgrading of existing systems or accessories required, and the costs incurred, are the responsibility of you, the Customer.

■ DVD Recorder / VCR
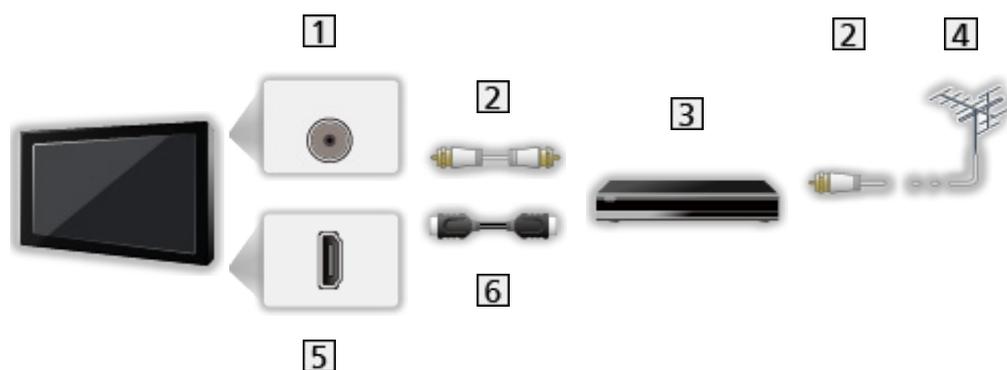
[1] Aerial terminal

[2] RF cable

[3] DVD Recorder / VCR

[4] Aerial

[5] HDMI terminal

[6] HDMI cable

■ Set top box

[1] HDMI terminal

[2] HDMI cable

[3] Set top box

[4] Satellite dish

= Note =

- For details of VIERA Link connections

   📖 → Functions > VIERA Link "HDAVI Control™" > Summary of VIERA Link

- Please also read the manual of the equipment being connected.

- Keep the TV away from electronic equipment (video equipment, etc.) or equipment with an infrared sensor, otherwise distortion of image / sound may occur or operation of other equipment may be affected.

- Use a fully wired HDMI compliant cable.

- Check the terminal type and cable plugs are correct for connection.

Selecting channel

1. Select Digital TV or Analogue TV with `TV`.

   • The selected mode is displayed on the top left of the screen.

2. Select a channel with `Channel Up / Down` or `Numeric buttons`.
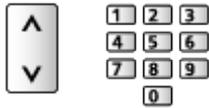
   • Press `Numeric buttons` to select a channel position with 2 or more-digit (e.g. 399, press `3` `9` `9`).

■ To select a channel from the channel list

1. Display the channel list with `OK`.

2. Select a channel from the list and press `OK` to watch.

■ To select a channel using information banner

1. Display information banner with `INFO` if it is not displayed.

2. Select a channel and press `OK` to watch while the banner is displayed.

   Watching > Basic > Information banner

■ To select a channel using TV Guide

1. Display TV Guide with `GUIDE`.

2. Select the current programme and press `OK` to access.

3. Select View and press `OK` to watch.

   Watching > TV Guide > Using TV Guide

• Not valid in Analogue TV

Information banner

Display information banner with INFO.

- Also appears when changing a channel.

  (Example)
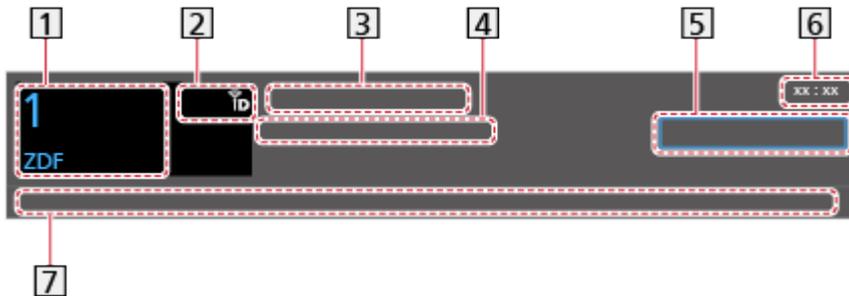
[1] Channel position and name

[2] Channel type (Radio, etc.) / Encrypted channel (⬤) / TV mode (📶, 📶)

[3] Programme

[4] Start time / End time (Digital TV)

Channel position, etc. (Analogue TV)

[5] Category

[6] Current time

[7] Features available / message meanings

Rating:

    Rating information

    📖 ⇒ Functions > Child Lock > Parental Rating

Bad signal:

    Poor quality TV signal

AD:

    Audio Description service available

- This function can aid visually-impaired viewers by providing an additional audio track to describe events on screen.

    📖 ⇒ Watching > For best audio > Audio Description

⬚ :

    Subtitle service available

⬚ :

    Multiple image or audio available

∞, Ⅰ, Ⅱ, ∇ :

    Audio mode

    📖 ⇒ Watching > For best audio > Advanced settings

ⒹⒹ :

    Data service (Hybrid Broadcast Broadband TV application) available

    📖 ⇒ Functions > Data Service Application > Using Data Service Application

1 – 90:

    Off Timer remaining time

    📖 ⇒ Watching > Basic > Off Timer

- To confirm another tuned channel

  △ / ▽

- To watch the channel listed in the banner

  OK

- Information on the next programme (Digital TV)

  ▷

- Extra information (Digital TV)

  INFO

  – Press again to hide the banner.

- To hide the banner

  EXIT

- To update the TV software (if available)

  ▬ (red)

- To select a favourite list (Digital TV)

  ▬ (blue)

  – If the favourite list is created in Favourites Edit.

    📖 ➔ Watching > Tuning and editing channels > Favourites Edit

- To adjust banner timeout, set Banner Display Timeout.

  1) Display the menu with MENU.

  2) Select Setup > Display Settings > Banner Display Timeout and press OK to access.

  3) Set the item and press OK to store.

- To display the introduction banner for the internet service

  1) Display the menu with MENU.

  2) Select Setup > Display Settings > Smart Banner and press OK to access.

  3) Select On / Off and press OK to set.

AV Options

Confirm or change the current status.

- Display the full-screen TV to use this function.

1. Display the option menu with OPTION.

2. Select AV Options and press OK to access.

3. Select one of the following items and press OK to access.

   Audio Description / Audio Selection / AD / Dual Audio / MPX / Volume Correction

   - The function items vary depending on the TV mode.

4. Set the item and press OK to store.

Audio Description

Set to Auto if the programme has Audio Description service, then you will hear an additional audio track to describe events on screen (if available).

- Not valid in Analogue TV

- Not valid in multi window mode

- To adjust the volume for Audio Description

  📖 ➔ Watching > For best audio > Audio Description

Audio Selection / AD

Selects between alternative language or Audio Description for sound tracks (if available).

- This setting is not memorised and it returns to the default setting once you exit the current programme.

- Not valid in Analogue TV

Dual Audio

Selects stereo / monaural (if available).

- Not valid in Analogue TV

MPX

Selects multiplex sound mode (if available).

  📖 ➔ Watching > For best audio > Advanced Settings

- For Analogue TV

Volume Correction

Adjusts the volume of each individual channel or input mode.

Subtitle

Display / hide subtitles (if available).

1. Display the subtitle menu with `STTL/AD`.

2. Select Subtitle and press `OK` to access.

3. Select On / Off and press `OK` to store.

   • For Digital TV

= Note =

   • Subtitles may not be displayed properly in 3D images.

   • Not valid on the sub screen in multi window mode

Last view

Switch to a previously viewed channel or input mode easily with LAST VIEW.

- Press again to return to the current view.

= Note =

- Switching channel may not be available depending on the condition.

- Watching less than 10 seconds is not reflected in the previously viewed channel or input mode.

Off Timer

Turn the TV Standby mode automatically after a fixed period.

1. Display the menu with MENU.

2. Select Timer > Off Timer and press OK to access.

3. Select the time in 15-minute increments and press OK to set.

   90 / 75 / 60 / 45 / 30 / 15 / Off (minutes)

   • To cancel, set to Off or turn the TV off.

   • The remaining time is displayed on the bottom right of the screen.

   • When the remaining time is less than 3 minutes, the remaining time will flash on the screen.

Energy saving functions

The TV can be eco-friendly using energy-saving functions.

The TV goes into Standby mode in the following conditions:

- Eco Navigation is set to Set to Eco.

- Off Timer is active.

    🖼️ ➔ Watching > Basic > Off Timer

- No operation is performed for 4 hours while Auto Standby is set to On.

- No signal is received and no operation is performed for 10 minutes while No signal Power off is set to On.

= Note =

- This function does not affect the recording.

■ Auto Standby

1. Display the menu with MENU.

2. Select Timer > Auto Standby and press OK to access.

3. Select On / Off and press OK to set.

Auto Standby

(On / Off)

Automatically turns the TV to Standby mode for energy saving when no operation is performed for 4 hours.

- Automatic input switching with the connected equipment affects this function and time-count resets.

- A notification message will appear 3 minutes before going into Standby mode.

- Changing the default configuration may result in higher energy consumption of the product.

■ No signal Power off

1. Display the menu with MENU.

2. Select Timer > No signal Power off and press OK to access.

3. Select On / Off and press OK to set.

No signal Power off

(On / Off)

Automatically turns the TV to Standby mode to prevent unnecessary power consumption when no signal is received and no operation is performed for 10 minutes.

- A notification message will appear 3 minutes before going into Standby mode.

■ Eco Navigation

Automatically sets the TV to the most suitable energy-saving mode.

The concerned items and their current settings are displayed. Select Set to Eco to set them to the energy-saving settings at once.

1. Display the menu with MENU.

2. Select Setup > Eco Navigation and press OK to access.

3. Select Set to Eco and press OK to set.

- Auto Standby and No signal Power off are active when Eco Navigation is set to Set to Eco.

Adjusting time

Settings for the system time of this TV.

1. Display the menu with MENU.

2. Select Timer > Clock Settings and press OK to access.

3. Select one of the following items and press OK to set.

   Mode / Date / Time / Daylight Saving Time / Region Select

4. Set with Cursor buttons or Numeric buttons and press OK to store.
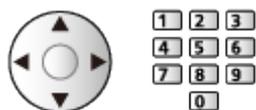
Mode

(Auto / Manual)

Selects the clock setting mode for this TV.

- Set to Auto to adjust the time automatically using the time information from the digital broadcast. Set to Manual to adjust manually.

Date

Sets the current date manually.

Time

Sets the current time manually.

Daylight Saving Time

Selects time offset from the standard time for Summer Time. (Base on GMT)

(+ 1 hour / + 1/2 hour / Off / Auto)

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

- Normally select Auto to adjust as following for the region has been set in Region Select.

  NSW / ACT / Victoria / Tasmania: +11:00

  South Australia: +10:30

  Queensland: +10:00

  Northern Territory: +9:30

  Western Australia: +8:00

Region Select

Selects the region where you live to adjust the standard time. (Base on GMT)

(NSW / ACT / Victoria / Queensland / South Australia / Western Australia / Northern Territory / Tasmania)

- The time contained in the broadcast signal is UTC (Universal Time coordinated) formally known as GMT (Greenwich Mean Time).

  NSW / ACT / Victoria / Queensland / Tasmania: +10:00

  South Australia / Northern Territory: +9:30

  Western Australia: +8:00

Language

1. Display the menu with MENU.

2. Select Setup > Language > OSD Language and press OK to access.

3. Set the item and press OK to store.

OSD Language

Changes language for on-screen displays.

4K resolution

4K compatible equipment

You can watch content in 4K format that has twice the horizontal and vertical resolution of the 1080p signal.

- For details of valid 4K format

   → Watching > 4K resolution > Valid 4K format

- Connect the 4K compatible equipment to HDMI terminal using a 4K compatible cable and you can watch content in 4K format.

■ 4K compatible equipment

1 HDMI terminal

2 HDMI cable

3 4K compatible equipment

- Check the terminal type and cable plugs are correct for connection.

- Use a fully wired HDMI compliant cable.

HDCP Setting

1. Display the menu with MENU.

2. Select Setup > HDCP Setting and press OK to access.

3. Set the item and press OK to store.

HDCP Setting

(Auto / 2.2 / 1.4)

Select a version of HDCP according to the content you watch.

- HDCP is a technology of copy protection for digital audio / video content.

- For HDMI

HDMI Auto Setting

1. Display the menu with MENU.

2. Select Setup > HDMI Auto Setting and press OK to access.

3. Set the item and press OK to store.

HDMI Auto Setting

(Mode1 / Mode2)

Set to Mode1 when the image in HDMI input is not displayed properly.

- For HDMI

Valid 4K format

■ Valid 4K format (HDMI)

● 4K UHD

3 840 × 2 160 (60p, 50p, 30p, 25p, 24p)

– Aspect is fixed to 16:9.

● DCI 4K

4 096 × 2 160 (60p, 50p, 30p, 25p, 24p)

– Actual resolution is 3 840 × 2 160p.

– Aspect is fixed to V Full.

= Note =

• The above signals are reformatted for optimal viewing on your display.

• 3D content in 4K format is not supported.

• For details of aspect

 ➡ Watching > For best picture > Aspect

External equipment

External connection

These diagrams show our recommendations for connection of your TV to various pieces of equipment. For other connections, consult the instructions for each piece of equipment.

- For details of basic connection

  → Watching > Basic > Basic connection

- To use the specific devices supporting Bluetooth wireless technology

  → Functions > Bluetooth devices

- Check the terminal type and cable plugs are correct for connection.

- External equipment and cables shown are not supplied with this TV.

■ HDMI equipment
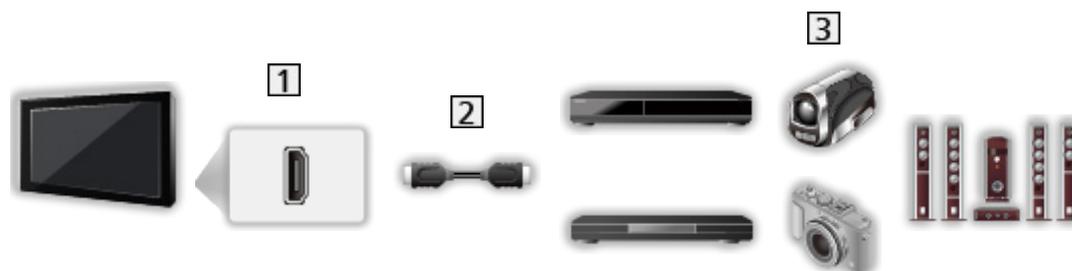
1. HDMI terminal

2. HDMI cable

3. Recorder / Player / Set top box / Camcorder / Amplifier with speaker system

= Note =

- Use a fully wired HDMI compliant cable.

- For details of VIERA Link connections

  → Functions > VIERA Link "HDAVI Control™" > Summary of VIERA Link

- Use HDMI2 to connect the TV to an amplifier which has ARC (Audio Return Channel) function.

■ AV devices
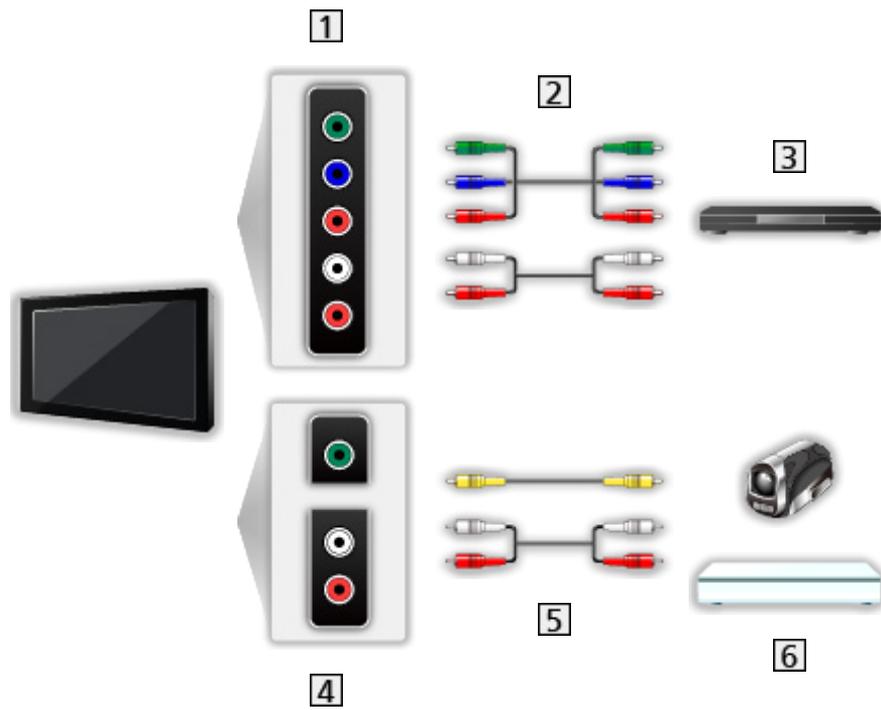
1 AV IN (COMPONENT) terminals

2 Component cables

3 DVD Player

4 AV IN (VIDEO) terminals

5 Composite cables

6 Camcorder / Game equipment

■ USB devices

[1] USB port

[2] USB cable

[3] USB HDD

= Note =

- It is recommended to connect the device to the TV's USB port directly.

- You cannot use two or more of the same kind of USB devices simultaneously except USB Flash Memory or USB HDD.

- Use USB 3 port for connecting the USB HDD.

- Some USB devices or USB HUB may not be used with this TV.

- You cannot connect any devices by using USB card reader.

- Additional information about the devices may be on the following website.

  http://panasonic.net/viera/support (English only)

■ Listening with external speakers

[1] DIGITAL AUDIO OUT

[2] Optical digital audio cable

[3] Amplifier with speaker system

- To enjoy multi-channel sound from external equipment (e.g. Dolby Digital 5.1ch), connect the equipment to the amplifier. For information about the connections, read the manuals of the equipment and amplifier.

- To select the sound output, set TV Speaker.

  → Watching > For best audio > Volume settings

Watching external input

Connect the external equipment (VCR, DVD, etc.) and you can watch through the input.

1. Display the input selection menu with `AV`.

2. Select the input mode connected to the equipment and press `OK` to watch. (The selected mode is displayed on the top left of the screen.)

   - You can also select the input pressing `AV`. Press repeatedly until the desired input is selected.

   - You can select COMPONENT and VIDEO in AV.

   - You can label or skip each input mode. Skipped inputs will not be displayed when `AV` is pressed. (Input Labels)

   - The remote control is capable of operating the content or external equipment.

     📖 → Watching > External equipment > Operating with TV's remote control

   - To return to TV mode

     `TV`

= Note =

   - If the external equipment has an aspect adjustment function, set it to 16:9.

   - For details, read the manual of the equipment or ask your local dealer.

■ Input Labels

Accesses the input labels list to select the label of each input mode or set to skip unconnected one for easier identification and selection in Input Selection, banner, etc.

📖 → Watching > Basic > Information banner

1. Display the menu with `MENU`.

2. Select Setup > Display Settings > Input Labels and press `OK` to access.

3. Set the item and press `OK` to set.

   - To name each input mode freely, select User input and set characters (maximum 10 characters).

   - To skip the input mode, select Skip.

■ Playing Time Display

Set to On to display a time period of continuous use in Game Mode on the top right of the screen every 30 minutes.

1. Display the menu with MENU.

2. Select Setup > Display Settings > Playing Time Display and press OK to access.

3. Select On / Off and press OK to set.

- This function is available when Game Mode is set to On.

Operating with TV's remote control

You can operate the content in Media Player / media server, recording functions or the connected equipment with the following buttons of this TV's remote control.

▶ :

Playback (VCR / DVD / video content)

■ :

Stop the operations

⏮ :

Rewind, view the picture rapidly in reverse (VCR)

Skip to the previous track, title or chapter (DVD / video content)

◀◀ :

Rewind, view the picture rapidly in reverse (VCR)

Search backward (DVD / video content)

⏭ :

Fast-forward, view the picture rapidly forward (VCR)

Skip to the next track, title or chapter (DVD / video content)

▶▶ :

Fast-forward, view the picture rapidly forward (VCR)

Search forward (DVD / video content)

⏸ :

Pause / Resume

Press and hold to play at slow speed (DVD)

● :

One Touch Recording

■ How to change the code

Each Panasonic product has its own remote control code. Change the code according to the product for operation.

1. Press and hold Standby On / Off switch during the following operations.

2. Enter the appropriate code as follows with Numeric buttons.

   * Codes for each product and features

     70: DVD Recorder, DVD Player, Blu-ray Disc Player

     71: Player theatre, Blu-ray Disc theatre

     72: VCR

     73 (default):

       Using in USB HDD recording, Media Player, DLNA features or VIERA Link

3. Press ▣ to change.

= Note =

   * Confirm if the remote control works correctly after changing the code.

   * The codes may be reset to defaults if batteries are replaced.

   * Some operations may not be available depending on the equipment.

HDMI features

HDMI (high-definition multimedia interface) is the world's first complete digital consumer AV interface complying with a non-compression standard.

HDMI allows you to enjoy high-definition digital images and high-quality sound by connecting the TV and the equipment.

HDMI-compatible equipment＊ with an HDMI or DVI output terminal, such as a DVD player, a set top box or game equipment, can be connected to the HDMI terminal using a fully wired HDMI compliant cable.

> 📖 ⇒ Watching > External equipment > External connection

＊ : The HDMI logo is displayed on HDMI-compliant equipment.

■ Applicable HDMI features

- Input audio signal:

  2ch Linear PCM (sampling frequencies - 48 kHz, 44.1 kHz, 32 kHz)

- Input video signal:

  Matches the output setting of the digital equipment.

  > 📖 ⇒ Watching > External equipment > Valid input signals

- VIERA Link (HDAVI Control 5)

  > 📖 ⇒ Functions > VIERA Link "HDAVI Control™" > Summary of VIERA Link

- Content Type

- Deep Colour

- Audio Return Channel

  – Audio Return Channel (ARC) is a function to send digital sound signals via an HDMI cable.

  – For HDMI2

- 3D

- x.v.Colour™

- 4K

  > 📖 ⇒ Watching > 4K resolution > Valid 4K format

■ DVI connection

If the external equipment has only a DVI output, connect to the HDMI terminal via a DVI to HDMI adaptor cable. When using the DVI to HDMI adaptor cable, connect the audio cable to the audio input terminal (use AV IN audio terminals).

- Enquire HDMI adaptor cable at your local digital equipment retailer shop.

= Note =

- Audio settings can be made on HDMI Input in the Sound Menu.

   → Watching > For best audio > Advanced settings

- If the connected equipment has an aspect adjustment function, set the aspect ratio to "16:9".

- These HDMI connectors are "type A".

- These HDMI connectors are compatible with HDCP (High-Bandwidth Digital Content Protection) copyright protection.

- Equipment having no digital output terminal may be connected to the input terminal of component or video to receive analogue signals.

- This TV incorporates HDMI™ technology.

Valid input signals

■ COMPONENT, HDMI

Signal name	COMPONENT	HDMI
525 (480) / 60i, 60p	○	○
625 (576) / 50i, 50p	○	○
750 (720) / 60p, 50p	○	○
1 125 (1 080) / 60i, 50i	○	○
1 125 (1 080) / 60p, 50p, 24p		○
3 840 × 2 160 / 60p, 50p, 30p, 25p, 24p		○
4 096 × 2 160 / 60p, 50p, 30p, 25p, 24p		○

○: Applicable input signal

= Note =

• Signals other than above may not be displayed properly.

• The above signals are reformatted for optimal viewing on your display.

For best picture

Viewing Mode

1. Display the menu with MENU.
2. Select Picture > Viewing Mode and press OK to access.
3. Select the mode and press OK to set.

Viewing Mode

(Dynamic / Normal / Cinema / THX Cinema / THX Bright Room / True Cinema / Custom / Professional1 / Professional2)

Selects your favourite picture mode for each input.

Dynamic:

Improves contrast and sharpness for viewing in a bright room.

Normal:

Normal use for viewing in a normal lighting condition.

Cinema:

Improves the performance of contrast, black and colour reproduction for watching movies in a darkened room.

THX Cinema *:

Reproduces the original image quality precisely in a darkened room.

- Not valid in 3D mode

THX Bright Room *:

Reproduces the original image quality precisely in a bright room.

- Not valid in 3D mode

True Cinema:

Reproduces the original image quality precisely without any revision.

Custom:

Adjusts each menu item manually to suit your favourite picture quality.

Professional1 / 2:

Allows you to set and lock the professional picture settings.

➡ Watching > For best picture > Advanced Settings

- If a certified professional dealer sets these modes, Professional1 and Professional2 may be displayed as isf Day and isf Night.

- The following items can be adjusted and stored for each mode.

   Backlight / Contrast / Brightness / Colour / Tint / Sharpness / Colour Temperature / Vivid Colour / Colour Remaster / Rec.2020 Colour Remaster / Reversal Film Effect / Adaptive Backlight Control / Ambient Sensor / Noise Reduction / MPEG Remaster / Resolution Remaster / Dynamic Range Remaster / Intelligent Frame Creation / 24p Smooth Film

- You can set Viewing Mode in 2D and 3D mode for each.

∗ : THX modes are used to mirror the picture settings used by professional filmmakers, faithfully reproducing the image quality of THX Certified movies. THX Certified movies have the THX logo on the disc. THX modes are not available for photo content.

Ambient Sensor

1. Display the menu with MENU.

2. Select Picture > Ambient Sensor and press OK to access.

3. Select On / Off and press OK to set.

Ambient Sensor

(On / Off)

- Automatic Brightness Control function

Adjusts picture settings automatically depending on ambient lighting condition.

Aspect

Change the aspect ratio (image size) with ASPECT.

■ To change the aspect ratio manually

1. Display Aspect Selection with ASPECT.

2. Select the mode and press OK to set.

   • You can also change the mode pressing ASPECT.

     (Press repeatedly until you reach the desired mode.)

16:9:

   Directly displays the image at 16:9 without distortion (anamorphic).

4:3:

   Displays the image at the standard 4:3 without distortion.

Zoom:

   Displays a 16:9 letterbox or 4:3 image without distortion.

V Full:

   Displays the image enlarged vertically to fit the screen without distortion.

   • For DCI 4K format

= Note =

   • Display the image (TV, external input, etc.) full-screen to use this function completely.

   • Aspect mode can be memorised separately for SD (Standard definition) and HD (High definition) signals.

