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Panasonic

Model No.

.....

*e***HELP**

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Read first

Before use

How to use

■ Meaning of signs

OK :

Letters enclosed in brackets indicate remote control buttons.

Picture Mode :

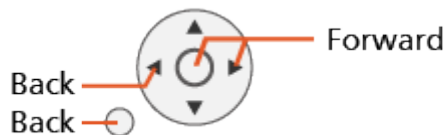
Letters in cyan indicate on-screen display items.

 → :

References in this eHELP

You can jump to the page by pressing **OK** while the cursor is on the references.

■ Operation guide



= Note =

- The design and specifications are subject to change without notice.
- Some features of this unit may require a future version upgrade (software update). Be sure to follow the on-screen instructions and update the software via network.
- The images shown in this eHELP are for illustrative purposes only.
- This eHELP covers all models, however, some features may not be available on certain models.
- Refer to the paper manual and the actual menu in the TV etc. to confirm your model's features.
- Also refer to [Help](#) for the detailed instructions according to the following procedure.
 - 1) Display Home with  and select .
 - 2) Select [Help](#) and press **OK** to access.
 - 3) Follow the on-screen instructions.

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The detailed terms and conditions can be shown according to the following steps.

- (1) Display Home with  and select .
- (2) Select [Device & Software](#) > [Legal & Compliance](#) > [Legal Notices](#).

Note

- When using your own contents (music, video, picture, etc.) with this unit, pay attention not to harm the copyright, intellectual property, privacy, etc. of the subject. Pay attention to the privacy, image rights, etc. of display images, and use this unit at your own risk.
- Keep your personal information (password of broadband router, etc.) safe to prevent such information from being stolen by a third party while you input or display the information on the TV screen.

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

“Home” is a gateway to the TV programmes, applications and connected devices.

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



→ [Functions](#) > [Home](#) > [How to use](#)

TV>IP

Some features are not available on all models.

This TV can be configured as a TV>IP server to provide broadcast streaming to another TV supporting TV>IP client function or SAT>IP compatible devices.

 → [Functions > TV>IP > TV>IP server connection](#)

This TV has TV>IP client function and can connect to TV>IP server or SAT>IP compatible servers to receive broadcast streaming.

 → [Functions > TV>IP > TV>IP client connection](#)

Dual Tuner

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

 → [Functions > Multi Window > Multi Window](#)

Watching

Basic

Satellite connection

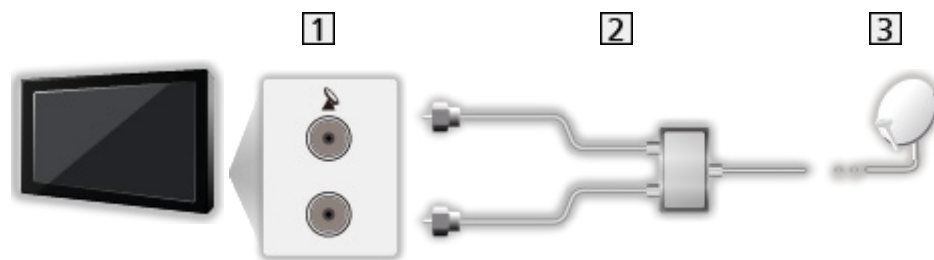
Some features are not available on all models.

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.
- For Satellite

■ Dual Tuner (DiSEqC)

Connecting both satellite terminals IN 1 and IN 2 to a satellite dish with a Multiswitch allows you to watch or record 2 satellite programmes simultaneously.



- 1** Satellite IN 1 / IN 2 terminals
- 2** Satellite cables with Multiswitch
- 3** Satellite dish

■ Dual Tuner (Single Cable System)

Connecting the satellite terminal IN 1 to a satellite dish with a Single Cable router allows you to watch or record 2 satellite programmes simultaneously.

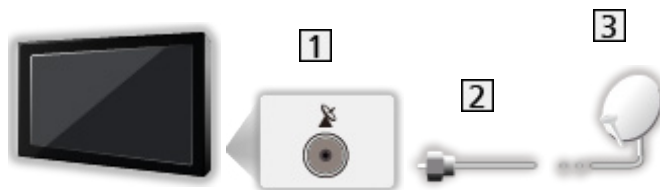


- 1 Satellite IN 1 terminal
- 2 Satellite cable with Single Cable router
- 3 Satellite dish

■ Single Tuner

Connect the satellite IN 1 terminal to the satellite dish.

- Watching or recording 2 satellite programmes simultaneously, etc. is not supported in single tuner mode.



- 1 Satellite IN 1 terminal
- 2 Satellite cable
- 3 Satellite dish

= Note =

- To ensure your satellite dish is correctly installed, please consult your local dealer. Also consult the received satellite broadcasting companies for details.

- Selectable satellites and dish alignment to tune satellite channels



→ [Watching > Tuning and editing channels > Selectable satellites](#)

- 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.
- Check the terminal type and cable plugs are correct for connection.
- Dual tuner function (watching or recording 2 programmes simultaneously, watching a programme while recording another programme, etc.) is not available while using TV>IP server function.

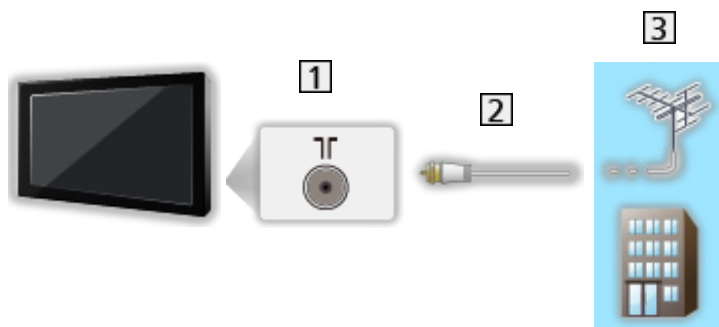
Basic connection

Some features are not available on all models.

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

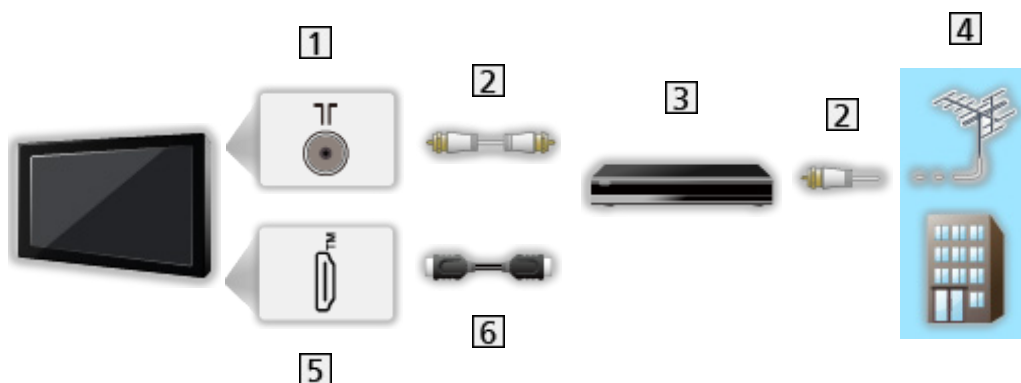


1 Terrestrial / cable terminal

2 RF cable

3 Terrestrial aerial / Cable

■ DVD Recorder / Blu-ray Recorder, etc.



1 Terrestrial / cable terminal

2 RF cable

3 DVD Recorder / Blu-ray Recorder, etc.

4 Terrestrial aerial / Cable

5 HDMI terminal

6 HDMI cable

■ Set top box



1 HDMI terminal

2 HDMI cable

3 Set top box

4 Cable

= Note =

- For details of TV>IP connections

 → [Functions > TV>IP > TV>IP client connection](#)

- For details of HDMI CEC connections

 → [Functions > HDMI-CEC Device Control > HDMI connection](#)

- 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.
- Use a high speed HDMI cable for high resolution images.
- Use a Premium High Speed HDMI cable for HDR images.
- Use a Ultra High Speed HDMI cable and connect to HDMI1 or HDMI2 for 4K high frame rate (120 Hz / 144 Hz) images.
- Check the terminal type and cable plugs are correct for connection.

Selecting channel

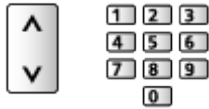
Some features are not available on all models.

1. Select the mode with **TV**.

[Satellite](#) / [Cable](#) / [Antenna](#) / [TV>IP](#)

- Selectable modes vary depending on the channels stored.

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 using information banner

1. Display information banner with **i** 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 .
2. Select the current programme and press **OK** to access.
 - The current programme is displayed on the top left of the screen.
3. Select [View](#) and press **OK** to watch.

→ [Watching > TV Guide > Using TV Guide](#)

■ To select a category for channel list

1. Display the option menu with .
2. Select [Category](#) and press **OK** to access.
3. Set the item and press **OK** to store.

■ To watch pay-TV

- For details of the encrypted channels

→ [Functions > Common Interface > Using Common Interface](#)

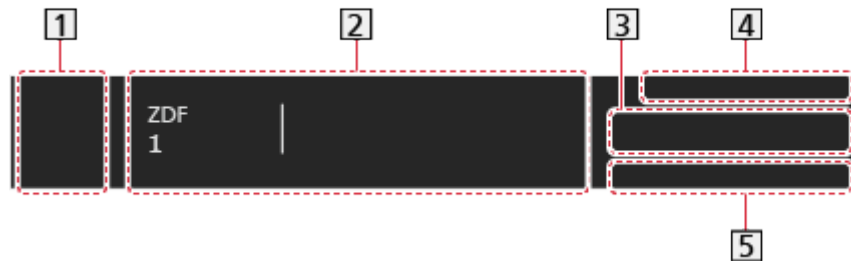
- Consult the operator / broadcaster or CI module manufacturer for more information and conditions of the services.

Information banner

Display information banner with .

- Also appears when changing a channel.

(Example)



1 Icon of the broadcasting station (or the input source)

2 Channel position and name

Channel type (Radio, HDTV, etc.) / Encrypted channel ()

Programme

Start time / End time

3 Information on the next programme

4 Date and time

5 Features available / message meanings

Bad signal:

Poor quality TV signal

DD, DD+, DAC4, HE-AAC:

Dolby Audio (Dolby Digital, Dolby Digital Plus, Dolby AC-4), Dolby Atmos or HE-AAC audio track

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](#)

HbbTV:

Data service (Hybrid Broadcast Broadband TV application) available

 → [Functions > Data Service Application > Using Data Service Application](#)

STTL:

Subtitle service available

TXT:

Text service available

Multi Audio:

Multiple audio available

Stereo, Mono:

Audio mode

- To confirm another tuned channel

△ / ▽

- To watch the channel listed in the banner

OK

- Information on the next programme (DVB)

▶

- Extra information (DVB)

i

– Press again to hide the banner.

- To adjust banner timeout or banner size

1) Display Home with  and select .

2) Select [Live TV](#) > [Broadcast Options](#) > [Broadcast Preferences](#) > [Channel Banner](#) and press **OK** to access.

3) Set the item and press **OK** to store.

- To display Dolby notification

1) Display Home with  and select .

2) Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.

– Select the TV mode / input mode.

3) Select [Option Settings](#) > [Dolby Vision Notification](#) and press **OK** to set to [On](#) / [Off](#).

Option Menu

Confirm or change the current status.

1. Display the option menu with .
 2. Set the item and press **OK** to store.
 - The function items vary depending on the TV mode and country you select.
-

Signal Condition

Selects a channel and checks the signal condition with indicators.

 → Watching > Tuning and editing channels > Signal Condition

Video Info / Program Info

Displays the information of video / programme.

Category

Selects a category for the channel list.

 → Watching > Basic > Selecting channel

AV Options

Multi Audio

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

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

Monaural Audio

Selects stereo / monaural (if available).

Subtitle Language

Selects between alternative subtitle languages or types (if available).

- This setting is not stored and it returns to the default setting once you exit the current programme.
 - Not valid on the sub screen in multi window mode
-

Teletext Character Set

Sets the teletext language font.

West:

English, French, German, Greek, Italian, Spanish, Swedish, Turkish, etc.

East1:

Czech, English, Estonian, Lettish, Rumanian, Russian, Ukrainian, etc.

East2:

Czech, Hungarian, Lettish, Polish, Rumanian, etc.

Teletext Language

Selects between alternative teletext languages (if available).

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

Subtitle

Display / hide subtitles (if available) with **STTL**.

■ Preferred Subtitle Settings

1. Display Home with  and select .
 2. Select [Live TV](#) > [Broadcast Options](#) > [Broadcast Preferences](#) > [Preferred Subtitle Settings](#) and press **OK** to access.
 3. Set the item and press **OK** to store.
-

[Preferred Subtitle Type](#)

Selects the preferred subtitle type.

[Primary Subtitle Language](#) / [Secondary Subtitle Language](#)

Selects the first and second preferred language for DVB subtitles (depending on the broadcaster).

- 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 button.



- 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.

Energy saving functions

Some features are not available on all models.

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

The TV goes into Standby mode in the following conditions:

- **Set to Eco** is active.
- 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.

■ Eco mode

1. Display Home with  and select .
2. Select **Preferences** > **Eco mode** and press **OK** to access.
3. Follow the on-screen instructions.

Set to Eco

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.

- **Auto Standby** and **No signal Power off** are active when selecting **Set to Eco**.

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 5 minutes before going into Standby mode.
 - Changing the default configuration may result in higher energy consumption of the product.
-

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.

Power Save

(On / Off)

Reduces brightness of the picture to economise on power consumption.

Auto Brightness

(On / Off)

Adjusts brightness automatically depending on ambient lighting conditions.

- This function may not be available when **Picture Mode** is set to **Dolby Vision Dark**.
-

HDMI-CEC

Enables the HDMI CEC (Consumer Electronics Control) function.

Power off Link

(On / Off)

When the TV is set to Standby mode, the connected equipment is also automatically set to Standby.

Standby Power Save

Controls the connected equipment to reduce power consumption in Standby.

Intelligent Auto Standby

Makes non-watched or non-used connected equipment enter Standby mode to reduce the power consumption.

■ Radio Mode

Sets the timer for turning off the screen automatically when a radio channel is selected.

