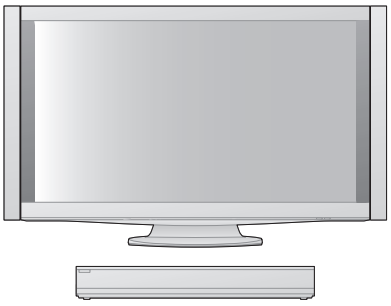


Panasonic

Operating Instructions
Plasma Television

Model No. **TH-P54Z10H**

VIERA

FULL HD 1920×1080p

AVCHD™

VIERA Link

DOLBY DIGITAL

升級版接收器
Higher-tier Receiver
用以接收數碼廣播的所有高清及標清電視頻道
For receiving all HDTV and SDTV programme channels broadcast in digital format

VIERA IMAGE VIEWER

SD HC™

HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

Thank you for purchasing this Panasonic product.
Please read these instructions before operating your set and retain them for future reference.
The images shown in this manual are for illustrative purposes only.

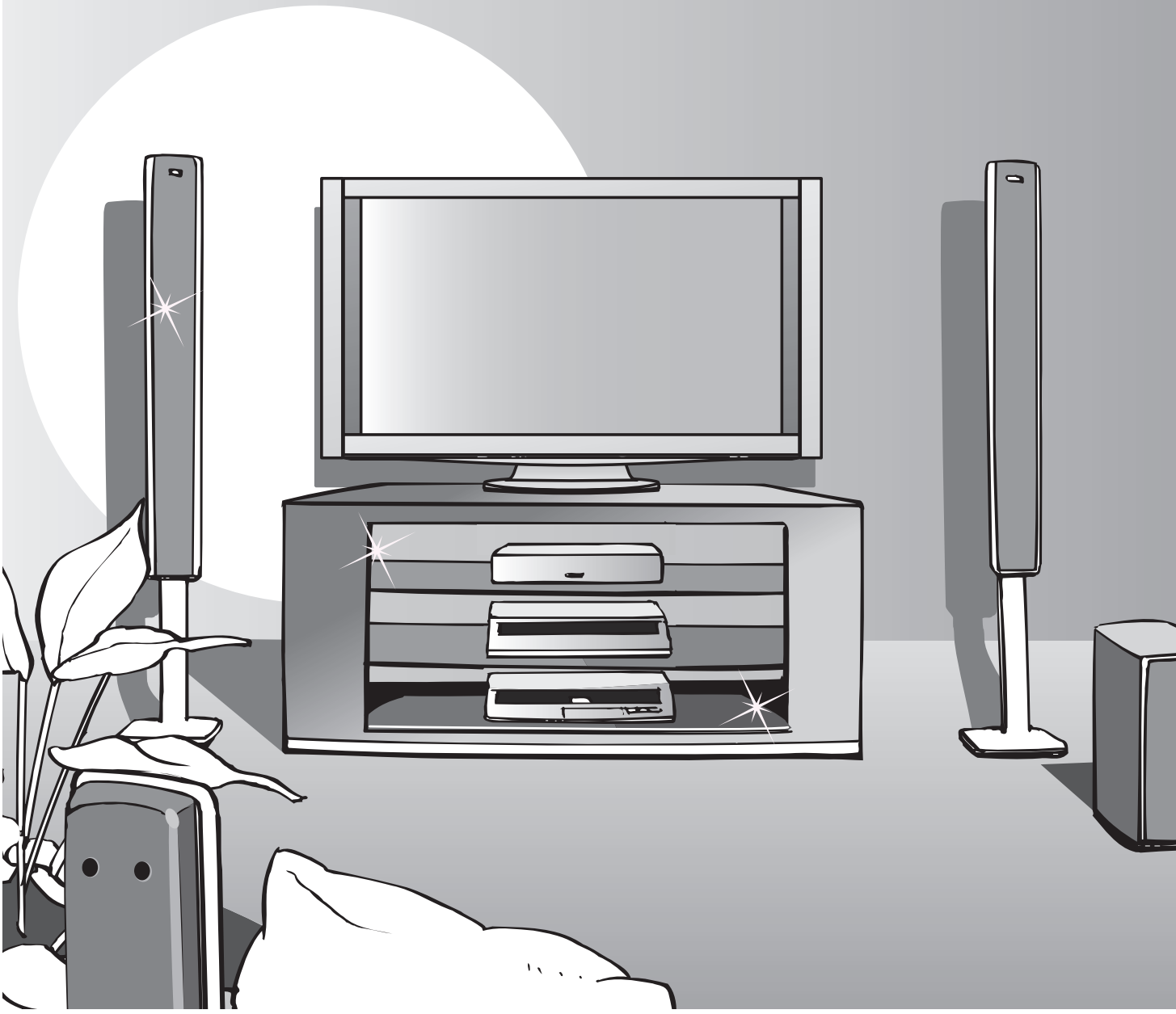
English

TQBC2506

Turn your own living room into a movie theatre!