   • Aspect is fixed to 16:9 in the following conditions:

     – 4K content except DCI 4K

     – Game Mode is set to On.

     – 1080p Pixel by 4pixels is set to On.

     – 1080p Pure Direct is set to On.

     – 4K Pure Direct is set to On.

   • Aspect cannot be changed in 3D format signals.

Basic settings

1. Display the menu with MENU.

2. Select Picture and press OK to access.

3. Select one of the following items and press OK to access.

   Backlight / Contrast / Brightness / Colour / Tint / Sharpness / Colour Temperature / Vivid Colour / Colour Remaster / Rec.2020 Colour Remaster / Reversal Film Effect / Adaptive Backlight Control / Resolution Remaster /Dynamic Range Remaster / Intelligent Frame Creation / 24p Smooth Film

4. Set the item and press OK to store.

Backlight, Contrast, Brightness, Colour, Tint, Sharpness

Adjusts the levels of these options according to your personal preference.

- Sharpness is not available when 1080p Pixel by 4pixels is set to On.

Colour Temperature

Sets the overall colour tone of the picture (bluer - redder).

Vivid Colour

(On / Off)

Automatically adjusts colours to vivid ones.

Colour Remaster

(Max / Min / Off)

Displays the vivid images with the expanded colour gamut.

- Not valid in the following conditions:
  - Photo content
  - Viewing Mode is THX mode.

Rec.2020 Colour Remaster

(Max / Min / Off)

Displays the vivid images with the suitable colour gamut.

- This function is available only for Rec. 2020 and displayed instead of Colour Remaster.

Reversal Film Effect

(Max / Min / Off)

Provides the picture effect such as the reversal film for photo content.

- For photo content
- Not valid when Viewing Mode is THX mode

Adaptive Backlight Control

Automatically controls the level of backlight according to the images.

Resolution Remaster

(Auto / Max / Mid / Min / Off)

Enhances picture resolution to make the image sharper.

Dynamic Range Remaster

(On / Off)

Enhances bright areas of the image closer to the original luminance making improved picture impact.

- Not valid in the following conditions:
  - 3D
  - Multi window
  - Adaptive Backlight Control is set to Off.
  - Contrast Control is set to Off.

Intelligent Frame Creation

(Max / Mid / Min / Off)

Automatically compensates the picture frame rate and removes juddering movements to make the images smooth.

- Depending on the content, images may be noisy. To prevent the noise, change the setting.
- Not valid in the following conditions:
  - Game Mode is set to On.
  - 1080p Pixel by 4pixels is set to On.
  - 1080p Pure Direct is set to On.
  - 4K Pure Direct is set to On.

24p Smooth Film

(Max / Mid / Min / Off)

Automatically compensates the picture frame rate to make the 24p source movie images smooth.

- This function is available only for 24p signal input and displayed instead of Intelligent Frame Creation.
- Not valid in the following conditions:
  - Game Mode is set to On.
  - 1080p Pixel by 4pixels is set to On.
  - 1080p Pure Direct is set to On.
  - 4K Pure Direct is set to On.

Noise reduction settings

1. Display the menu with MENU.

2. Select Picture > Noise Reduction / MPEG Remaster and press OK to access.

3. Set the item and press OK to store.

Noise Reduction

(Auto / Max / Mid / Min / Off)

Reduces unwanted picture noise.

- Not valid in the following conditions:
    - Game Mode is set to On.
    - 1080p Pixel by 4pixels is set to On.
    - 1080p Pure Direct is set to On.
    - 4K Pure Direct is set to On.

MPEG Remaster

(Auto / Max / Mid / Min / Off)

Reduces flicker noise in contoured parts of a picture and block noise.

- Not valid in the following conditions:
    - Game Mode is set to On.
    - 1080p Pixel by 4pixels is set to On.
    - 1080p Pure Direct is set to On.
    - 4K Pure Direct is set to On.

Advanced Settings

You can adjust and set up the detailed picture settings when Viewing Mode is set to Cinema, True Cinema, Custom or Professional1 / 2. The settings in True Cinema, Custom or Professional1 / 2 can be stored for each input.

> 🖼️ ➡ Watching > For best picture > Viewing Mode

1. Select the input mode with AV or TV.

2. Display the menu with MENU.

3. Select Picture > Viewing Mode and press OK to access.

4. Select the mode and press OK to set.

   Cinema / True Cinema / Custom / Professional1 / Professional2

■ Adjust the detailed picture settings

1. Display the menu with MENU.

2. Select Picture > Advanced Settings and press OK to access.

3. Select one of the following items and press OK to access.

   Contrast Control / Colour Gamut / White Balance / Colour Management / Gamma / Reset Picture Defaults

4. Set the item and press OK to store.

■ Contrast Control

Contrast Control

(Auto / Custom / Off)

Automatically adjusts the detailed contrast settings. Select Custom to set Contrast Control Setting manually.

Contrast Control Setting

   Adaptive Gamma Control:

      Adjusts the gamma curve to make the image brighter.

   Black Expander:

      Gradually adjusts the shades of black.

   Clear White Effect:

      Makes the white area clearer.

   Reset Contrast Control:

      Resets items for Contrast Control Setting.

■ Colour Gamut

Colour Gamut

(Native / Rec. 709 / SMPTE-C / EBU)

Reproduces image colour precisely according to the colour gamut standards.

Native:

Displays deep colours by expanding the colour gamut to its maximum.

Rec. 709:

Standard for HD (High definition)

SMPTE-C:

Standard for NTSC

EBU:

Standard for PAL

- Set Colour Remaster, Rec.2020 Colour Remaster and Reversal Film Effect to Off to use this function.

■ White Balance

R-Gain / G-Gain / B-Gain

Adjusts the white balance of bright red / green / blue areas.

R-Cutoff / G-Cutoff / B-Cutoff

Adjusts the white balance of dark red / green / blue areas.

More Detailed Adjustment

Adjusts more detailed items for White Balance.

Input Signal Level:

Adjusts the input signal level.

R-Gain / G-Gain / B-Gain:

Adjusts the detailed white balance of bright red / green / blue areas.

Reset White Balance:

Resets items for More Detailed Adjustment.

Reset White Balance

Resets White Balance to the default settings.

■ Colour Management

R-Hue / R-Saturation / R-Luminance

Adjusts the picture hue / saturation / luminance of red areas.

G-Hue / G-Saturation / G-Luminance

Adjusts the picture hue / saturation / luminance of green areas.

B-Hue / B-Saturation / B-Luminance

Adjusts the picture hue / saturation / luminance of blue areas.

More Detailed Adjustment

Adjusts more detailed items for Colour Management.

　　C-Hue / M-Hue / Y-Hue:

　　　　Adjusts the picture hue of cyan / magenta / yellow areas.

　　C-Saturation / M-Saturation / Y-Saturation:

　　　　Adjusts the saturation of cyan / magenta / yellow areas.

　　C-Luminance / M-Luminance / Y-Luminance:

　　　　Adjusts the luminance of cyan / magenta / yellow areas.

　　Reset Colour Management:

　　　　Resets items for More Detailed Adjustment.

Reset Colour Management

Resets Colour Management to the default settings.

■ Gamma

Gamma

Switches the gamma curve.

- Please note the numerical values are reference for the adjustment.

More Detailed Adjustment

Adjusts more detailed items for Gamma.

    Input Signal Level:

        Adjusts the input signal level.

    Gain:

        Adjusts the gain of gamma for selected signal level.

    Reset Gamma:

        Reset items for More Detailed Adjustment.

Reset Gamma

Reset Gamma to the default settings.

■ Reset Picture Defaults

Reset Picture Defaults

Resets Advanced Settings to the default settings.

Option Settings

1. Display the menu with MENU.

2. Select Picture > Option Settings and press OK to access.

3. Select one of the following items and press OK to access.

   Game Mode / Film Cadence Mode / 1080p Pure Direct / 4K Pure Direct / 1080p Pixel by 4pixels / HDMI Content Type / HDMI RGB Range / 3D-COMB

4. Set the item and press OK to store.

Game Mode

(On / Off)

Provides suitable images for fast response signals when playing games.

- Not valid in TV mode

- To display a continuous record of time spent using Game Mode, set Playing Time Display.

Film Cadence Mode

(On / Off)

Improves vertical resolution for movie images.

- This function is available for interlaced signals (except in the mode of multi window, Network services or when Game Mode is set to On).

1080p Pure Direct

(On / Off)

Reproduces the original image quality in detail for 1080p (HDMI) input signal.

- Not valid in the following conditions:
  - 3D
  - Multi window
  - 1080p Pixel by 4pixels is set to On.

4K Pure Direct

(On / Off)

Reproduces the original image quality in detail for 4K (HDMI) input signal.

- Not valid in the following conditions:
  - 3D
  - Multi window

1080p Pixel by 4pixels

(On / Off)

Displays like pixel by pixel to make the image sharper for 1080p signal.

- For HDMI

- Not all image may be displayed as pixel by pixel precisely.

- Not valid in the following conditions:

  – 3D

  – Multi window

HDMI Content Type

(Graphics / Photos / Auto / Off)

Adjusts the picture settings of each HDMI input according to the selected content type.

> Auto:

> Automatically adjusts the picture settings according to the received HDMI content if the connected equipment supports HDMI Content Type.

- To set the availability of each content type for Auto mode, select Auto Detail Setting.

- For HDMI

HDMI RGB Range

(Auto / Full / Normal)

Adjusts the black level of the image for each HDMI input.

- When the black level is not suitable, select Full.

- For HDMI

3D-COMB

(On / Off)

Makes still or slow moving pictures more vivid.

- Occasionally, while viewing still or slow moving pictures, colour patterning may be seen. Set to On to display sharper and more accurate colours.

- For PAL / NTSC signal reception in TV mode or from composite connection

Screen Settings

1. Display the menu with MENU.

2. Select Picture > Screen Settings and press OK to access.

3. Select one of the following items and press OK to access.

   16:9 Overscan / Zoom Adjustments / Screen Display

4. Set the item and press OK to store.

16:9 Overscan

(On / Off)

Selects the screen area displaying the image for 16:9 aspect.

> On:
>
> > Enlarges the image to hide the edge of the image.
>
> Off:
>
> > Displays the image in the original size.

- Set to On if noise occurs on the edge of the screen.

- This function can be memorised for SD (Standard definition) and HD (High definition) signals respectively.

- Not valid in the following conditions:
  - 4K content
  - Photo content
  - Game Mode is set to On.
  - 1080p Pixel by 4pixels is set to On.
  - 1080p Pure Direct is set to On.
  - 4K Pure Direct is set to On.
  - Multi window

Zoom Adjustments

Adjusts the vertical position and size when aspect is set to Zoom.

- Not valid in the following conditions:
  - 4K content
  - Multi window

Screen Display

(On / Off)

Turns the screen off when you select Off.

- This function is effective in reducing power consumption when listening to the sound without watching the TV screen.

- Press any buttons (except Standby On / Off switch) to turn the screen on.

Screen Display

(On / Off)

Lock Settings

Locks the settings of Professional1 / 2 for each input.

- Select Professional1 / Professional2 in Viewing Mode in advance.

  📖 → Watching > For best picture > Viewing Mode

1. Display the menu with MENU.

2. Select Picture > Lock Settings and press OK to access.

3. Enter the PIN number (4 digits) with Numeric buttons.

1	2	3
4	5	6
7	8	9
	0	

   - Enter the PIN number twice at first setting.

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

4. Select Adjustment Lock and press OK to access.

5. Select On and press OK to set.

- The following items can be locked.

  Backlight / Contrast / Brightness / Colour / Tint / Sharpness / Colour Temperature / Vivid Colour / Adaptive Backlight Control / Resolution Remaster / Dynamic Range Remaster / Advanced Settings / Reset Picture Defaults

■ To change the PIN number

1. Select Change PIN and press OK to access.

2. Enter a new PIN number twice with Numeric buttons.

1	2	3
4	5	6
7	8	9
	0	

Copy Adjustment

Copies the picture settings of True Cinema, Custom, Professional1 or Professional2 to those of the other input mode or Viewing Mode.

1. Display the menu with MENU.

2. Select Picture > Copy Adjustment > Destination Viewing Mode / Destination Input and press OK to access.

3. Select the destination to copy to and press OK to set.

4. Select Copy Start and press OK to copy.

5. When a confirmation screen is displayed, select Yes and press OK to set.

= Note =

- Option Settings, Screen Settings and 3D Settings are not copied.

- You cannot copy to the locked mode.

For best audio

Sound mode

1. Display the menu with MENU.

2. Select Sound > Mode and press OK to access.

3. Select the mode and press OK to set.

Mode

(Standard / Music / Ambience / User)

Selects your favourite sound mode for each input.

Standard:

Provides the suitable sound quality for all types of scenes.

Music:

Improves sound quality for watching music videos, etc.

Ambience:

Improves spatial effects and provides clear sounds.

User:

Adjusts the sounds manually using the equaliser to suit your favourite sound quality.

- The following items can be adjusted and stored for each mode.

Bass / Treble / Surround / Bass Boost

- For the User mode, Equaliser is available in the Sound Menu instead of Bass and Treble. Select Equaliser and adjust the frequency.

- This function is effective only for the sound from TV speakers.

Basic settings

1. Display the menu with MENU.

2. Select Sound and press OK to access.

3. Select one of the following items and press OK to access.

   Bass / Treble / Equaliser / Balance / Surround / Bass Boost

4. Set the item and press OK to store.

Bass

Adjusts level to enhance or minimise lower, deeper sound output.

Treble

Adjusts level to enhance or minimise sharper, higher sound output.

Equaliser

Adjusts the frequency level to suit your favourite sound quality.

- This function is available when Mode is set to User.

- Select the frequency and adjust the frequency level.

- To enhance the bass sound, raise the level of the lower frequency. To enhance the treble sound, raise the level of the higher frequency.

- To reset the levels of each frequency to the default settings, select Reset Equaliser Settings and press OK.

- This function is effective only for the sound from TV speakers.

Balance

Adjusts volume level of right and left speakers.

Surround

(Virtual Surround / Off)

Selects surround sound settings.

Virtual Surround:

   Provides a dynamic enhancer of width and depth to simulate improved spatial effects.

- This function is effective only for the sound from TV speakers.

Bass Boost

(On / Off)

Enhances the effect of bass sounds.

- This function is effective only for the sound from TV speakers.

Bass Boost

(On / Off)

Enhances the effect of bass sounds.

Volume settings

1. Display the menu with MENU.

2. Select Sound and press OK to access.

3. Select one of the following items and press OK to access.

    Speaker Selection / TV Speaker / Auto Gain Control / Volume Correction / Speaker Distance to Wall

4. Set the item and press OK to store.

Speaker Selection

(TV / Home Cinema)

Enables controlling the theatre speaker with this TV's remote control by pointing at the TV's signal receiver.

> TV:
>
> > TV speakers are active.
>
> Home Cinema:
>
> > The sound is delivered from theatre speakers. Player theatre, Blu-ray Disc theatre or Amplifier will be automatically turned on if it is in Standby mode.
> >
> > * The sound of TV speakers is mute. When the equipment is turned off, TV speakers will be activated.
> >
> > * You can use Volume Up / Down and MUTE.

* This function is available when the theatre speakers supporting VIERA Link function is connected to this TV.

TV Speaker

(On / Off)

Set to Off when using the external speakers.

Auto Gain Control

(On / Off)

Automatically regulates large sound level differences between channels and inputs.

Volume Correction

Adjusts the volume of each individual channel or input mode.

Speaker Distance to Wall

(Up to 30cm / Over 30cm)

Compensates for the low frequency sound due to the distance between the speakers and the wall.

- If the back space between the TV and wall is within 30 cm, Up to 30cm is recommended.

- If the back space between the TV and wall is over 30 cm, Over 30cm is recommended.

- This function is effective only for the sound from TV speakers.

Voice Guidance Settings

1. Display the menu with MENU.

2. Select Sound > Voice Guidance Settings and press OK to access.

3. Select one of the following items and press OK to access.

   Voice Guidance / Speed / Volume / Language / User Level / Web Browser

4. Set the item and press OK to store.

Voice Guidance

(On / Off)

Set to On to enable voice guidance of the basic features (on-screen messages, etc.) for visually impaired users.

- Not valid in multi window mode

Speed

(Fast / Normal / Slow)

Selects the readout speed for the voice guidance.

Volume

(Max / Mid / Min)

Selects the volume for the voice guidance.

Language

Changes language for the voice guidance.

User Level

(Beginner / Expert)

Selects the level of verbosity for the voice guidance.

Web Browser

(On / Off)

Set to On to enable voice guidance of the network content in web browser function.

= Note =

- Voice guidance function may not correspond exactly.

Audio Description

1. Display the menu with STTL/AD.

2. Select Audio Description and press OK to access.

3. Select one of the following items and press OK to access.

   Audio Description / Volume / Speakers / Audio Selection

4. Set the item and press OK to store.

   - You can also select this function from Audio Description in the Sound Menu.

Audio Description

(Auto / Off)

Narration settings for visually impaired users

Set to Auto to activate the narration sound track when available on the broadcast.

- The availability of audio description sound track is indicated by AD in the information banner.

- Not valid in Analogue TV

- Not valid in multi window mode

Volume

Adjusts the volume for Audio Description.

- Not valid in Analogue TV

Speakers

(Mix / Standard)

Set to Mix to activate the description sound track from TV speakers.

- Not valid in Analogue TV

Audio Selection

Selects between alternative languages for sound tracks (if available).

- This setting is not memorised and it returns to the default setting once you exit the current programme.

- Not valid in Analogue TV

Advanced settings

1. Display the menu with MENU.

2. Select Sound and press OK to access.

3. Select one of the following items and press OK to access.

   MPX / Digital Audio Preference / SPDIF Selection / PCM Optical Level / HDMI Input

4. Set the item and press OK to store.

MPX

Selects multiplex sound mode (if available).

  Stereo:

     Use this normally.

  Mono:

     When stereo signal cannot be received

  M1 / M2:

     Available while mono signal is transmitted

 • For Analogue TV

- -

When you receive the stereo / bilingual sound system, sound output modes can be selected by using the MPX in the Sound Menu.

 • Meanings of mode indicators

   ⚭ : STEREO

   Ⅰ : MAIN I

   Ⅱ : SUB II

   ▽ : MONO

■ Available mode indicator for each type of broadcast

 • NICAM - Used in New Zealand, Singapore, Hong Kong, etc.

   – Regular broadcast (Standard Audio): No indicator / ▽

   – Regular + NICAM MONO I (MAIN I): Ⅰ / ▽

   – NICAM STEREO: ⚭ / ▽

   – NICAM DUAL MONO (MAIN I / SUB II): Ⅰ / Ⅱ / ▽

- A2 (German) - Used in Australia, Malaysia, etc.
  - Regular broadcast (Standard Audio): No indicator / ▽
  - BILINGUAL or DUAL MONO (MAIN I / SUB II): I / II
  - STEREO: ⬮ / ▽

= Note =

- If the stereo signal is poor or the receiving conditions are not optimum or if STEREO:MONO automatic switching occurs, it is recommended to switch from STEREO to MONO.

- Selected mode is not affected when the contents of the receiving signal change.

- When the receiving conditions deteriorate, listening will be easier if the mode is set to the MONO position pressing the Sound Selection button.

- DUAL, also known as DUAL MONO or as BILINGUAL is not currently transmitted in some countries.

Digital Audio Preference

(Dolby D / MPEG)

Selects the initial setting for audio tracks.

Dolby D:

The priority is given to Dolby Digital.

MPEG:

The priority is given to MPEG.

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

- MPEG is an audio compression method that compresses audio to the smaller size without any considerable loss of audio quality.

- Not valid in Analogue TV

SPDIF Selection

(Auto / PCM)

Selects the initial setting for digital audio output signal from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals.

- SPDIF is a standard audio transfer file format.

    Auto:

    Dolby Digital Plus, Dolby Digital and HE-AAC multi-channel are output as Dolby Digital Bitstream. MPEG is output as PCM. DTS is output as DTS for video content.

    PCM:

    Digital output signal is fixed to PCM.

- ARC (Audio Return Channel) is a function of digital audio output using HDMI cable.

- For digital TV, video content

    📖 ➜ Media Player > Video mode > Audio output settings

    📖 ➜ Network > Videos > Audio output settings

PCM Optical Level

Adjusts the audio level of PCM output from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals to equalise with that of the other audio types.

HDMI Input

(Digital / Analogue)

Selects to fit the input signal.

   📖 ➜ Watching > External equipment > HDMI features

    Digital:

    When sound is carried via the HDMI cable connection

    Analogue:

    When sound is not carried via the HDMI-DVI adaptor cable connection

- For HDMI

TV Guide

Using TV Guide

TV Guide - Electronic Programme Guide (EPG) provides an on-screen listing of the programmes currently broadcast and the forthcoming broadcasts over the next seven days (depending on the broadcaster).

- Not valid in Analogue TV

1. Select Digital TV with TV.

2. Display TV Guide with GUIDE.

   (Example)

1 Date

2 Time

3 Programme

4 Channel position and name

- To watch the programme

   1) Select the current programme and press OK to access.

   2) Select View and press OK to watch.

      – To use Timer Programming

         🖼️ ⇒ Watching > TV Guide > Timer Programming

- To the previous day

   🟥 (red)

- To the next day

   🟩 (green)

- To view a channel list of the selected type

    1) Display the type list with ▭ (yellow).

    2) Select the type and press OK to view.

- To view a channel list of the selected favourite list

    1) Display the favourite list with ▭ (blue).

    2) Select the favourite and press OK to view.

        – To list favourite channels, set Favourites Edit.

            🖼️ ➡ Watching > Tuning and editing channels > Favourites Edit

- To view more details of the programme

    1) Select the programme.

    2) Press INFO to view.

        – Press again to return to TV Guide.

- To exit TV Guide

    EXIT

= Note =

- When this TV is turned on for the first time, or the TV is switched off for more than a week, it may take some time before TV Guide is completely shown.

Timer Programming

This function allows you to select programmes that you want to record to the USB HDD.

1. Display TV Guide with GUIDE.

2. Select the forthcoming programme and press OK to access.

   - To check / change / cancel a timer event

     📖 → Recording > Timer Programming > Editing Timer Programming

   - LED turns to orange in Standby mode when Timer Programming is set.

   - To return to TV Guide

     RETURN

   - If you select the current programme, a confirmation screen asking whether you want to watch or record the programme appears. Select Timer Programming and press OK to set USB HDD Rec. to record from the time you finish the timer event setting.

= Note =

- Not valid in Analogue TV

- Timer Programming only works reliably if correct time information is received via the signal from the broadcaster or service provider.

- When recording programmes to the USB HDD, be sure to format the USB HDD and enable it to record in USB Device Setup.

  📖 → Recording > USB HDD setup

- To set timer programming events of this TV on the network equipment (smartphone, etc.) from outside the home network

  📖 → Recording > Timer Programming > Remote recording

3D

Note

- Display the image (TV, external input, etc.) full-screen for viewing 3D.

- If the room is lit by fluorescent lights (50 Hz) and light appears to flicker when using the 3D Eyewear, switch off the fluorescent light.

- Do not apply pressure on or scratch the lens of the 3D Eyewear.

- 3D content will not be correctly visible if the 3D Eyewear is worn upside down or back-to-front.

- When viewing 3D images, make sure your eyes are in a horizontal position where double vision does not occur.

- Do not wear the 3D Eyewear for purposes other than viewing 3D images. Liquid crystal displays (such as computer screen, digital clock, calculator, etc.) may be difficult to see while wearing the 3D Eyewear.

- Do not use the 3D Eyewear as a substitute for sunglasses.

- 3D effects may be perceived differently depending on the person.

3D Eyewear - Functions

■ Part names and functions

1 Power button / Mode change / Indicator lamp

- Power button

    – Press and hold for approx. 1 second to turn the 3D Eyewear on. (The indicator lamp lights for 2 seconds.)

    – Press and hold for 3 seconds or more to turn the 3D Eyewear off. (The indicator lamp lights 3 times.)

- Mode change

    – Press and hold for approx. 1 second to change the mode between 3D and 2D (view a 3D image in 2D).

    – When the power is off, press and hold for approx. 5 seconds to change to registration mode.

- Indicator lamp

    – Lights or flashes during use to show the status (see below).

2 Protection film

    – Peel off the protection film on both sides of the lens.

3 Insulating sheet

    – When using for the first time, remove the insulation sheet by pulling it.

4 Battery cover

    – To replace the battery

■ Indicator lamp status

- Lights red for 2 seconds when turned on:

    Sufficient battery level

- Flashes 5 times when turned on:

    Low battery level

- Flashes red:

    Currently registering

- Flashes red once every second:

    Currently reconnecting to the TV

- Flashes red 3 times:

    – Power turns off when pressing the power button for 3 seconds or more when in use.

    – Power turns off automatically when registering, or when reconnection fails or connection is lost.

- Flashes red once every 2 seconds when in use:

    3D mode is selected.

- Flashes red twice every 4 seconds when in use:

    2D mode is selected.

3D Eyewear - Registration

■ First registration

Perform the first registration when the 3D Eyewear is used for the first time.

1. Turn the TV on.

2. Press Power button for approx. 1 second to turn the 3D Eyewear on.

    • The lamp lights for approx. 2 seconds and then flashes.

    • The 3D Eyewear is turned on and the registration starts.

    • Place the 3D Eyewear within 50 cm from the TV while registration is in progress.

3. Once the registration is successfully completed, the 3D Eyewear will reconnect to TV automatically when the 3D Eyewear is turned on near the TV in 3D mode.

■ Registration again

When connection with the registered TV fails, or when using with another TV, re-register the 3D Eyewear.

1. Turn the TV on.

2. Within 50 cm from the TV, press the Power button until the lamp lights, then release it to start registration.

3. Once the registration is successfully completed, the 3D Eyewear will reconnect to TV automatically when the 3D Eyewear is turned on near the TV in 3D mode.

= Note =

• If the registration fails, the 3D Eyewear will be turned off. In this case, turn the TV off and perform from step 1.

3D Eyewear - Replacing battery

When the battery is running low, the indicator lamp flashes 5 times on turning the 3D Eyewear on. In this case, early battery replacement is recommended.