1. Display Home with  and select .
2. Select [Live TV](#) > [Broadcast Options](#) > [Broadcast Preferences](#) > [Radio Mode](#) and press **OK** to access.
3. Set the item and press **OK** to store.
 - Sound is active even if the screen is turned off. This function is effective in reducing power consumption when listening to a radio channel.
 - Press any buttons except Power Button, **Volume Up / Down** or **MUTE** to turn the screen on.



Time zone

Adjusts the time data.

1. Display Home with  and select .
2. Select [Preferences](#) > [Time zone](#) and press  to access.
3. Follow the on-screen instructions.
 - The time data are corrected based on GMT.

Language

Changes language for on-screen displays.

1. Display Home with  and select .
2. Select [Preferences](#) > [Language](#) and press  to access.
3. Follow the on-screen instructions.

4K resolution

4K-compatible equipment

Some features are not available on all models.

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.
- Use a high speed HDMI cable for high resolution images.
- Use a Premium High Speed HDMI cable for HDR images.
- Use a Ultra High Speed HDMI cable and connect to HDMI1 or HDMI2 for 4K high frame rate (120 Hz / 144 Hz) images.

HDMI Auto Setting

Some features are not available on all models.

1. Display Home with  and select .
- You can also access by pressing and holding .
2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the input mode.
3. Select [HDMI Settings](#) > [HDMI Auto Setting](#) and press **OK** to access.
4. Set the item and press **OK** to store.

HDMI Auto Setting

([Mode1](#) / [Mode2](#) / [Mode3](#))

Reproduces the image more precisely with the expanded colour gamut and more smoothly with the high frame rate when connecting the 4K-compatible equipment. [Mode2](#) is a mode that supports higher definition signals than [Mode1](#). [Mode3](#) is a mode that supports higher frame rate signals than [Mode2](#). Set to [Mode1](#) when the image or sound in HDMI input is not played properly.

[Mode1:](#)

For high compatibility. Set to [Mode1](#) when the image or sound in HDMI input is not played properly.

[Mode2:](#)

For the 4K-compatible equipment that has the function to output the image precisely with the expanded colour gamut

[Mode3:](#)

For the 4K 120 / 144 Hz-compatible equipment that has the function to output the high frame rate image (This mode is available for HDMI1 / HDMI2.)

- Not valid when [NVIDIA Auto Game Mode](#) is set to [On](#) and some of NVIDIA PC graphics cards supporting HDMI 2.1 VRR are detected ([HDMI Auto Setting](#) is fixed to [Mode3](#).)
- The setting can be stored for each HDMI input.
- Valid format (4K)
 - [Mode1](#): 4:4:4 / 4:2:2 (30p, 25p, 24p), 4:2:0 (60p, 50p)
 - [Mode2](#): 4:4:4 / 4:2:2 (30p, 25p, 24p), 4:4:4 / 4:2:2 / 4:2:0 (60p, 50p)
 - [Mode3](#): 4:4:4 / 4:2:2 (30p, 25p, 24p), 4:4:4 / 4:2:2 / 4:2:0 (144p, 120p, 100p, 60p, 50p)

Valid 4K format

Some features are not available on all models.

■ Valid 4K format (HDMI)

- 4K UHD

3 840 × 2 160 (144p, 120p, 100p, 60p, 50p, 30p, 25p, 24p)

- Aspect is fixed to 16:9.
-

= Note =

- The above signals are reformatted for optimal viewing on your display.
- Use HDMI1 / HDMI2 for the following 4K format.
 - 4K UHD 50 Hz / 60 Hz 4:4:4 (10 bit / 12 bit)
 - 4K UHD 100 Hz / 120 Hz / 144 Hz
- For details of aspect

 → Watching > For best picture > Aspect

External equipment

External connection

Some features are not available on all models.

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

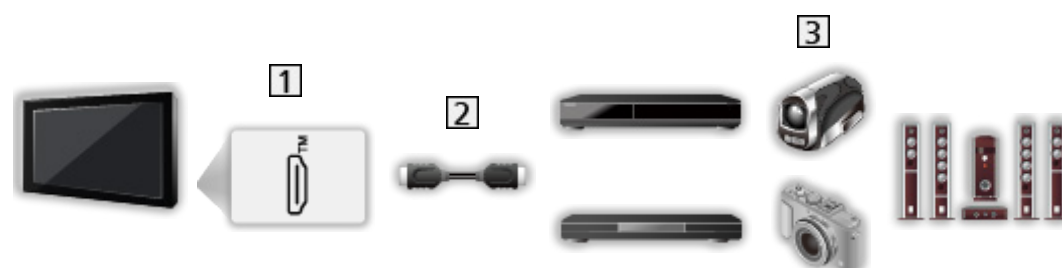
 → [Watching > Basic > Basic connection](#)

- 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 / Game

= Note =

- Use a fully wired HDMI compliant cable.
- Use a high speed HDMI cable for high resolution images.
- Use a Premium High Speed HDMI cable for HDR images.
- Use a Ultra High Speed HDMI cable and connect to HDMI1 or HDMI2 for 4K high frame rate (120 Hz / 144 Hz) images.
- For details of HDMI CEC connections



→ Functions > HDMI-CEC Device Control > HDMI connection

- Use HDMI2 to connect the TV to an amplifier which has eARC (Enhanced Audio Return Channel) / ARC (Audio Return Channel) function.
- Use HDMI1 / HDMI2 to connect the device that supports 4K high frame rate (120 Hz / 144 Hz), VRR (Variable Refresh Rate), NVIDIA G-SYNC Compatible, AMD FreeSync Premium function.

■ USB devices



1 USB port

2 USB cable

3 USB HDD, etc.

= 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 1 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.

■ Listening with external speakers



1 DIGITAL AUDIO

2 Optical digital audio cable

3 Amplifier with speaker system

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

■ Headphones



1 Headphone / Subwoofer jack

2 3.5 mm stereo mini plug

3 Headphones

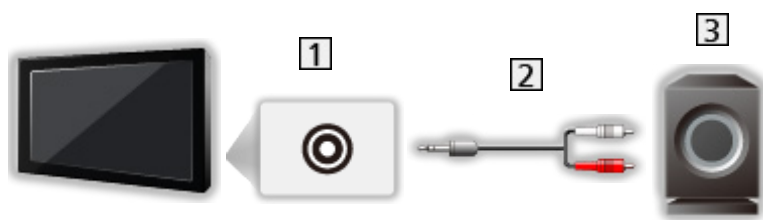
- Set [Headphone Jack](#) to [Connect](#) to enable the audio output from the headphone terminal.

 → [Watching](#) > [For best audio](#) > [Audio Output](#)

- To adjust the volume, set [Headphone Volume](#).

 → [Watching](#) > [For best audio](#) > [Audio Output](#)

■ Sub woofer



1 Headphone / Subwoofer jack

2 Audio cable (3.5 mm stereo mini plug - audio pin plug)

3 Sub woofer

- To adjust the volume, set [Subwoofer Adjustment](#).

 → [Watching > For best audio > Audio Output](#)

- The volume of the sub woofer can be also controlled when adjusting the volume of this unit with this TV's remote control.
- If the sub woofer unit has volume control, check the level as well.

Watching external input

Connect the external equipment (VCR, DVD, etc.) to allow you to watch the external input.

1. Display the input selection menu with **AV**.
 - You can also access the input selection on the home screen.
2. Select the input mode connected to the equipment and press **OK** to watch. (The selected mode is displayed on the bottom right of the screen.)
 - You can also select the input pressing **AV**. Press repeatedly until the desired input is selected.
 - 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



= Note =

- The connected device name may be displayed for HDMI input (if available).
- 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.

Operating with TV's remote control

Some features are not available on all models.

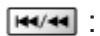
You can operate the video content or the connected equipment with the following buttons of this TV's remote control.



Playback / Pause / Resume (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)

Press and hold to search backward (DVD / video content)



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

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

Press and hold to search forward (DVD / video content)



[One Touch Recording](#)



→ [Recording > Recording current programme > 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 Power Button 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, etc.

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

Some features are not available on all models.

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 to external 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:

LPCM, Dolby Audio (Dolby Digital, Dolby Digital Plus, Dolby TrueHD), Dolby Atmos

- Input video signal:

Matches the output setting of the digital equipment.



→ Watching > External equipment > Valid input signals

- HDMI CEC function



→ Functions > HDMI-CEC Device Control > HDMI connection

- Content Type
- Deep Colour
- eARC (Enhanced Audio Return Channel) / ARC (Audio Return Channel)
 - eARC (Enhanced Audio Return Channel) / ARC (Audio Return Channel) are functions to send digital sound signals via an HDMI cable.
 - For HDMI2
- 4K
 -  → Watching > 4K resolution > Valid 4K format
- VRR (Variable Refresh Rate) / NVIDIA G-SYNC Compatible / AMD FreeSync Premium
 - VRR (Variable Refresh Rate) / NVIDIA G-SYNC Compatible / AMD FreeSync Premium provides smoother gaming experience with low latency and without image stuttering or tearing.
 - For HDMI1 / 2

■ DVI connection

If the external equipment has only a DVI output, connect to the HDMI terminal via a DVI to HDMI adaptor cable.

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

= Note =

- 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.
- This TV incorporates HDMI™ technology.

HDMI Settings

Some features are not available on all models. Available menu items are displayed on your TV screen.

1. Display Home with  and select .
- You can also access by pressing and holding .
2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the input mode.
3. Select [HDMI Settings](#) and press **OK** to access.
4. Set the item and press **OK** to store.

Input Lag

([Auto](#) / [Fast](#) / [Normal](#))

Provides suitable images for fast response signals when playing games.

- Not valid in the following conditions:
 - TV mode
 - [Pure Direct](#) is set to [On](#).
 - [Picture Mode](#) is set to [Game](#) / [True Game](#) / [Dolby Vision Game](#). ([Input Lag](#) is fixed to [Fast](#).)
 - VRR input signal ([Input Lag](#) is fixed to [Fast](#).)
 - 120 Hz video signal from 120 Hz-compatible equipment ([Input Lag](#) is fixed to [Fast](#).)

ALLM

([On](#) / [Off](#))

Automatically switches the TV to Game Mode according to the ALLM information when using this TV in single window mode.

- For HDMI
- Not valid in the following conditions:
 - Multi window
 - [HDMI Auto Setting](#) is set to [Mode1](#).
 - [NVIDIA Auto Game Mode](#) is set to [On](#) and some of NVIDIA PC graphics cards supporting HDMI 2.1 VRR are detected. ([ALLM](#) is fixed to [On](#).)

NVIDIA Auto Game Mode

(On / Off)

Set to **On** to enable NVIDIA HDMI 2.1 gaming function.

- For HDMI1 / 2
 - Not valid in multi window mode
-

VRR

(On / Off)

Provides smoother gaming experience with low latency and without image stuttering or tearing. Set to **On** to enable VRR (Variable Refresh Rate) / NVIDIA G-SYNC Compatible / AMD FreeSync Premium function when the equipment supporting VRR / NVIDIA G-SYNC Compatible / AMD FreeSync Premium function is connected to this TV.

- For HDMI1 / 2
 - Not valid in the following conditions:
 - **HDMI Auto Setting** is set to **Mode1** or **Mode2**.
 - **NVIDIA Auto Game Mode** is set to **On** and some of NVIDIA PC graphics cards supporting HDMI 2.1 VRR are detected. (**ALLM** is fixed to **On**.)
-

60Hz Refresh Mode

(On / Off)

Reduces the input lag when connecting 60Hz output game equipment.

- For HDMI
 - This function is available when **Input Lag** is set to **Fast**.
 - Not valid in the following conditions:
 - VRR input signal
 - Multi window
-

Pure Direct

(On / Off)

Reproduces the original image quality in detail for an input signal.

- Not valid in the following conditions:
 - Multi window
 - **Input Lag** is set to **Fast**.
 - **Picture Mode** is set to the mode of Dolby Vision.
-

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.

- For HDMI
-

HDMI Colorimetry Type

([Auto](#) / [Rec. 601](#) / [Rec. 709](#) / [Rec. 2020](#))

Selects the colourimetry type for each HDMI input.

- For HDMI
 - Not valid when [Picture Mode](#) is set to the mode of Dolby Vision
-

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
 - Not valid when [Picture Mode](#) is set to the mode of Dolby Vision
-

HDMI YCbCr Range

([Auto](#) / [Full](#) / [Normal](#))

Adjusts the black level of the image in the YCbCr signal for each HDMI input.

- For HDMI
 - Not valid when [Picture Mode](#) is set to the mode of Dolby Vision
-

HDR Setting

(Dynamic / Static / Off)

Set to **Dynamic** or **Static** when the HDR device is connected to the TV.

- Please turn **Off** this function if the image looks unnatural. This may occur in some cases such as compatibility with the connected device, source images or with use of multi-window function.
- Image may disappear for a few seconds when the setting is changed.
- For HDMI

HDR Dynamic Setting

HDR10+ Functionality

(On / Off)

Enables the HDR10+ function for HDMI input signal.

Dolby Vision

(On / Off)

Enables Dolby Vision functionality for the HDMI input signal.

= Note =

- Supporting HDR does not increase the peak brightness capabilities of the TV panel.

HDMI-CEC Settings

1. Display Home with  and select .
 2. Select [Display & Audio](#) > [HDMI-CEC Settings](#) and press **OK** to access.
 3. Set the item and press **OK** to store.
-

HDMI-CEC

([Expert](#) / [Standard](#) / [Off](#))

Enables the HDMI CEC (Consumer Electronics Control) function.

One-Touch Play

- This function is available when [HDMI-CEC](#) is set to [Standard](#). Follow the on-screen instructions.
-

Power Control

- This function is available when [HDMI-CEC](#) is set to [Standard](#). Follow the on-screen instructions.
-

Power on Link

([On](#) / [Off](#))

When the connected equipment is operated, the TV is automatically turned on. (Only when the TV is in Standby mode.)

- This function is available when [HDMI-CEC](#) is set to [Expert](#).
-

Power off Link

([On](#) / [Off](#))

When the TV is set to Standby mode, the connected equipment is also automatically set to Standby.