Experience an amazing level of multi-

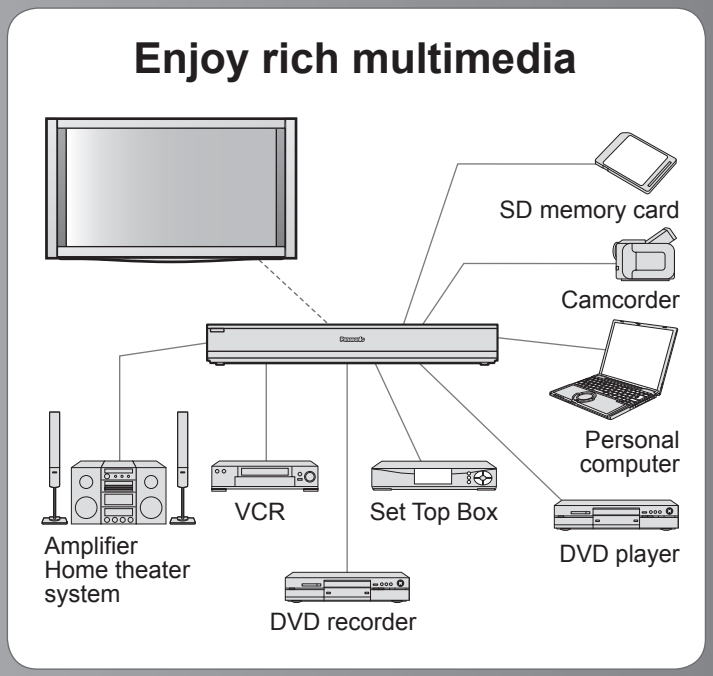
Receive digital terrestrial services using an integrated Digital TV tuner
Sharp pictures with HDMI terminal
Create home theatre and DVD recorder link-ups with "VIERA Link" without complicated settings!

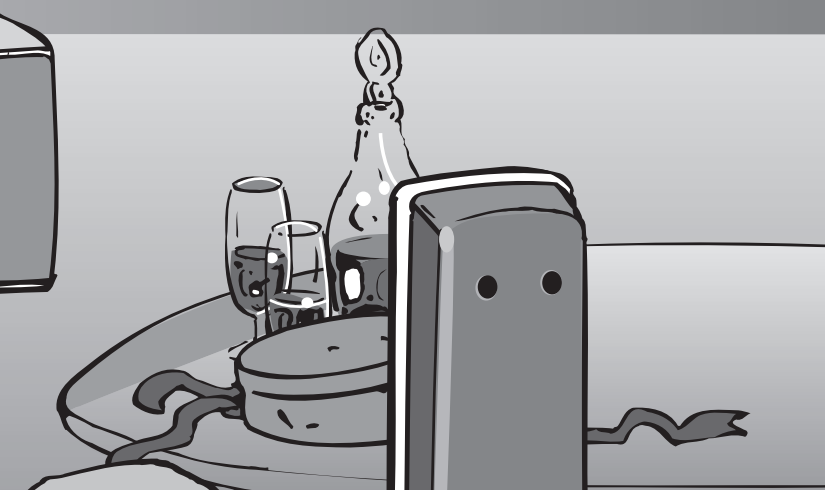


This TV consists of the following units:

TH-P54Z10H (Plasma Television)
- TH-P54Z1HM (Display Unit)
- TU-Z100HR (Tuner Box)
- SP-54Z1A (Speaker)

media excitement





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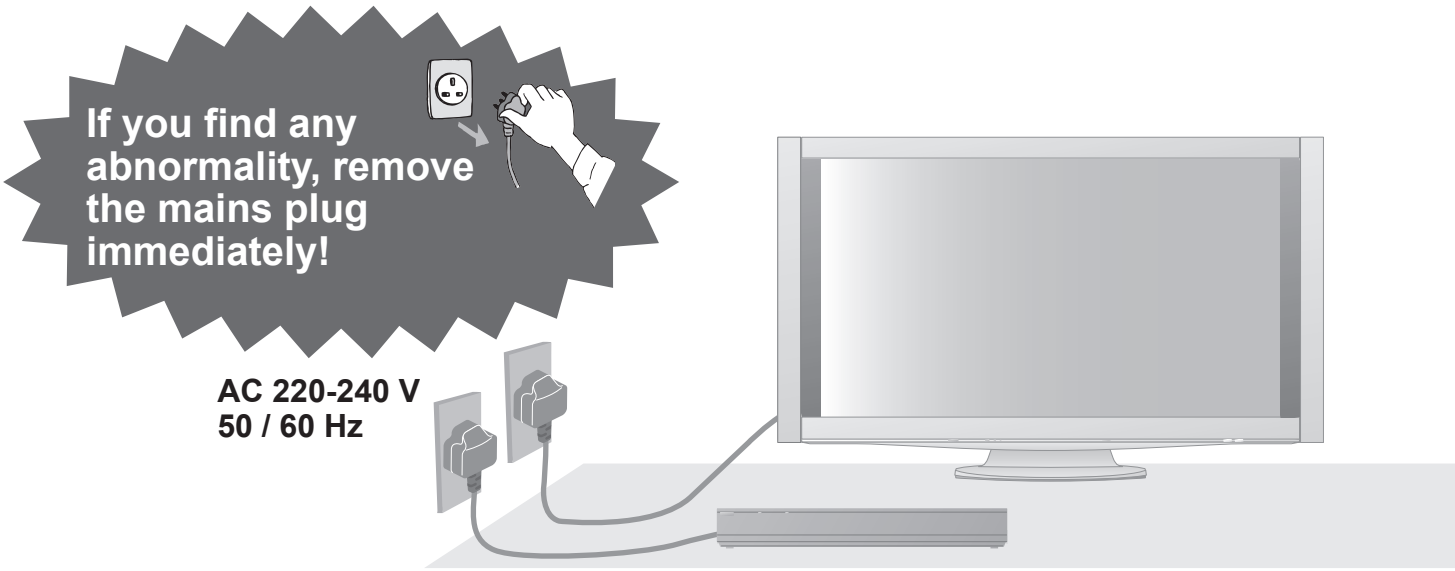
Safety Precautions