- Dispose of the old battery as non-burnable rubbish, or in line with the waste disposal regulations in your local area.

1. Remove the battery cover using pen tip or screwdriver (minus -), etc.

2. Replace the battery (coin-shaped lithium battery CR2025).
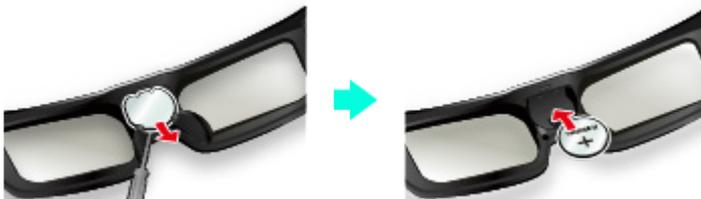
- If you have difficulty, remove it with the tip of the driver.

- Make sure the polarity is correct (+ or -).

3. Attach the battery cover.

3D Eyewear - Maintenance

■ Storing and cleaning the 3D Eyewear

- Store the 3D Eyewear in a cool, dry place.

- Clean using a soft, dry cloth.

  – Wiping the 3D Eyewear with a dusty or dirty cloth may scratch the eyewear. Shake off dust from the cloth before use.

  – The lens of the 3D Eyewear is easily broken. Be careful when cleaning the lens.

- Do not apply benzene, thinner or wax on the 3D Eyewear. Doing so may cause peeling of the paint.

- Do not dunk the 3D Eyewear in liquid such as water.

Viewing 3D

You can enjoy viewing 3D images of content or programmes supporting 3D effects by wearing the 3D Eyewear.

- This TV supports Frame Sequential, Side by Side and Top and Bottom 3D formats.

  – Frame Sequential is the 3D format that the images for right and left eyes are recorded with high definition quality and alternately played back.

- 3D content in 4K format is not supported.

1. Turn the 3D Eyewear on and put it on.

   - Use Panasonic 3D Eyewear supporting Bluetooth wireless technology for active shutter 3D.

     📖 ➔ Support > Optional accessories > 3D Eyewear

   - The 3D Eyewear must be worn to view 3D images. Perform the first registration when the 3D Eyewear is used for the first time.

     📖 ➔ Watching > 3D > 3D Eyewear - Registration

   - Connection status and battery status are displayed on the bottom right of the screen.

2. View the 3D images.

   - Safety precautions will be displayed when you first watch the 3D image. Select Yes or No to continue to view 3D images.

     If you select Yes, this message will be displayed again in the same condition after Mains Power On / Off switch is next turned on. Select No if you do not want to display this message again.

   - Turn off the 3D Eyewear after using it.

■ Playing back 3D-compatible Blu-ray disc (Frame Sequential)

- Connect the 3D-compatible player via a fully wired HDMI compliant cable. (If you use the non 3D-compatible player, the images will be displayed in 2D mode.)

- If the input mode is not switched automatically, select the input mode connected to the player.

  📖 ➔ Watching > External equipment > Watching external input

■ 3D-supported broadcast

- Please consult the suppliers of content or programmes for availability of this service.

■ 3D photos and 3D videos taken by 3D-compatible Panasonic products

- Available in Media Player and Network services

  📖 ➔ Media Player

  📖 ➔ Network

■ 2D images converted to 3D

- Set to 2D→3D mode in 3D Mode Selection.

  📖 ➔ Watching > 3D > 3D Mode Selection

- Content in 4K format cannot be converted to 3D mode.

3D Mode Selection

You can change the viewing mode for 3D image.

1. Display the menu with MENU.

2. Select Picture > 3D Settings > 3D Mode and press OK to access.

3. Select the mode and press OK to set.

- Items for 3D Mode Selection vary depending on the condition.

Original:

Displays the source image as it is.

- Use to identify the format type of the source image.

  📖 ➡ Watching > 3D > Source image format

Side by Side - 3D / Top and Bottom - 3D:

Displays the mode you select.

- For digital signals

2D→3D:

Converts 2D images into 3D.

- Please note the 3D images appear slightly different from the originals.

- Using this function for profit-making purposes, or publically showing images converted from 2D to 3D in places such as shops, hotels, etc. may infringe on the rights of the copyright holder protected under copyright law.

3D Settings

1. Display the menu with MENU.

2. Select Picture > 3D Settings and press OK to access.

3. Select one of the following items and press OK to access.

   3D Mode / 2D→3D Depth / 3D Adjustment / L/R Picture Swap / Safety Precautions

4. Set the item and press OK to store.

- To exit the menu screen

  EXIT

3D Mode

Selects the 3D format manually.

　　📖 ➡ Watching > 3D > 3D Mode Selection

2D→3D Depth

(Max / Mid / Min)

Selects a level of 3D-image depth for viewing converted 2D images.

3D Adjustment

(On / Off)

Adjusts the 3D effect while viewing 3D image (except in 2D→3D mode).

Set to On to enable Effect setting.

- When setting to On, a safety precaution message will appear. Read it carefully and press RETURN to go to Effect setting.

- When adjusting, take into account that the vision of 3D images varies among different individuals.

  Effect:

  Adjusts the 3D depth according to the content or to your preference. (This setting is not memorised when changing the input mode or channel.)

L/R Picture Swap

(L/R (Normal) / R/L (Reversed))

Swaps pictures for left eye and right eye (except in 2D→3D mode).

Select R/L (Reversed) if you feel that the sense of depth is unusual.

- This setting is not memorised when changing the input mode or channel.

Safety Precautions

Displays the precautions for viewing 3D images.

= Note =

- Display the image (TV, external input, etc.) full-screen to use this function completely.

Source image format

If the picture appears to be abnormal, refer to the table of images that can be seen for each 3D Mode Selection and each source image format, and select the correct 3D mode.

- 3D images are displayed correctly with the appropriate 3D formats shown in the yellow boxes below.

1 Source image format

2 Side by Side

3 Top and Bottom

4 Normal format (2D)

5 3D Mode Selection

6 Original

7 Side by Side - 3D

8 Top and Bottom - 3D

9 2D→3D

- Depending on the player or broadcast, the image may be different from the above illustrations.

Tuning and editing channels

Setting menu

You can retune channels, create your favourite channel lists, skip unwanted channels, etc.

1. Select Digital TV or Analogue TV with TV.

2. Display the menu with MENU.

3. Select Setup > Tuning Menu and press OK to access.

   Digital TV Tuning Menu / Analogue TV Tuning Menu

   • The menu name varies depending on the TV mode.

4. Select one of the functions and press OK to access.

   Favourites Edit / Channel List / Auto Tuning / Manual Tuning / Update Channel List / New Channel Message / Signal Condition / Add TV Signal

Favourites Edit

■ List favourite digital TV channels

Create your favourite channel lists from various broadcasters (up to 4: Favourites 1 to 4).

The favourites lists are available for switching in the information banner and the TV Guide screen.

📖 ➡ Watching > Basic > Information banner

📖 ➡ Watching > TV Guide > Using TV Guide

1. Select Favourites Edit and press OK to access.

2. Select a channel to list from all digital TV channels.

   • 🔒 appears when the channel is encrypted.

   • To display other favourites

     🟩 (green)

3. Press OK to add it to favourites list.

   • To add all channels to the list

     🟨 (yellow)

4. Press RETURN and OK to store.

■ Edit favourites list

You can edit the favourites list while the cursor is on the channel in the favourites list.

- To move the channel

  1) Select the channel.

  2) Press ▭ (green).

  3) Select the new position with Cursor buttons or Numeric buttons.
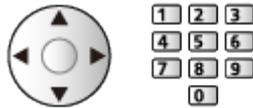
  4) Press ▭ (green) to store.

- To delete the channel

  1) Select the channel.

  2) Press OK to delete.

     – Press ▭ (yellow) to delete all channels.

- To name the favourites

  1) Press ▭ (red).

  2) Enter characters (maximum 10 characters) with Cursor buttons or Numeric buttons, and press OK to set.
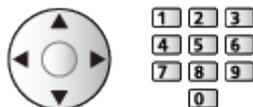
  3) Press RETURN to store.

= Note =

- Channel numbers are defined by the broadcaster and cannot be changed.

- Hidden channels can be selected but not viewed.

Channel List

■ Skip unwanted channels

You can hide (skip) unwanted channels. The hidden channels cannot be displayed except in this function.

1. Select Channel List and press OK to access.

2. Select a channel.

3. Press OK to set Reveal / Hide (skip).

    ☑ : Reveal

    ☐ : Hide (skip)

    • To reveal all channels (if available)

       (yellow)

■ Edit channels

• To swap / move the channel position (if available)

   1) Press (green) to edit.

   2) Set the new position with Cursor buttons or Numeric buttons, and press (green) to store.
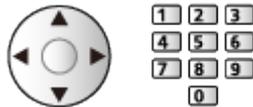
• To retune each channel (Manual Tuning)

    (red)

• To rename the channel name (Analogue TV)

   1) Press (blue) to edit.

   2) Enter characters (maximum 5 characters) with Cursor buttons or Numeric buttons, and press OK to set.
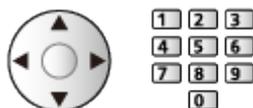
   3) Press RETURN to store.

= Note =

• If a VCR is connected only with the RF cable in Analogue TV, edit VCR.

Auto Tuning

Automatically retunes the channels received in the area.

- All the previous tuning settings are erased.

- Search begins in the order from the lower channels to the higher channels.

- Child Lock PIN number is required to retune locked channels.

  🖼️ ➔ Functions > Child Lock > PIN number

- If tuning has not been done completely, set Manual Tuning.

  🖼️ ➔ Watching > Tuning and editing channels > Manual Tuning

1. Select Auto Tuning and press OK to access.

2. A confirmation screen is displayed and press OK to start Auto Tuning. (Settings are made automatically.)

   - When the operation is completed, the channel at the lowest position will be displayed.

- This setting is applicable only for the selected TV mode.

■ Auto Tuning using the buttons on the TV

1. Press and hold INPUT/OK/HOLD for MENU button for 3 seconds to display the menu.

2. Set Auto Tuning with following control panel buttons.

   - Move the cursor / select from a range of options / select the menu item

     ∧ ▲ ▮   + ▶ ▮
     CH   VOL
     ∨ ▼ ▮   − ◀ ▮
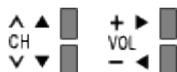
   - Access the menu / store settings after adjustments have been made or options have been set with INPUT/OK/HOLD for MENU button

Manual Tuning

■ Digital TV

Normally use Auto Tuning or Update Channel List to retune Digital TV channels.

If tuning has not been done completely or for adjusting the direction of the aerial, use this function.

- All Digital TV channels are added to Channel List.

1. Select physical channel and offset.

2. Press OK to search.

■ Analogue TV

Set Analogue TV channel manually after Auto Tuning.

1. Select the channel position with Numeric buttons.

2. Select the channel with Channel Up / Down.

3. Set Manual Tuning.

4. Select Store and press OK to set.

- If a VCR is connected only with the RF cable, select channel position 0.

Update Channel List

By updating the Digital TV channel list, you can add new channels, delete removed channels or change channel names and positions automatically.

- The channel list is updated while keeping your settings in Favourites Edit, Channel List, Child Lock, etc.

- Depending on the signal condition, the update may not work properly.

New Channel Message

Selects whether to give a notification message when a new digital TV channel is found or not.

- When a notification message appears, you can perform Update Channel List pressing OK.

- Sometimes, mainly during summer months at night, the TV may pick up distant TV stations outside your broadcast due to favourable short term ionosphere conditions. In such circumstances when you press OK, the TV does not add any new channels. This is normal.

Signal Condition

Selects a channel and checks the signal condition with indicators.

- A good Signal Strength is not an indication of suitable signal reception.

- To change the channel

- Not valid in Analogue TV

Add TV Signal

Adds the TV mode.

- This function is available if you skip any modes to tune in Auto Tuning for first using the TV.

Recording

USB HDD setup

Preparations

You can record the digital TV programmes to the connected USB HDD and enjoy playing back in various ways.

- Prepare the USB HDD for the exclusive use of recording with this TV.

- Connect the USB HDD to the USB 3 port with the USB cable.

- Be sure to connect the USB HDD to the mains socket.

- To remove the USB HDD safely from the TV, perform Safely remove USB in USB Device Setup.

  → Recording > USB HDD setup > Setting for USB HDD

- Check the terminal type and cable plugs are correct for connection.
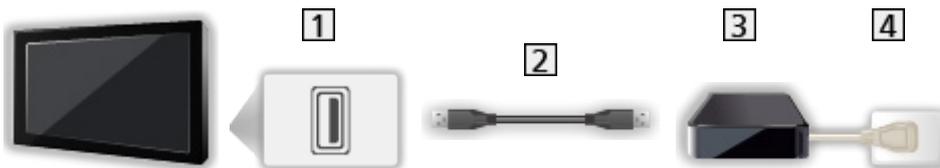
1 USB port

2 USB cable

3 USB HDD

4 Mains socket

= Caution =

- All data in the USB HDD will be erased in the following cases:

  – When formatting the USB HDD with this TV

     ➔ Recording > USB HDD setup > Setting for USB HDD

  – When formatting the USB HDD to use on PC, etc.

- When the TV is repaired due to a malfunction, you may have to format the USB HDD again with this TV to use it. (All data will be erased after formatting.)

- To use the USB HDD with your PC after recording with this TV, format it again on your PC. (Special operations or tools may be necessary to format on your PC. For details, read the manual of the USB HDD.)

- The data recorded on the USB HDD with this TV can only be played back on this TV. You cannot play back its content with another TV (including the TV of the same model number) or any equipment.

- Do not turn the TV off, pull out the mains plug or remove the USB HDD during operation (formatting, recording, etc.). Doing so may cause malfunction of the device or damage the recorded data. (An electric outage may also be a cause of malfunction.)

= Note =

- Analogue TV programme cannot be recorded on the USB HDD.

- The data broadcasting (MHEG, etc.), radio broadcasting are not recorded, and also the recording function does not work during the period without any signal.

- Not all the programmes can be recorded depending on the broadcaster and service provider.

- You cannot copy the recorded TV programmes of the USB HDD.

- The recorded content may not be played back properly depending on the progress of recording.

- For details of the USB HDD

   ➔ Recording > Technical information > USB HDD

Setting for USB HDD

Format and set up the USB HDD with this TV in order to use it for recording.

All the USB devices recognised as a mass storage device are listed.

- Please note that USB HDD will be formatted and all data in it will be erased after this setup.

- Before setting, connect the USB HDD and be sure to turn on the USB HDD.

  [📖] → Recording > USB HDD setup > Preparations

1. Display the menu with MENU.

2. Select Setup > USB Device Setup and press OK to access.

3. Select the USB HDD for recording and press OK to start setup.

   - Some USB HDD may not be displayed.

   - To display information of the highlighted device

     INFO

4. When the caution and confirmation screen for using USB HDD is displayed, select Yes and press OK to proceed.

5. When a confirmation screen of USB HDD name is displayed, select Yes and press OK to set.

   - The name for the USB HDD is created automatically. If you want to edit the name, select Yes.

     1) Enter characters with Cursor buttons or Numeric buttons, and press OK to set.
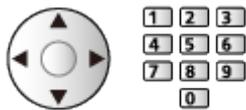
     2) Press RETURN to store.

6. When a confirmation screen to enable USB HDD for recording is displayed, select Yes and press OK to set.

   - If another formatted USB HDD for recording already exists, this confirmation screen will be displayed to switch to enable this USB HDD for recording.

- Mode of the USB HDD

  🔴▷ : The USB HDD is available for recording / playing back.

     Only one USB HDD on the list is available for recording.

  ▷ : The USB HDD is available for playing back.

- To change the mode

  `OK`

- To edit USB HDD name

  🟩 (green)

- To format

  🟥 (red)

- To remove the USB HDD safely from the TV

  🟨 (yellow)

= Note =

- You can only select one USB HDD for recording at a time.

- You cannot change the settings for the USB HDD while recording is in progress.

Recording current programme

One Touch Recording

Records the current programme to the USB HDD immediately.

- Confirm the remote control code is "73".

    📖 ➡ Watching > External equipment > Operating with TV's remote control

1. Display the menu with MENU.

2. Select Setup > Recording Setup > One Touch Recording and press OK to access.

3. Select the maximum recording time 30 / 60 / 90 / 120 / 180 (minutes) and press OK to set.

■ To start One Touch Recording

Press 🔴 to start.

■ To stop recording in progress

Press ⏹ to stop.

■ To play back or delete the recorded content

Recorded TV programmes can be played back in Media Player.

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

3. Select USB HDD for recording and press OK to access.

- Even if One Touch Recording is in progress, you can play back all the content. (Depending on the USB HDD, playback may not be possible or the recording may not work properly during playback.)

Timer Programming

Setting Timer Programming

This function allows you to select programmes that you want to record to the USB HDD.

- Not valid in Analogue TV

1. Select Digital TV with `TV`.

2. Display the menu with `MENU`.

3. Select Timer > Timer Programming and press `OK` to access.

4. Press `OK` to start making the settings.

   USB HDD Rec.:

      Records the programme to the USB HDD.

5. Select and set the item (channel, date, start time, end time).

- 4 and 6 can also be entered with Numeric buttons.

1 2 3
4 5 6
7 8 9
0

(Example)

1	2	3	4		5	6
!		D	1 ABC		-- / --	-:-- | -:-- (--- xxx)
					-- / --	-:-- | -:-- (--- xxx)
					-- / --	-:-- | -:-- (--- xxx)
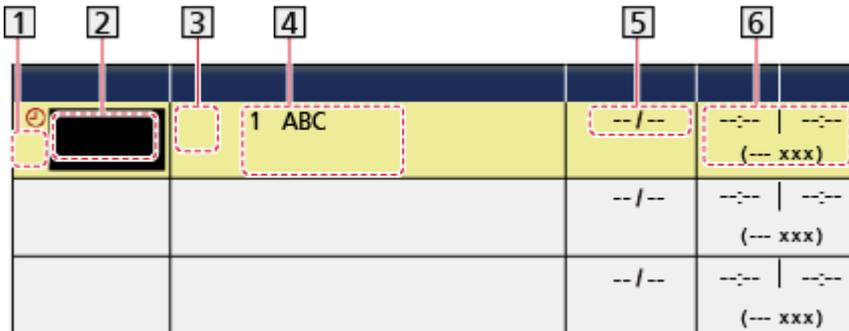
1 !: Overlapped timer events

2 Function (USB HDD Rec.)

3 D: Digital TV

4 Channel position, channel name, etc.

5 Date

- – Daily Sun-Sat: Sunday to Saturday
- – Daily Mon-Sat: Monday to Saturday
- – Daily Mon-Fri: Monday to Friday
- – Weekly Sun / Mon / Tue / Wed / Thu / Fri / Sat: Same time on the same day every week

6 Start time / End time / Duration (automatic display)

6. Store with OK.

Editing Timer Programming

1. Display the menu with MENU.

2. Select Timer > Timer Programming and press OK to access.

3. Select the event.

   - To change a timer event

   OK

     – Correct as necessary.

        📖 ⇒ Recording > Timer Programming > Setting Timer Programming

   - To delete a timer event

     1) Press ▭ (red).

     2) Press OK to delete.

■ To adjust the clock

If you cannot get the time information, set Clock Settings manually.

1. Display the menu with MENU.

2. Select Timer > Clock Settings > Mode and press OK to access.

3. Select Manual and press OK to set.

4. Set Date / Time with Cursor buttons or Numeric buttons.
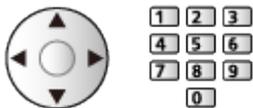
   - Clock Settings are reset when the TV is turned off with Mains Power On / Off switch.

      📖 ⇒ Watching > Basic > Adjusting time

■ To stop recording

1. Press ▭.

2. Select the programme and press OK to access (when 2 recordings are in progress).

3. Select Yes and press OK to stop.

■ To play back or delete the recorded content

Recorded TV programmes can be played back in Media Player.

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

3. Select USB HDD for recording and press OK to access.

   📖 → Media Player > Recorded TV mode

- The recorded content may not be played back properly depending on the progress of recording.

Remote recording

You can set timer programming with the network equipment (smartphone, etc.) from outside the home network.

- Ensure the network connections and network settings are completed.

   Network > Network connections

   Network > Network settings

- Set TV Anytime to On.

   Functions > TV Anytime > TV Anytime Settings

- Additional information about the services may be found on the following website.

  http://panasonic.net/viera/support (English only)

= Note =

- This function is not available when the TV is turned off with Mains Power On / Off switch.

- Depending on the network condition, this function may not be available.

Note

- TV Guide may also be used to set timer event.

   Watching > TV Guide > Timer Programming

- Timer Programming can store up to 15 events.

- Timer Programming only works reliably if correct time information is received via the signal from the broadcaster or service provider.

- For recording using Timer Programming, the TV must be either on or in Standby.

- Depending on the progress of recording, analogue channel may not be selected.

- Recording an encrypted (copy-protected) programme may not be possible.

- When the start time comes, the channel may be switched automatically and the video and audio signals may be output. 2 minutes before the start time, a reminder message may appear if you are watching TV.

  – To remove the message and start the programming, press OK.

  – To cancel the programming, press EXIT.

- LED turns to orange in Standby mode when Timer Programming is set.

- "!" identifies that three or more timer events are overlapped. As for the overlapped recording events, the first event starts and finishes as programmed. The next event can then start.

- The recording of Timer Programming may automatically change the channel to the programmed channel a few seconds before the start time.

- For details of the USB HDD

   Recording > Technical information

Technical information

USB HDD

■ USB HDD

(for recording the digital TV programmes with this TV)

- The capacity of USB HDD that works with this TV is from 160 GB to 3 TB.

- Connect the USB HDD to the mains socket to record and play back properly with this TV.

- Use the USB HDD formatted with this TV.

   → Recording > USB HDD setup > Setting for USB HDD

- Regarding performance, not all USB HDDs are guaranteed. Check the USB HDDs that have been tested for compatibility with this TV at the following website.

  http://panasonic.net/viera/support (English only)

= Note =

- Data modified with a PC may not be displayed.

- Do not remove the device while the TV is accessing data. Otherwise this can damage the device or TV.

- Do not touch the pins on the device.

- Do not subject the device to a high pressure or impact.

- Insert the device in the correct direction. Otherwise this can damage the device or TV.

- Electrical interference, static electricity, or erroneous operation may damage the data or device.

Media Player

Using Media Player

Information

Media Player allows you to enjoy photo, video or music recorded on the USB Flash Memory / network device, and content recorded with this TV to the formatted USB HDD.

(Example)
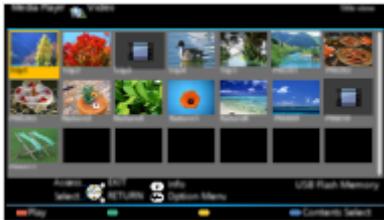
Photo mode:

  Still pictures recorded with digital cameras are displayed.

Video mode:

  Moving pictures recorded with digital video cameras and digital video data are played back.

Recorded TV mode:

  (For exclusive USB HDD) TV programmes recorded on the USB HDD with this TV are played back.

Music mode:

  Digital music data are played back.

- During the operation, audio signal is output from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals. But no video signals are output. To use HDMI2 with ARC function, connect an amplifier that has ARC function and set to use theatre speakers.

  Functions > VIERA Link "HDAVI Control™"

- Date shows the date on which the recording was made by the recording equipment. For a file without a valid record date " * * " is shown.

- Pictures may not appear correctly on this TV depending on the recording equipment used.

- Displaying may take some time when there are many files and folders.

- Partially degraded files may be displayed with reduced resolution.

- Picture setting may not work depending on the condition.

- Folder and file names may be different from those on the digital camera or digital video camera used.

■ To insert or remove the USB Flash Memory

Ensure alignment is straight and complete when inserting or removing.
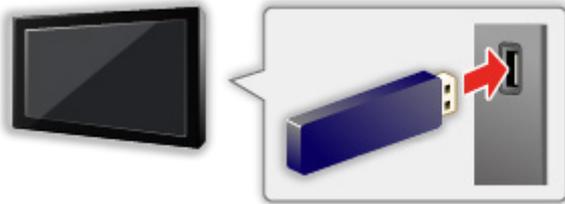
- To remove the USB Flash Memory safely from the TV, perform Safely remove USB in USB Device Setup.

    1) Display the menu with MENU.

    2) Select Setup > USB Device Setup and press OK to access.

    3) Select the device and press ▭ (yellow) to set.

- Connect the USB Flash Memory to the USB 1, 2 or 3 port.

= Note =

- To connect the USB HDD

    📖 ➔ Recording > USB HDD setup

- Check the terminal type and devices are correct for connection.

- For details of the devices

    📖 ➔ Media Player > Technical information

- For details of supported file formats

    📖 ➔ Media Player > Technical information

Selecting device / mode

1. Insert the USB Flash Memory to the TV.

    📖 ➔ Media Player > Using Media Player > Information

   - To play back content in the USB HDD, ensure the connection and settings are completed.

        📖 ➔ Recording > USB HDD setup

   - To play back content in the network device, ensure the connection and settings are completed.

        📖 ➔ Media Player > Using Media Player > Network device

2. Display Home Screen with HOME.

3. Select Devices and press OK to access.

4. Select the device (USB Flash Memory / USB HDD / network device) and press OK to access.

   - When a confirmation screen about the network device is displayed, enter User / Password to access.

5. Select Photo / Video / Music / Recorded TV and press OK to access.

   Photo

    📖 ➔ Media Player > Photo mode

   Video

    📖 ➔ Media Player > Video mode

   Music

    📖 ➔ Media Player > Music mode

   Recorded TV

    📖 ➔ Media Player > Recorded TV mode

6. The thumbnail view is displayed.

(Example)

- To display / hide information of the highlighted content

  INFO

- Recorded TV is available for content recorded on the USB HDD with this TV.

- Select the appropriate device and content for playing back each file.

- You can use the following buttons during playback. Confirm the remote control code is "73".

  → Watching > External equipment > Operating with TV's remote control

■ To change the mode

You can switch to another mode of Media Player from the thumbnail view.

1. Display the content selection screen with ▭ (blue) while the thumbnail is displayed.

2. Select the content and press OK to access.

- The mode can be switched in the current device.

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Network device

You can enjoy photo, video or music stored in the network devices.