- This function is available when [HDMI-CEC](#) is set to [Expert](#).
-

Standby Power Save

Controls the connected equipment to reduce power consumption in Standby.

Intelligent Auto Standby

Makes non-watched or non-used connected equipment enter Standby mode to reduce the power consumption.

Speaker Selection

1. Display Home with  and select .
 2. Select **Display & Audio** > **Speaker Selection** and press **OK** to access.
 3. Set the item and press **OK** to store.
-

Speaker Selection

([TV Speaker](#) / [External Speaker](#))

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

[TV Speaker](#):

TV speakers are active.

[External Speaker](#):

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**.



Valid input signals

Some features are not available on all models.

■ HDMI

Signal name
525 (480) / 60p
625 (576) / 50p
750 (720) / 60p, 50p
1 125 (1 080) / 60i, 50i
1 125 (1 080) / 144p, 120p, 100p, 60p, 50p, 24p
2 560 × 1 440 / 144p, 120p
3 840 × 2 160 / 144p, 120p, 100p, 60p, 50p, 30p, 25p, 24p

= Note =

- Signals other than those above may not be displayed properly.
- The above signals are reformatted for optimal viewing on your display.
- For details of valid 4K format



→ Watching > 4K resolution > Valid 4K format

For best picture

Picture Mode

Some features are not available on all models. Available menu items are displayed on your TV screen.

1. Display Home with  and select .
 - You can also access by pressing and holding .
2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the TV mode / input mode.
3. Select [Picture Mode](#) and press **OK** to access.
4. Select the mode and press **OK** to set.

Picture Mode

([Dynamic](#) / [Auto AI](#) / [Normal](#) / [Sport](#) / [Cinema](#) / [FILMMAKER MODE](#) / [True Cinema](#) / [Professional1](#) / [Professional2](#) / [Game](#) / [True Game](#) / [Dolby Vision Vivid](#) / [Dolby Vision IQ](#) / [Dolby Vision Dark](#) / [Dolby Vision Game](#))

Selects your favourite picture mode for each input.

[Dynamic](#):

Improves contrast and sharpness for viewing in a bright room.

[Auto AI](#):

Adjusts the luminance, colour temperature, shades of black, etc. to suit your watching environment.

- To adjust the effect level, set [Auto AI – Picture Effect Level](#).

[Normal](#):

Normal use for viewing in a normal lighting condition.

[Sport](#):

Improves picture quality for watching sports, etc.

- The sound mode is automatically set to [Stadium](#) when [Picture Mode](#) is set to [Sport](#). To cancel the linkage of the sound and viewing mode, set [Sport Link](#) to [Off](#).

 → [Watching](#) > [For best audio](#) > [Option Settings](#)

[Cinema](#):

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

[FILMMAKER MODE](#):

Reproduces the original image quality precisely. Reacts to room brightness.

True Cinema:

Reproduces the original image quality precisely without any revision.

Professional1 / 2:

Allows you to set the professional picture settings.

Game:

Improves picture quality for playing games, etc.

- For HDMI
- **Input Lag** is automatically set to **Fast** when **Picture Mode** is set to **Game**.

 → Watching > External equipment > HDMI Settings

True Game:

Improves picture quality for playing games with the suitable calibration.

- For HDMI
- **Input Lag** is automatically set to **Fast** when **Picture Mode** is set to **True Game**.

 → Watching > External equipment > HDMI Settings

Dolby Vision Vivid:

Reproduces Dolby Vision content precisely in a bright room.

Dolby Vision IQ:

Automatically adjusts to reproduce Dolby Vision content according to the content, lighting condition, etc.

Dolby Vision Dark:

Reproduces Dolby Vision content precisely in a darkened room.

Dolby Vision Game:

Reproduces Dolby Vision content precisely for playing games.

- For HDMI
- **Input Lag** is automatically set to **Fast** when **Picture Mode** is set to **Dolby Vision Game**.

 → Watching > External equipment > HDMI Settings

- This function can be stored respectively for input or TV mode.

■ Netflix Adaptive Calibrated Mode

Reproduces the image quality based on the professional monitor settings while watching Netflix.

1. Press and hold .
2. Select **Picture** and press **OK** to access.
3. Select **Netflix Adaptive Calibrated Mode** and press **OK** to set to **On / Off**.
 - **Picture Mode** is fixed to **Netflix** when **Netflix Adaptive Calibrated Mode** is set to **On**.
 - For Netflix content

■ Auto AI – Picture Effect Level

Adjusts the effect level when **Picture Mode** is set to **Auto AI**. The effect level is automatically higher when setting high.

- This function is available when **Picture Mode** is set to **Auto AI**.
1. Display Home with  and select .
 - You can also access by pressing and holding .
 2. Select **Display & Audio** > **Picture Settings** and press **OK** to access.
 - Select the TV mode / input mode.
 3. Select **Auto AI – Picture Effect Level** and set.

■ To change the viewing mode with **PICTURE**

You can change the viewing mode easily only by pressing **PICTURE**.

1. Display **Picture Mode** with **PICTURE**.
2. Select the mode and press **OK** to set.
 - You can also change the mode by pressing **PICTURE**.
(Press repeatedly until you reach the desired mode.)
 - To set the viewing mode selection
 - 1) Display Home with  and select .
 - You can also access by pressing and holding .
 - 2) Select **Display & Audio** > **Picture Settings** and press **OK** to access.
 - Select the TV mode / input mode.
 - 3) Select **Option Settings** > **PICTURE Button Setting** and press **OK** to access.
 - 4) Select the viewing mode to set.

■ SDR/HDR Picture Mode Sync

Selects whether to switch the mode for SDR/HDR input signal simultaneously or switch the mode individually for each when changing the viewing mode.

1. Display Home with  and select .

 - You can also access by pressing and holding .

2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.

 - Select the TV mode / input mode.

3. Select [Option Settings](#) > [SDR/HDR Picture Mode Sync](#) and press **OK** to set to [On](#) / [Off](#).

 - Not valid for Dolby Vision content

Aspect

Some features are not available on all models. Available menu items are displayed on your TV screen.

Changes the aspect ratio (image size).

■ To change the aspect ratio manually

1. Display Home with  and select .
- You can also access by pressing and holding .
2. Select **Display & Audio** > **Screen Settings** and press **OK** to access.
 - Select the TV mode / input mode.
3. Select **Aspect** and press **OK** to access.
4. Set the item and press **OK** to store.

Auto:

The best ratio is selected automatically according to the “Aspect Control Signal”.

 → Watching > For best picture > Aspect Control Signal

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.

4:3 Full:

Displays a 4:3 image enlarged horizontally to fit the screen.

= Note =

- Display the image full-screen to use this function completely.
- Aspect mode can be stored separately for SD (Standard definition) and HD (High definition) signals.
- Aspect cannot be changed in teletext service.
- Aspect cannot be set when **Picture Mode** is set to **FILMMAKER MODE**.
- Aspect is fixed to **16:9** in the following conditions:
 - **Input Lag** is set to **Fast**.
 - 4K content
 - **Pure Direct** is set to **On**.

Aspect Control Signal

Some features are not available on all models.

Programmes usually contain an “Aspect Control Signal”. (Widescreen signal, Control signal through HDMI terminal)

In [Auto](#) mode, aspect mode can be shown on [Video Info](#) in the option menu if a Widescreen signal (WSS) or a Control signal through HDMI terminal is found. The aspect switches to the appropriate ratio.



→ [Watching > Basic > Option Menu](#)



→ [Watching > For best picture > Aspect](#)

■ Available conditions

- Satellite terminal (WSS only)

Valid input signal format:

Satellite

- Terrestrial / cable terminal (WSS only)

Valid input signal format:

DVB-C

DVB-T / DVB-T2

- HDMI terminal

Valid input signal format:

525 (480) / 60p

625 (576) / 50p

750 (720) / 60p, 50p

1 125 (1 080) / 60i, 50i

1 125 (1 080) / 144p, 120p, 100p, 60p, 50p, 24p

2 560 × 1 440 / 144p, 120p

3 840 × 2 160 / 144p, 120p, 100p, 60p, 50p, 30p, 25p, 24p

- HDMI terminal does not receive WSS signal.
-

= Note =

- If the screen size looks unusual when a widescreen-recorded programme is played back on a VCR, adjust the tracking of the VCR. Read the manual of the VCR.
- For details of valid 4K format



→ Watching > 4K resolution > Valid 4K format

Ambient Sensor

Automatic Brightness Control function

Adjusts picture settings automatically depending on ambient lighting condition.

1. Display Home with  and select .
 - You can also access by pressing and holding .
 2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the TV mode / input mode.
 3. Select [Ambient Sensor](#) and press **OK** to access.
 4. Set the item and press **OK** to store.
-

Auto Brightness

(On / Off)

Adjusts brightness automatically depending on ambient lighting conditions.

- This function may not be available when [Picture Mode](#) is set to [Dolby Vision Dark](#).
-

Auto White Balance

(On / Off)

Adjusts the white balance depending on ambient lighting conditions.

- This function may not be available when [Picture Mode](#) is set to [Dolby Vision Dark](#).

Brightness

Some features are not available on all models. Available menu items are displayed on your TV screen.

1. Display Home with  and select .
- You can also access by pressing and holding .
2. Select **Display & Audio** > **Picture Settings** and press **OK** to access.
 - Select the TV mode / input mode.
3. Select **Brightness** and press **OK** to access.
4. Set the item and press **OK** to store.

Luminance Level, Contrast

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

Adaptive Backlight Control

Automatically controls the level of backlight according to the images.

- Not valid for VRR input signal

Advanced Settings

You can adjust and set up the detailed picture settings.

Peak Luminance

Adjusts the maximum luminance level.

Gamma

Switches the gamma curve.

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

Adaptive Gamma Control

Adjusts the gamma curve to make the image brighter.

Black Level

Changes the black level of the image to the suitable level.

Black Expander

Gradually adjusts the shades of black.

Dark Visibility

Adjusts the black level or middle luminance level.

HDR Settings

EOTF Type

(Auto / Traditional Gamma / HLG / PQ)

Selects the EOTF type of broadcast or video content.

It works correctly only when the signal corresponds to each EOTF type. Set to [Auto](#) for general use.

- Automatically switches to [Auto](#) for broadcast each time another input / channel is selected.
 - HDR10+ function is available when [EOTF Type](#) is set to [Auto](#).
 - Not valid when [Picture Mode](#) is set to the mode of Dolby Vision
-

HDR Tonemap

(Dynamic / Normal / Clipping)

Dynamic:

Controls the HDR tonemap according to the image luminance.

Normal:

Automatically controls the clipping brightness of the HDR tonemap using the metadata of the input signal.

Clipping:

Clips the HDR tonemap at [Clipping Threshold](#).

- Not valid when [Picture Mode](#) is set to the mode of Dolby Vision
-

Clipping Threshold

Adjust clipping luminance (nit) of tonemap.

Colour

1. Display Home with  and select .
 - You can also access by pressing and holding .
 2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the TV mode / input mode.
 3. Select [Colour](#) and press **OK** to access.
 4. Set the item and press **OK** to store.
-

[Colour, Tint](#)

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

[Colour Temperature](#)

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

[Colour Remaster](#)

([Max](#) / [Min](#) / [Off](#))

Displays the vivid images with the expanded colour gamut.

Clarity

1. Display Home with  and select .
 - You can also access by pressing and holding .
 2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the TV mode / input mode.
 3. Select [Clarity](#) and press **OK** to access.
 4. Set the item and press **OK** to store.
-

Sharpness

Adjusts the levels of the option according to your personal preference.

- Not valid in the following conditions:
 - [Pure Direct](#) is set to [On](#).
 - 120 Hz video signal from 120 Hz-compatible equipment
-

Random Noise Reduction

([Auto](#) / [Max](#) / [Mid](#) / [Min](#) / [Off](#))

Reduces unwanted picture noise.

- Not valid in the following conditions:
 - [Input Lag](#) is set to [Fast](#).
 - [Pure Direct](#) is set to [On](#).
 - 120 Hz video signal from 120 Hz-compatible equipment
 - VRR input signal
-

Block Noise Reduction

([Auto](#) / [Max](#) / [Mid](#) / [Min](#) / [Off](#))

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

- Not valid in the following conditions:
 - [Pure Direct](#) is set to [On](#).
 - 120 Hz video signal from 120 Hz-compatible equipment
 - VRR input signal
-

Gradation Smoothing

(Auto / Max / Mid / Min / Off)

Reduces banding noise in the image to make the image smoother.

- Not valid in the following conditions:
 - Pure Direct is set to On.
 - 120 Hz video signal from 120 Hz-compatible equipment
 - VRR input signal
-

Resolution Remaster

(Auto / Max / Mid / Min / Off)

Enhances picture resolution to make the image sharper.

- Not valid in the following conditions:
 - Pure Direct is set to On.
 - 120 Hz video signal from 120 Hz-compatible equipment
-

Film Cadence Mode

(On / Off)

Improves vertical resolution for movie images.

- This function is available for interlaced signals.
-

Dolby Vision Precision Detail

(On / Off)

Enables the details of precision for Dolby Vision content.

- Not valid in the following conditions:
 - Picture Mode is set to Dolby Vision Dark.
 - Input Lag is set to Fast.
 - 120 Hz video signal from 120 Hz-compatible equipment
 - VRR input signal
 - Multi window

Motion

Some features are not available on all models.

1. Display Home with  and select .
 - You can also access by pressing and holding .
 2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the TV mode / input mode.
 3. Select [Motion](#) and press **OK** to access.
 4. Set the item and press **OK** to store.
-

Intelligent Frame Creation

([Custom](#) / [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.
- Select [Custom](#) to set [Intelligent Frame Creation](#) manually.

[Blur Reduction](#):

Adjusts the smoothness of camera content to minimise blur.

[Film Smooth](#):

Adjusts the smoothness of film content.

[Reset to Defaults](#):

Resets items for [Intelligent Frame Creation](#).

- Not valid in the following conditions:
 - [Input Lag](#) is set to [Fast](#).
 - [Pure Direct](#) is set to [On](#).
 - [60Hz Refresh Mode](#) is set to [On](#).
 - 120 / 144 Hz video signal from 120 / 144 Hz-compatible equipment
 - VRR input signal
 - Multi window

[Auto AI – Film Interlock:](#)

Reproduces image more precisely for the film content. Set to [Off](#) when the image looks unnatural.