Warning

Handling the mains plug and lead

- Insert the mains plug fully into the socket outlet. If the mains plug is loose, it could generate heat and cause fire.
- Ensure that the mains plug is easily accessible.
- Ensure the earth pin on the mains plug is securely connected to prevent electrical shock.
- Do not touch the mains plug with a wet hand. This may cause electrical shock.
- Do not damage the mains lead. A damaged lead may cause fire or electrical shock.
  - Do not move the TV with the lead plugged in the socket outlet.
  - Do not place a heavy object on the lead or place the lead near a high-temperature object.
  - Do not twist the lead, bend it excessively, or stretch it.
  - Do not pull on the lead. Hold onto the mains plug body when disconnecting lead.
  - Do not use a damaged mains plug or socket outlet.



Power source

- This TV is designed to operate on AC 220 - 240 V, 50 / 60 Hz.

Do not remove covers
NEVER modify the TV yourself

High-voltage components may cause serious electrical shock.

- Have the TV checked, adjusted, or repaired at your local Panasonic dealer.

Keep liquids away from the TV

- To prevent damage which may result in fire or shock hazard, do not expose this appliance to dripping or splashing.
- Do not place containers with water (flower vase, cups, cosmetics, etc.) above the TV, including on shelves above, etc.

Do not expose to direct sunlight and other sources of heat

- Avoid exposing the TV to direct sunlight and other sources of heat. To prevent fire never place any type of candle or naked flame on top or near the TV.

Do not place foreign objects inside the TV

- Do not allow any objects to drop into the TV through the air vents. Fire or electrical shock may result.

Do not place the TV on sloped or unstable surfaces

- The TV may fall off or tip over.

Use only the dedicated pedestals / mounting equipment

- Using an unapproved pedestal or other fixtures may make the display unit unstable, risking injury. Be sure to ask your local Panasonic dealer to perform setup.
- Use approved pedestals / mounts (p. 8).

Do not allow children to handle SD Card

- As with a small object, SD Card can be swallowed by young children. Please remove SD Card immediately after use.

Radio waves

- Do not place this TV in any medical institutions or locations with medical devices. Radio waves from this TV may interfere with the medical devices and cause accidents due to the malfunction.
- Do not use this TV near any automatic control devices such as automatic doors or fire alarms. Radio waves from this TV may interfere with the automatic control devices and cause accidents due to the malfunction.
- Keep the RF remote control and tuner box away at least 22 cm from the location where a cardiac pacemaker is implanted. Radio waves from this TV may interfere with the operation of the pacemaker.
- Do not disassemble RF remote control or tuner box. It may cause troubles such as difficulties in communication.

Caution

This appliance is intended for use in tropical climates

When cleaning the TV, remove the mains plug

- Cleaning an energized TV may cause electrical shock.

When the TV is not going to be used for a long period of time, remove the mains plug

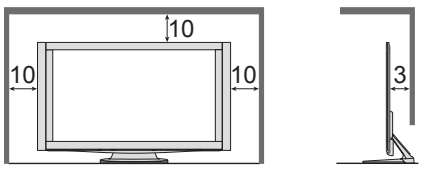
- This TV will still consume some power even in the Off mode, as long as the mains plug is still connected to a live socket outlet.

Transport only in upright position

- Transporting the display unit with its display panel facing upward or downward may cause damage to the internal circuitry.

Allow sufficient space around the display unit for radiated heat

Minimum distance



- When using the pedestal, keep the space between the bottom of the display unit and the surface where the display unit is set.
- In case of using Wall-hanging bracket, follow the manual of it.

Do not block the rear air vents

- Blocked ventilation by newspapers, table cloths, curtains, etc. may cause overheating, fire or electrical shock.

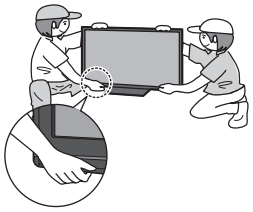
Do not expose your ears to excessive volume from the headphones

- Irreversible damage can be caused.

Display panel is made of glass. Do not apply strong force or impact to the display panel.

- This may cause damage resulting in injury.

The display unit is heavy. Handle the display unit by 2 or more people. Support as shown to avoid injury by the display unit tipping or falling.



Notes

Do not display a still picture for a long time

This causes the image to remain on the plasma screen (“image retention”).
This is not considered a malfunction and is not covered by the warranty.
Typical still images

- Programme number and other logos
- Image displayed in “4:3” mode
- Video game
- Computer image

To prevent image retention, contrast is lowered automatically after a few minutes if no signals are sent or no operations are performed. (p. 58)

Keep the TV away from these types of equipment

- Electronic equipment
  In particular, do not place video equipment near the TV. Electromagnetic interference may distort images / sound.
- Equipment with an infrared sensor
  This TV also emits infrared rays. This may affect operation of other equipment.