- To enable this function, connect this TV to your home network.

    📖 ➔ Network > Network connections

    📖 ➔ Network > Network settings

■ How to set User / Password

1. Display the menu with MENU.

2. Select Network > File Sharing Settings > Network Device List and press OK to access.

3. Select the network device and press OK to access.

4. Enter User / Password with Cursor buttons or Numeric buttons and press OK to set.
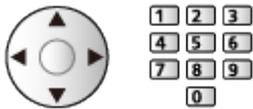
    - Press RETURN to store.

    - To register the new network device, set Server Name / Shared Folder. For details, read the manual of the equipment.

5. Select Register and press OK to set.

    - To delete the registered device, select Delete and press OK to set.

= Note =

- Regarding performance, not all servers are guaranteed. PCs with Windows 7 / Windows 8 / Windows 8.1 have been tested for compatibility with this TV (as of January, 2015). Additional information about the servers may be found on the following website.

    http://panasonic.net/viera/support (English only)

- Up to 48 devices can be registered.

Sharing file

You can share the files between PC and devices connected to this TV.

- To enable this function, connect this TV to your home network.

  🖥️ ➡ Network > Network connections

  🖥️ ➡ Network > Network settings

1. Display the menu with MENU.

2. Select Network > File Sharing Settings > File Sharing Server and press OK to access.

3. Select On and press OK to set.

4. Operate your PC to share the files.

- For operations, refer to the support information on the following website.

  http://panasonic.net/viera/support (English only)

- This function is not available when the TV is turned off with Mains Power On / Off switch. You can share the files in Standby mode when DLNA Server is set to On.

= Note =

- Regarding performance, not all PCs are guaranteed. PCs with Windows 7 / Windows 8 / Windows 8.1 have been tested for compatibility with this TV (as of January, 2015). Additional information about the PCs may be found on the following website.

  http://panasonic.net/viera/support (English only)

- Do not turn the TV off, pull out the mains plug or remove the device during operation (reading, copying, etc.). Doing so may cause malfunction of the device or damage the recorded data.

- All data in the USB HDD will be erased when you format the USB HDD with this TV for recording.

- To connect the USB HDD

  🖥️ ➡ Recording > USB HDD setup

- Picture noise may occur on the screen when playback starts during operation (reading, copying, etc.).

- For details of the devices

  🖥️ ➡ Media Player > Technical information

Photo mode

Selecting file

Select the file in the thumbnail view and press OK to start playback.

▣ : Error display

- To change the size of photos in the thumbnail view

    1) Display the option menu with OPTION.

    2) Select Change Size and press OK to change.

- For details of supported file formats

    📖 ➡ Media Player > Technical information > Photo format

■ Thumbnail view

- To display / hide information of the highlighted content

    INFO

- To display Slideshow Settings

    ▬ (red)

    📖 ➡ Media Player > Photo mode > Using Slideshow

- To sort

    ▬ (green)

- To change the content

    ▬ (blue)

Viewing photo

■ Playback

- To operate Single view

  ◁ : To the previous photo

  ▷ : To the next photo

  ▽ : Stop (return to thumbnail)

  OK : Slideshow

- To display / hide the operation guide

  INFO

- To rotate 90°

  ▭ (blue)

- To return to thumbnail

  RETURN

Sorting photos

■ To sort by folder, recorded date or recorded month

1. Display the view selection in the thumbnail view with ▬ (green).

2. Select Folder view / Sort by Date / Sort by Month and press OK to set.

   Folder view:

   Displays the thumbnail grouped by folder.

   - Files which are in the root folder are collected to the folder named "/".

   Sort by Date / Sort by Month:

   Displays the thumbnail grouped by the same date or month.

   - The group of the photos without recorded dates is shown as Unknown.

- To return to the thumbnail of all photos

   1) Display the view selection in the thumbnail view with ▬ (green).

   2) Select All photos and press OK to set.

Using Slideshow

Slideshow ends when all photos within the current thumbnail are viewed.

1. Select the file from the thumbnail of photos for the first view.

2. Start Slideshow with ▬ (red) and `OK`.

    - To display / hide the operation guide

      `INFO`

    - To pause (return to Single view)

      `OK`

    - To return to thumbnail

      `RETURN`

    - You can change the back ground music by setting Back Ground Music in Slideshow Settings (see below).

■ Slideshow Settings

Set up the settings for Photo mode.

1. Display the option menu with `OPTION`.

2. Select Slideshow Settings with `OK`.

3. Select one of the following items and press `OK` to access.

    Screen Mode / Interval / Repeat / Back Ground Music

4. Set the item and press `OK` to store.

Screen Mode

(Normal / Zoom)

Selects enlarged or normal viewing.

- Depending on the photo size, the photo may not be fully enlarged to fill the screen (e.g. portrait style picture).

Interval

(Long / Normal / Short)

Selects slideshow interval.

Repeat

(On / Off)

Slideshow repeat

Back Ground Music

(Off / Type1 / Type2 / Type3 / Type4 / Type5 / User / Auto)

Selects the background music during Photo mode.

Type1 - 5:

Music files installed on this TV at the factory settings are played back.

Auto:

Music files stored in the current device are played back.

- If there is no available music data, no sound is played back.

User:

Music files in the device registered by yourself are played back.

- If no music files have been registered or the device which had registered music files is removed, no sound is played back.

● To register music

1) Select the music file and press OK to access.

- Depending on the condition of the device, select folders until you reach the desired music file.

2) Select File / Folder and press OK to set.

File:

The selected music file is registered.

Folder:

All the music files in the folder which contains the selected music file are registered.

= Note =

- Picture quality may be degraded depending on the slideshow setting.

- Picture setting may not work depending on the slideshow setting.

Video mode

Selecting file

1. Select the title in the thumbnail view.

   ▣ : Error display

   ▣ : The file does not support thumbnail view.

   - The preview will start when the title / scene is highlighted in the thumbnail view if it supports a preview. To turn off the preview, set Video Preview to Off.

      📖 ➡ Media Player > Video mode > Video Setup

2. Start playback with ▬ (red).

   - If you have stopped the last playback halfway, a confirmation screen may be displayed to select whether to start from where you stopped last time or from the beginning.

- For details of supported file formats

   📖 ➡ Media Player > Technical information > Video format

■ Thumbnail view

- To display / hide information of the highlighted content

   INFO

- To start playback

   ▬ (red)

- To change the content

   ▬ (blue)

Watching video

■ Playback from the selected scene in the title

Playback of the selected scene starts and continues until the end of the title.

1. Select the title and press OK to access.

2. Select the scene.

3. Start playback with ▬ (red).

- The structure of titles and scenes may vary depending on the digital video camera used.

- Playback may not continue depending on the condition.

- To repeat playback

  📖 ➔ Media Player > Video mode > Video Setup

■ Playback

- To operate playback

  ◁ : Rewind

  ▷ : Fast forward

  ▽ : Stop

  OK : Pause (displays the time seek bar) / Playback

- To jump to the specified time point

  1) Display the time seek bar with OK.

  2) While the time seek bar is displayed

     Press ◁ / ▷ :

        Search approx. 10 seconds

     Press and hold ◁ / ▷ :

        Search rapidly

  3) Jump to the specified time point with OK.

- To display / hide the operation guide and information banner

  INFO

- To the previous title / scene

  ▬ (red)

- To the next title / scene

  ▬ (green)

- To change aspect

    1) Display Aspect Selection with ASPECT.

    2) Select the mode and press OK to set.

        Aspect1:

            Displays the content original size.

        Aspect2:

            Displays the content enlarged without distortion.

    – You can also change the mode pressing ASPECT. (Press repeatedly until you reach the desired mode.)

    – Aspect cannot be changed depending on the content.

- To return to thumbnail

    RETURN

Video Setup

Set up the settings for Video mode.

1. Display the option menu with OPTION.

2. Select Video Setup with OK.

3. Select one of the following items and press OK to access.

    Video Preview / Audio Selection / Dual Mono Audio / Subtitle Settings / Repeat

    • Menu items and selectable options vary depending on the content.

4. Set the item and press OK to store.

Video Preview

(On / Off)

Sets to start the preview of the title or scene in the thumbnail view.

• Images may not be displayed for an instant in the thumbnail view. Set the preview Off to solve this.

• This function is available in the thumbnail view.

Audio Selection, Dual Mono Audio

Selects for selectable sound tracks (if available).

• It may take several seconds to change the sound.

• This function is available during playback.

Subtitle Settings

Sets the subtitle setting.

* This function is available during playback.

    Subtitle:

      Display / hide subtitles (if available).

    Subtitle Text:

      Selects the font type to display subtitles correctly (if available).

    Subtitle Text Size:

      Selects the font size of subtitles.

    Subtitle Text Colour:

      Selects the colour of subtitles.

    Subtitle Text Position:

      Adjusts the position of subtitles on the screen.

    Subtitle Text Delay:

      Adjusts the delay time for the subtitles.

Repeat

(On / Off)

Playback repeat within the title or selected file (depending on the content)

Audio output settings

You can enjoy the multi-channel sound via an amplifier connected to DIGITAL AUDIO OUT or HDMI2 (ARC function) terminal.

- To confirm or change the current sound status

  🖼️ ➡ Media Player > Video mode > Video Setup

1. Display the menu with MENU.

2. Select Sound > SPDIF Selection and press OK to access.

3. Select Auto / PCM and press OK to set.

SPDIF Selection

(Auto / PCM)

Selects the initial setting for digital audio output signal from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals.

- SPDIF is a standard audio transfer file format.

  Auto:

  Dolby Digital Plus, Dolby Digital and HE-AAC multi-channel are output as Dolby Digital Bitstream. MPEG is output as PCM. DTS is output as DTS.

  PCM:

  Digital output signal is fixed to PCM.

- ARC (Audio Return Channel) is a function of digital audio output using HDMI cable.

Recorded TV mode

Selecting content

- For exclusive USB HDD

- To play back content in the USB HDD, ensure the connection and settings are completed.

   📖 → Recording > USB HDD setup

1. Content list of the selected device is displayed in Recorded TV mode.

   - Remaining capacity of the selected device is displayed on the top right. (This value may not be accurate depending on the condition.)

   - Content list is displayed as All or Not Viewed.

      All:

         All the recorded TV programmes are listed.

      Not Viewed:

         Content not played back yet are listed.

   - Icons are displayed.

      ⚑ : Content not played back yet (Once you play back the content, this icon will disappear.)

      🔒 : Protected content cannot be deleted.

      🔴 : Currently recording (You can play back this recording content.)

      📑 : Group of content

2. Select the content and press OK to start playback.

   - If you have stopped the last playback halfway, a confirmation screen may be displayed to select whether to start from where you stopped last time or from the beginning.

   - If the content has multiple programmes with different parental ratings, the highest restriction is applied to the content. Once you unlock the restriction, all the programmes in the content can be played back.

- For details of supported file formats

   📖 → Media Player > Technical information > Video format

Watching recorded TV

■ Playback

- To operate playback

  △ : Manual skip

  - Press to skip forward approx. 30 seconds.

  - Press and hold to skip backward approx. 15 seconds.

  ◁ : Rewind

  ▷ : Fast forward

  ▽ : Stop

  OK : Pause (displays the time seek bar) / Playback

- To jump to the specified time point

  1) Display the time seek bar with OK.

  2) While the time seek bar is displayed

     Press ◁ / ▷ :

       Search approx. 10 seconds

     Press and hold ◁ / ▷ :

       Search rapidly

  3) Jump to the specified time point with OK.

- To display / hide the operation guide and information banner

  INFO

- To repeat between the starting point "A" and finishing point "B"

  ▬ (blue)

  (Set "A" and "B" in order.)

  - The points are reset by pressing again or by other operations.

- To the previous / next chapter

  ▬ (red) / ▬ (green)

  - A recorded content is automatically divided into chapters (approx. 5 minutes for each).

- To change aspect

  ASPECT

  🖼 ➔ Watching > For best picture > Aspect

- To display the subtitle (if available)

  STTL/AD

- To confirm or change the current status (if available)

  [image] ⇒ Watching > Basic > AV Options

- To return to list

  RETURN

= Note =

- The recorded content may not be played back properly depending on the progress of recording.

Grouping content

1. Select the content to edit and press ▭ (blue) to tick in the content list.

2. Display the option menu with OPTION.

3. Select Create Group / Release Group / Exclude from Group / Change Protect Status and press OK to set.

   Create Group:

   Create a group of content. Select and tick all the desired content, and then select Create Group.

   Release Group:

   Select the created group to release, and then select Release Group. (To release several groups at once, tick all the desired groups.)

   Exclude from Group:

   Select the group and press OK to display the grouped content. To exclude specific content from the group, tick it and then select Exclude from Group. (To exclude some of the content at once, tick all the desired content.)

   Change Protect Status:

   Select the content to protect from deletion, and then select Change Protect Status. Perform the same way to cancel the protection. (To change the status of some of the content at once, tick all the desired content.)

Deleting content

1. Select the content to edit and press ▬ (blue) to tick in the content list.

2. Delete the content with ▬ (red).

3. When a confirmation screen is displayed, select Yes and press OK to set.

Chapter List

You can start playback from the chapter list you select.

1. Display the chapter list with ⬜ (yellow).

2. Select the chapter and press OK to start playback.

= Note =

- The chapter list is not displayed while the selected content is being recorded.

- Depending on the recorded programmes, some playback operations may not work properly.

Audio output settings

You can enjoy the multi-channel sound via an amplifier connected to DIGITAL AUDIO OUT or HDMI2 (ARC function) terminal.

- To confirm or change the current sound status

  🖼➡ Media Player > Video mode > Video Setup

1. Display the menu with MENU.

2. Select Sound > SPDIF Selection and press OK to access.

3. Select Auto / PCM and press OK to set.

SPDIF Selection

(Auto / PCM)

Selects the initial setting for digital audio output signal from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals.

- SPDIF is a standard audio transfer file format.

  Auto:

    Dolby Digital Plus, Dolby Digital and HE-AAC multi-channel are output as Dolby Digital Bitstream. MPEG is output as PCM. DTS is output as DTS.

  PCM:

    Digital output signal is fixed to PCM.

- ARC (Audio Return Channel) is a function of digital audio output using HDMI cable.

Music mode

Selecting file

1. Select the folder in the thumbnail view.

2. Start playback with ▬ (red).

- For details of supported file formats

  ◨◨ ➡ Media Player > Technical information > Music format

■ Thumbnail view

- To display / hide information of the highlighted content

  INFO

- To start playback

  ▬ (red)

- To change the content

  ▬ (blue)

Playing music

■ Playback of the selected file in the folder

1. Select the folder and press OK to access.

2. Select the file.

3. Start playback with ▬▬ (red).

■ Playback

- To operate playback

  ◁ : Rewind

  ▷ : Fast forward

  ▽ : Stop

  OK : Pause (displays the time seek bar) / Playback

- To jump to the specified time point

  1) Display the time seek bar with OK.

  2) While the time seek bar is displayed

     Press ◁ / ▷ :

        Search approx. 10 seconds

     Press and hold ◁ / ▷ :

        Search rapidly

  3) Jump to the specified time point with OK.

- To display / hide the operation guide

  INFO

- To the previous track

  ▬▬ (red)

- To the next track

  ▬▬ (green)

- To return to thumbnail

  RETURN

Music Setup

Set up the setting for Music mode.

- This function is available in the thumbnail view.

1. Display the option menu with OPTION.

2. Select Music Setup > Repeat with OK.

3. Select Off / Folder / One and press OK to set.

   Folder:

   Playback repeat within the selected folder

   One:

   Playback repeat of the selected one file

USB Sharing

USB Sharing

You can copy the content from one device to another using the USB ports.

- To enable this function, connect the source drive and destination drive to the TV.

  🖼️ ➡ Media Player > Using Media Player > Information

Source drive:

    USB device which contains the data to be copied.

Destination drive:

    USB device which you copy to.

1. Display Apps with APPS.

2. Select USB Sharing and press OK to access.

3. Select the drive from Source drive and press OK to access.

4. Select the folder or file to copy and press 🟥 (red) to set.

   - To select all folders or files at once

     🟩 (green)

5. Press ▷ to go to Destination drive.

6. Select the drive and press OK to access.

   - You cannot select the source drive as the destination drive.

7. Select Copy Here and press OK to access.

8. When a confirmation screen is displayed, select Yes and press OK to start copying.

- Copy progress is shown on the top right of the TV screen. When copying is finished, Complete!! is displayed.

- To cancel the copying, select USB Sharing from Apps again.

- To watch TV while data copying is in progress, press TV.

■ Create a folder or delete a folder

You can create a new folder or delete an old folder while the cursor is in Destination drive.

- To create a new folder

  1) Display the option menu with OPTION.

  2) Select Create Folder and press OK to access.

  3) Enter characters (maximum 16 characters) with Cursor buttons or Numeric buttons, and press OK to set.
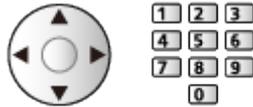
  4) Press RETURN to store.

- To delete an old folder

  1) Select the folder.

  2) Display the option menu with OPTION.

  3) Select Delete and press OK to access.

  4) When a confirmation screen is displayed, select Yes and press OK to delete.

= Note =

- Not valid for the content in the network device

- Some files may not be copied properly.

- Please note there may be a risk of file corruption due to power failure or sudden shut down during USB Sharing process.

- In consideration of possible loss of the data included in your USB devices for any reasons, Panasonic recommends to store or back up the data included in the USB devices to the other places (storage medium) before inserting the same in the USB port, and please do not turn the TV off during data communication / transfer.

Technical information

Device handling caution

- Data modified with a PC may not be displayed.

- Do not remove the device while the TV is accessing data. Otherwise this can damage the device or TV.

- Do not touch the pins on the device.

- Do not subject the device to a high pressure or impact.

- Insert the device in the correct direction. Otherwise this can damage the device or TV.

- Electrical interference, static electricity, or erroneous operation may damage the data or device.

- Back up the recorded data at regular intervals to prevent data deterioration, data damage or erratic operation of the TV. Panasonic is not liable for any deterioration or damage of recorded data.

USB devices

- It is recommended to connect the device to the TV's USB port directly.

- Some USB devices or USB HUB may not be used with this TV.

- You cannot connect any devices using a USB card reader.

- Additional information about the devices may be found on the following website.

  http://panasonic.net/viera/support (English only)

■ USB Flash Memory

USB Flash Memory format:

  FAT16, FAT32 or exFAT

- USB HDDs formatted on a PC are not guaranteed to work in Media Player.

■ USB HDD

- The capacity of USB HDD that works with this TV is from 160 GB to 3 TB.

- Connect the USB HDD to the mains socket to record and play back properly with this TV.

- Use the USB HDD formatted with this TV.

   Recording > USB HDD setup > Setting for USB HDD

- Regarding performance, not all USB HDDs are guaranteed. Check the USB HDDs that have been tested for compatibility with this TV at the following website.

  http://panasonic.net/viera/support (English only)

Photo format

■ Supported Photo formats

- JPEG (.jpg, .jpeg, .mpo)

  Sub-sampling:

  4:4:4, 4:2:2, 4:2:0

  Image resolution (pixel):

  8 × 8 to 30 719 × 17 279

- DCF and EXIF standards

- Progressive JPEG is not supported.

= Note =

- Some files may not be played back even if they fulfil these conditions.

- Do not use multi-byte characters or other special codes for file names.

- Connected devices may become unusable with this TV if the file or folder names are changed.

Video format

■ Supported Video formats

● AVI (.avi)

Video codec:

H.264, MPEG1, MPEG2, MPEG4, VC-1, WMV9

Audio codec:

AAC, ADPCM, Dolby Digital, Dolby Digital Plus, DTS, HE-AAC, LPCM, MP3, WMA, WMA Pro

● MP4 (.f4v, .m4v, .mp4)

Video codec:

H.264, H.265 (HEVC), MPEG1, MPEG2, MPEG4

Audio codec:

AAC, Dolby Digital, Dolby Digital Plus, HE-AAC, MP3

• This TV supports this container recorded with Panasonic products. For details, read the manual of the products.

● MKV (.mkv)

Video codec:

H.264, H.265 (HEVC), MPEG1, MPEG2, MPEG4

Audio codec:

AAC, Dolby Digital, Dolby Digital Plus, DTS, HE-AAC, MP3, Vorbis

● ASF (.asf, .wmv)

Video codec:

MPEG4, VC-1, WMV9

Audio codec:

AAC, Dolby Digital, Dolby Digital Plus, HE-AAC, LPCM, MP3, WMA, WMA Pro

• Copy-protected files cannot be played back.

● FLV (.flv)

Video codec:

H.264

Audio codec:

AAC, MP3

● 3GPP (.3gp, .3g2)

Video codec:

H.264, MPEG4

Audio codec:

AAC, HE-AAC

● PS (.mod, .mpg, .mpeg, .vob, .vro)

Video codec:

H.264, MPEG1, MPEG2, VC-1

Audio codec:

AAC, Dolby Digital, Dolby Digital Plus, HE-AAC, LPCM, MP3

● TS (.mts, .m2ts, .tp, .trp, .ts, .tts)

Video codec:

H.264, H.265 (HEVC), MPEG1, MPEG2, VC-1

Audio codec:

AAC, Dolby Digital, Dolby Digital Plus, DTS, HE-AAC, MP3

● WebM (.webm)

Video codec:

VP9

Audio codec:

Vorbis

■ Supported Subtitles formats

● MicroDVD, SubRip, TMPlayer (.srt, .sub, .txt)

• The video file and subtitles text file are inside the same folder, and the file names are the same except for the file extensions.

• If there are more than one subtitles text files inside the same folder, they are displayed in the following order of priority: ".srt", ".sub", ".txt".

= Note =

• Some files may not be played back even if they fulfil these conditions.

• Some subtitles or chapter functions may not be available.

• Do not use multi-byte characters or other special codes for file names.

• Connected devices may become unusable with this TV if the file or folder names are changed.

• Supported formats are different in Media Player and media server.

Music format

■ Supported Music formats

● MP3 (.mp3)

● AAC / Apple Lossless (.m4a)
  • Copy-protected files cannot be played back.

● FLAC (.flac)

● WMA / WMA Pro (.wma)
  • Copy-protected files cannot be played back.

● LPCM (.wav)

= Note =

• Some files may not be played back even if they fulfil these conditions.

• Do not use multi-byte characters or other special codes for file names.

• Connected devices may become unusable with this TV if the file or folder names are changed.

Network

Internet content

Information

You can access some specific websites supported by Panasonic, and enjoy internet content such as videos, games, communication tools, etc. from Apps.

(Example)
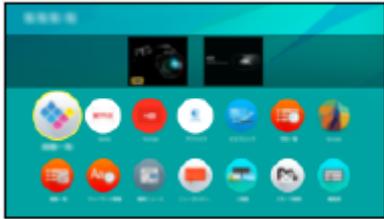
- A broadband network environment is required to be able to use this function. Ensure the network connections and network settings are completed.

  📖 ⇒ Network > Network connections

  📖 ⇒ Network > Network settings

Selecting internet content

1. Display Apps with APPS.

   - For details of Apps

      ➡ Home Screen > Apps

   - Depending on the usage conditions, it may take a while to read all the data.

2. Select the desired item and press OK to access.

   (Example)
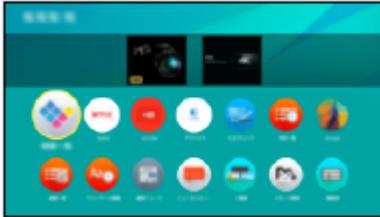
   - To exit Apps

     EXIT

   - You may operate the internet content with the free cursor and Voice Control function of Touch Pad Controller (supplied).

      ➡ Functions > Voice Control

   - You can connect a keyboard for character input in the applications. You can also use the keyboard for TV operation.

      ➡ Functions > Bluetooth devices

      ➡ Functions > Keyboard

Note

- If you cannot access the internet content, check the network connections and settings.

   ➡ Network > Network connections

   ➡ Network > Network settings

- Design and specifications are subject to change without notice.

- Not all the features of the websites are available.

- Be sure to update the software when a software update notice is displayed on the TV screen. If the software is not updated, you may not be able to use Apps. You can update the software later manually.

   ➡ Network > Network settings > Software Update

- The services through Apps are operated by their respective service providers and such 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.

- Content may not be available depending on the country you select.

- Content may be presented in specific languages.

- Depending on the connection environment, the internet connection may be slow or may not be successful.

DLNA

In-House streaming

This TV is a DLNA Certified™ product.

DLNA® (Digital Living Network Alliance) is a standard that makes DLNA Certified digital electronics easier and more convenient to use on a home network. To learn more, visit www.dlna.org.

- To enable this function, connect this TV to your home network.

  🔳 ➔ Network > Network connections

  🔳 ➔ Network > Network settings

■ Playback of sharing content stored in the media server

Store photo, video or music content into the DLNA Certified media server (for example, PC with Windows 7 / Windows 8 installed, DIGA Recorder, etc.) connected to your home network. And then you can enjoy the content on this TV.

(Example)

- For details of watching and operating content on this TV

  🔳 ➔ Network > DLNA > Using DLNA

- For details of supported file formats

  🔳 ➔ Network > Technical information

● To use a PC as a media server

Prepare the PC with Windows 7 / Windows 8 or ensure the server software is installed on the PC. "Windows 7 / Windows 8" and "Twonky 7 (installed on the PC with Windows XP or Mac)" are the server software that has been tested for compatibility with this TV (as of January, 2015). Any other server software has not been tested with this TV, therefore compatibility and performance cannot be assured.

- Windows 7 / Windows 8

  The setup for homegroup settings of Windows 7 / Windows 8 is required. For details, refer to the help functions of Windows 7 / Windows 8.

- Twonky

  "Twonky" is the product of PacketVideo Corporation.

  To obtain the Installation Guides for installing and setting "Twonky", visit the website of TwonkyMedia.

  Additional fees may be charged to obtain server software.

= Note =

- For information about the server software, consult each software company.

- When server software for the media server is installed on the PC, the data on the PC may be at risk of being accessed by other people. Please take care of the settings and connections under the network circumstances in office, hotel or even at home when not using a router.

● To use a DLNA compatible DIGA Recorder as a media server

By connecting a DLNA compatible DIGA Recorder to your home network, you can control it as one of the media servers.