- Set [Picture Mode](#) to [Auto AI](#) to use this function.
- Not valid in the following conditions:
 - [Input Lag](#) is set to [Fast](#).
 - [Pure Direct](#) is set to [On](#).
 - [60Hz Refresh Mode](#) is set to [On](#).
 - 120 / 144 Hz video signal from 120 / 144 Hz-compatible equipment
 - VRR input signal
 - Multi window

[Accurate IFC:](#)

Reproduces image like the original filming image for the film content. Set to [Off](#) when the image looks unnatural.

- Set [Intelligent Frame Creation](#) to [Off](#) to use this function.
- Not valid in the following conditions:
 - [Input Lag](#) is set to [Fast](#).
 - [Pure Direct](#) is set to [On](#).
 - [60Hz Refresh Mode](#) is set to [On](#).
 - 120 / 144 Hz video signal from 120 / 144 Hz-compatible equipment
 - VRR input signal
 - Multi window

Clear Motion:

Makes the moving pictures clearer.

- Not valid in the following conditions:
 - Input Lag is set to Fast.
 - Pure Direct is set to On.
 - 120 / 144 Hz video signal from 120 / 144 Hz-compatible equipment
 - VRR input signal
 - Multi window

Colour Management Settings

1. Display Home with  and select .
- You can also access by pressing and holding .
2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the TV mode / input mode.
3. Select [Colour Management Settings](#) and press **OK** to access.
4. Set the item and press **OK** to store.

■ Colour Gamut

Colour Gamut

([Auto](#) / [Native](#) / [Rec. 709](#) / [sRGB](#) / [Adobe](#) / [Rec. 2020](#) / [DCI-P3](#))

Reproduces image colour precisely according to the colour gamut standards.

[Auto](#):

Automatically adjusts the colour gamut according to the input signal.

[Native](#):

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

[Rec. 709](#) / [sRGB](#):

Standard for HD (High definition) / sRGB

[Adobe](#):

Standard for AdobeRGB

[Rec. 2020](#):

Provides the suitable colour gamut for [Rec. 2020](#).

[DCI-P3](#):

Provides the suitable colour gamut for DCI.

- Not valid when [Picture Mode](#) is set to the mode of Dolby Vision

■ White Balance Adjustment

[R-Gain / G-Gain / B-Gain](#)

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

[R-Cutoff / G-Cutoff / B-Cutoff](#)

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

[More Detailed Adjustment](#)

Adjusts more detailed items for [White Balance Adjustment](#).

[Input Signal Level:](#)

Adjusts the input signal level.

[Gamma:](#)

Switches the gamma curve.

[R-Gain / G-Gain / B-Gain:](#)

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

■ Colour Gamut Adjustment

[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 Gamut Adjustment](#).

[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.

Option Settings

Some features are not available on all models. Available menu items are displayed on your TV screen.

1. Display Home with  and select .
 - You can also access by pressing and holding .
2. Select [Display & Audio](#) > [Picture Settings](#) and press **OK** to access.
 - Select the TV mode / input mode.
3. Select [Option Settings](#) and press **OK** to access.
4. Set the item and press **OK** to store.

PICTURE Button Setting

Sets the viewing mode selection when pressing **PICTURE**.

Dolby Vision Notification

Enables a notification to change the picture mode for Dolby Vision content.

FILMMAKER MODE Notification

Displays the notification to enable FILMMAKER MODE for an input signal.

FILMMAKER MODE Detection

Enables the detection of the FILMMAKER MODE signal.

SDR/HDR Picture Mode Sync

Selects whether to switch the mode for SDR/HDR input signal simultaneously or switch the mode individually for each when changing the viewing mode.

All Inputs Picture Settings Sync

Selects whether to switch the picture settings for all input sources simultaneously or switch settings individually for each broadcast and input source.

Screen Settings

Some features are not available on all models. Available menu items are displayed on your TV screen.

1. Display Home with  and select .
- You can also access by pressing and holding .
2. Select **Display & Audio** > **Screen Settings** and press **OK** to access.
- Select the TV mode / input mode.
3. Set the item and press **OK** to store.

Aspect

Changes the aspect ratio (image size).

 → **Watching > For best picture > Aspect**

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 stored for SD (Standard definition) and HD (High definition) signals respectively.
- Not valid in the following conditions:
 - **Input Lag** is set to **Fast**.
 - 4K content
 - **Pure Direct** is set to **On**.
 - Multi window
 - **60Hz Refresh Mode** is set to **On**.
 - 120 / 144 Hz video signal from 120 / 144 Hz-compatible equipment
 - VRR input signal
 - Dolby Vision content

Pixel Orbiter

(On / Off)

Sets the pixel shifting of the image to prevent panel “image retention”.

Logo Luminance Control

(Max / Mid / Min)

Adjusts the luminance level of the displayed logo to prevent panel “image retention”.

Panel Maintenance

Turns the screen off and perform the maintenance to prevent the panel “image retention”.

- It takes approx. 10 minutes to finish the maintenance.
- LED lights orange during adjustment of the panel.
- To cancel the maintenance, turn the TV on while the maintenance is in progress.
- Completion message will be displayed when turning the TV on after panel maintenance.

For best audio

Sound Mode

Some features are not available on all models.

1. Display Home with  and select .
 - You can also access by pressing and holding .
 2. Select [Display & Audio](#) > [Audio Settings](#) and press  to access.
 - Select the TV mode / input mode.
 3. Select [Sound Mode](#) and press  to access.
 4. Select the mode and press  to set.
-

Sound Mode

([Auto AI](#) / [Standard](#) / [Music](#) / [Speech](#) / [Stadium](#) / [Game\(RPG\)](#) / [Game\(FPS\)](#) / [User](#))

Selects your favourite sound mode for each input.

[Auto AI](#):

Adjusts the sound quality to suit your watching environment.

- To adjust the effect level, set [Auto AI – Sound Effect Level](#).

[Standard](#):

Provides the suitable sound quality for all types of scenes.

[Music](#):

Improves sound quality for watching music videos, etc.

[Speech](#):

Improves sound quality for watching news, drama, etc.

[Stadium](#):

Improves sound quality for watching sports, etc.

- The sound mode is automatically set to [Stadium](#) when [Picture Mode](#) is set to [Sport](#). To cancel the linkage of the sound and viewing mode, set [Sport Link](#) to [Off](#).

 → [Watching](#) > [For best audio](#) > [Option Settings](#)

[Game\(RPG\)](#):

Provides the suitable sound quality for playing RPG games.

- Set [Input Lag](#) to [Fast](#) for low latency of video and audio signals.
- For HDMI

Game(FPS):

Provides the suitable sound quality for playing FPS games.

- Set **Input Lag** to **Fast** for low latency of video and audio signals.
- For HDMI

User:

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

- **Each Sound Mode Advanced Settings** can be adjusted and stored for each mode.
- For the User mode, **Equaliser** is available in the Sound Menu instead of **Bass** and **Treble**. Select **Equaliser** and adjust the frequency.



→ **Watching > For best audio > Each Sound Mode Advanced Settings**

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

■ Auto AI – Sound Effect Level

Adjusts the effect level when **Sound Mode** is set to **Auto AI**. Setting low is close to the standard sound and high can provide a dynamic sound effect.

- This function is available when **Sound Mode** is set to **Auto AI**.

1. Display Home with  and select .
- You can also access by pressing and holding .
2. Select **Display & Audio > Audio Settings** and press **OK** to access.
- Select the TV mode / input mode.
3. Select **Auto AI – Sound Effect Level** and set.

Each Sound Mode Advanced Settings

Some features are not available on all models. Available menu items are displayed on your TV screen.

1. Display Home with  and select .
- You can also access by pressing and holding .
2. Select [Display & Audio](#) > [Audio Settings](#) and press  to access.
 - Select the TV mode / input mode.
3. Select [Each Sound Mode Advanced Settings](#) and press  to access.
4. Set the item and press  to store.

Bass

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

- Not valid when [Sound Mode](#) is set to [Auto AI](#) or [User](#)

Treble

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

- Not valid when [Sound Mode](#) is set to [Auto AI](#) or [User](#)

Equaliser

Adjusts the frequency level to suit your favourite sound quality.

- This function is available when [Sound 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 to Defaults](#) and press .
 - This function is effective only for the sound from TV speakers.
-

Sound Field Creation

(Talk / Standard / Theater / Theater Pro / Live / Sport / Direct Through)

Selects your favourite sound field setting.

Talk:

Provides the suitable sound field for talk scenes and makes it easier to hear voice.

Standard:

Provides the suitable sound field for all types of scenes.

Theater / Theater Pro:

Provides the suitable sound field for cinema like an immersive cinema sound field.

Live:

Provides the suitable sound field for music live and makes powerful music live sound field.

Sport:

Provides the suitable sound field for sport and makes spacious stadium sound field.

Direct Through:

Provides the sound according to the content with the supported speakers.

- Not valid in the following conditions:
 - Dolby Atmos content
 - Sound Mode is set to Auto AI, Music, Game(RPG) or Game(FPS).
 - Sound Focus Mode is set to Pinpoint, Area or Ambient.
-

Bass Boost

(On / Off)

Enhances the effect of bass sounds.

- This function is effective only for the sound from TV speakers.
- Not valid when Sound Mode is set to Auto AI or Music

Balance

Adjusts the volume level of right and left speakers.

- Not valid when [Sound Mode](#) is set to [Auto AI](#)

Auto Gain Control

Automatically regulates large sound level differences between channels and inputs.

Option Settings

Some features are not available on all models. Available menu items are displayed on your TV screen.

1. Display Home with  and select .
 - You can also access by pressing and holding .
 2. Select [Display & Audio](#) > [Audio Settings](#) and press **OK** to access.
 - Select the TV mode / input mode.
 3. Select [Option Settings](#) and press **OK** to access.
 4. Set the item and press **OK** to store.
-

Dolby Atmos

(On / Off)

Provides the precise sound of Dolby Atmos when playing Dolby Atmos content. Set to [On](#) for general use.

- Not valid in the following conditions:
 - [Sound Mode](#) is set to [Auto AI](#).
 - [Sound Focus Mode](#) is set to [Pinpoint](#), [Spot](#), [Area](#) or [Ambient](#).
-

Sport Link

(On / Off)

Automatically sets the sound mode to [Stadium](#) when [Picture Mode](#) is set to [Sport](#).

Space Tune Setting

Adjusts the sound quality automatically according to the installation location or room condition.

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

Enable Space Tune

(On / Off)

Enables the sound setting which has been adjusted by [Space Tune Adjustment](#).

Space Tune Adjustment

Adjusts the sound setting with the Space Tune function.

Clear Sound Adjustment

(On / Off)

If the sound from TV speakers is unclear due to installation environment, **On** is recommended.

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

Dialogue Enhancement

(On / Off)

Enhances the intelligibility of dialog and commentary.

- Not valid when **Sound Mode** is set to **Auto AI**

Bluetooth Audio Delay

Adjusts the audio delay for the Bluetooth audio device.

Audio Output

1. Display Home with  and select .
 2. Select [Display & Audio](#) > [Audio Output](#) and press **OK** to access.
 3. Set the item and press **OK** to store.
-

Headphone Jack

Set to [Connect](#) to enable the audio output from the headphone terminal.

- When [Headphone Jack](#) is set to [Connect](#), the audio is not output to AV receiver which is connected to this TV using HDMI cable.
-

Audio Output Mode

([Headphone](#) / [TV Speaker and Headphone](#) / [TV Speaker and Sub Woofer](#))

Selects the audio output when the headphones are connected.

- This function is available when [Headphone Jack](#) is set to [Connect](#).
-

Headphone Volume

Adjusts the volume of headphones.

- This function is available when [Audio Output Mode](#) is set to [TV Speaker and Headphone](#).
-

Subwoofer Adjustment

Adjusts the sound output of sub woofer.

- This function is available when [Audio Output Mode](#) is set to [TV Speaker and Sub Woofer](#).

[Subwoofer Volume:](#)

Adjusts the volume of sub woofer.

[Cut-off Frequency:](#)

Adjusts the cut-off frequency of sub woofer signal output.

- The frequency output to the sub woofer is less than the set cut-off frequency.
- The frequency can be adjusted from 100 Hz to 400 Hz.

[Reset to defaults:](#)

Resets [Subwoofer Adjustment](#) to the default settings.

Digital Audio Format

(Auto / PCM / Pass-through / Dolby Audio)

Selects the digital audio format.

Auto:

Dolby Audio is output as Dolby Audio Bitstream. AAC on the digital broadcasting are output as Dolby Audio Bitstream with the transcoding method. Other digital audio output signals are output as PCM.

PCM:

For the audio device not supporting AAC or Dolby Audio, the digital audio signal is output as PCM.

Pass-through:

Dolby Audio is output as Dolby Audio Bitstream. Other digital audio output signals are output as PCM.

Dolby Audio:

Digital audio signal is output as Dolby Audio with the transcoding method.

eARC

(On / Off)

Set to **On** to enable the eARC (Enhanced Audio Return Channel) function when the equipment supporting eARC function is connected to this TV.

- The ARC (Audio Return Channel) function is enabled only when the connected equipment supports the ARC function.
- Use HDMI2 to connect the TV to an amplifier which has eARC / ARC function.
- Use an HDMI cable supporting eARC function or HEC (HDMI Ethernet Channel) function.

Sound Focus Setting

1. Display Home with  and select .
 - You can also access by pressing and holding .
 2. Select [Display & Audio](#) > [Sound Focus Setting](#) and press **OK** to access.
 - Select the TV mode / input mode.
 3. Follow the on-screen instructions.
-

Sound Focus Mode

([Off](#) / [Pinpoint](#) / [Spot](#) / [Area](#) / [Ambient](#))

Selects your favorite Sound Focus mode.

[Off](#):

Provides the suitable sound quality for general use (standard sound).

[Pinpoint](#):

Provides the voice sound to the specific direction with beamforming. It is suitable to hear the sound alone.