Auto power standby function

- If no signal is received and no operation is performed in Analogue TV mode for 30 minutes, the TV will automatically go to standby mode.
- The TV will automatically go to Standby mode if there are no signal and no operation between the display unit and the tuner box for a while.
  Tuner Box - after 1 minute
  Display Unit - after 10 minutes

Maintenance

First, remove the mains plug from the socket outlet.

Display panel

Regular care: Gently wipe the surface clean of dirt by using a soft cloth.
Major contamination: Wipe the surface clean using a soft cloth dampened with clean water or diluted neutral detergent (1 part detergent to 100 parts water). Then, using a soft dry cloth, evenly wipe the surface clean until it is dry.

Caution

- The surface of the display panel has been specially treated and may be easily damaged. Do not tap or scratch the surface with your fingernail or other hard object.
- Take care not to subject the surface to insect repellent, solvent, thinner, or other volatile substances. This may degrade surface quality.

Cabinet, Pedestal, Tuner Box

Regular care: Wipe the surface clean using a soft dry cloth.
Major contamination: Dampen a soft cloth with clean water or water containing a small amount of neutral detergent. Then, wring the cloth and wipe the surface clean with it. Finally, wipe the surface clean with a dry cloth.

Caution

- Take care not to subject the surfaces to detergent. A liquid inside these units could lead to product failure.
- Take care not to subject surfaces to insect repellent, solvent, thinner, or other volatile substances. This may deteriorate the surface by peeling the paint.
- Do not allow the cabinet and pedestal to make contact with a rubber or PVC substance for a long time.

Mains plug

Wipe the mains plug with a dry cloth at regular intervals. Moisture and dust may lead to fire or electrical shock.

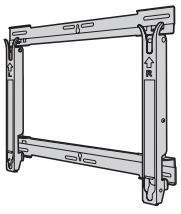
Options

Optional accessories

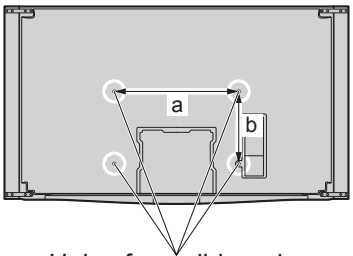
Please contact your nearest Panasonic dealer to purchase the recommended wall-hanging bracket. For additional details, please refer to the wall-hanging bracket installation manual.

Wall-hanging bracket

- TY-WK5P1SW



Rear of the Display Unit



- a: 516 mm / b: 300 mm

Holes for wall-hanging bracket installation

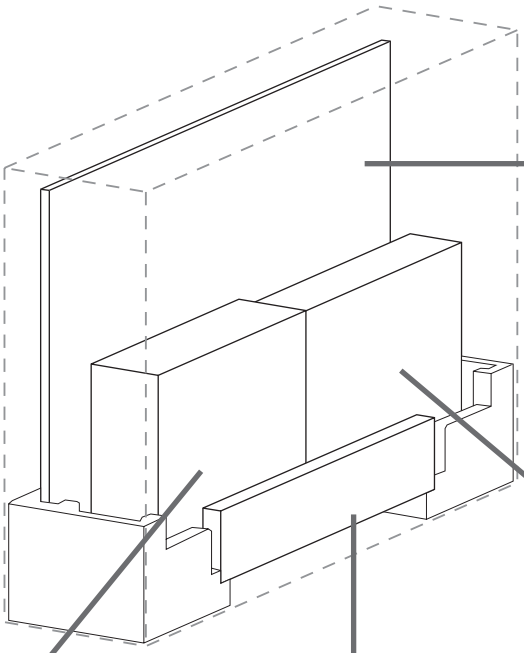
Caution

- In order to maintain the TV's performance and safety, be absolutely sure to ask your dealer or a licenced contractor to secure the wall-hanging brackets.
- Carefully read the instructions accompanying wall-hanging bracket, and be absolutely sure to take steps to prevent the display unit from falling off.
- Handle the display unit carefully during installation since subjecting it to impact or other forces may cause product damage.
- Take care when fixing wall brackets to the wall. Always ensure that there are no electrical cables or pipes in the wall before hanging bracket.
- To prevent fall and injury, remove the display unit from its fixed wall position when it is no longer in use.

Accessories

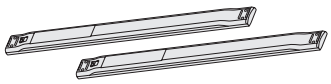
Standard accessories

Check if you have the accessories and items shown ☑

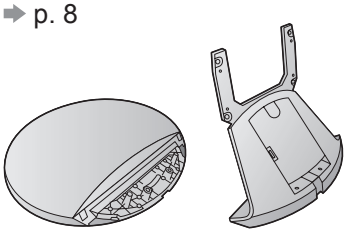


□ Display Unit
- TH-P54Z1HM

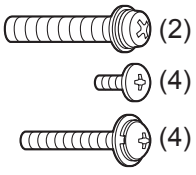
□ Speaker (2)
- SP-54Z1A
- ➡ p. 10

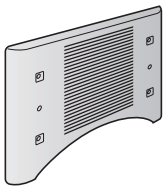


□ Pedestal
- TBLX0107
- ➡ p. 8



□ Pedestal installation kit
- TXFBL01JUUJ
- ➡ p. 8



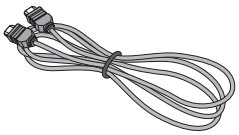


□ Remote control
- N2QBYB000006

□ Batteries for the Remote control (2)
- R6 (AA)