- Please read the manual of your DIGA Recorder to check if the recorder is compatible with DLNA.

■ Playback of sharing content on this TV with the DMC (Digital Media Controller) network equipment

You can enjoy content stored in the media server by controlling with the DMC network equipment (smartphone, PC with Windows 7 / Windows 8 installed, etc.) connected to your home network.

- To use this function with your smartphone or Windows 7 / Windows 8, set TV Remote App Settings of this TV.

  🖥→ Network > Network settings > TV Remote App Settings

  And you need to install the application for controlling VIERA on your smartphone. For information about the application:

  http://panasonic.net/viera/support (English only)

  For the operations, refer to the support information of the application.

- "Windows 7 / Windows 8" are the OS that have been tested for compatibility of this TV (as of January, 2015). For the operations, refer to the help functions of Windows 7 / Windows 8.

■ Sharing the content of this TV with another piece of network equipment

You can enjoy the content of this TV with another network equipment connected to your home network.

Available content:

- Photo, video or music content of this TV
- Current digital TV programme
- TV programmes recorded on USB HDDs with this TV

Available network equipment:

- DLNA Certified VIERA
- Smartphone, etc.

- To use this function with your smartphone, you need to install the application for controlling VIERA in your smartphone. For information about the application:

  http://panasonic.net/viera/support (English only)

  For the operations, refer to the support information of the application.

- To use this function with another DLNA Certified VIERA, set Network Link Settings of this TV.

  🖺 ➜ Network > Network settings > Network Link Settings

- Sharing the current programme may not be available when selecting radio channels, encrypted (copy-protected) programmes or when the broadcast prohibits the output of video and audio.

- Display the TV full-screen for sharing the TV programme with another piece of network equipment.

- Only 1 piece of other equipment can share the content of this TV.

= Note =

- This function is not available when the TV is turned off with Mains Power On / Off switch.

- This function may not be available in the following condition of this TV:

  – While the recording is in progress

- Selecting the channel or TV mode on your smartphone may not be available while the recording is in progress.

Using DLNA

To use DLNA® features, ensure the preparations of the media server, network connections and network settings are completed.

📖 ➡ Network > DLNA > In-House streaming

📖 ➡ Network > Network connections

📖 ➡ Network > Network settings

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

3. Select the media server and press OK to access.

   • To display / hide information of the highlighted media server

      1) Display the option menu with OPTION.

      2) Select Show Info. and press OK to access.

4. Select the file and press OK to access.

   (Example)

   • Depending on the condition of media server, you may need to select the folder before selecting the file.

   • To display / hide information of the highlighted file

      INFO

= Note =

 • Non-playable files are also listed but cannot be selected.

 • You can use the following buttons during playback. Confirm the remote control code is "73".

   ◀◀ ⏮ ▶▶ ⏭ ▶ ■ ⏸

   📖 ➡ Watching > External equipment > Operating with TV's remote control

Network connections

Internet connection

A broadband network environment is required to be able to use internet services.

- If you do not have any broadband network services, please consult your retailer for assistance.

- Dial-up internet connections cannot be used.

- Required speed (effective): at least 1.5 Mbps for SD (Standard Definition) and 6 Mbps for HD (High Definition) picture quality, respectively. If the transfer speed is not enough, content may not be played back properly.

■ Wireless connection

1 Built-in wireless LAN (Rear of the TV)
2 Access point
3 Internet environment

■ Wired connection

1 ETHERNET terminal
2 LAN cable (Shielded)

- Use Shielded Twist Pair (STP) LAN cable.

3 Internet environment

DLNA connection

To use DLNA features, you need a home network environment and you can operate the features without a broadband network environment.

- A broadband network environment is required to be able to use internet services.

■ Wireless connection (For DLNA and internet service)
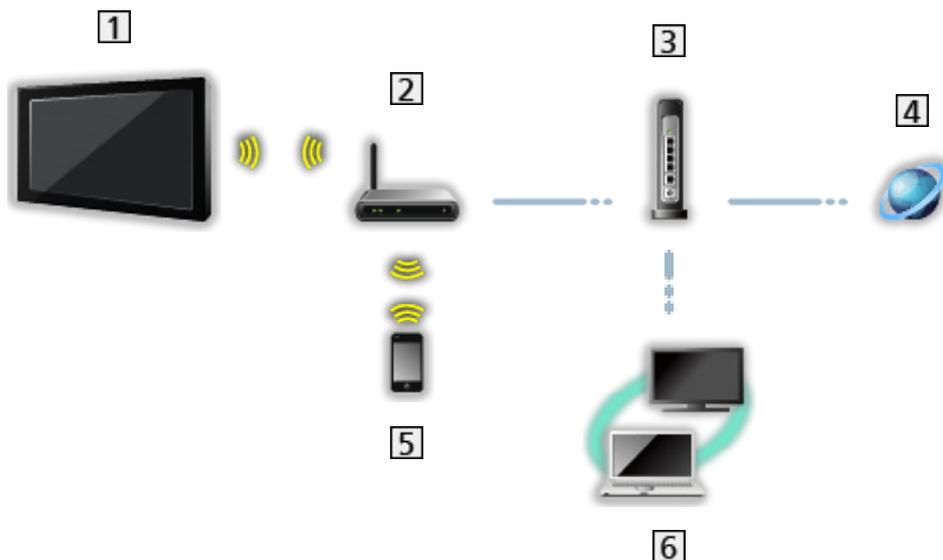
1 Built-in wireless LAN (Rear of the TV)

2 Access point

3 Hub / Router

4 Internet environment

5 Smartphone, etc.

6 DLNA Certified media server (PC, etc.)

■ Wired connection (For DLNA and internet service)
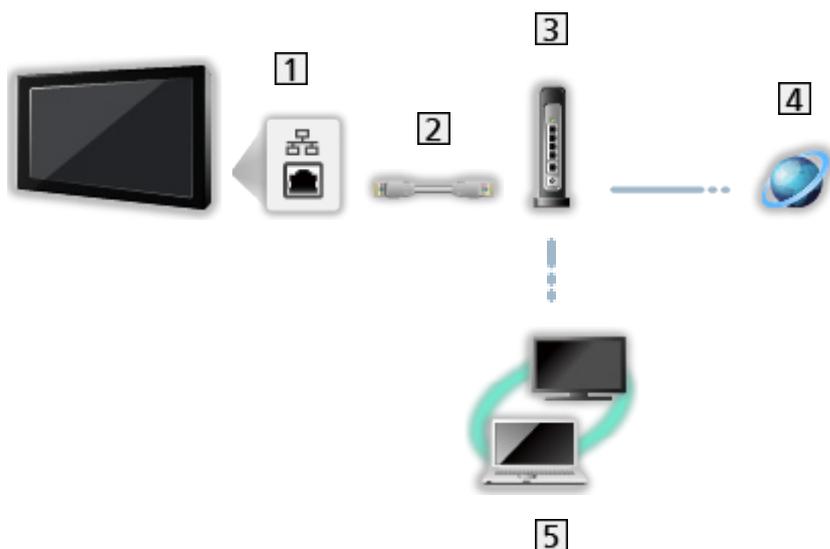
1 ETHERNET terminal

2 LAN cable (Shielded)

- Use Shielded Twist Pair (STP) LAN cable.

3 Hub / Router

4 Internet environment

5 DLNA Certified media server (PC, etc.)

■ Wireless connection (For DLNA)
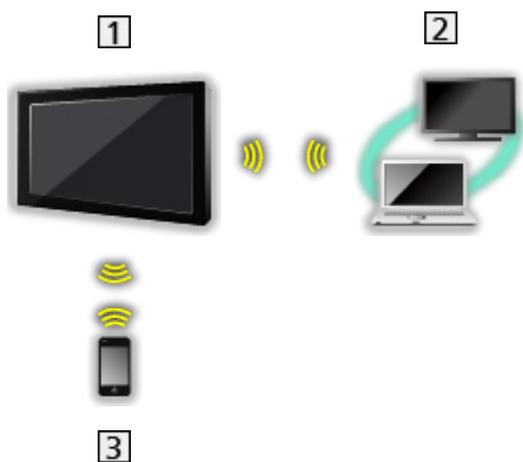
1 TV

- To use the TV as a wireless access point

  📖 → Network > Network settings > Custom - Wireless Access Point

2 DLNA Certified media server (PC, etc.)

3 Smartphone, etc.

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Note

- Ensure to use a LAN straight cable.

- Set up and connect equipment required for the network environment. You cannot make such settings on this TV. Read the manual of the equipment.

- If your modem has no broadband router functions, use a broadband router.

- If your modem has broadband router functions but there are no vacant ports, use a hub.

- Ensure that the broadband routers and hubs are compatible with 10BASE-T / 100BASE-TX.

- If you use the equipment compatible only with 100BASE-TX, category 5 or later LAN cables are required.

- Contact your Internet Service Provider (ISP) or telecommunications company for further assistance regarding the network equipment.

- Confirm the terms and conditions of the contracts with your Internet Service Provider (ISP) or telecommunications company. Depending on the contracts, additional fees may be charged or multiple connections to the internet may be impossible.

- Turn the TV off with Mains Power On / Off switch, and then on again when changing or making the network connection again.

- Depending on the network condition, the content may not be played back properly.

Network settings

Network Connection

Ensure the connections are completed before starting network setup.

[📖] ➔ Network > Network connections

■ Quick setup - Wireless

1. Display the menu with MENU.

2. Select Network > Network Connection and press OK to access.

   - Confirm the encryption key, settings and position of your access point before starting setup. For details, read the manual of the access point.

3. Select Quick setup and press OK to access.

   - When the LAN cable is connected, wired setup will be done automatically.

4. Select your desired access point and press OK to access.

   - Available Wireless Networks are displayed automatically.

     [🔒] : Encrypted access point

   - For WPS(Push button)

     1) Select Easy setup with Push button and press OK to access.

     2) Press the WPS button on the access point until the light flashes.

     3) Connect the TV with the access point with OK.

     – WPS: Wi-Fi Protected Setup™

     – If the connection fails, check the settings and positions of your access point. And then, follow the on-screen instructions.

   - It is recommended to select the encrypted access point.

5. Enter the encryption key of the access point and press OK to set.

   - You can set characters using Numeric buttons.

     ```
     1 2 3
     4 5 6
     7 8 9
       0
     ```

   - Press RETURN to store.

6. Automatically setup is done and Network Status is displayed.

   [📖] ➔ Network > Network settings > Network Status

7. Select Exit and press OK to set.

 - To set manually

   [📖] ➔ Network > Network settings > Custom - Wireless

■ Quick setup - Wired

1. Display the menu with MENU.

2. Select Network > Network Connection and press OK to access.

3. Select Quick setup and press OK to access.

4. Automatically setup is done and Network Status is displayed.

   📖 ➡ Network > Network settings > Network Status

5. Select Exit and press OK to set.

   • To set manually

   📖 ➡ Network > Network settings > Custom - Wired

= Note =

• To deactivate wireless, set Easy Mirroring to Off and confirm the network connection type is set to Wired.

Custom - Wireless

Ensure the connections are completed before starting network setup.

🔲 ➡ Network > Network connections

1. Display the menu with MENU.

2. Select Network > Network Connection > Custom > Wireless and press OK to access.

   • Confirm the encryption key, settings and position of your access point before starting setup. For details, read the manual of the access point.

3. Select your desired access point and press OK to access.

   • Available Wireless Networks are displayed automatically.

      🔲 : Encrypted access point

   • For WPS(Push button)

      1) Press ▬ (red).

      2) Press the WPS button on the access point until the light flashes.

      3) Connect the TV with the access point with OK.

      – WPS: Wi-Fi Protected Setup™

      – If the connection fails, check the settings and positions of your access point. And then, follow the on-screen instructions.

   • For WPS(PIN)

      1) Press ▬ (green).

      2) Enter the PIN code to the access point.

      3) Connect the TV with the access point with OK.

   • For Manual

      1) Press ▬ (yellow).

      2) You can set up SSID, security settings and encryption key manually.

      3) Follow the on-screen instructions and set manually.

   • To search access points again

      ▬ (blue)

   • To display / hide information of the highlighted access point

      INFO

   • It is recommended to select the encrypted access point.

4. Enter the encryption key of the access point and press OK to set.

- You can set characters using Numeric buttons.

- Press RETURN to store.

5. IP/DNS Settings is displayed.

Acquire IP Address / Acquire DNS Address

- Auto is recommended.
- Available settings are displayed automatically.
- To set manually, select and set IP Address / Subnet Mask / Default Gateway / DNS Address.

Proxy Settings

- It is not required for normal household use.
- Some internet services may not be available depending on the proxy setting.

Proxy:

This is the address of the relay server which is connected between the browser and the target server to send data to the browser.

1) Select Proxy and press OK to access.

2) Enter the address with Cursor buttons or Numeric buttons, and press OK to set.

3) Press RETURN to store.

Proxy Port:

This number is also specified by the provider with the proxy address.

1) Select Proxy Port.

2) Enter the number with Numeric buttons.

3) Press RETURN to store.

---

6. Select Network Status and press OK to access.

    🖼 ➡ Network > Network settings > Network Status

7. Select Exit and press OK to set.

Custom - Wired

Ensure the connections are completed before starting network setup.

📖 ➔ Network > Network connections

1. Display the menu with MENU.

2. Select Network > Network Connection > Custom > Wired and press OK to access.

3. IP/DNS Settings is displayed.

Acquire IP Address / Acquire DNS Address

- Auto is recommended.

- Available settings are displayed automatically.

- To set manually, select and set IP Address / Subnet Mask / Default Gateway / DNS Address.

Proxy Settings

- It is not required for normal household use.

- Some internet services may not be available depending on the proxy setting.

  Proxy:

    This is the address of the relay server which is connected between the browser and the target server to send data to the browser.

    1) Select Proxy and press OK to access.

    2) Enter the address with Cursor buttons or Numeric buttons, and press OK to set.

    3) Press RETURN to store.

  Proxy Port:

    This number is also specified by the provider with the proxy address.

    1) Select Proxy Port.

    2) Enter the number with Numeric buttons.

    3) Press RETURN to store.

---

4. Select Network Status and press OK to access.

     ➡ Network > Network settings > Network Status

5. Select Exit and press OK to set.

= Note =

- To deactivate wireless, set Easy Mirroring to Off and confirm the network connection type is set to Wired.

Custom - Wireless Access Point

You can use the TV as a wireless access point and connect the network equipment without an access point.

- Confirm the PIN code, network settings of the equipment before starting setup. For details, read the manual of the equipment.

1. Display the menu with MENU.

2. Select Network > Network Connection > Custom > Wireless Access Point and press OK to access.

3. Select Connect to device in WPS and press OK to access.

    - To set manually, select Change settings (see below).

4. Select and set WPS(Push button) / WPS(PIN) and press OK to access.

    WPS(Push button):

    Set up the equipment for WPS(Push button). For details, read the manual of the equipment.

    WPS(PIN):

    Enter the PIN code of the equipment.

    - If the connection fails, check the settings and positions of the equipment. And then, follow the on-screen instructions.

■ Change settings

You can set up Network name(SSID), Encryption key, Wireless type and Channel setting method manually.

Follow the on-screen instructions and set manually.

- Set Reset settings to reset the items for Change settings.

= Note =

- You cannot connect the internet service while the TV is set to Wireless Access Point.

- You can connect up to 7 devices. But the transfer rate varies according to communication environment or the numbers of connected equipment.

- To confirm the current network settings

     → Network > Network settings > Network Status

- Ensure the equipment to connect supports WPS for this setup.

- WPS: Wi-Fi Protected Setup™

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Network Status

Displays and checks the network status (MAC Address, current network settings, etc.).

1. Display the menu with MENU.

2. Select Network > Network Status and press OK to access.

3. Automatically testing is done and Network Status is displayed.

   Try Again:

   Performs automatic testing of the network connection for the TV and displays the current status again.

   Status Details:

   Displays the detailed network status (SSID, security settings, etc.).

- For information about the network connection, select Help.

my Home Cloud Settings

Sets for an account to enjoy the cloud services.

1. Display the menu with MENU.

2. Select Network > my Home Cloud Settings and press OK to access.

3. Select one of the following items and press OK to access.

   Setup new account / Edit account / Remove account / Notices

4. Follow the on-screen instructions.

Setup new account

Set up an account for this TV.

Edit account

Displays and edits the account status.

Remove account

Deletes an account from this TV.

Notices

Displays the terms of service.

- A broadband network environment is required to be able to use this function fully. Ensure the network connections and network settings are completed.

   Network > Network connections

   Network > Network settings

VIERA Name

Sets your favourite name for this TV.

1. Display the menu with MENU.

2. Select Network > VIERA Name and press OK to access.

3. Enter characters and press OK to set.

- This name is used as the name of this TV on the screen of the other network equipment.

- When you use two or more TVs in your network environment, set the names of the TVs for each.

TV Remote App Settings

Sets to control the TV with the equipment (smartphone, etc.) connected to your network.

1. Display the menu with MENU.

2. Select Network > TV Remote App Settings and press OK to access.

3. Select one of the following items and press OK to access.

   TV Remote / Powered On by Apps / Home Streaming / Device to upload contents

4. Set the item and press OK to store.

TV Remote

(On / Off)

Enables controlling the TV from the network equipment (smartphone, etc.).

Powered On by Apps

(On / Off)

Enables turning the TV on from the network equipment (smartphone, etc.).

- Depending on the network condition, you may have to turn the TV on with Standby On / Off switch of the TV's remote control.

- Changing the default configuration may result in higher energy consumption of the product.

- LED turns to orange in Standby mode when Powered On by Apps is set to On.

Home Streaming

(Always / Only when powered on)

Enables sharing the TV programme and content of this TV with the network equipment (smartphone, etc.) in the home network.

- Changing the default configuration may result in higher energy consumption of the product.

- LED turns to orange in Standby mode when Home Streaming is set to Always.

Device to upload contents

Selects device to upload content from the network equipment (smartphone, etc.).

= Note =

- This function is not available when the TV is turned off with Mains Power On / Off switch.

- You need to install the application for controlling VIERA on your smartphone. For information about the application:

  http://panasonic.net/viera/support (English only)

  For the operations, refer to the support information of the application.

- Depending on the network condition, this function may not be available.

- Depending on the area, this function may not be available. For details, consult your local Panasonic dealer.

Network Link Settings

Sets to control the TV with devices connected to the network.

1. Display the menu with MENU.

2. Select Network > Network Link Settings and press OK to access.

3. Select one of the following items and press OK to access.

    DLNA Server / Registration Type / Remote Device List

4. Set the item and press OK to store.

DLNA Server

(On / Off)

Enables sharing the TV programme and content of this TV with the network equipment (DLNA Certified VIERA, etc.).

- To use this function with another VIERA, select the name of this TV from the DLNA server list of another VIERA, and then select the content to share. Also read the manual of another VIERA.

- To use this function with your smartphone, you need to install the application for controlling VIERA on your smartphone. For information about the application:

    http://panasonic.net/viera/support (English only)

    For the operations, refer to the support information of the application.

- Changing the default configuration may result in higher energy consumption of the product.

- LED turns to orange in Standby mode when DLNA Server is set to On.

Registration Type

(Auto / Manual)

Selects the type to restrict the access to this TV for each piece of equipment on the home network.

    Auto:

        All available equipment on the home network is accessible (maximum 16 pieces of equipment).

    Manual:

        Sets the restrictions for each piece of equipment in Remote Device List.

Remote Device List

Lists the equipment accessible to this TV on the home network.

= Note =

- Depending on the area, this function may not be available. For details, consult your local Panasonic dealer.

TV Anytime Settings

Settings for watching TV or editing timer programming with the network equipment (smartphone, etc.) from outside the home network.

 ⇒ Functions > TV Anytime > TV Anytime Settings

File Sharing Settings

File Sharing Server

(On / Off)

Sets to share the files between PC and devices connected to this TV.

📖 ➡ Media Player > Using Media Player > Sharing file

Network Device List

Lists the accessible network devices to play back the content in Media Player.

📖 ➡ Media Player > Using Media Player > Network device

Mirroring Settings

Settings for the mirroring function

 ➡ Functions > Mirroring > Mirroring Settings

Do Not Track Setting

Sets to notify websites about tracking your browsing activities.

1. Display the menu with MENU.
2. Select Network > Do Not Track Setting and press OK to access.
3. Select Tracking Mode / About Do Not Track and press OK to access.
4. Set the item and press OK to store.

Tracking Mode

(Mode1 / Mode2 / Mode3)

Mode1:

Notifies websites that you want to be tracked.

Mode2:

Notifies websites that you do not want to be tracked.

Mode3:

Sends no configuration information about tracking.

About Do Not Track

Displays the information about tracking.

- A broadband network environment is required to be able to display the detailed information.

Software Update

Accesses the specific website to update the TV's software if any updates are available.

1. Display the menu with MENU.

2. Select Network > Software Update and press OK to access.

3. Follow the on-screen instructions.

New Software Message

Selects whether to give a notification message when new software is found via network or not.

1. Display the menu with MENU.

2. Select Network > New Software Message and press OK to access.

3. Select On / Off and press OK to set.

Photos

Selecting file

Ensure the preparations of the media server, network connections and network settings are completed.

    🖼️ → Network > DLNA > In-House streaming

    🖼️ → Network > Network connections

    🖼️ → Network > Network settings

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

3. Select the media server and press OK to access.

   • To display / hide information of the highlighted media server

      1) Display the option menu with OPTION.

      2) Select Show Info. and press OK to access.

4. Select the file and press OK to access.

   • Depending on the condition of media server, you may need to select the folder before selecting the file.

   • To display / hide information of the highlighted file

     INFO

= Note =

  • Non-playable files are also listed but cannot be selected.

Viewing photo

■ Playback

- To operate Single view

  ◁ : To the previous photo

  ▷ : To the next photo

  ▽ : Stop (return to list)

  OK : Slideshow

- To display / hide the operation guide

  INFO

- To rotate 90°

  ▭ (blue)

- To return to list

  RETURN

Using Slideshow

Slideshow ends when all photos within the list are viewed.

1. Select the file from the thumbnail of photos for the first view.
2. Start Slideshow with ▬ (red) and OK.

- To display / hide the operation guide
  INFO
- To pause (return to Single view)
  OK
- To return to list
  RETURN

■ Slideshow Settings

Set up the settings for photo file operations on this TV.

1. Display the option menu with OPTION.
2. Select Slideshow Settings and press OK to access.
3. Select one of the following items and press OK to access.
   Interval / Repeat / Back Ground Music
4. Set the item and press OK to store.

Interval

(Long / Normal / Short)

Selects slideshow interval.

Repeat

(On / Off)

Slideshow repeat

Back Ground Music

(Off / Type1 / Type2 / Type3 / Type4 / Type5)

Selects the background music during Photo mode.

Videos

Selecting file

Ensure the preparations of the media server, network connections and network settings are completed.

📖 ➡ Network > DLNA > In-House streaming

📖 ➡ Network > Network connections

📖 ➡ Network > Network settings

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

3. Select the media server and press OK to access.

   • To display / hide information of the highlighted media server

      1) Display the option menu with OPTION.

      2) Select Show Info. and press OK to access.

4. Select the file and press OK to access.

   • Depending on the condition of media server, you may need to select the folder before selecting the file.

   • To display / hide information of the highlighted file

      INFO

= Note =

  • Non-playable files are also listed but cannot be selected.

Watching video

■ Playback

If you have stopped the last playback halfway, a confirmation screen may be displayed to select whether to start from where you stopped last time or from the beginning.

- To operate playback

  △ : Manual skip (if available)

  – Press to skip forward approx. 30 seconds.

  ◁ : Rewind

  ▷ : Fast forward

  ▽ : Stop

  OK : Pause (displays the time seek bar / slow playback) / Playback

- To jump to the specified time point

  1) Display the time seek bar with OK.

  2) While the time seek bar is displayed

  Press ◁ / ▷ :

  Search approx. 10 seconds

  Press and hold ◁ / ▷ :

  Search rapidly

  3) Jump to the specified time point with OK.

- To play back slowly

  1) Press and hold OK for 5 seconds.

  Press ◁ / ▷ :

  Search slowly

  2) Return to the normal playback with OK.

- To display / hide the operation guide and information banner

  INFO

- To the previous content

  ▮▮ (red)

- To the next content

  ▮▮ (green)

- To change aspect

    1) Display Aspect Selection with `ASPECT`.

    2) Select the mode and press `OK` to set.

        Aspect1:

            Displays the content original size.

        Aspect2:

            Displays the content enlarged without distortion.

    – You can also change the mode pressing `ASPECT`. (Press repeatedly until you reach the desired mode.)

    – Aspect cannot be changed depending on the content.

- To return to list

    `RETURN`

Video Setup

Set up the settings for video file operations on this TV.

1. Display the option menu with OPTION.

2. Select Video Setup and press OK to access.

3. Select one of the following items and press OK to access.

   Video Preview / Audio Selection / Dual Audio / Dual Mono Audio / Subtitle Settings / Repeat

   - Menu items and selectable options vary depending on the content.

4. Set the item and press OK to store.

Video Preview

(On / Off)

Sets to start the preview of the title or scene in the thumbnail view.

- Images may not be displayed for an instant in the thumbnail view. Set the preview Off to solve this.

Audio Selection, Dual Audio, Dual Mono Audio

Selects for selectable sound tracks (if available).

- It may take several seconds to change the sound.

- This function is available during playback.

Subtitle Settings

Sets the subtitle setting.

- This function is available during playback.

    Subtitle:

    Display / hide subtitles (if available).

    Subtitle Text:

    Selects the font type to display subtitles correctly (if available).

    Subtitle Text Size:

    Selects the font size of subtitles.

    Subtitle Text Colour:

    Selects the colour of subtitles.

    Subtitle Text Position:

    Adjusts the position of subtitles on the screen.

    Subtitle Text Delay:

    Adjusts the delay time for the subtitles.

Repeat

(On / Off)

Playback repeat within the selected file

Audio output settings

You can enjoy the multi-channel sound via an amplifier connected to DIGITAL AUDIO OUT or HDMI2 (ARC function) terminal.

- To confirm or change the current sound status

    📖 ➔ Network > Videos > Video Setup

1. Display the menu with MENU.

2. Select Sound > SPDIF Selection and press OK to access.

3. Select Auto / PCM and press OK to set.

SPDIF Selection

(Auto / PCM)

Selects the initial setting for digital audio output signal from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals.