[Spot](#):

Provides the both standard sound and Pinpoint. It is suitable to turn the personal volume up in a group.

[Area](#):

Provides the listening area in your environment. It is suitable to output the sound to one of the connecting rooms.

[Ambient](#):

Standardises the sound output of your room and provides the relaxing sound like a coffee shop's BGM.

- The sound position can be adjusted in [Sound Focus Positioning](#).
 - This function is effective only for the sound from TV speakers.
 - When this unit is turned off and on while the favourite mode is set, the setting mode switches to [Off](#).
 - When [Sound Focus Mode](#) is set to an item other than [Off](#), Space Tune function may weaken.
 - [Sound Field Creation](#) is not available when [Sound Focus Mode](#) is set to [Pinpoint](#), [Area](#) or [Ambient](#).
 - [Dolby Atmos](#) is not available when [Sound Focus Mode](#) is set to [Pinpoint](#), [Spot](#), [Area](#) or [Ambient](#).
-

Sound Focus Positioning

([Pinpoint Positioning](#) / [Spot Positioning](#) / [Area Positioning](#))

Adjusts the sound focusing position and balance for line array speakers.

[Pinpoint Positioning](#):

Adjusts the position of [Pinpoint](#).

[Spot Positioning](#):

Adjusts the position of [Spot](#).

[Area Positioning](#):

Adjusts the position for [Area](#).

- The setting of adjusting position is stored. Select [Reset to Defaults](#) to reset to the default position.
- This function is available when [Sound Focus Mode](#) is set to [Pinpoint](#), [Spot](#) or [Area](#).

Audio Description

1. Display Home with  and select .
 2. Select [Live TV](#) > [Broadcast Options](#) > [Broadcast Preferences](#) > [Preferred Audio Settings](#) > [Audio Description](#) and press **OK** to access.
 3. Select one of the following items and press **OK** to access.
[Audio Description Type](#) / [Audio Description Volume](#)
 4. Set the item and press **OK** to store.
-

[Audio Description Type](#)

([Standard](#) / [Audio Description](#) / [Spoken Subtitles](#) / [AD & Spoken Subtitles](#) / [Clean Audio](#))

Narration settings for visually impaired users

Set to [Audio Description](#) 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 multi window mode
-

[Audio Description Volume](#)

Adjusts the volume for Audio Description.

Preferred Audio Settings

1. Display Home with  and select .
 2. Select [Live TV](#) > [Broadcast Options](#) > [Broadcast Preferences](#) > [Preferred Audio Settings](#) and press **OK** to access.
 3. Set the item and press **OK** to store.
-

Audio Preference

([Multichannel](#) / [Stereo](#) / [MPEG](#))

Selects the initial setting for audio tracks.

[Multichannel](#):

The priority is given to multi-channel audio track.

[Stereo](#):

The priority is given to stereo (2ch) audio track.

[MPEG](#):

The priority is given to MPEG.

- Dolby Audio (Dolby Digital, Dolby Digital Plus, Dolby AC-4) and Dolby Atmos are the methods of coding digital signals developed by Dolby Laboratories. Apart from stereo (2ch) audio, these signals can be multi-channel audio.
 - HE-AAC is a perceptual coding method used to compress digital audio for efficient storage and transmission.
 - MPEG is an audio compression method that compresses audio to the smaller size without any considerable loss of audio quality.
 - Dolby Audio (Dolby Digital Plus, Dolby AC-4), Dolby Atmos and HE-AAC are the technologies for HD (High definition) programmes.
-

[Primary Audio Language](#) / [Secondary Audio Language](#)

Selects the first and second preferred language for DVB multi audio (depending on the broadcaster).

TV Guide

Using TV Guide

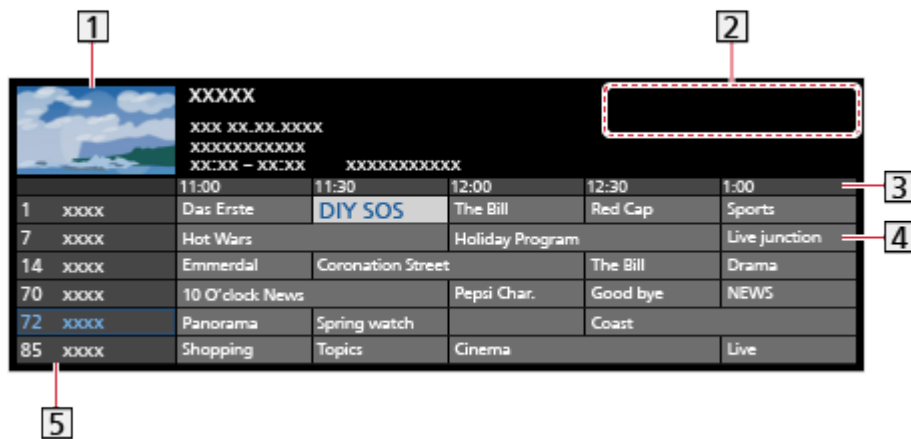
Some features are not available on all models.

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).

Display **TV Guide** with .

- Press  to change the layout. (**Landscape** / **Portrait**)
 - View **Landscape** to see several channels.
 - View **Portrait** to see one channel by time.
 - The availability of this function depends on the country you select.

(Example)



- 1** TV screen
- 2** Date / Search / Category
- 3** Time
- 4** Programme
- 5** Channel position and name

- To watch the programme
 - 1) Select the current programme and press **OK** to access.
 - The current programme is displayed on the top left of the screen.
 - 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

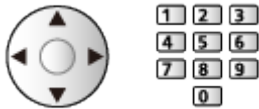
 (green)

- To search programme titles and view a list of the searched programmes (if available)

1) Display the search list with  (yellow).

2) Select [Search](#) and press  to access.

3) Enter characters with  or , and press  to set.



4) Press  (green) to start searching.

- All the programme titles including the word you set are listed.
- Searching without any characters lists all programmes including current programmes.

- To view a channel list of the selected category

 → [Watching > Basic > Selecting channel](#)

- To list favourite channels, set [Favourites Editor](#).

 → [Watching > Tuning and editing channels > Favourites Editor](#)

- To view more details of the programme

1) Select the programme.

2) Press  to view.

- Press again to return to [TV Guide](#).

- To exit [TV Guide](#)



= 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

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

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

1. Display **TV Guide** with .
2. Select the forthcoming programme and press **OK** to access.
 - You can also set a timer event pressing .
 - To check / change / cancel a timer event
 → **Recording > Timer Programming > Editing Timer Programming**
 - LED lights orange in Standby mode when **Timer Programming** is set.
 - To return to **TV Guide**

 - 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.
 -  is displayed on the TV Guide screen when **Timer Programming** is set.
 - Depending on the country you select, you can set **Signal Supported Recording** (see below).

= Note =

- **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 **Manage USB Devices**.

 → **Recording > USB HDD setup**

■ Signal Supported Recording

Signal Supported Recording is [Timer Programming](#) which is controlled by information from the TV Guide; if programme start and end times are changed by the broadcaster, the timer event will follow the change. Note that [Signal Supported Recording](#) only works reliably if correct information is received from broadcasters.

- The availability of this function depends on the country and TV mode you select.
-  is displayed on the timer event if [Signal Supported Recording](#) is set.

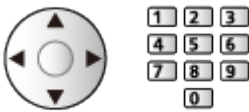
= Note =

- If you edit the start time or end time of a signal supported recording event by more than 10 minutes, it will no longer follow the broadcaster's changes to the start or end time. The start and end times will become fixed.

Teletext

Viewing Teletext

1. Switch to teletext with **TEXT**.
 - Displays the index page (content varies depending on the broadcaster).
 - Current / sub page numbers are displayed on the top left of the screen.
 - Time / date is displayed on the top right of the screen.
 - Colour bar is displayed on the bottom of the screen.
2. Select the page with **Cursor buttons**, **Numeric buttons** or   (coloured buttons).



- To exit teletext



■ To view a favourite page stored

Press **STTL** to view a favourite page.

- Factory setting is “P103”.

■ View sub page

The number of sub pages is displayed on the top of the screen. Press  /  to view sub page. (Only when teletext has more than one page.)

- The number of sub pages varies depending on the broadcaster (up to 79 pages).
- Searching may take time while you are watching TV.

Preferred Teletext Settings

Selects teletext language font.

1. Display Home with  and select .
 2. Select [Live TV](#) > [Broadcast Options](#) > [Broadcast Preferences](#) > [Preferred Teletext Settings](#) and press **OK** to access.
-

[Preferred Teletext Language](#)

Selects between alternative teletext languages (if available).

Tuning and editing channels

Setting menu

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

1. Display Home with  and select .
2. Select **Live TV** > **Broadcast Options** and press **OK** to access.
3. Set the item and press **OK** to store.
 - The function items vary depending on the TV mode and country you select.

Channel List Editor

1. Select [Channel List Editor](#) and press **OK** to access.
2. Press **OK** to select a channel to edit.
3. Select [Move](#) / [Swap](#) / [Delete](#) / [Hide](#) / [Show](#) and press **OK** to set.
4. Follow the on-screen instructions.
 - To change the input mode
 (red)
 - To change the category
 (green)
 - To sort channels in alphabetical or numerical order
 (yellow)
 - To select all channels
 (blue)

■ Advanced Options

1. Select [Channel List Editor](#) and press **OK** to access.
2. Select [Advanced Options](#) and press **OK** to access.
3. Set the item and press **OK** to store.

[Restore Deleted Channels](#)

Restore the deleted channels on the channel list.

[Reset Channel Order](#)

Reset the order of the channel list.

[Import Channel List](#) / [Export Channel List](#)

Exports / Imports DVB-S Channel List settings using the USB device to share the same settings with another TV which has the same function.

Favourites Editor

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

■ List favourite DVB channels

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

1. Select [Favourites Editor](#) and press **OK** to access.
2. Press **OK** to select a channel to list.
3. Follow the on-screen instructions.
 - To change the input mode
 (red)
 - To change the category
 (green)
 - To sort channels in alphabetical or numerical order
 (yellow)
 - To select all channels
 (blue)
 - To display other favourites, select [Favourite List](#).
 - To name the favourites, select [Edit List Name](#).

Auto Setup

Some features are not available on all models. Available menu items are displayed on your TV screen.

Automatically retunes the channels received in the area.

- This function is available if channel tuning is already performed.
- Only the selected mode is retuned. All the previous tuning settings are erased.
- If tuning has not been done completely, set [Manual Tuning](#).



→ [Watching > Tuning and editing channels > Manual Tuning](#)

■ Satellite

1. Select [Satellite Antenna System](#) and press **OK** to access.
2. Select [One LNB](#) / [MiniDiSEqC](#) / [DiSEqC1.0](#) / [Single Cable System](#) and press **OK** to set.

[One LNB:](#)

Compatible with single LNB.

[MiniDiSEqC:](#)

Up to 2 LNBs can be controlled.

[DiSEqC1.0:](#)

Up to 4 LNBs can be controlled.

[Single Cable System:](#)

When using the Single Cable router, up to 32 user bands are available.

- You can receive several satellites if you have DiSEqC control antenna system.
 - This TV supports DiSEqC Version 1.0.
3. Select [Satellite System Configuration > LNB Configuration](#) and press **OK** to access.
 - Select [Dual Tuner Mode](#), set to [On](#) to use dual tuner function.
 4. Select [LNB](#) / [Satellite](#) and set.
 - Select the tuner in [Signal Input](#) to set.
 - Select [User defined](#) to set [Test Transponder Frequency](#) manually.
 - If you set to [Single Cable System](#), additional settings are required. Set [Single Cable Version](#) and [User Band Frequency](#). For details, read the manual of the Single Cable router.



→ [Watching > Tuning and editing channels > Selectable satellites](#)

5. Press **↩** to store.
6. Select [Auto Setup](#) and press **OK** to access.

7. Select **Search Mode / Scan Mode** and press **OK** to access.

8. Set the item and press **OK** to store.

- **Scan Mode**

Quick:

Scans the suitable frequency for the selected satellite.

Full:

Scans the whole frequency range.

9. Select **Auto Setup** and press **OK**.

(Settings are made automatically.)

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

= Note =

- Set **Dual Tuner Mode** to **On** to select satellite signal for TV>IP server function.

■ Antenna, Cable

1. Select **Auto Setup** and press **OK** to access.

2. Set the scan mode, etc. (Cable)

- **Scan Mode**

Quick:

Scans the suitable frequency in your country.

Full:

Scans the whole frequency range.

- Normally set **Frequency**, **Symbol Rate** and **Network ID** to **Auto**. If **Auto** is not displayed or if necessary, enter each value specified by your cable provider with **Numeric buttons**.



3. Select **Auto Setup** and press **OK**.

(Settings are made automatically.)

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

■ TV>IP

- Ensure the network connections and network settings are completed.

 → Functions > TV>IP > TV>IP client connection

 → Network > Network settings

1. Select **Auto Setup** and press **OK** to access.
2. A confirmation screen is displayed and press **OK** to access.
3. Select a server from **Server List**.
4. Select **Client Settings** and press **OK** to access.
5. Select **Search Channels** and press **OK** to access.
6. Set **TV>IP Search Mode** and select **Start Auto Setup**.
 - Set TV>IP configuration to tune the digital channels.
 - When the operation is completed, the channel at the lowest position will be displayed.

Manual Tuning

- Normally use [Auto Setup](#) or [Update Channel List](#) to retune the channels.
- If tuning has not been done completely or for adjusting the direction of the aerial or dish, use this function.

■ Satellite

- Please consult the received satellite broadcasting companies for the setting.
1. Select [Transponder Frequency](#) / [Symbol Rate](#) / [Polarisation](#) / [Modulation](#) / [Service ID](#) and set with **Cursor buttons** or **Numeric buttons**.



2. Select [Start scan](#) and press **OK** to search.

■ Antenna

1. Select a channel and adjust frequency for each channel.
 - Set where the level of [Signal Quality](#) becomes the maximum.
2. Press **OK** to search.

■ Cable

1. Enter the frequency with **Numeric buttons**.



- Normally set [Symbol Rate](#) and [Service ID](#) to [Auto](#).
2. Select [Start scan](#) and press **OK** to search.