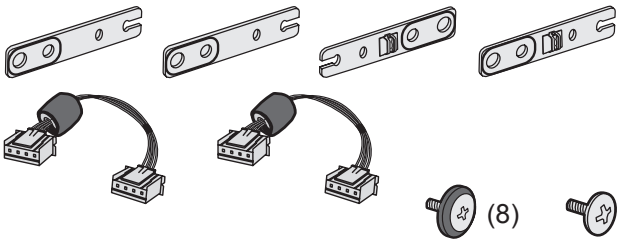
□ Cleaning cloth

□ HDMI cable
- K1HY19YY0004



□ Tuner Box
- TU-Z100HR
- ➡ p. 12 and p. 13

□ Speaker installation kit
- TXFKR01DKUA
- ➡ p. 10



□ Operating Instructions

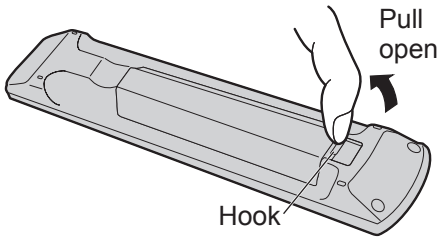
Caution

- This product contains possibly dangerous parts (such as plastic bags), that can be breathed in or swallowed by young children accidentally. Keep these parts out of reach of young children.

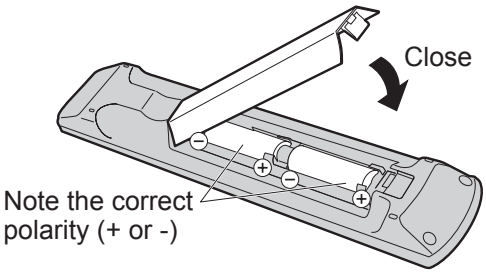
Accessories

Installing remote's batteries

1



2



Caution

- Incorrect installation may cause battery leakage and corrosion, resulting in damage to the remote control.
- Do not mix old and new batteries.
- Do not mix different battery types (such as alkaline and manganese batteries).
- Do not use rechargeable (Ni-Cd) batteries.
- Do not burn or breakup batteries.
  Batteries must not be exposed to excessive heat such as sunshine, fire or the like.

Attaching the pedestal

Warning

Do not disassemble or modify the pedestal.

- Otherwise the display unit may fall over and become damaged, and personal injury may result.

Caution

Do not use any other TV and displays.

- Otherwise the TV may fall over and become damaged, and personal injury may result.

Do not use the pedestal if it becomes warped or physically damaged.

- If you use the pedestal while it is physically damaged, personal injury may result. Contact your nearest Panasonic dealer immediately.

During set-up, make sure that all screws are securely tightened.

- If insufficient care is taken to ensure screws are properly tightened during assembly, the pedestal will not be strong enough to support the display unit, and it might fall over and become damaged, and personal injury may result.

Ensure that the display unit does not fall over.

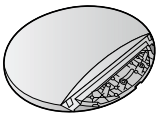
- If the display unit is knocked or children climb onto the pedestal with the display unit installed, the display unit may fall over and personal injury may result.

Two or more people are required to install and remove the display unit.

- If two or more people are not present, the display unit may be dropped, and personal injury may result.

Pedestal

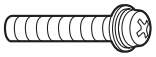
Ⓐ Base
- TBLA0460



Ⓑ Frame
- TBLA0464

Pedestal installation kit

Ⓒ Assembly screw (2) (Silver)
- XYN8+F30FN

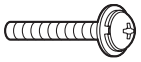


M8 × 30

Ⓓ Assembly screw (4) (Black)
- XSB4+10FNK

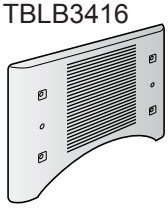
M4 × 10

Ⓔ Assembly screw (4) (Black)
- THEL062N



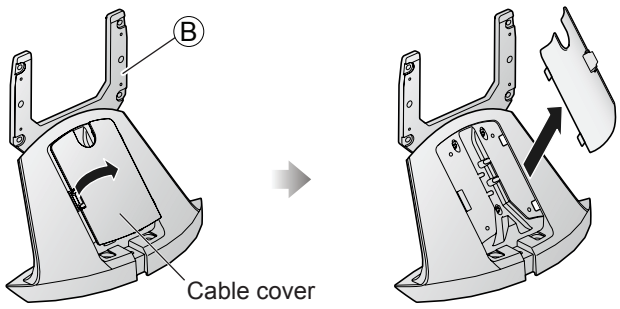
M5 × 25

Ⓕ Holder cover
- TBLB3416

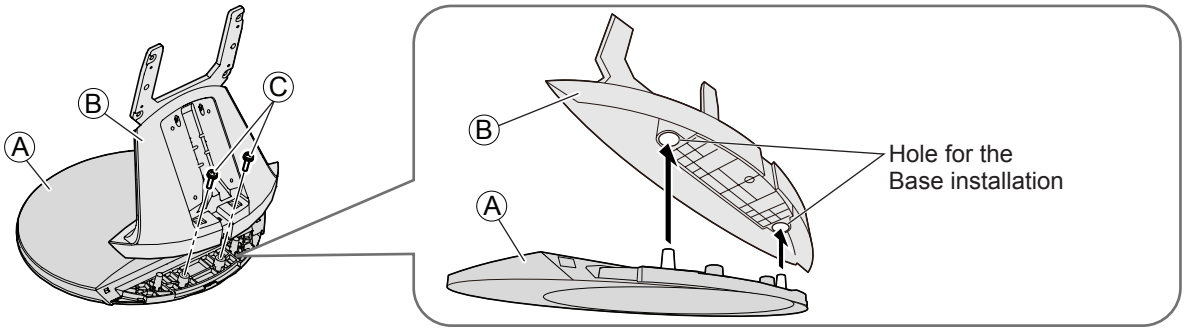


Assembling the pedestal

① Remove the cable cover from the frame Ⓑ.
- The cable cover will be used again after the pedestal is attached to the display unit.