- SPDIF is a standard audio transfer file format.

    Auto:

    Dolby Digital Plus, Dolby Digital and HE-AAC multi-channel are output as Dolby Digital Bitstream. MPEG is output as PCM. DTS is output as DTS.

    PCM:

    Digital output signal is fixed to PCM.

- ARC (Audio Return Channel) is a function of digital audio output using HDMI cable.

= Note =

- During the operation, audio signal is output from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals. But no video signals are output. To use HDMI2 with ARC function, connect an amplifier that has ARC function and set to use theatre speakers.

    📖 ➔ Functions > VIERA Link "HDAVI Control™"

Music

Selecting file

Ensure the preparations of the media server, network connections and network settings are completed.

> → Network > DLNA > In-House streaming

> → Network > Network connections

> → Network > Network settings

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

3. Select the media server and press OK to access.

    • To display / hide information of the highlighted media server

        1) Display the option menu with OPTION.

        2) Select Show Info. and press OK to access.

4. Select the file and press OK to access.

    • Depending on the condition of media server, you may need to select the folder before selecting the file.

    • To display / hide information of the highlighted file

      INFO

= Note =

  • Non-playable files are also listed but cannot be selected.

Playing music

■ Playback

- To operate playback

  ◁ : Rewind

  ▷ : Fast forward

  ▽ : Stop

  OK : Pause (displays the time seek bar) / Playback

- To jump to the specified time point

  1) Display the time seek bar with OK.

  2) While the time seek bar is displayed

     Press ◁ / ▷ :

       Search approx. 10 seconds

     Press and hold ◁ / ▷ :

       Search rapidly

  3) Jump to the specified time point with OK.

- To display / hide the operation guide

  INFO

- To the previous track

  ▬ (red)

- To the next track

  ▬ (green)

- To return to list

  RETURN

Music Setup

Set up the settings for music file operations on this TV.

1. Display the option menu with OPTION.

2. Select Music Setup > Repeat with OK.

3. Select Off / Folder / One and press OK to set.

    Folder:

        Playback repeat within the selected folder

    One:

        Playback repeat of the selected one file

DIGA Recorder

Controlling DIGA Recorder

Ensure the preparations of the media server, network connections and network settings are completed.

📖 → Network > DLNA > In-House streaming

📖 → Network > Network connections

📖 → Network > Network settings

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

3. Select DIGA and press OK to access.

4. The screen of the DIGA Recorder is displayed. You can control the functions of the DIGA Recorder with this TV's remote control according to the operation guide.

   (Example)

- For details, read the manual of the DIGA Recorder.

Technical information

Photo format

■ Supported Photo formats

● JPEG (.jpg, .jpeg, .mpo)

Sub-sampling:

4:4:4, 4:2:2, 4:2:0

Image resolution (pixel):

8 × 8 to 30 719 × 17 279

• DCF and EXIF standards

• Progressive JPEG is not supported.

= Note =

• Some files may not be played back even if they fulfil these conditions.

• Do not use multi-byte characters or other special codes for file names.

• Connected devices may become unusable with this TV if the file or folder names are changed.

Video format

■ Supported Video formats

● AVI (.avi)

Video codec:

   H.264, MPEG1, MPEG2, MPEG4, VC-1, WMV9

Audio codec:

   AAC, ADPCM, Dolby Digital, Dolby Digital Plus, DTS, HE-AAC, LPCM, MP3, WMA, WMA Pro

● MP4 (.f4v, .m4v, .mp4)

Video codec:

   H.264, H.265 (HEVC), MPEG1, MPEG2, MPEG4

Audio codec:

   AAC, Dolby Digital, Dolby Digital Plus, HE-AAC, MP3

• This TV supports this container recorded with Panasonic products. For details, read the manual of the products.

● MKV (.mkv)

Video codec:

   H.264, H.265 (HEVC), MPEG1, MPEG2, MPEG4

Audio codec:

   AAC, Dolby Digital, Dolby Digital Plus, DTS, HE-AAC, MP3, Vorbis

● ASF (.asf, .wmv)

Video codec:

   MPEG4, VC-1, WMV9

Audio codec:

   AAC, Dolby Digital, Dolby Digital Plus, HE-AAC, LPCM, MP3, WMA, WMA Pro

• Copy-protected files cannot be played back.

- FLV (.flv)

  Video codec:

  H.264

  Audio codec:

  AAC, MP3

- 3GPP (.3gp, .3g2)

  Video codec:

  H.264, MPEG4

  Audio codec:

  AAC, HE-AAC

- PS (.mod, .mpg, .mpeg, .vob, .vro)

  Video codec:

  MPEG1, MPEG2

  Audio codec:

  Dolby Digital, LPCM

- TS (.mts, .m2ts, .tp, .trp, .ts, .tts)

  Video codec:

  H.264, H.265 (HEVC), MPEG1, MPEG2

  Audio codec:

  AAC, Dolby Digital, Dolby Digital Plus, HE-AAC

- WebM (.webm)

  Video codec:

  VP9

  Audio codec:

  Vorbis

■ Supported Subtitles formats

● MicroDVD, SubRip, TMPlayer (.srt, .sub, .txt)

• The video file and subtitles text file are inside the same folder, and the file names are the same except for the file extensions.

• If there are more than one subtitles text files inside the same folder, they are displayed in the following order of priority: ".srt", ".sub", ".txt".

= Note =

• Some files may not be played back even if they fulfil these conditions.

• Some subtitles or chapter functions may not be available.

• Do not use multi-byte characters or other special codes for file names.

• Connected devices may become unusable with this TV if the file or folder names are changed.

• Supported formats are different in Media Player and media server.

Music format

■ Supported Music formats

● MP3 (.mp3)

● AAC / Apple Lossless (.m4a)
- Copy-protected files cannot be played back.

● FLAC (.flac)

● WMA / WMA Pro (.wma)
- Copy-protected files cannot be played back.

● LPCM (.wav)

= Note =

- Some files may not be played back even if they fulfil these conditions.

- Do not use multi-byte characters or other special codes for file names.

- Connected devices may become unusable with this TV if the file or folder names are changed.

Functions

Info Frame

Information

Info Frame is a convenient feature to provide you relevant information of the watching programme, recommendations, etc. It is displayed on the edge of screen when you need it.

(Example)

- A broadband network environment is required to be able to use this function fully.

= Note =

- Design and specifications are subject to change without notice.

How to use

You can check useful information using Info Frame while watching TV.

1. Press and hold HOME.

• Info Frame is displayed on the edge of screen.

(Example)
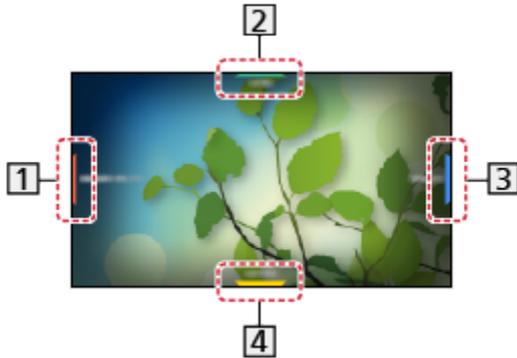
1 Current programme information, etc.

2 Relevant information (weather forecast, etc.)

3 Notification message

4 Recommended content (TV programme, internet content, etc.)

• You can also display Info Frame pressing and holding ⌂ (HOME) on Touch Pad Controller.

• To exit Info Frame

RETURN

2. Select one side of Info Frame with Cursor buttons or ▬ ▬ ▬ ▬ (coloured buttons) while Info Frame is displayed.

• You can also select by sliding your finger on Touch Pad Controller.

3. Follow the on-screen instructions.

= Note =

• Info Frame is displayed for several seconds each time the TV is turned on.

Functions > Info Frame > Settings

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Settings

You can set items for Info Frame.

1. Display the menu with MENU.

2. Select Setup > Display Settings > Info Frame at Power on and press OK to access.

3. Set the item and press OK to store.

Info Frame at Power on

(On / Off)

Displays Info Frame when the TV is turned on.

Voice Control

Information

Voice Control function allows you to operate the TV (e.g. selecting a channel), search the content from various features, etc. with your speech.

- A broadband network environment is required to be able to use this function fully. Ensure the network connections and network settings are completed.

  🖻 ➡ Network > Network connections

  🖻 ➡ Network > Network settings

- To use this function with Touch Pad Controller, ensure the pairing is completed.

  🖻 ➡ Functions > Touch Pad Controller > Pairing

- To use the built-in microphone, set Direct Voice Control to On.

  🖻 ➡ Functions > Voice Control > Settings

How to use

1. Press ◉ of Touch Pad Controller to display the operation guide.

  - You can also display it with saying "Hello television" to the TV (built-in microphone).

  - When a confirmation screen is displayed, read carefully and start Voice Control function.

    (Example)

2. Say a key word (e.g. my Home Screen) to the microphone while the operation guide is displayed.

    (Example)

  - The operation guide turns to blue during processing.

  - The operation guide automatically disappears after a certain period of time. Press ◉ again to start the Voice Control function.

    – You can also start the Voice Control function again with saying "Hello television" to the TV (built-in microphone).

  - To display voice command list

    ⊒

    – You can also display it with saying "Help" to the TV (built-in microphone).

  - To exit Voice Control function

    ⤺

    – You can also exit the function with saying "Thanks television" to the TV (built-in microphone).

■ To turn on the TV using Direct Voice Control function

You can turn on the TV with saying "Television power on" to the TV (built-in microphone).

- Set Direct Voice Control to On to use this function.

  📖 → Functions > Voice Control > Settings

- The built-in microphone is available in Standby mode only when the human activity sensor detects the person.

  📖 → Functions > Voice Control > Note

- This function is not available when the TV is turned off with Mains Power On / Off switch.

Settings

You can set items for Voice Control function.

1. Display the menu with MENU.

2. Select Setup > Voice Control Settings and press OK to access.

3. Select one of the following items and press OK to access.

   Language / Speech Detection Level / Direct Voice Control / Terms of Service / Instructions for Voice Control

4. Set the item and press OK to store.

Language

Select the language for Voice Control function.

- All languages may not be available. When the selected language is not supported, Language is set to English automatically.

Speech Detection Level

(High / Standard / Low)

Adjusts the sensitivity to recognise your speech.

Direct Voice Control

(On / Off)

Enables the Voice Control function with the built-in microphone.

Terms of Service

Displays the terms of service.

Instructions for Voice Control

Displays details of Voice Control function in eHELP.

Note

- When you start Voice Control function, sound level of the TV becomes low.

- Voice Control function may not work properly in the following conditions:

  – Not pronounce clearly and correctly

  – Volume level of your voice is too loud or too low.

  – Surrounded by the noise

- Phrases other than Voice Command may not be recognised.

- It is recommended to speak within approx. 15 cm from the microphone when using Touch Pad Controller.

- It is recommended to speak within approx. 3 m from the front of TV when using the built-in microphone.

- Design and specifications are subject to change without notice.

- A broadband network environment is required to be able to use this function fully, because this function accesses the speech recognition server with the internet connection. Even if you have the internet environment, this function may not be available depending on the proxy setting. Please connect the internet without proxy settings. (Proxy settings are not required for normal household use. For details of the internet environment, consult your Internet Service Provider (ISP) or telecommunications company.)

■ Human activity sensor

- Available ranges for the human activity sensor

  Distance: Within approx. 5 m

  Horizontal: Within approx. 35°

  Vertical (upward): Within approx. 15°

  Vertical (downward): Within approx. 7.5°

- Human activity sensor detects the gap between the room temperature and human body temperature. The available ranges may be different depending on the surrounding temperature, clothes, etc. Human activity sensor may mistakenly detect the heat source such as direct sunlight, animals (dog, cat, etc.), warm air from air conditioner, heater, electric pot, etc.

- Sideways or lengthways movement can be detected easily, but back and forth movement or a slight movement may not be accurately detected.

- Human activity sensor may not work properly when there is a reflecting object (mirror, etc.) in the available ranges or any objects between the human activity sensor and person.

Touch Pad Controller

Information

Touch Pad Controller is designed for the convenient operations, especially, on Home Screen or internet content. You can operate the TV intuitively with this controller.

- Touch Pad Controller can be used exclusively for controlling this TV.

- Register the Touch Pad Controller to this TV with Bluetooth wireless technology before using. The registration starts automatically when you press any buttons (except Standby On / Off switch) after installing batteries. To register again, set VIERA Touch Pad Controller in the Setup Menu.

  🖼️ ➜ Functions > Touch Pad Controller > Pairing

- After registering, you can operate the TV without pointing this controller at the TV (except Standby On / Off switch).

- It is recommended to speak within approx. 15 cm from the microphone of Touch Pad Controller when using the Voice Control function.

Pairing

Perform the registration when Touch Pad Controller is used for the first time.

The registration starts automatically when you press any buttons (except Standby On / Off switch) after installing batteries.

To register again, take following steps.

1. Display the menu with MENU.

2. Select Setup > VIERA Touch Pad Controller > Pairing and press OK to access.

3. Follow the on-screen instructions.

= Note =

- Place Touch Pad Controller within 50 cm from the TV while registration is in progress.

- Only 1 Touch Pad Controller can be registered.

Identifying controls
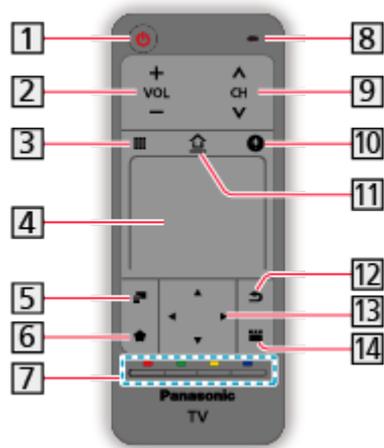
1 Standby On / Off switch

2 Volume Up / Down

3 On-screen remote control

– Press to display the remote control GUI (Graphical User Interface).

– Press again to move the position of GUI. Swipe to select the button.

– Press 12 to exit the on-screen remote control.

4 Touch pad

– For operations, refer to Operation Guide in the Setup menu.

  ⟹ Functions > Touch Pad Controller > Settings

5 Option menu

– Easy optional setting for viewing, sound, etc.

6 Pin to HOME

– Adds a shortcut for a frequently used feature (TV programme / application / device) on Home Screen.

  ⟹ Home Screen > Home Screen > Pin to HOME

7 Coloured buttons (red-green-yellow-blue)

– Used for the selection, navigation and operation of various functions.

8 Microphone

9 Channel Up / Down

10 Voice Control button

– For details of Voice Control function

  ⟹ Functions > Voice Control

11 HOME

– Displays Home Screen.

12 Return

– Returns to the previous menu / page.

13 Cursor buttons

14 APPS

– Displays Apps.

= Note =

- To use Standby On / Off switch, point the controller directly at the TV's remote control signal receiver because it works with infrared sensors. (You can operate the switch without registration.)

Settings

1. Display the menu with MENU.

2. Select Setup > VIERA Touch Pad Controller and press OK to access.

3. Select one of the following items and press OK to access.

    Pairing / Cursor Sensitivity / Operation Guide

4. Follow the on-screen instructions.

Pairing

Registers Touch Pad Controller (supplied) to this TV.

 ➡ Functions > Touch Pad Controller > Pairing

Cursor Sensitivity

(Max / Mid / Min)

Adjusts the sensitivity of the cursor.

Operation Guide

Displays the operation guide of Touch Pad Controller.

TV Anytime

How to use

You can watch TV and set timer event with the network equipment (smartphone, etc.) from outside the home network.
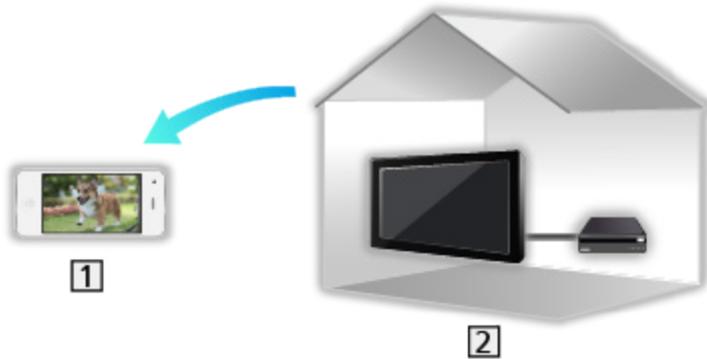
1 Smartphone, etc.

2 TV

- Ensure the network connections and network settings are completed.

  🖼️ ➡ Network > Network connections

  🖼️ ➡ Network > Network settings

1. Set TV Anytime to On.

   🖼️ ➡ Functions > TV Anytime > TV Anytime Settings

2. Connect the device (smartphone, etc.) to the home network and access to the TV.

   - You need to install the application for controlling VIERA on your smartphone.

     For information about the application:

     http://panasonic.net/viera/support (English only)

     For the operations, refer to the support information of the application.

= Note =

- This function is not available when the TV is turned off with Mains Power On / Off switch.

- Depending on the network condition and broadcasts, this function may not be available.

- Additional information about the services may be found on the following website.

  http://panasonic.net/viera/support (English only)

TV Anytime Settings

1. Display the menu with MENU.

2. Select Network > TV Anytime Settings and press OK to access.

3. Select one of the following items and press OK to access.

   TV Anytime / Powered on by Swipe & Share / Device ID / Device Password

4. Follow the on-screen instructions.

TV Anytime

(On / Off)

Enables watching TV and setting timer event with the network equipment (smartphone, etc.) from outside the home network.

- Changing the default configuration may result in higher energy consumption of the product.

- LED turns to orange in Standby mode when TV Anytime is set to On.

Powered on by Swipe & Share

(On / Off)

Enables turning on the TV automatically when the Swipe & Share function is activated from the other devices (smartphone, etc.).

- Set TV Anytime to On to use this function.

- Use the Swipe & Share function to turn on the TV only when you can see the status of the TV.

Device ID

Displays the device ID of this TV.

Device Password

Displays the device password of this TV.

Mirroring

How to use

You can watch display images of other devices (smartphone, etc.) on the TV screen using a mirroring function.

1 Smartphone, etc.

2 TV

1. Display Home Screen with HOME.

2. Select Devices and press OK to access.

3. Select Mirroring and press OK.

4. Follow the on-screen instructions.

- Pairing information of the device (smartphone, etc.) is registered once you use this function.

■ Easy Mirroring

You can also start the mirroring function from the other devices (smartphone, etc.) when Easy Mirroring is set to On.

   → Functions > Mirroring > Mirroring Settings

- You cannot use Easy Mirroring function while the TV is set to Wireless Access Point.

= Note =

- This function is available with the other devices (smartphone, etc.) supporting the mirroring function. For details, refer to the operating instructions of the devices.

Mirroring Settings

You can set items for the mirroring function.

1. Display the menu with MENU.

2. Select Network > Mirroring Settings and press OK.

3. Select one of the following items and press OK to access.

   Easy Mirroring / Powered On by Easy Mirroring / Delete All Pairings

4. Set the item and press OK to store.

Easy Mirroring

(On / Off)

Enables starting the mirroring function from the other devices (smartphone, etc.) without operating the TV.

- To deactivate wireless, set Easy Mirroring to Off and confirm the network connection type is set to Wired.

  🔲 ➔ Network > Network settings > Network Status

- Not valid when the TV is set to Wireless Access Point

Powered On by Easy Mirroring

(On / Off)

Enables turning on the TV automatically when the mirroring function is activated from the other devices (smartphone, etc.).

- Changing the default configuration may result in higher energy consumption of the product.

- Use the mirroring function to turn on the TV only when you can see the status of the TV.

- Register the devices (smartphone, etc.) before using this function.

- LED turns to orange in Standby mode when Powered On by Easy Mirroring is set to On.

Delete All Pairings

Delete the pairing information for all paired devices.

Multi Window

Information

Displays two windows at once for viewing the TV programmes or external input (AV / COMPONENT / HDMI) as shown below (example).
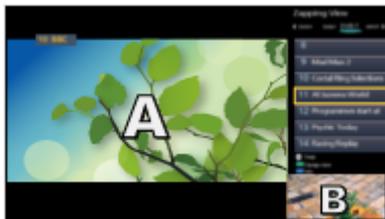
Pre-view
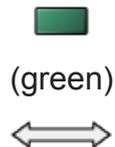
(green)

Dual view
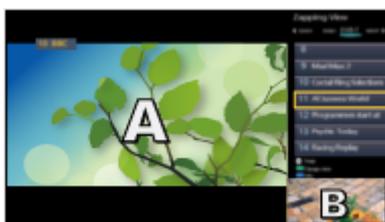
Pre-view

OK
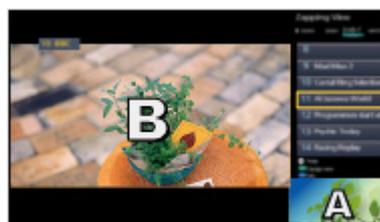
Pre-view

- To swap windows

  OK

  – Not valid while recording is in progress

- To exit multi window

  EXIT

How to use

You can select a channel while watching another programme or external input.

1. Display Apps with APPS.

2. Select Multi Window and press OK to access.

■ Pre-view

(Example)
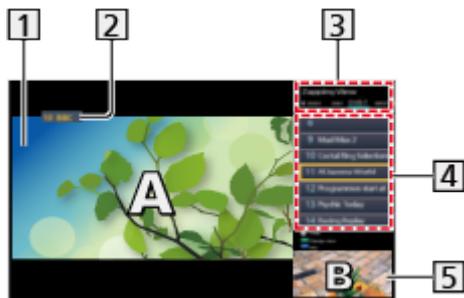
1 Main screen

2 TV mode / Input mode / Channel position and name (for main screen)

3 TV mode / Input mode (for sub screen)

  – Press ◁ / ▷ to select the TV mode / input mode of the sub screen.

4 Current programme information (if available) (for sub screen)

  – Press △ / ▽ to select the programme of the sub screen.

5 Sub screen / information screen

  – Press ▬ (blue) to change the screen.

• The sound comes only from the main screen.

■ Dual view

(Example)
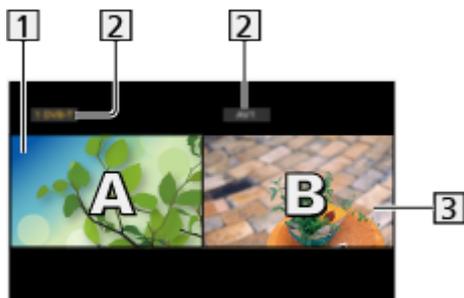
[1] Main screen

[2] TV mode / Input mode / Channel position and name

[3] Sub screen

- Press ◁ / ▷ to select the screen to operate.

  – ⌨ displays on the screen.

- To select the sound

  1) Display the option menu with OPTION.

  2) Select Sound Output and press OK to access.

  3) Select Main / Sub and press OK to set.

  – ♪ displays on the screen.

- To confirm or change the current status

  OPTION

  – Menu items and selectable options vary between the main screen and sub screen.

    📖 → Watching > Basic > AV Options

- To display / hide the operation guide

  INFO

Note

- This function may not work properly depending on the signal format.

- Not valid in Analogue TV

- Data services are not available in multi window.

- You cannot change the aspect ratio in multi window.

- External input mode can only be displayed either on the main screen or sub screen.

- HDMI is available for the main screen.

- Some signals are reformatted for suitable viewing on your display.

- Playback in fast-forward or in reverse on the sub screen may affect the picture quality on the main screen.

VIERA Link "HDAVI Control™"

Summary of VIERA Link

Enjoy additional HDMI Inter-Operability with Panasonic products which have "HDAVI Control™" function.

VIERA Link (HDAVI Control) connects the TV and the equipment with VIERA Link function, and enables easy control, playback, energy saving, creating home theatre, etc. without complicated settings. Connections to the equipment (DVD Recorder, HD Video Camera, Player theatre, Amplifier, etc.) with HDMI cables allow you to interface them automatically. These features are limited to models incorporating "HDAVI Control" and "VIERA Link".

- This TV supports "HDAVI Control 5" function.

- Some functions are not available depending on the equipment's version of HDAVI Control. Confirm the connected equipment's version of HDAVI Control.

- VIERA Link "HDAVI Control" is a unique function that we have developed and added based on the control functions provided by HDMI which is an industry standard known as HDMI CEC (Consumer Electronics Control). As such, its operation with other manufacturers' product that supports HDMI CEC cannot be guaranteed.

- VIERA Link features may be available even with other manufacturers' equipment supporting HDMI CEC.

- Please refer to individual manuals for other manufacturers' product supporting VIERA Link function.

- About applicable Panasonic product, consult your local Panasonic dealer.

■ VIERA Link (HDMI connection)

- Use a fully wired HDMI compliant cable.

- Connect the equipment supporting VIERA Link to the TV's HDMI terminal via an HDMI cable.

  About HDMI cable for connecting Panasonic HD Video Camera or LUMIX Camera, read the manual of the equipment.
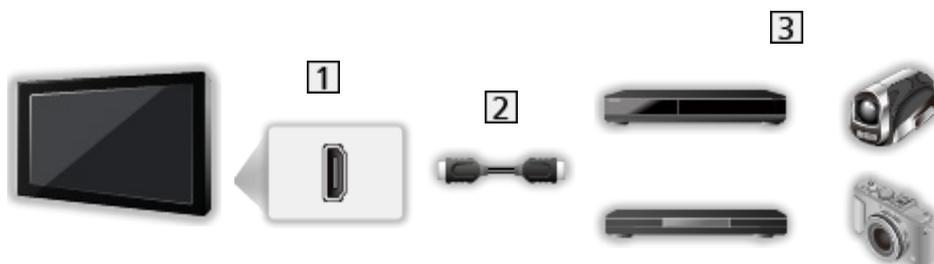
1 HDMI terminal

2 HDMI cable

3 Equipment with VIERA Link function (DVD Recorder / DVD Player / Blu-ray Disc Player / HD Video Camera / LUMIX Camera)

■ Available features (HDMI connection)

DVD Recorder / DVD Player / Blu-ray Disc Player

- Easy playback

- Power on Link

- Power off Link

- Standby Power Save[*2]

- Intelligent Auto Standby[*2]

- VIERA Link Control[*1]

HD Video Camera / LUMIX Camera

- Easy playback

- Power on Link

- Power off Link

- VIERA Link Control[*1]

[*1] : For equipment which has "HDAVI Control 2 or later" function.