■ TV>IP (Satellite)

- Please consult the received satellite broadcasting companies for the setting.
1. Select [Transponder Frequency](#) / [Symbol Rate](#) / [Polarisation](#) / [Modulation](#) / [FEC](#) / [Service ID](#) and set with **Cursor buttons** or **Numeric buttons**.



2. Select [Start scan](#) and press **OK** to search.

■ TV>IP (Cable)

1. Select [Frequency](#) / [Bandwidth](#) / [Modulation Type](#) / [Symbol Rate](#) / [FEC](#) / [Service ID](#) and set with **Cursor buttons** or **Numeric buttons**.



- Normally set [Symbol Rate](#) to [Auto](#).
2. Select [Start scan](#) and press **OK** to search.

■ TV>IP (Antenna)

1. Select [Frequency](#) / [Bandwidth](#) / [Modulation](#) / [FEC](#) / [Service ID](#) and set with **Cursor buttons** or **Numeric buttons**.



2. Select [Start scan](#) and press **OK** to search.

= Note =

- For details of TV>IP connections



→ [Functions > TV>IP > TV>IP client connection](#)

Update Channel List

By updating the 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 [Channel List Editor](#), [Favourites Editor](#), etc.
- Depending on the signal condition, the update may not work properly.
- To update the satellite channels, set [Search Mode](#) and [Scan Mode](#) before updating.
 - 1) Select [Search Mode](#) / [Scan Mode](#) and press **OK** to access.
 - 2) Set each item and press **OK** to store.
 - 3) After settings, select [Start scan](#) and press **OK** to search.

Signal Condition

Selects a channel and checks the signal condition with indicators.

- BER (Bit Error Rate) indicates how the TV accurately receives the signal, and 0.00 is the most suitable signal reception rate.
- A good Signal Strength is not an indication of suitable signal reception.
- Vertical lines show the maximum signal value of the selected channel.
- To change the channel



Set up TV Signals

Sets up the TV signal inputs to be used with this TV.

1. Display Home with  and select .
2. Select [Live TV](#) > [Broadcast Options](#) and press **OK** to access.
3. Select [Set up TV Signals](#) and press **OK** to access.
4. Follow the on-screen instructions.

Other settings

Favourite Network Selection

Selects your favourite network for each broadcaster (only available in some countries).

- For Cable / Antenna
-

Exchange Channel List

Exports / Imports the channel list settings using the USB device to share the same settings with another TV which has the same function.

New Channel Message

Selects whether to receive a notification message when a new channel is found or not.

- When a notification message appears, you can perform [Update Channel List](#) pressing **OK**.
 - Not valid in TV>IP
-

Service Replacement

(On / Off)

Set to **On** to display a message to switch to the available service (only available in some countries).

- For Cable / Antenna
-

Attenuator

(On / Off)

Automatically reduces the cable signal to avoid the interference.

- If the cable signal is too strong, interference may occur. In this case, set to **On** to weaken the signal automatically.

Selectable satellites

■ Selectable satellites and dish alignment

To ensure your satellite dish is correctly installed, please consult your local dealer.

Also please consult the received satellite broadcasting companies for details.

- Intelsat at 85.2° East
- ABS 1 at 75° East
- Express at 53° East
- Intelsat at 45° East
- Turksat at 42° East
- Hellas at 39° East
- Eutelsat at 36° East
- Eutelsat at 33° East
- Astra at 28.2° East
- Badr at 26° East
- Eutelsat at 25.5° East
- Astra at 23.5° East
- Eutelsat at 21.5° East
- Astra at 19.2° East
- Eutelsat at 16° East
- Hot Bird at 13° East
- Eutelsat at 10° East
- Eutelsat at 9° East
- Eutelsat at 7° East
- Astra at 4.8° East
- Thor at 0.8° West / Intelsat at 1° West
- Amos at 4° West
- Eutelsat at 5° West
- Eutelsat at 7° West
- Eutelsat at 8° West
- Eutelsat at 12.5° West
- Telstar at 15° West
- SES at 22° West
- Intelsat at 24.5° West
- Hispasat at 30° West

Recording

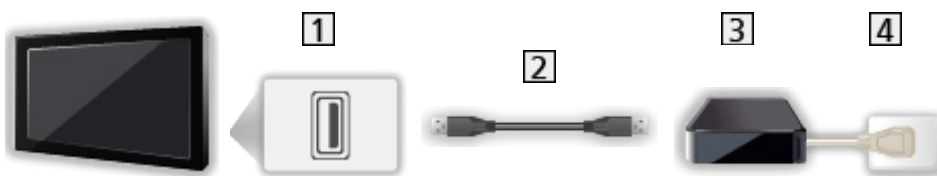
USB HDD setup

Preparations

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

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 1 port with the USB cable.
- Be sure to connect the USB HDD to the mains socket.
- 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 =

- The data broadcasting, 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.
- Depending on the network condition, recording function may not work properly in TV>IP.
- Dual tuner function (watching or recording 2 programmes simultaneously, watching a programme while recording another programme, etc.) is not available while using TV>IP server function.
- 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.

Setting for USB HDD

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

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

- 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 Home with  and select .
2. Select **Device & Software** > **Manage USB Devices** and press **OK** to access.
3. Follow the on-screen instructions.

= 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.
- Ensure that **Dual Tuner Mode** is set to **On** in **LNB Configuration** to record 2 satellite programmes simultaneously.

 → Watching > Tuning and editing channels > Auto Setup

Recording current programme

One Touch Recording

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

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 Home with  and select .
2. Select [Live TV](#) > [Broadcast Options](#) > [Recording Settings](#) > [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

1. Display the input selection menu with **AV**.
 - You can also access the input selection on the home screen.
2. Select [Recording List](#) and press **OK** to access.

 → Recording > Recording List

- 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

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

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

1. Select the mode with .
2. Display the option menu with .
3. Select **Timer Programming** and press  to access.
4. Select and set the item (channel, date, start time, end time).

Editing Timer Programming

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

1. Display the option menu with .
2. Select **Timer Programming** and press **OK** to access.
3. Select the event.

- To change a timer event

OK

■ 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

1. Display the input selection menu with **AV**.
 - You can also access the input selection on the home screen.
2. Select **Recording List** and press **OK** to access.

 → **Recording > Recording List**

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

Note

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

- Dual tuner function (watching or recording 2 programmes simultaneously, watching a programme while recording another programme, etc.) is not available while using TV>IP server function.
- **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.
- Recording an encrypted (copy-protected) programme may not be possible.
- Depending on the network condition, recording function may not work properly in TV>IP.
- 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 .
- LED lights 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.

Recording List

Selecting content

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

1. Display the input selection menu with **AV**.
 - You can also access the input selection on the home screen.
2. Select **Recording List** and press **OK** to access.
3. Content list is displayed.
 - Remaining capacity of the HDD on which focused content is recorded is displayed on the left side. (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
 -  : Programme with parental rating
4. Select the content and press **OK** to start playback.
 - If you select the content which had been stopped halfway, the playback starts from where you stopped last time. To play back from the beginning, press  and select **Play from 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.

Watching recorded TV

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

■ Playback

- To operate playback

 /  : Skip 10 seconds

 : Pause / Playback

- To jump to the specified time point

1) Press and hold  / .

2) Jump to the specified time point with .

- To display / hide the information banner



- To the previous / next chapter



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

- To change aspect

 → Watching > For best picture > Aspect

- To display the subtitle (if available)



- To return to list from the full screen video



= Note =

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

Grouping content

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

1. Select the content to edit and press  (red) to tick in the content list.
2. Display the option menu with .
3. Select [Create Group](#) / [Release Group](#) / [Exclude from Group](#) / [Change Protect Status](#) and press  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  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

Some features of this unit may not be available unless the software is updated. Be sure to follow the on-screen instructions and update the software via network.

1. Select the content to edit and press  (red) to tick in the content list.
2. Delete the content with  (green).
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  (green).
2. Select the chapter and press  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.

Network

Home network

In-House streaming

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

 → Network > Network connections

 → Network > Network settings

= Note =

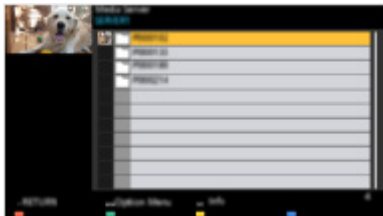
- The delivering content may be obtained by a third party due to an unauthorised access. If the TV connects to the network environment such as office, hotel, room without router, etc., make sure to check the network connection.

■ Playback of sharing content stored in the media server

Store photo, video or music content into the media server connected to your home network. And then you can enjoy the content on this TV.

- The media server connected to this unit is displayed on the home network of the input selection screen.

(Example)



- For details of watching and operating content on this TV

 → Network > Media Server > How to use

■ 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 connected to your home network.

Network connections

Internet connection

A broadband network environment is required to use internet services.

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

■ 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

Note

- For secure connection, it is recommended to use a device supporting WPA2 / WPA3 as wireless LAN type. The encryption type depends on the connected device.
- 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.
- Depending on the network condition, the content may not be played back properly.
- In case the password of the registered device or user is known by a third party, there is a risk of unauthorised entries. Keep your password safe. Panasonic will make no warranty for the unauthorised entries.
- To prevent a risk of interception, unauthorised entries and hacking, set up the proper security settings (encryption setting).
- For details of TV>IP connections



→ Functions > TV>IP > TV>IP client connection

Network settings

Network Connection

Ensure the connections are completed before starting network setup.

 → Network > Network connections

1. Display Home with  and select .
2. Select **Network** and press **OK** to access.
3. Follow the on-screen instructions.

Home Network Server Settings

Sets to control the TV with devices connected to the network.

1. Display Home with  and select .
 2. Select **Network** > **Home network** and press **OK** to access.
 3. Set the item and press **OK** to store.
-

TV Name

Sets your favourite name for this TV.

- 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.
-

= Note =

- Depending on the area, this function may not be available. For details, consult your local Panasonic dealer.

Media Server

How to use

Ensure the preparations of the media server, network connections and network settings are completed.

 → Network > Network connections

 → Network > Network settings

1. Display the input selection menu with **AV**.
 - You can also access the input selection on the home screen.
2. Select the media server of the home network and press **OK** to access.
3. Follow the on-screen instructions.

= Note =

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

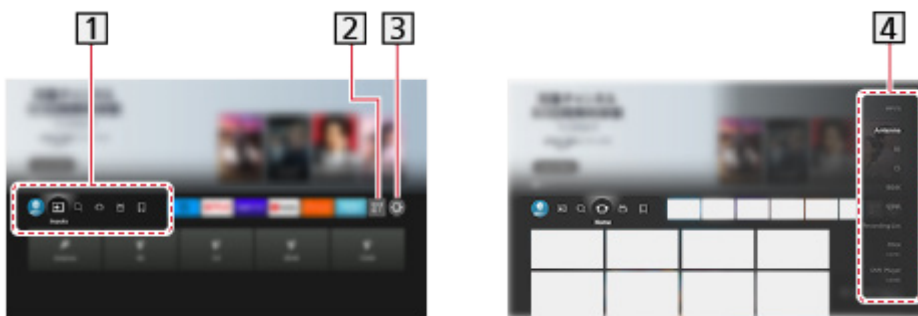
Functions

Home

How to use

“Home” is a gateway to the TV programmes, applications and connected devices.

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



1 Profile / Inputs / Find / Home / Live / My Stuff

2 Applications

3 Setting menu

 → [Settings > Setting menu > How to use](#)

4 Input mode selection screen

 → [Watching > External equipment > Watching external input](#)

■ To use an Operator App

1. Display the Operator App's Menu from Home by pressing **OK** on the specific App icon.
2. If the application is already installed on a specific input, it will switch to the related input and launch the Operator App GUI.
3. Follow the on-screen instructions.
 - You may also launch the Operator App GUI by pressing **PROVIDER LIST**.
 - If the specific Operator App is not installed, the TV's Operator App installation menu is displayed instead.
 - To set up the operator specific settings
 - 1) Display Home with  and select .
 - 2) Select [Live TV](#) > [Broadcast Options](#) > [OpApp Operator](#).

■ Game Control Board

You can set up the picture settings, etc. for playing games in HDMI input or check the setting status.

1. Press and hold .
2. Select [Display Features](#) > [Game Control Board](#) and press **OK** to access.
3. Follow the on-screen instructions.
 - The setting items depend on the input signal or connected device.

= Note =

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

 → [Network > Network connections](#)

TV>IP

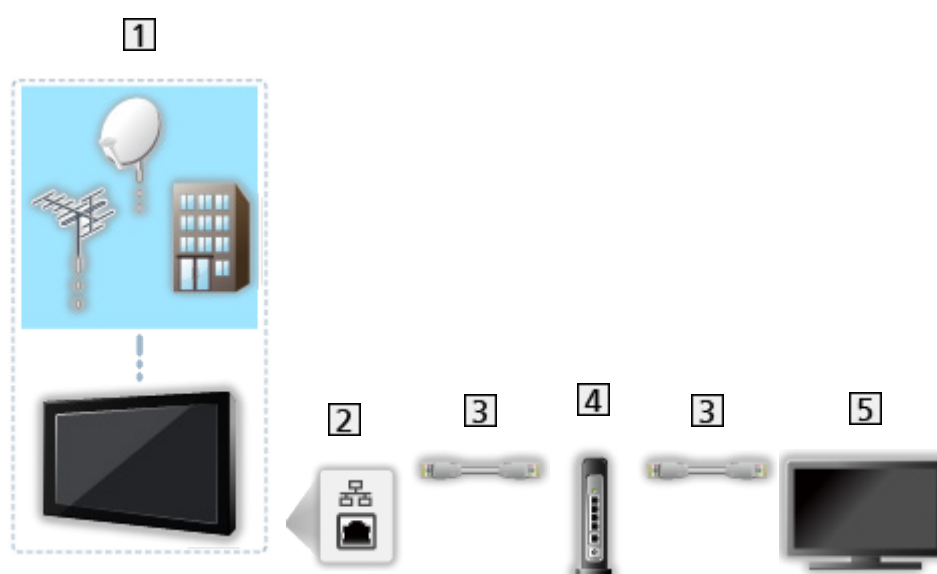
TV>IP server connection

Only for the model supporting TV>IP server function

This TV can be configured as a TV>IP server to provide broadcast streaming to another TV supporting TV>IP client function or SAT>IP compatible devices.