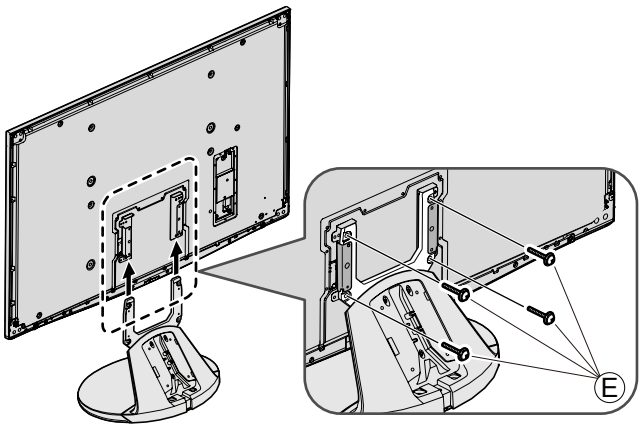


② Use the assembly screws Ⓒ to fasten securely.
- Make sure that the screws are securely tightened.
- Be careful not to scratch the surface (part with gloss finish) of the base during assembly.

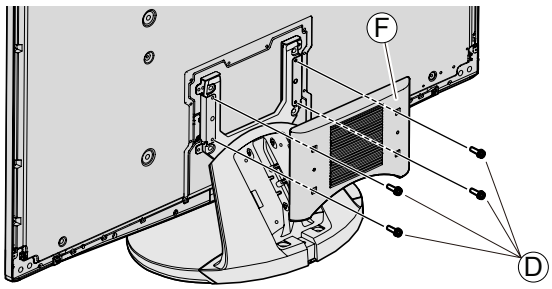


Securing the Display Unit

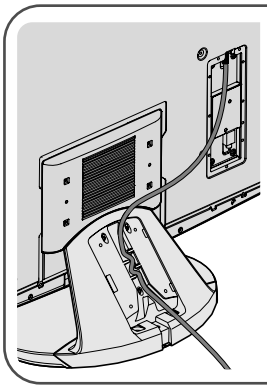
① Slide the pedestal frame posts into the brackets on the rear of the display unit.
② Use the assembly screws Ⓔ to fasten securely.
- Make sure that the screws are securely tightened.



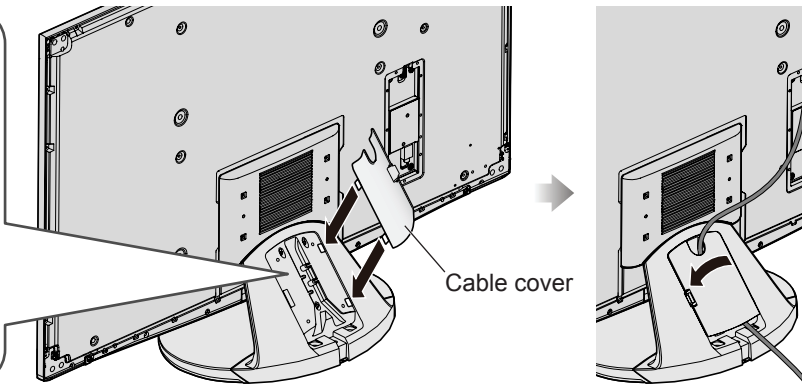
③ Attach the holder cover Ⓕ with assembly screws Ⓓ.
- Make sure that the screws are securely tightened.



④ Attach the cable cover.



- Place a cable in the groove as necessary and attach the cable cover.
  The lower part of the groove is separated in right and left. Use the one suitable for you.

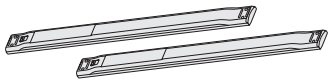


Accessories

Attaching the Speakers

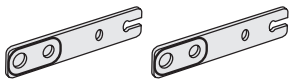
Speaker

Ⓐ Speaker (2)

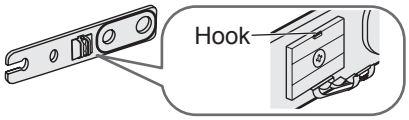


Speaker installation kit

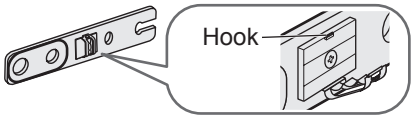
Ⓑ Mounting bracket-[Top] (2)
- TXFKR04DLUJ



Ⓒ Mounting bracket-[Lower right]
- TXFKR02JXUE



Ⓓ Mounting bracket-[Lower left]
- TXFKR03JXUE

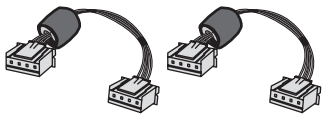


Ⓔ Assembly screw
- TXFXY01DLUJB

ⓐ (8)