[*2] : For equipment which has "HDAVI Control 4 or later" function.

■ VIERA Link (HDMI and Audio out connections)

- Use a fully wired HDMI compliant cable.
- Connect the equipment supporting VIERA Link to the TV's HDMI terminal via an HDMI cable.
- Use the optical digital audio cable for audio output from the TV.
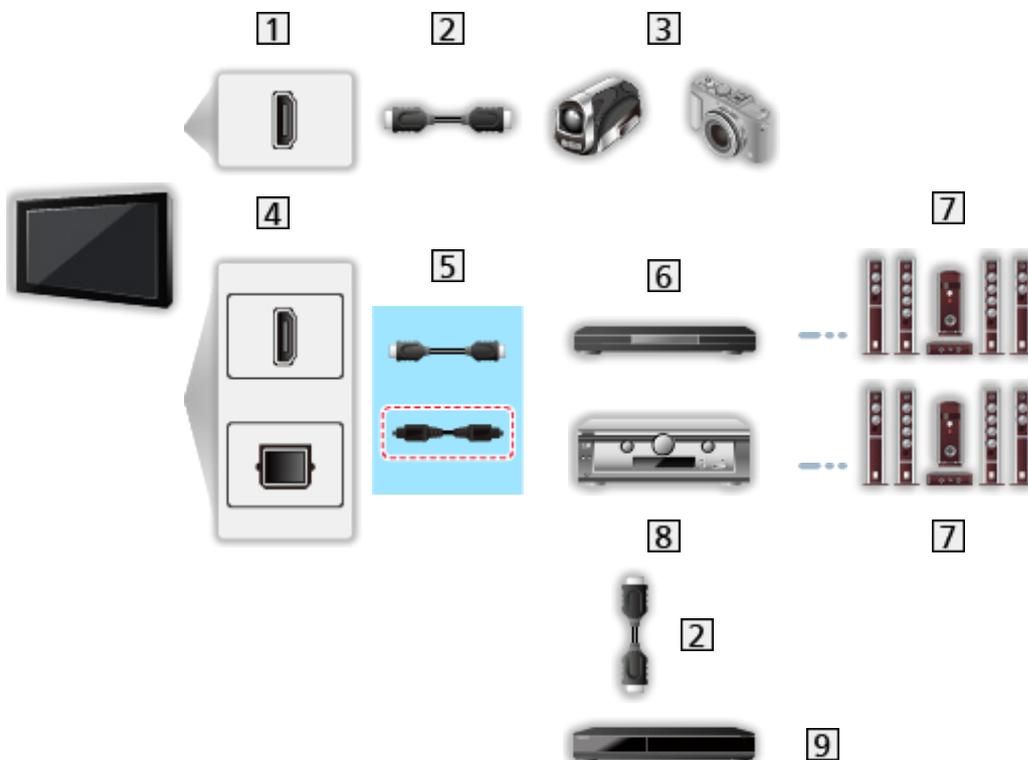
1 HDMI terminal

2 HDMI cable

3 HD Video Camera / LUMIX Camera with VIERA Link function

4 HDMI terminal / DIGITAL AUDIO OUT

5 HDMI cable (Optical digital audio cable＊)

6 Player theatre / Blu-ray Disc theatre with VIERA Link function

7 Speaker system

8 Amplifier with VIERA Link function

9 DVD Recorder with VIERA Link function

＊： If the connected equipment has "HDAVI Control 5" function, you do not have to use this audio cable (Optical digital audio cable). In this case, connect the equipment to the TV's HDMI2 terminal via an HDMI cable.

■ Available features (HDMI and Audio out connections)

Player theatre

- Easy playback*³
- Power on Link
- Power off Link
- Intelligent Auto Standby*²*⁴
- VIERA Link Control*¹
- Speaker Selection

Blu-ray Disc theatre

- Easy playback*³
- Power on Link
- Power off Link
- Standby Power Save*²
- Intelligent Auto Standby*²*⁴
- VIERA Link Control*¹
- Speaker Selection

Amplifier

- Power off Link
- Intelligent Auto Standby*²
- Speaker Selection

*¹ : For equipment which has "HDAVI Control 2 or later" function.

*² : For equipment which has "HDAVI Control 4 or later" function.

*³ : While playing a disc

*⁴ : Except for watching a disc

■ VIERA Link Control of compatible equipment

The following is the maximum number of compatible equipment that can be controlled by VIERA Link Control. This includes connections to equipment already connected to the TV.

For example, DVD Recorder connected to Amplifier which is connected to the TV via an HDMI cable.

- Recorder:

    Maximum 3

- Player:

    Maximum 3 (DVD Player, Blu-ray Disc Player, HD Video Camera, LUMIX Camera, Digital Camera, Player theatre, Blu-ray Disc theatre, etc.)

- Audio system:

    Maximum 1 (Player theatre, Blu-ray Disc theatre, Amplifier, etc.)

- Tuner:

    Maximum 4 (Set top box, etc.)

Preparations

- Connect the equipment supporting VIERA Link.

- For details of VIERA Link connections

   → Functions > VIERA Link "HDAVI Control™" > Summary of VIERA Link

- Use a fully wired HDMI compliant cable.

- Set up the connected equipment. Read the manual of the equipment.

- Set VIERA Link to On in the Setup Menu.

- Set up the TV. After connection, turn the equipment on and then switch the TV on. Select the HDMI input from Input Selection with AV and make sure that an image is displayed correctly. (This setup should be done each time the following conditions occur.)

  – First time operation

  – Adding or reconnecting equipment

  – Changing setup

Easy playback

Automatic input switching - When the connected equipment is operated, the input mode is switched automatically.

Power on Link

Set Power on Link to On in VIERA Link Settings to use this function.

When the connected equipment is operated, the TV is automatically turned on. (Only when the TV is in Standby mode.)

Power off Link

Set Power off Link to On in VIERA Link Settings to use this function.

When the TV is set to Standby mode, the connected equipment is also automatically set to Standby.

- This function will work even if the TV enters Standby mode automatically by auto power standby function.

Standby Power Save

Set Standby Power Save to On in VIERA Link Settings to use this function.

The power consumption of the connected equipment in Standby mode is controlled higher or lower in synchronisation with the TV on / off state to reduce the consumption.

When the TV is set to Standby mode, the connected equipment is automatically set to Standby and the power consumption of the connected equipment is automatically minimised.

When the TV is turned on, the connected equipment is still in Standby mode, but the power consumption is increased to start the connected equipment fast.

- This function is effective if the connected equipment can change the power consumption in Standby mode and is set to higher consumption.

- This function works when Power off Link is set to On.

Intelligent Auto Standby

Set Intelligent Auto Standby to On in VIERA Link Settings to use this function.

When the TV is on, non-used connected equipment goes into Standby mode automatically to reduce the power consumption. For example, when the input mode is switched from HDMI or when Speaker Selection is changed to TV (except for watching a disc).

- This function may not work properly depending on the connected equipment. In this case, set to Off.

VIERA Link Control

You can control some functions of the connected equipment with this TV's remote control by pointing at the TV's signal receiver.

1. Display Apps with APPS.

2. Select VIERA Link and press OK to access.

3. Select VIERA Link Control and press OK to access.

4. Select one of the following items and press OK to access.

   Recorder / Player / Home Cinema / Video Camera / LUMIX / Digital Camera / Other

   (The menu of the accessed equipment is displayed. The input mode is changed automatically.)

   - The displayed item may vary depending on the connected equipment.

   - Home Cinema means Player theatre, Blu-ray Disc theatre or Recorder theatre.

   - Other means Tuner set top box.

5. Follow the on-screen instructions to operate the menu of the equipment.

   - Confirm the remote control code is "73".

     📖 ➡ Watching > External equipment > Operating with TV's remote control

   - To display the operation guide

     OPTION

     (If other manufacturers' product is accessed, Setup / Contents Selection menu may be displayed.)

   - Available TV's remote control buttons depend on the connected equipment.

■ If multiple recorders or players are connected

Each recorder / player is numbered. The number is given from the TV's lower number of HDMI terminal connected to the same type of equipment. For example, when two recorders are connected to HDMI2 and HDMI3, the recorder connected to HDMI2 is displayed as Recorder1, and the recorder connected to HDMI3 is displayed as Recorder2.

■ If you access non-VIERA Link equipment

The type of the connected equipment is displayed. Although you can access the connected equipment, you cannot operate it. Use the remote control of the connected equipment.

= Note =

- If you cannot operate the equipment, check the settings and the equipment.

   Functions > VIERA Link "HDAVI Control™" > Summary of VIERA Link

- Some operations may not be available depending on the equipment. In this case, use the remote control of the connected equipment.

- For details of the operations for the connected equipment, read the manual of the equipment.

Speaker Selection

You can control the theatre speaker with this TV's remote control by pointing at the TV's signal receiver.

1. Display Apps with APPS.

2. Select VIERA Link and press OK to access.

3. Select Speaker Selection and press OK to access.

4. Select TV / Home Cinema and press OK to set.

   TV:

   > TV speakers are active.

   Home Cinema:

   > The sound is delivered from theatre speakers. Player theatre, Blu-ray Disc theatre or Amplifier will be automatically turned on if it is in Standby mode.

   - The sound of TV speakers is mute. When the equipment is turned off, TV speakers will be activated.

   - You can use Volume Up / Down and MUTE.

■ Multi-channel sound

If you want to enjoy the multi-channel sound (e.g. Dolby Digital 5.1ch) via an Amplifier, connect it with an HDMI cable and Optical digital audio cable, and then select Home Cinema. If your Amplifier has the "HDAVI Control 5" function, you only need to connect it with an HDMI cable to the TV's HDMI2 terminal.

To enjoy multi-channel sound from DIGA Recorder, connect an HDMI cable from the DIGA Recorder to the Amplifier.

= Note =

- If you cannot operate the equipment, check the settings and the equipment.

   → Functions > VIERA Link "HDAVI Control™" > Summary of VIERA Link

- Some operations may not be available depending on the equipment.

Note

- These functions may not work properly depending on the connected equipment.

- Image or sound may not be delivered for the first few seconds when the input mode is switched.

- "HDAVI Control 5" is the newest standard for HDAVI Control compatible equipment. This standard is compatible with conventional HDAVI equipment.

- To confirm the HDAVI Control version of this TV

Child Lock

Using Child Lock

You can lock specific channels / AV input terminals to restrict access to them. When the locked channel / input is selected, a message appears. Enter the PIN number to watch.

1. Display the menu with MENU.

2. Select Setup > Child Lock and press OK to access.

3. Enter the PIN number (4 digits) with Numeric buttons.

```
1 2 3
4 5 6
7 8 9
  0
```

- "0000" has been stored as the default PIN number.

4. Select Child Lock List and press OK to access.

5. Select the channel / input and press OK to lock.

- 🔒 appears when the channel / input is locked.

- To cancel

    1) Select the locked channel / input.

    2) Press OK.

- To lock all

    ▆ (green)

- To cancel all locks

    ▆ (yellow)

- To jump to the head of the next channel / input group

    ▆ (blue)

■ Show Adult App

Set to Off to lock specific applications to restrict access to them (if available).

= Note =

- For internet content

PIN number

You can change the PIN number.

1. Select Change PIN and press OK to access.

2. Enter a new PIN number twice with Numeric buttons.

```
1 2 3
4 5 6
7 8 9
  0
```

= Note =

- Setting Shipping Condition erases the PIN number and all settings.

- If you have forgotten your changed PIN, input "6969" as the PIN number.

Parental Rating

To watch the digital TV programme that has rating information on the selected age, enter the PIN number (depending on the broadcaster).

1. Select Parental Rating and press OK to access.

2. Select an age for the restriction of programmes and press OK to set.

■ Meaning of rating

No Block: Not classified

R: Restricted 18+

AV 15+: Adult strong Violence 15+

MA 15+: Mature Adult 15+

M: Mature

PG: Parental Guidance recommended

G: General

C: Children

P: Pre school

= Note =

- Setting Shipping Condition erases the PIN number and all settings.
- If you have forgotten your changed PIN, input "6969" as the PIN number.

Data Service Application

Using Data Service Application

You can enjoy Hybrid Broadcast Broadband TV application that is one of the interactive data services for digital broadcasting.

1. Select Digital TV with `TV`.

2. Display the menu with `MENU`.

3. Select Setup > Data Service Application > Service and press `OK` to access.

4. Select Auto Start On and press `OK` to set.

- A notification message will appear when the application is available. Follow the on-screen instructions.

- `D` is displayed on the information banner if the programme has Hybrid Broadcast Broadband TV application.

    → Watching > Basic > Information banner

- To stop the application

    `EXIT`

Cookie

1. Display the menu with MENU.

2. Select Setup > Data Service Application > Store Cookie / Delete Cookie and press OK to access.

Store Cookie

(On / Off)

Enables storing the technical information that a data service application leaves into the TV in order to recognise to use it again.

Delete Cookie

Deletes all of technical information left by a data service application.

Note

- A broadband network environment is required to be able to use Hybrid Broadcast Broadband TV application fully. Ensure the network connections and network settings are completed.

   ➡ Network > Network connections

   ➡ Network > Network settings

- Not all the data services are available depending on the area and broadcaster.

- Not valid in multi window mode

- Depending on the connection environment, the internet connection may be slow or may not be successful.

- Operations may vary depending on the broadcaster. Follow the on-screen instructions.

- On-screen instructions may not correspond to the remote control buttons.

Shipping Condition

Shipping Condition

Resets the TV to its original condition (i.e. no channels tuned in).

All settings other than USB Device Setup are reset (channels, picture, sound settings, etc.).

1. Display the menu with MENU.

2. Select Setup > System Menu > Shipping Condition and press OK to access.

3. When a confirmation screen is displayed, select Yes and press OK to set.

4. Follow the on-screen instructions.

   - Auto Tuning automatically starts.

= Note =

- To retune TV channels only (e.g. after moving house), set Auto Tuning.

   → Watching > Tuning and editing channels > Auto Tuning

Updating the TV Software

Information

A new version of software may be released for download to enhance the performance or operations of the TV.

If there is an update available and the channel has the update information, a notification message is displayed.

- To download

  OK

  – Press EXIT when not downloading.

Auto update

You can update new software automatically.

1. Display the menu with MENU.

2. Select Setup > System Menu > System Update > Auto Update Search in Standby and press OK to access.

3. Select Immediately / 1 hour after / Off and press OK to set.

   • If System Update is performed, the software will be updated (TV functions may be changed). If you do not want to do so, set Auto Update Search in Standby to Off.

   • Every time you set, the TV automatically performs search in Standby and downloads an update if any software updates are available.

   • The automatic updating cannot be performed in the following conditions:

      – TV turned off with Mains Power On / Off switch

      – Recording is in progress.

= Note =

   • Download may take a few hours.

   • During software download and update, DO NOT switch off the TV.

   • A notification message may be a reminder. In this case, schedule information (the date when the new version can be used) will appear. You can set the reservation for update. The update will not start when the TV is off.

Manual update

You can update new software manually.

1. Display the menu with MENU.

2. Select Setup > System Menu > System Update > System Update Search Now and press OK to access.

3. Searches for an update (for several minutes) and displays a corresponding message if any.

4. Download with OK.

= Note =

- Download may take a few hours.

- During software download and update, DO NOT switch off the TV.

- To update via the internet

  ⬛➡ Network > Network settings > Software Update

Setting characters

Using Numeric buttons

You can enter characters for free input items using Numeric buttons.

Press Numeric buttons repeatedly until you reach the desired character.

`1` : . @ / 1 ! : # + - * _ ( ) " ' % & ? , ; = $ [ ] ~ < > { } | ` ^ \

`2` : a b c 2 A B C

`3` : d e f 3 D E F

`4` : g h i 4 G H I

`5` : j k l 5 J K L

`6` : m n o 6 M N O

`7` : p q r s 7 P Q R S

`8` : t u v 8 T U V

`9` : w x y z 9 W X Y Z

`0` : Space 0

- The character is set automatically if you leave for 1 second.
- You can also set the character pressing OK or other Numeric buttons less than 1 second.
- The characters may vary depending on the input item.

Bluetooth devices

Bluetooth Setup

You can use Bluetooth keyboards＊ and mouse＊ with this TV by setting Bluetooth Setup in the Setup Menu.

＊： HID (Human Interface Device Profile) compliant keyboards / mouse can be used.

- Additional information about the devices may be found on the following website.

  http://panasonic.net/viera/support (English only)

1. Display the menu with MENU.

2. Select Setup > Bluetooth Setup > Devices and press OK to access.

Devices

Searches the available device and displays the status.

- Place the device within 50 cm from the TV while registration is in progress.

- Turn the device on for registering. The setup for registration may be required depending on the device. Read the manual of the device.

  Not paired:

  The device is not registered. Register the device by following the on-screen instructions to use with this TV.

  Connected:

  The device is registered and you can use with this TV.

  Not connected:

  The device is already registered, but not connected to this TV. Check the device is turned on and set within the available range.

- This setup is not designed for the 3D Eyewear and Touch Pad Controller supporting Bluetooth wireless technology.

Keyboard

Keyboard

- Keyboards requiring the drivers are not supported.

- Characters may not be displayed correctly on the TV screen depending on the connected keyboard.

- Some of the keys of keyboards may correspond to the operation of the remote control.

Keyboard	Remote Control
↑ / ↓ / ← / →	△ / ▽ / ◁ / ▷
Enter	OK
Backspace	RETURN
Esc	EXIT
0 - 9 / Character	Numeric buttons
F1	HOME
F2	APPS
F3	MENU
F4	AV
F5 / F6	Channel Down / Up
F7 / F8	Volume Down / Up
F9 / F10 / F11 / F12	Coloured buttons

Settings

Setting menu

How to use

Various menus allow you to make settings for the picture, sound, and other functions.

1. Display the menu with MENU.

   • Displayed items vary depending on the input signal.

2. Select the menu and press OK to access.

3. Select the items and press OK to access.

   • Only available items can be selected.

   • You can also access from eHELP pressing ▮▮ (red) at each item (if available).

• You can select from among alternatives with △ / ▽ and press OK to set.

• You can adjust using the slide bar with ◁ / ▷ and press OK to set.

• You can go to the next screen with OK.

• You can enter names or numbers freely for some items.

   1) Enter characters one by one with Cursor buttons and press OK to set.

   – You can set characters using Numeric buttons.

   📖 ➡ Functions > Setting characters > Using Numeric buttons

   2) Press RETURN to store.

• To reset the settings

   – To initialise picture or sound settings only, select Reset Picture Defaults in the Picture Menu or Reset Sound Defaults in the Sound Menu.

   – To initialise all settings, select Shipping Condition.

   📖 ➡ Functions > Shipping Condition

- To exit the menu screen

  `EXIT`

- To return to the previous screen

  `RETURN`

= Note =

- Menu items and selectable options vary depending on the mode (TV mode, Media Player, Network services, etc.).

- Some settings in Picture menu may also affect the menu screen when watching content in 4K format.

■ Using control panel buttons

1. Press and hold INPUT/OK/HOLD for MENU button for 3 seconds to display the menu.

2. Select and set with following control panel buttons.

   - Move the cursor / select from a range of options / select the menu item / adjust levels
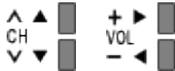
   - Access the menu / store settings after adjustments have been made or options have been set with INPUT/OK/HOLD for MENU button

Picture

Viewing Mode

Selects your favourite picture mode for each input.

(Dynamic / Normal / Cinema / THX Cinema / THX Bright Room / True Cinema / Custom / Professional1 / Professional2)

 Watching > For best picture > Viewing Mode

Basic settings

Backlight, Contrast, Brightness, Colour, Tint, Sharpness

Adjusts the levels of these options according to your personal preference.

  📖 ➡ Watching > For best picture > Basic settings

- Sharpness is not available when 1080p Pixel by 4pixels is set to On.

Colour Temperature

Sets the overall colour tone of the picture (bluer - redder).

  📖 ➡ Watching > For best picture > Basic settings

Vivid Colour

(On / Off)

Automatically adjusts colours to vivid ones.

  📖 ➡ Watching > For best picture > Basic settings

Colour Remaster

(Max / Min / Off)

Displays the vivid images with the expanded colour gamut.

  📖 ➡ Watching > For best picture > Basic settings

- Not valid in the following conditions:
  - Photo content
  - Viewing Mode is THX mode.

Rec.2020 Colour Remaster

(Max / Min / Off)

Displays the vivid images with the suitable colour gamut.

  📖 ➡ Watching > For best picture > Basic settings

- This function is available only for Rec. 2020 and displayed instead of Colour Remaster.

Reversal Film Effect

(Max / Min / Off)

Provides the picture effect such as the reversal film for photo content.

📖 ➡ Watching > For best picture > Basic settings

- For photo content
- Not valid when Viewing Mode is THX mode

Adaptive Backlight Control

Automatically controls the level of backlight according to the images.

📖 ➡ Watching > For best picture > Basic settings

Resolution Remaster

(Auto / Max / Mid / Min / Off)

Enhances picture resolution to make the image sharper.

📖 ➡ Watching > For best picture > Basic settings

Dynamic Range Remaster

(On / Off)

Enhances bright areas of the image closer to the original luminance making improved picture impact.

📖 ➡ Watching > For best picture > Basic settings

- Not valid in the following conditions:
  - 3D
  - Multi window
  - Adaptive Backlight Control is set to Off.
  - Contrast Control is set to Off.

Intelligent Frame Creation

(Max / Mid / Min / Off)

Automatically compensates the picture frame rate and removes juddering movements to make the images smooth.

📖 ➡ Watching > For best picture > Basic settings

- Depending on the content, images may be noisy. To prevent the noise, change the setting.
- Not valid in the following conditions:

  – Game Mode is set to On.

  – 1080p Pixel by 4pixels is set to On.

  – 1080p Pure Direct is set to On.

  – 4K Pure Direct is set to On.

24p Smooth Film

(Max / Mid / Min / Off)

Automatically compensates the picture frame rate to make the 24p source movie images smooth.

📖 ➡ Watching > For best picture > Basic settings

- This function is available only for 24p signal input and displayed instead of Intelligent Frame Creation.
- Not valid in the following conditions:

  – Game Mode is set to On.

  – 1080p Pixel by 4pixels is set to On.

  – 1080p Pure Direct is set to On.

  – 4K Pure Direct is set to On.

Ambient Sensor

Automatic Brightness Control function

Adjusts picture settings automatically depending on ambient lighting condition.

(On / Off)

 ➡ Watching > For best picture > Ambient Sensor

Noise reduction settings

Noise Reduction

(Auto / Max / Mid / Min / Off)

Reduces unwanted picture noise.

🔖➡ Watching > For best picture > Noise reduction settings

- Not valid in the following conditions:

  – Game Mode is set to On.

  – 1080p Pixel by 4pixels is set to On.

  – 1080p Pure Direct is set to On.

  – 4K Pure Direct is set to On.

MPEG Remaster

(Auto / Max / Mid / Min / Off)

Reduces flicker noise in contoured parts of a picture and block noise.

🔖➡ Watching > For best picture > Noise reduction settings

- Not valid in the following conditions:

  – Game Mode is set to On.

  – 1080p Pixel by 4pixels is set to On.

  – 1080p Pure Direct is set to On.

  – 4K Pure Direct is set to On.

Advanced Settings

You can adjust and set up the detailed picture settings.

 ➡ Watching > For best picture > Advanced Settings

This function is available when Viewing Mode is set to Cinema, True Cinema, Custom or Professional1 / 2.

Option Settings

Game Mode

(On / Off)

Provides suitable images for fast response signals when playing games.

📖 ➡ Watching > For best picture > Option Settings

- Not valid in TV mode

Film Cadence Mode

(On / Off)

Improves vertical resolution for movie images.

📖 ➡ Watching > For best picture > Option Settings

- This function is available for interlaced signals (except in the mode of multi window, Network services or when Game Mode is set to On).

1080p Pure Direct

(On / Off)

Reproduces the original image quality in detail for 1080p (HDMI) input signal.

📖 ➡ Watching > For best picture > Option Settings

- Not valid in the following conditions:
  - 3D
  - Multi window
  - 1080p Pixel by 4pixels is set to On.

4K Pure Direct

(On / Off)

Reproduces the original image quality in detail for 4K (HDMI) input signal.

📖 ➡ Watching > For best picture > Option Settings

- Not valid in the following conditions:
  - 3D
  - Multi window

1080p Pixel by 4pixels

(On / Off)

Displays like pixel by pixel to make the image sharper for 1080p signal.

🔖 ➡ Watching > For best picture > Option Settings

- For HDMI

- Not all image may be displayed as pixel by pixel precisely.

- Not valid in the following conditions:

    – 3D

    – Multi window

HDMI Content Type

(Graphics / Photos / Auto / Off)

Adjusts the picture settings of each HDMI input according to the selected content type.

🔖 ➡ Watching > For best picture > Option Settings

- For HDMI

HDMI RGB Range

(Auto / Full / Normal)

Adjusts the black level of the image for each HDMI input.

🔖 ➡ Watching > For best picture > Option Settings

- For HDMI

3D-COMB

(On / Off)

Makes still or slow moving pictures more vivid.

🔖 ➡ Watching > For best picture > Option Settings

- For PAL / NTSC signal reception in TV mode or from composite connection

Screen Settings

16:9 Overscan

(On / Off)

Selects the screen area displaying the image for 16:9 aspect.

    Watching > For best picture > Screen Settings

- Not valid in the following conditions:
    - 4K content
    - Photo content
    - Game Mode is set to On.
    - 1080p Pixel by 4pixels is set to On.
    - 1080p Pure Direct is set to On.
    - 4K Pure Direct is set to On.
    - Multi window

Zoom Adjustments

Adjusts the vertical position and size when aspect is set to Zoom.

    Watching > For best picture > Screen Settings

- Not valid in the following conditions:
    - 4K content
    - Multi window

Screen Display

(On / Off)

Turns the screen off when you select Off.

    Watching > For best picture > Screen Settings

3D Settings

3D Mode

Selects the 3D format manually.