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

■ Connection



1 TV (Satellite dish / Terrestrial aerial / Cable)

2 ETHERNET terminal

3 LAN cable (Shielded)

- Use Shielded Twist Pair (STP) LAN cable.

4 Hub / Router

5 TV>IP client (TV, etc.)

= Note =

- External equipment and cables shown are not supplied with this TV.
- Check the terminal type and cable plugs are correct for connection.
- To use this function, set [TV>IP Server Settings](#).



→ [Functions > TV>IP > TV>IP Server Settings](#)

- Dual tuner function (watching or recording 2 programmes simultaneously, watching a programme while recording another programme, etc.) is not available while using TV>IP server function.
- Due to network conditions or certain broadcaster restrictions, this function may not be available.
- To confirm the current network settings



→ [Network > Network settings > Network Connection](#)

TV>IP Server Settings

Only for the model supporting TV>IP server function

■ Preparations

- Ensure the network connections and network settings are completed.



→ Functions > TV>IP > TV>IP server connection



→ Network > Network settings

- Ensure that **Dual Tuner Mode** is set to **On** in **LNB Configuration**.



→ Watching > Tuning and editing channels > Auto Setup

■ TV>IP Server Settings

Selects TV signal and enables tuning in TV>IP server function.

1. Display Home with and select .
 2. Select **Live TV** > **Broadcast Options** > **TV>IP Server Settings** > **Signal Input** and press **OK** to access.
 3. Select **Satellite** / **Cable** / **Antenna** and press **OK** to set.
 - Selectable TV modes for client vary depending on the channels stored.
- Watching > Tuning and editing channels > Auto Setup
4. Select **TV>IP Server** and press **OK** to access.
 5. Follow the on-screen instructions.
 - Changing the default configuration may result in higher energy consumption of the product.
 - LED lights orange in Standby mode when this function is active.

= Note =

- Dual tuner function (watching or recording 2 programmes simultaneously, watching a programme while recording another programme, etc.) is not available while using TV>IP server function.
- Due to network conditions or certain broadcaster restrictions, this function may not be available.

TV>IP client connection

This TV has TV>IP client function and can connect to TV>IP server or SAT>IP compatible servers to receive broadcast streaming.

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

- It is recommended to connect to TV>IP server with a LAN cable.

■ Wired connection



1 ETHERNET terminal

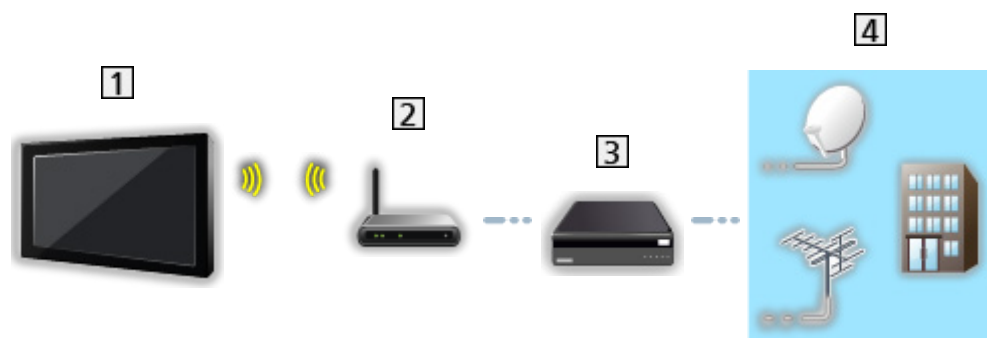
2 LAN cable (Shielded)

- Use Shielded Twist Pair (STP) LAN cable.

3 TV>IP server

4 Satellite dish / Terrestrial aerial / Cable

■ Wireless connection



1 Built-in wireless LAN (Rear of the TV)

2 Access point

3 TV>IP server

4 Satellite dish / Terrestrial aerial / Cable

= Note =

- External equipment and cables shown are not supplied with this TV.
- Check the terminal type and cable plugs are correct for connection.
- Due to network conditions or certain broadcaster restrictions, this function may not be available.
- To confirm the current network settings
 → Network > Network settings > Network Connection
- For information about the connections, read the manual of the TV>IP server.

TV>IP Server Selection

■ Preparations

- Ensure the network connections and network settings are completed.
 -  → [Functions > TV>IP > TV>IP client connection](#)
 -  → [Network > Network settings](#)
- Ensure the server settings are completed. For details, read the manual of TV>IP server.

■ TV>IP Server Selection

1. Display Home with  and select .
2. Select [Live TV > Broadcast Options > Auto Setup](#) and press **OK** to access.
3. Select a server from [Server List](#) and press **OK** to set.
4. Select [Client Settings](#) and press **OK** to access.
5. Select [Search Channels](#) and press **OK** to access.
6. Set [TV>IP Search Mode](#) and select [Start Auto Setup](#).
 - Set TV>IP configuration to tune the digital channels.
 - When the operation is completed, the channel at the lowest position will be displayed.

= Note =

- If tuning has not been done completely, set [Manual Tuning](#).
 -  → [Watching > Tuning and editing channels > Manual Tuning](#)
- Due to network conditions or certain broadcaster restrictions, this function may not be available.

Note

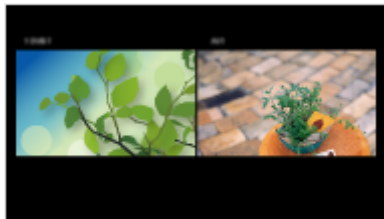
- Due to network conditions or certain broadcaster restrictions, this function may not be available.
- Dual tuner function (watching or recording 2 programmes simultaneously, watching a programme while recording another programme, etc.) is not available while using TV>IP server function.
- Please also read the manual of TV>IP server.

Multi Window

Information

■ Multi Window

Displays two windows at once for viewing the TV programmes or external input as shown below (example).



- To swap windows

OK

= Note =

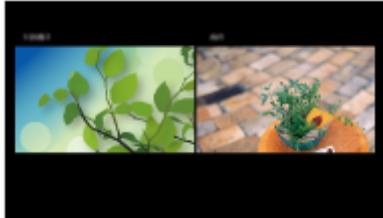
- Not valid for 144 Hz video signal from 144 Hz-compatible equipment

Multi Window

You can select a channel while watching another programme or external input.

1. Press and hold .
2. Select [Display Features](#) > [Multi Window](#) and press **OK** to access.

(Example)



- Press  /  to select the screen to operate.
 -  displays on the screen.

= Note =

- Not valid for 144 Hz video signal from 144 Hz-compatible equipment

Note

- This function may not work properly depending on the signal format.
- Ensure that **Dual Tuner Mode** is set to **On** in **LNB Configuration** to display satellite both in two windows.



→ **Watching > Tuning and editing channels > Auto Setup**

- Dual tuner function (watching or recording 2 programmes simultaneously, watching a programme while recording another programme, etc.) is not available while using TV>IP server function.
- 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.

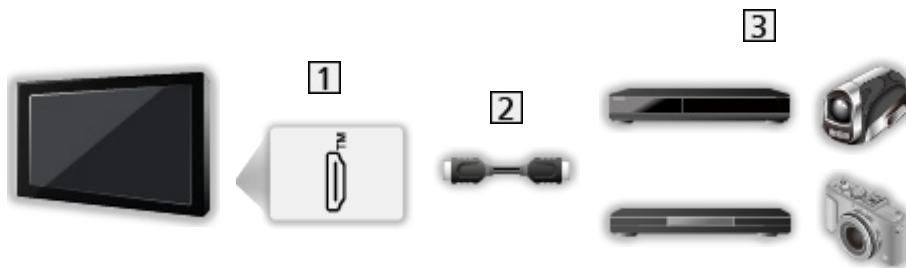
HDMI-CEC Device Control

HDMI connection

■ HDMI connection

- Use a fully wired HDMI compliant cable.
- Connect the equipment 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 HDMI CEC 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*
 - Intelligent Auto Standby*
-

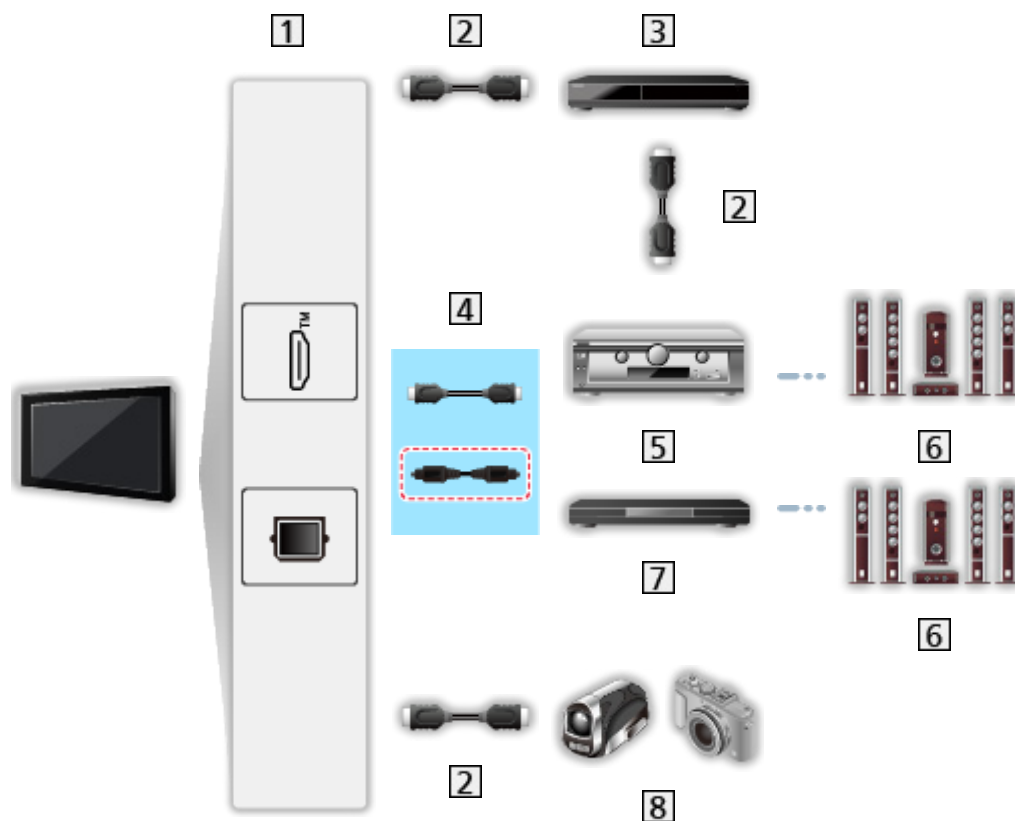
HD Video Camera / LUMIX Camera

- Easy playback
 - Power on Link
 - Power off Link
-

* : For equipment which has “HDAVI Control 4 or later” function.

■ HDMI and Audio out connections

- Use a fully wired HDMI compliant cable.
- Connect the equipment 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 / DIGITAL AUDIO
- 2 HDMI cable
- 3 DVD Recorder
- 4 HDMI cable (Optical digital audio cable*)
- 5 Amplifier
- 6 Speaker system
- 7 Player theatre / Blu-ray Disc theatre
- 8 HD Video Camera / LUMIX Camera

* : 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^{*2}
 - Power on Link
 - Power off Link
 - Intelligent Auto Standby^{*1 *3}
 - Speaker Selection
-

Blu-ray Disc theatre

- Easy playback^{*2}
 - Power on Link
 - Power off Link
 - Standby Power Save^{*1}
 - Intelligent Auto Standby^{*1 *3}
 - Speaker Selection
-

Amplifier

- Power off Link
 - Intelligent Auto Standby^{*1}
 - Speaker Selection
-

*1 : For equipment which has “HDAVI Control 4 or later” function.

*2 : While playing a disc

*3 : Except for watching a disc

Preparations

- Connect the equipment supporting HDMI CEC.
- For details of HDMI CEC connections



→ [Functions > HDMI-CEC Device Control > HDMI connection](#)

- Use a fully wired HDMI compliant cable.
- Set up the connected equipment. Read the manual of the equipment.
- Check the settings of [HDMI-CEC](#) in [Display & Audio](#).



→ [Watching > External equipment > HDMI-CEC Settings](#)

- Set up the TV. After connection, turn the equipment on and then switch the TV on. Select the HDMI input 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

Settings

Set HDMI-CEC Device Control / Speaker Selection to use the HDMI CEC functions with the connected HDMI devices.

 → [Watching > External equipment > HDMI-CEC Settings](#)

 → [Watching > External equipment > Speaker Selection](#)

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.

Parental Controls

Using Parental Controls

You can lock specific contents to restrict access to them. When the locked content is selected, a message appears.

1. Display Home with  and select .
2. Select [Preferences](#) > [Parental Controls](#) and press **OK** to access.
3. Follow the on-screen instructions.

Power LED Indicator

Using Power LED Indicator

Some features are not available on all models.

Selects the power LED indication mode.

1. Display Home with  and select .
2. Select **Preferences** > **Power LED** > **Power LED Indicator** and press **OK** to access.
3. Select **On** / **On(Standby Only)** / **On(Power on Only)** / **Off** and press **OK** to set.

On:

The power LED indicator illuminates continuously.

On(Standby Only):

The power LED indicator illuminates only when the TV is in Standby mode.

On(Power on Only):

The power LED indicator illuminates only when the TV is turned on.

Off:

The power LED indicator is turned off.

= Note =

- The power LED indicator may light when switching the TV status or activating some functions.
- The TV may not display any image on the screen depending upon the input source after setting. This may make it impossible to know whether the TV is turned on or not.

In particular, when **Off** or **On(Power on Only)** is selected, notifications whilst the TV is in standby, cannot be provided, such as USB recording in progress. If a USB device in recording is removed accidentally in such a condition, a device malfunction or data destruction may result.

Data Service Application

Using Data Service Application

You can enjoy Hybrid Broadcast Broadband TV application that may be provided via digital broadcasting as interactive data services.