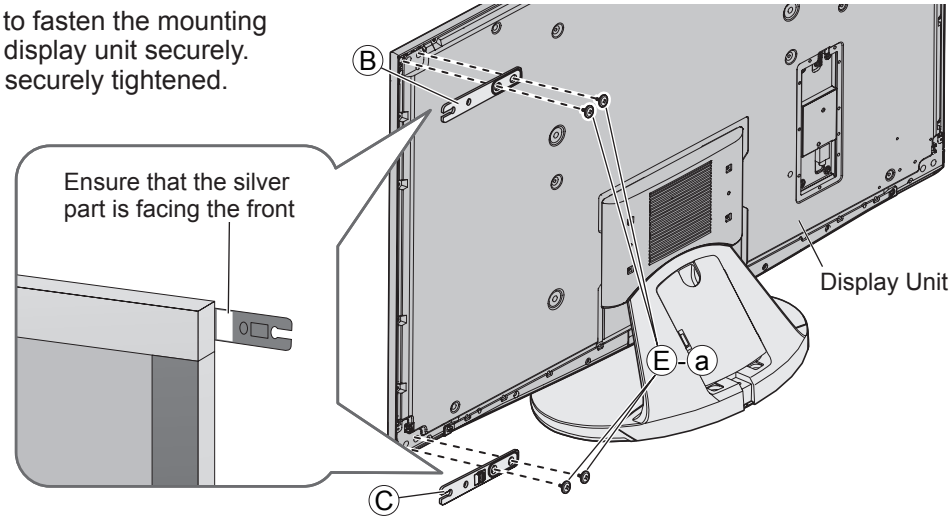
ⓑ (8)

Ⓕ Speaker cable (2)
- TXJ/SPDKUU-1

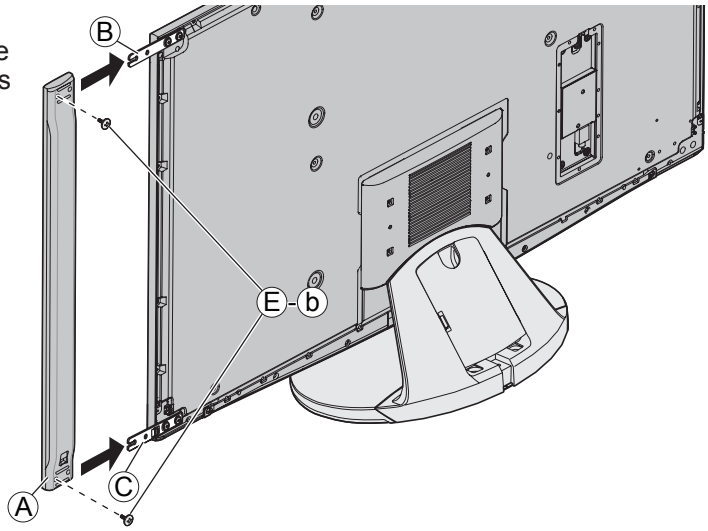


① Use the assembly screws Ⓔ-ⓐ to fasten the mounting brackets Ⓑ Ⓒ to the rear of the display unit securely.
- Make sure that the screws are securely tightened.

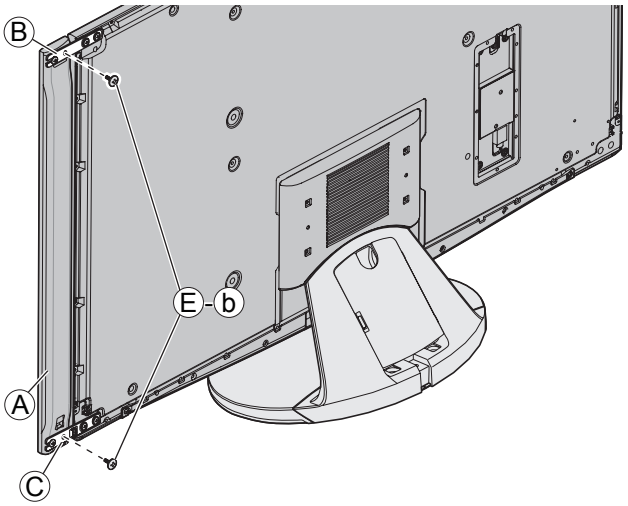
Note
- Loosen these screws to adjust the gap between the speaker and the display unit as necessary.



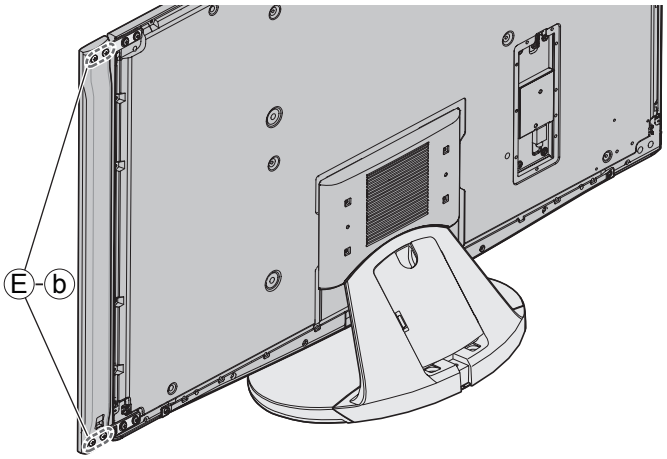
② Insert the assembly screws Ⓔ-ⓑ temporarily in the screw outermost holes of the speaker Ⓐ and place the temporarily inserted screws into the counter sunk holes on the mounting brackets Ⓑ Ⓒ.