📖 ➜ Watching > 3D > 3D Mode Selection

2D→3D Depth

(Max / Mid / Min)

Selects a level of 3D-image depth for viewing converted 2D images.

📖 ➜ Watching > 3D > 3D Settings

3D Adjustment

(On / Off)

Adjusts the 3D effect (except in 2D→3D mode).

📖 ➜ Watching > 3D > 3D Settings

L/R Picture Swap

(L/R (Normal) / R/L (Reversed))

Swaps pictures for left eye and right eye (except in 2D→3D mode).

📖 ➜ Watching > 3D > 3D Settings

Safety Precautions

Displays the precautions for viewing 3D images.

📖 ➜ Watching > 3D > 3D Settings

Lock Settings

Locks the settings of Professional1 / 2 for each input.

 → Watching > For best picture > Lock Settings

Copy Adjustment

Copies the picture settings of True Cinema, Custom, Professional1 or Professional2 to those of the other input mode or Viewing Mode.

 ➡ Watching > For best picture > Copy Adjustment

Reset Picture Defaults

Resets the current Picture Viewing Mode to the default settings.

- 276 -

Sound

Mode

Selects your favourite sound mode for each input.

(Standard / Music / Ambience / User)

Basic settings

Bass

Adjusts level to enhance or minimise lower, deeper sound output.

📖 ➔ Watching > For best audio > Basic settings

Treble

Adjusts level to enhance or minimise sharper, higher sound output.

📖 ➔ Watching > For best audio > Basic settings

Equaliser

Adjusts the frequency level to suit your favourite sound quality.

📖 ➔ Watching > For best audio > Basic settings

Balance

Adjusts volume level of right and left speakers.

📖 ➔ Watching > For best audio > Basic settings

Surround

(Virtual Surround / Off)

Selects surround sound settings.

📖 ➔ Watching > For best audio > Basic settings

Bass Boost

(On / Off)

Enhances the effect of bass sounds.

📖 ➔ Watching > For best audio > Basic settings

Volume settings

Speaker Selection

(TV / Home Cinema)

Enables controlling the theatre speaker with this TV's remote control by pointing at the TV's signal receiver.

 ⟹ Watching > For best audio > Volume settings

- This function is available when the theatre speakers supporting VIERA Link function is connected to this TV.

TV Speaker

(On / Off)

Set to Off when using the external speakers.

 ⟹ Watching > For best audio > Volume settings

Auto Gain Control

(On / Off)

Automatically regulates large sound level differences between channels and inputs.

 ⟹ Watching > For best audio > Volume settings

Volume Correction

Adjusts the volume of each individual channel or input mode.

 ⟹ Watching > For best audio > Volume settings

Speaker Distance to Wall

(Up to 30cm / Over 30cm)

Compensates for the low frequency sound due to the distance between the speakers and the wall.

 ⟹ Watching > For best audio > Volume settings

Voice Guidance Settings

Voice Guidance

(On / Off)

Set to On to enable voice guidance of the basic features (on-screen messages, etc.) for visually impaired users.

🔖 ➡ Watching > For best audio > Voice Guidance Settings

- Not valid in multi window mode

Speed

(Fast / Normal / Slow)

Selects the readout speed for the voice guidance.

🔖 ➡ Watching > For best audio > Voice Guidance Settings

Volume

(Max / Mid / Min)

Selects the volume for the voice guidance.

🔖 ➡ Watching > For best audio > Voice Guidance Settings

Language

Changes language for the voice guidance.

🔖 ➡ Watching > For best audio > Voice Guidance Settings

User Level

(Beginner / Expert)

Selects the level of verbosity for the voice guidance.

🔖 ➡ Watching > For best audio > Voice Guidance Settings

Web Browser

(On / Off)

Set to On to enable voice guidance of the network content in web browser function.

🔖 ➡ Watching > For best audio > Voice Guidance Settings

Audio Description

Audio Description

(Auto / Off)

Narration settings for visually impaired users

　　🔖 ➡ Watching > For best audio > Audio Description

- Not valid in Analogue TV
- Not valid in multi window mode

Volume

Adjusts the volume for Audio Description.

　　🔖 ➡ Watching > For best audio > Audio Description

- Not valid in Analogue TV

Speakers

(Mix / Standard)

Set to Mix to activate the description sound track from TV speakers.

　　🔖 ➡ Watching > For best audio > Audio Description

- Not valid in Analogue TV

Audio Selection

Selects between alternative languages for sound tracks (if available).

　　🔖 ➡ Watching > For best audio > Audio Description

- Not valid in Analogue TV

Advanced settings

MPX

Selects multiplex sound mode (if available).

- For Analogue TV

Digital Audio Preference

(Dolby D / MPEG)

Selects the initial setting for audio tracks.

- Not valid in Analogue TV

SPDIF Selection

(Auto / PCM)

Selects the initial setting for digital audio output signal from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals.

- For digital TV, video content

PCM Optical Level

Adjusts the audio level of PCM output from DIGITAL AUDIO OUT and HDMI2 (ARC function) terminals to equalise with that of the other audio types.

HDMI Input

(Digital / Analogue)

Selects to fit the input signal.

- For HDMI

Reset Sound Defaults

Resets the current Sound Mode to the default settings.

Network

Network Connection

Sets the network setting to use this TV in your network environment.

 ➔ Network > Network settings > Network Connection

Network Status

Displays and checks the network status (MAC Address, current network settings, etc.).

 ➡ Network > Network settings > Network Status

my Home Cloud Settings

Sets for an account to enjoy the cloud services.

 → Network > Network settings > my Home Cloud Settings

VIERA Name

Sets your favourite name for this TV.

 ➡ Network > Network settings > VIERA Name

TV Remote App Settings

Sets to control the TV from network equipment (smartphone, etc.).

 ➡ Network > Network settings > TV Remote App Settings

Network Link Settings

Sets to control the TV with devices connected to the network.

 ➡ Network > Network settings > Network Link Settings

TV Anytime Settings

You can set timer programming with the network equipment (smartphone, etc.) from outside the home network.

 ➡ Functions > TV Anytime > How to use

File Sharing Settings

File Sharing Server

(On / Off)

Sets to share the files between PC and devices connected to this TV.

📖 ⇒ Media Player > Using Media Player > Sharing file

Network Device List

Lists the accessible network devices to play back the content in Media Player.

📖 ⇒ Media Player > Using Media Player > Network device

Mirroring Settings

Settings for the mirroring function

 ➔ Functions > Mirroring > Mirroring Settings

Do Not Track Setting

Sets to notify websites about tracking your browsing activities.

 ➡ Network > Network settings > Do Not Track Setting

Other settings

Software Update

Checks for available software updates from the Panasonic website.

🔖 ➡ Network > Network settings > Software Update

New Software Message

(On / Off)

Selects whether to give a notification message when new software is found via network or not.

🔖 ➡ Network > Network settings > New Software Message

Timer

Off Timer

Sets the duration of time until the TV automatically goes into Standby mode.

(90 / 75 / 60 / 45 / 30 / 15 / Off (minutes))

> ⮕ Watching > Basic > Off Timer

Timer Programming

Sets a timer to record forthcoming programmes.

 ➡ Recording > Timer Programming > Setting Timer Programming

- Not valid in Analogue TV

Clock Settings

Mode

(Auto / Manual)

Selects the clock setting mode for this TV.

📖 → Watching > Basic > Adjusting time

Date

Sets the current date manually.

📖 → Watching > Basic > Adjusting time

Time

Sets the current time manually.

📖 → Watching > Basic > Adjusting time

Daylight Saving Time

Selects time offset from the standard time for Summer Time.

(+ 1 hour / + 1/2 hour / Off / Auto)

📖 → Watching > Basic > Adjusting time

Region Select

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

(NSW / ACT / Victoria / Queensland / South Australia / Western Australia / Northern Territory / Tasmania)

📖 → Watching > Basic > Adjusting time

Auto Standby

Automatically turns the TV to Standby mode for energy saving when no operation is performed for 4 hours.

(On / Off)

 → Watching > Basic > Energy saving functions

No signal Power off

Automatically turns the TV to Standby mode to prevent unnecessary power consumption when no signal is received and no operation is performed for 10 minutes.

(On / Off)

 ➡ Watching > Basic > Energy saving functions

Setup

Eco Navigation

Automatically sets the TV to the most suitable energy-saving mode.

 → Watching > Basic > Energy saving functions

Voice Control Settings

Settings for Voice Control function

🖼 ➔ Functions > Voice Control > Settings

USB Device Setup

Formats the USB HDD or safely removes USB device.

 → Recording > USB HDD setup > Setting for USB HDD

Recording Setup

Settings for the recording feature of the USB HDD

 → Recording > Recording current programme > One Touch Recording

VIERA Touch Pad Controller

Pairing

Registers Touch Pad Controller (supplied) to this TV.

🔲 ➡ Functions > Touch Pad Controller > Pairing

Cursor Sensitivity

(Max / Mid / Min)

Adjusts the sensitivity of the cursor.

🔲 ➡ Functions > Touch Pad Controller > Settings

Operation Guide

Displays the operation guide of Touch Pad Controller.

🔲 ➡ Functions > Touch Pad Controller > Settings

Bluetooth Setup

Settings for the specific devices supporting Bluetooth wireless technology

 ➡ Functions > Bluetooth devices > Bluetooth Setup

Child Lock

Applies access control for channels or inputs to prevent unwanted access.

Tuning Menu

Favourites Edit

Creates a list of favourite channels.

📖 ➡ Watching > Tuning and editing channels > Favourites Edit

- Not valid in Analogue TV

Channel List

Skips unwanted channels or edits channels.

📖 ➡ Watching > Tuning and editing channels > Channel List

Auto Tuning

Automatically searches for receivable channels.

📖 ➡ Watching > Tuning and editing channels > Auto Tuning

Manual Tuning

Searches for channels manually.

📖 ➡ Watching > Tuning and editing channels > Manual Tuning

Update Channel List

Updates the channel list while keeping your settings.

📖 ➡ Watching > Tuning and editing channels > Update Channel List

- Not valid in Analogue TV

New Channel Message

(On / Off)

Selects whether to give a notification message when a new channel is found or not.

📖 ➡ Watching > Tuning and editing channels > New Channel Message

- Not valid in Analogue TV

Signal Condition

Checks the signal condition.

📖 ➡ Watching > Tuning and editing channels > Signal Condition

- Not valid in Analogue TV

Add TV Signal

Adds the TV mode.

= Note =

The settings in Tuning Menu are applicable only for the selected TV mode. The menu name varies depending on the TV mode. (Digital TV Tuning Menu / Analogue TV Tuning Menu)

Language

OSD Language

Changes language for on-screen displays.

 → Watching > Basic > Language

Display Settings

Teletext

This item is not used for this model.

Input Labels

Accesses the input labels list to select the label of each input mode or set to skip unconnected one for easier identification and selection in Input Selection, banner, etc.

📖 ➡ Watching > External equipment > Watching external input

Banner Display Timeout

(10 / 9 / 8 / 7 / 6 / 5 / 4 / 3 / 2 / 1 / 0 (No display) (seconds))

Sets how long the information banner stays on screen.

📖 ➡ Watching > Basic > Information banner

Smart Banner

(On / Off)

Displays the introduction banner for the internet service.

📖 ➡ Watching > Basic > Information banner

Playing Time Display

(On / Off)

Set to On to display a time period of continuous use in Game Mode on the top right of the screen every 30 minutes.

📖 ➡ Watching > External equipment > Watching external input

- This function is available when Game Mode is set to On.

Info Frame at Power on

(On / Off)

Displays Info Frame when the TV is turned on.

📖 ➡ Functions > Info Frame > Settings

Notification

(On / Off)

Displays a notification message.

HDCP Setting

Select a version of HDCP according to the content you watch.

(Auto / 2.2 / 1.4)

 ➔ Watching > 4K resolution > HDCP Setting

- For HDMI

HDMI Auto Setting

Set to Mode1 when the image in HDMI input is not displayed properly.

(Mode1 / Mode2)

 → Watching > 4K resolution > HDMI Auto Setting

- For HDMI

VIERA Link Settings

VIERA Link

(On / Off)

Sets to use VIERA Link functions.

 📖 ➔ Functions > VIERA Link "HDAVI Control™" > Preparations

Power on Link

(On / Off)

Sets to use Power on Link functions.

 📖 ➔ Functions > VIERA Link "HDAVI Control™" > Power on Link

Power off Link

(On / Off)

Sets to use Power off Link functions.

 📖 ➔ Functions > VIERA Link "HDAVI Control™" > Power off Link

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Standby Power Save

(On / Off)

Controls the connected equipment to reduce power consumption in Standby.

 📖 ➔ Functions > VIERA Link "HDAVI Control™" > Standby Power Save

- This function is available when VIERA Link is set to On and Power off Link is set to On.

Intelligent Auto Standby

(On / Off)

Makes non-watched or non-used connected equipment go into Standby mode to reduce the power consumption.

 📖 ➔ Functions > VIERA Link "HDAVI Control™" > Intelligent Auto Standby

- This function is available when VIERA Link is set to On.

Data Service Application

Service

(Auto Start On / Auto Start Off / Off)

Sets to use Hybrid Broadcast Broadband TV application.

- Not all the data services are available depending on the area and broadcaster.

  📖 ➡ Functions > Data Service Application > Using Data Service Application

- Not valid in Analogue TV

Store Cookie

(On / Off)

Sets to store the information from a data service to the TV in order to access again quickly.

📖 ➡ Functions > Data Service Application > Cookie

Delete Cookie

Deletes all the information from a data service.

📖 ➡ Functions > Data Service Application > Cookie

System Menu

Shipping Condition

Resets all settings to the original condition.

📖 ➡ Functions > Shipping Condition > Shipping Condition

System Update

Downloads new software to this TV.

📖 ➡ Functions > Updating the TV Software > Auto update

Licence Menu

Displays the software licence information.

Other Settings

USB Charge in Standby

(On / Off)

Enables charging from the USB port in Standby mode.

- Available for charging the rechargeable 3D Eyewear (optional accessory)

- This function is available when in Standby mode.

Power Save

(On / Off)

Reduces brightness of the picture to economise on power consumption.

Support

Help menu

Using Help menu

1. Display the menu with MENU.

2. Select Help and press OK to access.

3. Select About Firefox OS / TV Self Test / System Information / Device Information and press OK to access.

About Firefox OS

Displays the information about Firefox OS.

TV Self Test

Makes a diagnosis of picture or sound problems.

Follow the on-screen instructions.

System Information

Displays the system information of this TV.

Device Information

Displays the device information of this TV.

FAQs

Picture

Before requesting service or assistance, please follow these simple guides to solve the problem. Also makes a diagnosis of picture problem in TV Self Test.

⟶ Support > Help menu > Using Help menu

If the problem still persists, please contact your local Panasonic dealer for assistance.

Black and white picture

- -

- Check that the output of the external equipment matches the input of the TV.

Chaotic image, noisy

- -

- Set Noise Reduction and MPEG Remaster in the Picture Menu to remove noise.

    ⟶ Watching > For best picture > Noise reduction settings

- Check nearby electrical equipment (car, motorcycle, fluorescent lamp).

No image is displayed

- -

- Check the correct input mode is selected.

- Check the setting of AV (COMPONENT / VIDEO) in Input Selection to match the signal being output by the external equipment.

    ⟶ Watching > External equipment

- Is Backlight, Contrast, Brightness or Colour in the Picture Menu set to the minimum?

    ⟶ Watching > For best picture > Basic settings

- Check all required cables and connections are firmly in place.

Blurry or distorted image (no sound or low volume)

- -

- Reset channels.

    ⟶ Watching > Tuning and editing channels > Auto Tuning

White spots or shadow images (noise)

- Check the position, direction, and connection of the aerial.

There may be red spots, blue spots, green spots and black spots on the screen

---

- An image on a TV screen is created by many small groups of dots known as pixels (which is similar to the image in a newspaper). It also naturally follows that higher panel resolutions contain more pixels. To create a colour image, each pixel consists of three tiny coloured dots (known as sub-pixels), one each of red, green and blue. Each one of these dots is precisely controlled by the electronics of the TV to produce the picture. Whilst Panasonic maintains the highest standards in manufacturing technology and processes in the construction of these panels, there are a number of allowable pixel / subpixel failures that still allow the panel to be defined as a good panel. It is not possible to guarantee absolutely no pixel loss.

Shop appears on screen at switch on

- Shop was selected in first time Auto Tuning when the TV is turned on for the first time. Reset settings in Shipping Condition, then select Home in first time Auto Tuning.

   Functions > Shipping Condition > Shipping Condition

Digital TV

Before requesting service or assistance, please follow these simple guides to solve the problem.

If the problem still persists, please contact your local Panasonic dealer for assistance.

- Due to the digital reception technologies involved, quality of the Digital TV signals may be relatively low in some cases, despite good reception of Analogue TV channels.

Unable to receive signals with a high-performance aerial

- -

- Install an aerial individually for the TV and VCR (or use a splitter).

Interference or frozen / disappearing image

- -

- Check Signal Condition. If the level of Signal Quality is low, check aerial.

    → Watching > Tuning and editing channels > Signal Condition

- Turn the TV off with Mains Power On / Off switch, then turn it on again.

Sound

Before requesting service or assistance, please follow these simple guides to solve the problem. Also makes a diagnosis of sound problem in TV Self Test.

📖 ➡ Support > Help menu > Using Help menu

If the problem still persists, please contact your local Panasonic dealer for assistance.

No sound is produced

- -

- Is "Sound mute" active? Press MUTE to switch sound mute on or off.

- Is the volume set to the minimum?

- Check connections and setting of external equipment.

  📖 ➡ Watching > External equipment

- Ensure that Speaker Selection is set to TV.

  📖 ➡ Watching > For best audio > Volume settings

  📖 ➡ Functions > VIERA Link "HDAVI Control™" > Speaker Selection

- Ensure that TV Speaker is set to On.

  📖 ➡ Watching > For best audio > Volume settings

Sound level is low or sound is distorted

- -

- Sound signal reception may be poor.

- Set MPX in the Sound Menu to Mono. (Analogue TV)

  📖 ➡ Watching > For best audio > Advanced settings

3D

Before requesting service or assistance, please follow these simple guides to solve the problem.

If the problem still persists, please contact your local Panasonic dealer for assistance.

Cannot view 3D images

Cannot register a 3D Eyewear to the TV

- -

- Check the 3D Eyewear status as follows:
  - Has the 3D Eyewear been switched on and set to 3D mode?
  - Is the battery installed correctly?

    📖 ➔ Watching > 3D > 3D Eyewear - Replacing battery

  - Check the remaining battery level of the 3D Eyewear. (Battery status is displayed on the screen when the 3D Eyewear is turned on.) When the battery is running low, replace it with a new one.
  - Use the 3D Eyewear within approx. 3.2 m from the TV. (The range may be shortened depending on the obstacle between the TV and the eyewear, or the surrounding environment.)
  - Register again.

    📖 ➔ Watching > 3D > 3D Eyewear - Registration

  - Does the 3D Eyewear support Bluetooth wireless technology?
- Some 3D image signals may not be automatically recognised as 3D images. Set 3D Mode Selection to match the picture format.

  📖 ➔ Watching > 3D > Viewing 3D

- For some people, the 3D images may be difficult to see, or cannot be seen, especially among users who have a different level of eyesight between the right and left eyes. Take necessary measures (wearing glasses, etc.) to correct your eyesight before use.

3D Eyewear is turned off automatically

- -

- Check that there are no obstacles between the TV and the 3D Eyewear.

There is something wrong with the 3D images

- Check the setting of L/R Picture Swap.

  📖 ➡ Watching > 3D > 3D Settings

The indicator lamp does not light up when pressing Power button on the 3D Eyewear

----

- The battery may be running low or flat. Replace it with a new one.

  📖 ➡ Watching > 3D > 3D Eyewear - Replacing battery

HDMI

Before requesting service or assistance, please follow these simple guides to solve the problem.

If the problem still persists, please contact your local Panasonic dealer for assistance.

Sound is unusual

- Set the sound setting of the connected equipment to "2ch L.PCM".
- Check the HDMI Input setting in the Sound Menu.

  📖 ⇒ Watching > For best audio > Advanced settings

- If digital sound connection has a problem, select analogue sound connection.

  📖 ⇒ Watching > External equipment > HDMI features

Pictures from external equipment are unusual when the equipment is connected via HDMI

- Check the HDMI cable is connected properly.

  📖 ⇒ Watching > External equipment > External connection

- Turn the TV and equipment off, then turn them on again.
- Check an input signal from the equipment.

  📖 ⇒ Watching > External equipment > Valid input signals

- Use equipment compliant with EIA/CEA-861/861D.
- Set HDMI Auto Setting in the Setup Menu to Mode1.

  📖 ⇒ Watching > 4K resolution > HDMI Auto Setting

Network

Before requesting service or assistance, please follow these simple guides to solve the problem.

If the problem still persists, please contact your local Panasonic dealer for assistance.

Cannot connect to the network

- -

- Check the LAN cable or wireless LAN is connected properly.

  📖 ➡ Network > Network connections

- Check the connections and settings.

  📖 ➡ Network > Network connections

  📖 ➡ Network > Network settings

- Check the network equipment and network environment.

- The router may not be set to issue IP address automatically. If the network administrator prefers to allocate an IP address, set an IP address manually.

  📖 ➡ Network > Network settings

- The router may be using MAC address filtering (security setting). Confirm the MAC Address of this TV and set the router to use it.

  📖 ➡ Network > Network settings > Network Status

- If the problem persists, consult your Internet Service Provider or telecommunications company.

Cannot select the file during DLNA operations

- -

- Is media server of the connected equipment prepared?

  📖 ➡ Network > DLNA > In-House streaming

- Check applicable data format.

  📖 ➡ Network > Technical information

- Check the settings of Network Link Settings.

  📖 ➡ Network > Network settings > Network Link Settings

Cannot operate internet content

- Check the connections and settings.

   → Network > Network connections > Internet connection

   → Network > Network settings

- The server or connected line may be busy now.

Other

Before requesting service or assistance, please follow these simple guides to solve the problem.

If the problem still persists, please contact your local Panasonic dealer for assistance.

VIERA Link function does not work and an error message appears

- -

- Check the connections.

    📖 ➡ Functions > VIERA Link "HDAVI Control™" > Summary of VIERA Link

- Turn the connected equipment on and then switch the TV on.

    📖 ➡ Functions > VIERA Link "HDAVI Control™"

Parts of the TV become hot

- -

- Parts of the TV may become hot. These temperature rises do not pose any problems in terms of performance or quality.

Overcurrent error message appears

- -

- The connected USB device may cause this error. Remove the device and turn the TV off with Mains Power On / Off switch, then turn it on again.

- Check foreign objects are not inside the USB port.

An error message appears

- -

- Follow the message's instructions.

- If the problem persists, contact your local Panasonic dealer or the authorised service centre.

Touch Pad Controller does not work or cannot be registered

- Are the batteries installed correctly?

- The batteries may be running low. Replace them with new ones.

- Register again.

  🔲 ➡ Functions > Touch Pad Controller > Settings

- Use Touch Pad Controller within approx. 3.2 m from the TV. (The range may be shortened depending on the obstacle between the TV and the controller, or the surrounding environment.)

Voice Control function does not work

- Voice Control function may not work properly depending on the pronunciation, noise and network environment.

- For details of the Voice Control function

  🔲 ➡ Functions > Voice Control

LED does not turn to red in Standby mode

- LED turns to orange in Standby mode in the following conditions:

  – Recording is in progress

  – Timer Programming is set.

  – DLNA Server is set to On.

  – Powered On by Apps is set to On.

  – Home Streaming is set to Always.

  – TV Anytime is set to On.

  – Powered On by Easy Mirroring is set to On.

When pushed with a finger, the display panel moves slightly and makes a noise

----

- There is a little gap around the panel to prevent damage to the panel. This is not a malfunction.

Maintenance

Care and Cleaning

First, remove the mains plug from the mains socket.

■ Display panel, Cabinet, Pedestal

Regular care:

Gently wipe the surface of the display panel, cabinet, or pedestal by using a soft cloth to remove dirt or fingerprints.

For stubborn dirt:

(1) First clean the dust from the surface.

(2) Dampen a soft cloth with clean water or diluted neutral detergent (1 part detergent to 100 parts water).

(3) Wring out the cloth firmly. (Please note, do not let liquid enter the TV inside as it may lead to product failure.)

(4) Carefully wipe moisten and wipe away the stubborn dirt.

(5) Finally, wipe away all the moisture.

= Caution =

- Do not use a hard cloth or rub the surface too hard, otherwise this may cause scratches on the surface.

- Take care not to subject the surfaces to insect repellent, solvent, thinner or other volatile substances. This may degrade surface quality or cause peeling of the paint.

- The surface of the display panel is specially treated and may be easily damaged. Take care not to tap or scratch the surface with your fingernail or other hard objects.

- Do not allow the cabinet and pedestal to make contact with a rubber or PVC substance for a long time. This may degrade surface quality.

■ Mains plug

- Wipe the mains plug with a dry cloth at regular intervals. Moisture and dust may lead to fire or electrical shock.

Optional accessories

3D Eyewear

■ 3D Eyewear

- If you need 3D Eyewear additionally, please purchase Panasonic optional accessory.

- Use Panasonic 3D Eyewear supporting Bluetooth wireless technology for active shutter 3D.

- For information about 3D Eyewear:

  http://panasonic.net/viera/support (English only)

Wall-hanging bracket

■ Wall-hanging bracket

Choosing to wall mount the TV shall be done at the owner's risk. Always use a qualified installer to perform a TV wall bracket installation. Incorrect fitting may cause equipment to fall, resulting in injury and product damage. Any such damage will void your warranty.

• Please contact your local Panasonic dealer to purchase the recommended wall-hanging bracket.

= Warning =

• When optional accessories such as wall brackets, etc. are used, always read and follow the manufactures installation and usage instructions.

• Do not mount the unit directly below ceiling lights (such as spotlights or halogen lights) which typically give off high heat. Doing so may warp or damage plastic cabinet parts.

• When installing wall brackets you must ensure the wall bracket is not electrically grounded to metal wall studs. Always ensure that there are no electrical cables, pipes, etc. in the wall before you begin the wall bracket installation.

• To prevent fall and injury, remove the TV from its fixed wall position when it is no longer in use.

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