1. Display Home with  and select .
2. Select [Live TV](#) > [Broadcast Options](#) > [HbbTV Settings](#) > [Channel Specific Settings](#) and press  to access.
3. Select [Auto Start](#) / [Manual Start](#) / [Off](#) for each channel.

[Auto Start](#):

Automatically starts the application.

[Manual Start](#):

Starts the application by pressing  (red).

- To change the input

 (red)

- To change the category

 (green)

- To sort channel names in alphabetical order

 (yellow)

- To select all

 (blue)

4. Press  to store.

- A notification message will appear when the application is available. Follow the on-screen instructions.

- [HbbTV](#) is displayed on the information banner if the programme has Hybrid Broadcast Broadband TV application.

 → [Watching > Basic > Information banner](#)

- To terminate the running application. (The default application may start immediately.)



Privacy Setting

1. Display Home with  and select .
2. Select [Live TV](#) > [Broadcast Options](#) > [HbbTV Settings](#) > [Privacy Setting](#) and press **OK** to access.
3. Select [Low](#) / [High](#) / [Custom](#) and press **OK** to set.

■ To change the privacy settings manually

You can set up the detailed privacy settings when [Privacy Setting](#) is set to [Custom](#).

[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.

[Do Not Track Setting](#)

([Mode1](#) / [Mode2](#) / [Mode3](#))

Sets to notify websites and some applications about tracking your browsing activities.

[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.

[Allow Unique Device ID](#)

([On](#) / [Off](#))

Sends identifying ID of this TV for the data service application.

[Reset Unique Device ID](#)

Resets the identifying ID of this TV.

Note

- A broadband network environment is required to fully use Hybrid Broadcast Broadband TV application. 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 country, 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.

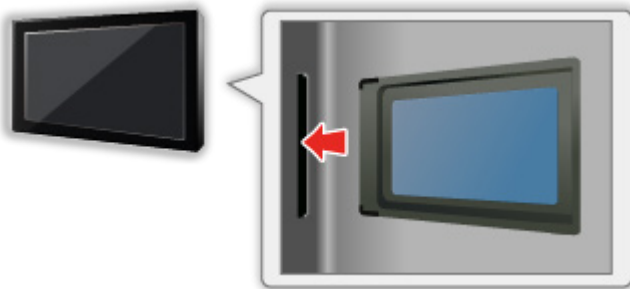
Common Interface

Caution

If the encrypted message is displayed on the screen, the correct Common Interface (CI) Module and smart card that are required for this service are not inserted.

■ How to insert CI module and smart card

- Turn off the TV by unplugging the mains plug when inserting or removing the CI module. (When the mains plug is plugged, TV enters the Standby mode. To turn on the TV, press the power button of remote control.)
- If a smart card and a CI module come as a set, first insert the CI module, then insert the smart card into the CI module.
- Insert or remove the CI module completely in the correct direction as shown.



- Remove the CI module from the TV when placing the TV facing upward. This may cause damages to the CI module and CI slot.

= Note =

- There might be some CI modules in the market with older firmware versions that do not work fully interoperable with this new CI+ v1.4 TV. In this case, please contact your content provider.

Using Common Interface

The Common Interface Module menu provides access to software contained in Common Interface (CI) Modules.

- This function may not be available in some countries or regions.
- Video and audio signals may not be output depending on the broadcast or service.

Although CI module may enable you to view some services, this TV does not guarantee all services (e.g. encrypted pay-TV channels). Please use only the broadcaster-approved CI module. Consult the operator / broadcaster or CI module manufacturer for more information and conditions of the services.

■ Insert the CI module (optional)

- Normally encrypted channels will appear. (Viewable channels and their features depend on the CI module.) If encrypted channels do not appear, take the following steps.
- For details, read the manual of the CI module, or check with the content provider.

1. Select the mode with **TV**.

[Satellite](#) / [Cable](#) / [Antenna](#)

2. Display Home with  and select .

3. Select [Live TV](#) > [Broadcast Options](#) > [Broadcast Preferences](#) > [Common Interface](#) and press **OK** to access.

4. Follow the on-screen instructions.

- To enter the CICAM PIN number, select [Option Settings](#).
- On-screen instructions may not correspond to the remote control buttons.

Reset to Factory Defaults

Reset to Factory Defaults

Resets the TV to its original condition (i.e. no channels tuned in).

All settings are reset (channels, picture, sound settings, etc.).

1. Display Home with  and select .
2. Select [Device & Software](#) > [Reset to Factory Defaults](#) and press **OK** to access.
3. Follow the on-screen instructions.

= Note =

- To retune TV channels only (e.g. after moving house), set [Auto Setup](#).

 → [Watching > Tuning and editing channels > Auto Setup](#)

Updating the TV Software

Automatic Channel Update

Some features are not available on all models.

You can update new software automatically.

1. Display Home with  and select .
2. Select [Live TV](#) > [Broadcast Options](#) > [Broadcast Preferences](#) > [Automatic Channel Update](#) and press **OK** to access.
3. Select the time and press **OK** to set.
 - The automatic updating cannot be performed in the following conditions:
 - Recording is in progress.
 - TV>IP

= Note =

- Download may take a few hours.
- A wired LAN connection is recommended because the software update may be interrupted depending on the network condition when using wireless LAN.
- 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.
- Software updating may result in higher energy consumption of the product.

Bluetooth devices

Bluetooth Setup

You can use Bluetooth keyboards*¹, Bluetooth mice*¹ and Bluetooth audio devices*² (headphones, smartphone, etc.) with this TV.

*1 : HID (Human Interface Device Profile) and HOGP (Human interface device Over Generic attribute Profile) compliant keyboards and mice can be used.

*2 : A2DP (Advanced Audio Distribution Profile) and AVRCP (Audio Video Remote Control Profile) compliant audio devices can be used.

1. Display Home with  and select .
2. Select **Remotes & Bluetooth Devices** and press **OK** to access.
3. Follow the on-screen instructions.
 - To adjust the audio delay for the Bluetooth audio device, set **Bluetooth Audio Delay**.



→ Watching > For best audio > Bluetooth Audio Delay

= Note =

- Settings in the Sound Menu may not be effective for the Bluetooth audio devices.
- For secure connection, it is recommended to use a device supporting Bluetooth 4.2 or later. The encryption type depends on the connected device.
- If using the 2.4 GHz band on the wireless router, simultaneous use with Bluetooth device may result in connection interruptions. If your wireless router supports 5 GHz or 6 GHz band, try using the 5 GHz or 6 GHz band. If you have a wired LAN connection, try using the wired LAN connection.
- If the sound interruption occurs, place Bluetooth device closer to the TV.
- When a Bluetooth device is connected to the TV, it is possible that the Bluetooth audio output may not be synchronised (i.e. be delayed) with relation to the images on the screen. This is not a defect of the TV or the device. The delay time will differ depending on the device.

Settings

Setting menu

How to use

Various menus allow you to make settings for the picture, sound and other functions.

1. Display Home with  and select .

 - Displayed items vary depending on the input signal.
 - Some menu items can be accessed by pressing .
 - Quick access menu is available by pressing and holding  or  while viewing any input.

2. Follow the on-screen instructions.
 - To reset the settings
 - To initialise picture or sound settings only, select [Reset to Defaults](#) in each setting menu.
 - To initialise all settings, select [Reset to Factory Defaults](#).
 -  → [Functions > Reset to Factory Defaults](#)
 - To exit the menu screen / To return to the previous screen


= Note =

- Not all menu items are shown in this eHELP.
- The menu items and names are subject to change without notice.
- Some settings in Picture menu may also affect the menu screen when watching content in 4K format.

Support

FAQs

Picture

Some features are not available on all models. Available menu items are displayed on your TV screen.

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](#).

- 1) Display Home with  and select .
- 2) Select [Device & Software](#) > [TV Self Test](#) and press **OK** to access.
- 3) Follow the on-screen instructions.

If the problem still persists, please contact your local Panasonic dealer for assistance.

Auto aspect

- Auto aspect is designed to provide you with the best ratio to fill the screen.
 → [Watching](#) > [For best picture](#) > [Aspect Control Signal](#)
- Set [Aspect](#) if you want to change the aspect ratio manually.
 → [Watching](#) > [For best picture](#) > [Aspect](#)

Black and white picture

- Check that the output of the external equipment matches the input of the TV.

Chaotic image, noisy

- Set [Clarity](#) in the Picture Menu to remove noise.
 → [Watching](#) > [For best picture](#) > [Clarity](#)
- Check nearby electrical equipment (car, motorcycle, fluorescent lamp).

No image is displayed

- Check the correct input mode is selected.
- Is [Luminance Level](#), [Contrast](#) or [Colour](#) in the Picture Menu set to the minimum?



→ [Watching > For best picture](#)

- 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 Setup](#)

There may be a short black image

- A black image is displayed to avoid picture distortion when an input signal changes.
-

There may be white, red, blue, green and black spots on the screen

- This is a characteristic of the panels and is not a problem. The panel is built with very high precision technology giving you fine picture details. Occasionally, a few non-active pixels may appear on the screen as a fixed point of white, red, green, blue or black. Please note this does not affect the performance of the panel.

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.

Block noise, frozen or disappearing image occurs / Some channels cannot be tuned

- Check the position, direction and connection of the aerial or dish.
- Check [Signal Condition](#). If the level of [Signal Quality](#) is low, the DVB signal is weak. Connecting the aerial to the TV directly may improve signal quality than connecting the aerial through the equipment (Set top box, DVD, etc.).



→ [Watching > Tuning and editing channels > Signal Condition](#)



→ [Watching > Basic > Basic connection](#)

- Weather conditions affect signal reception (heavy rain, snow, etc.), in particular in poor reception areas. Even during good weather, the high pressure can cause poor reception of some channels.
 - Check the network connections and settings (TV>IP).
-  → [Functions > TV>IP](#)
-  → [Network > Network settings](#)
- Select [Device & Software](#) > [Restart](#) in the setting menu and reboot this TV.
-

[Satellite Channel Scan](#) cannot be done completely

- Check connections and dish alignment.
-  → [Watching > Basic > Basic connection](#)
- If the problem persists, consult your local dealer.
-

Faulty dish message appears

- The satellite cable may be short-circuited or there may be connection problems of the cable. Turn off the TV by unplugging the mains plug, then check the cable for connection, and turn it on again. (When the mains plug is plugged, TV enters the Standby mode. To turn on the TV, press the power button of remote control.)
 - If the message persists, consult a dish installer for checking the dish and cable.
-

No programmes shown on [TV Guide](#)

- Check the digital transmitter.
- Adjust the direction of the aerial or dish to another transmitter installed nearby.

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](#).

- 1) Display Home with  and select .
- 2) Select [Device & Software](#) > [TV Self Test](#) and press **OK** to access.
- 3) Follow the on-screen instructions.

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 Speaker](#).
 → [Watching > External equipment > Speaker Selection](#)
-

Sound level is low or sound is distorted

- Sound signal reception may be poor.

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 [HDMI Auto Setting](#) to [Mode1](#).



→ [Watching > 4K resolution > HDMI Auto Setting](#)

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](#) to [Mode1](#).



→ [Watching > 4K resolution > HDMI Auto Setting](#)

- The valid 4K format varies depending on the HDMI terminal.



→ [Watching > 4K resolution > Valid 4K format](#)

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.
 - The router may be using MAC address filtering (security setting). Confirm the MAC Address of this TV and set the router to use it.
 - If the problem persists, consult your Internet Service Provider or telecommunications company.
-

Cannot operate internet content

- Check the connections and settings.
 → [Network > Network connections](#)
 → [Network > Network settings](#)
- The server or connected line may be busy now.

Other

Some features are not available on all models.

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.

How to check the current version of firmware used on your TV

1. Display Home with  and select .
2. Select [Device & Software](#) > [About](#) > [Panasonic System Information](#) and press **OK** to access.
3. Follow the on-screen instructions.

Remote control cannot be paired

- When the pairing instructions are displayed on the screen, follow the instructions on the screen.
- When no instructions are displayed on the screen, reset the remote control as shown below.
 - Remove the batteries from the remote control and wait for 1 minute, then reinsert the batteries.
 - Press and hold ,  and  simultaneously for 12 seconds to initialise the remote control.
- After resetting the remote control or the TV to its original condition, pair the remote control as shown below.
 - 1) Display Home with  and select .
 - 2) Select [Remotes & Bluetooth Devices](#) > [Voice Remotes with Alexa](#) > [Add New Remote](#) and press **OK** to access.
 - 3) Follow the on-screen instructions.

HDMI CEC function does not work and an error message appears

- Check the connections.
 → [Functions](#) > [HDMI-CEC Device Control](#) > [HDMI connection](#)
- Turn the connected equipment on and then switch the TV on.
 → [Functions](#) > [HDMI-CEC Device 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

- 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.
-

TV does not turn on after plugging the mains plug

When the mains plug is plugged, TV enters the Standby mode. To turn on the TV, press the power button of remote control.

LED does not light

- Set [Power LED Indicator](#) to [On](#).



→ [Functions > Power LED Indicator > Using Power LED Indicator](#)

LED does not light red in Standby mode

- LED lights orange in Standby mode in the following conditions:
 - Recording is in progress.
 - Timer Programming is set.
 - [TV>IP Server Settings](#) is set to [Enable TV>IP server](#).
 - LED lights orange during adjustment of the panel (approx. 10 minutes). LED lights orange again in standby mode when the TV is turned on / off before the panel adjustment is completed.
-

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.
-

How to operate the TV with Power Button on this unit

- Perform the following procedure to operate the TV such as selecting a channel, changing volume, etc.
1. Press Power Button on this unit.
 - The operation guide is displayed.
 2. Press Power Button to select an item while the operation guide is displayed.
 - The displayed item switches each time the button is pressed. Follow the on-screen instructions.
 3. Press Power Button for approx. 2 seconds.
 - The selected operation is executed.
 - For the input selection screen, press Power Button to select an input and press Power Button for approx. 2 seconds to switch the input mode.

= Note =

- If you press and hold Power Button on this unit for about 15 seconds, the unit will automatically restart.

Detailed information

Support information about the application, optional devices, operation, etc. may be found on the following website.

<https://panasonic.jp/support/global/cs/tv/> (English only)

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.