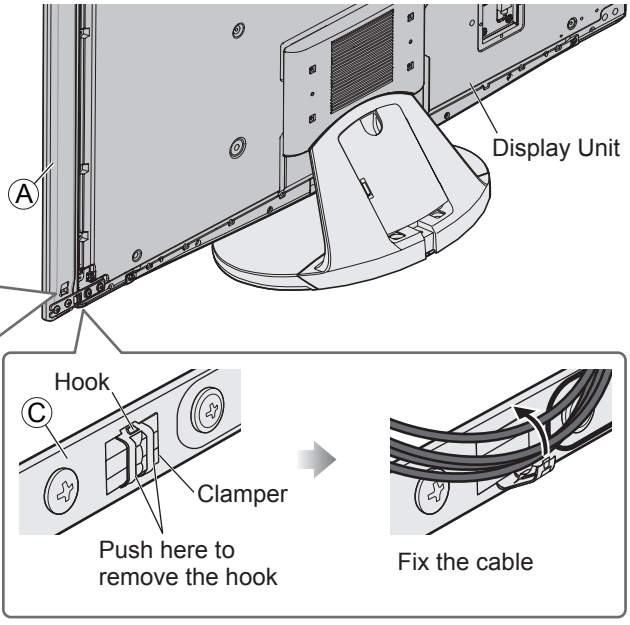
③ Use another two assembly screws Ⓔ-ⓑ to fasten the speaker Ⓐ to the mounting brackets Ⓑ Ⓒ.



④ Adjust the speaker position and make sure that the assembly screws Ⓔ-ⓑ are securely tightened.



⑤ Connect the speaker Ⓐ and the display unit with the speaker cable Ⓕ.
- Insert the terminal firmly.
- Connect the terminal near the ferrite core to the display unit.
- Fix the cable with the clamper on the mounting bracket Ⓒ.



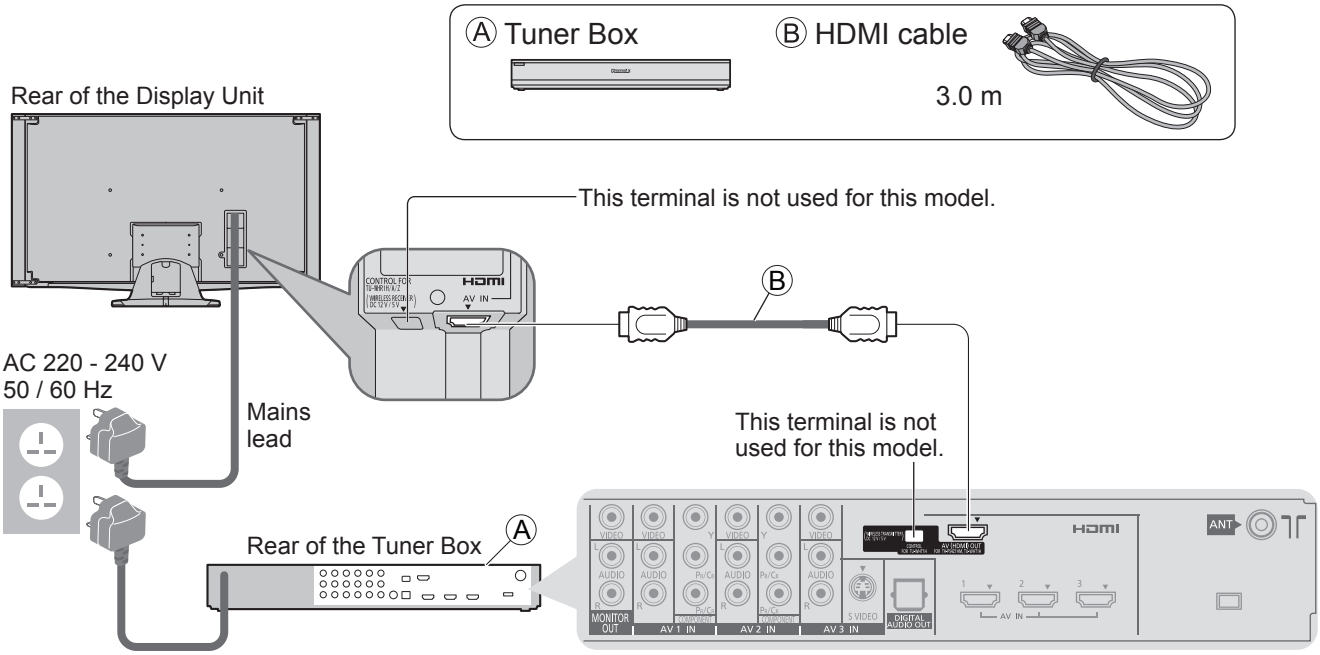
Note
- Fix the other side speaker in the same way.
- There will be a gap between the display unit and the speaker.
- Do not hold the speaker part to transport the display unit.

Basic Connection

External equipment and cables shown are not supplied with this TV.
Please ensure that the tuner box is disconnected from the mains socket before attaching or disconnecting any leads.
- Read the manual of the equipment, too.

Connecting the Display Unit and the Tuner Box

Please ensure that the display unit and the tuner box are disconnected from the mains sockets before attaching or disconnecting any leads.
- If you are going to place the tuner box close to the display unit, it is recommended to connect them using supplied HDMI cable.



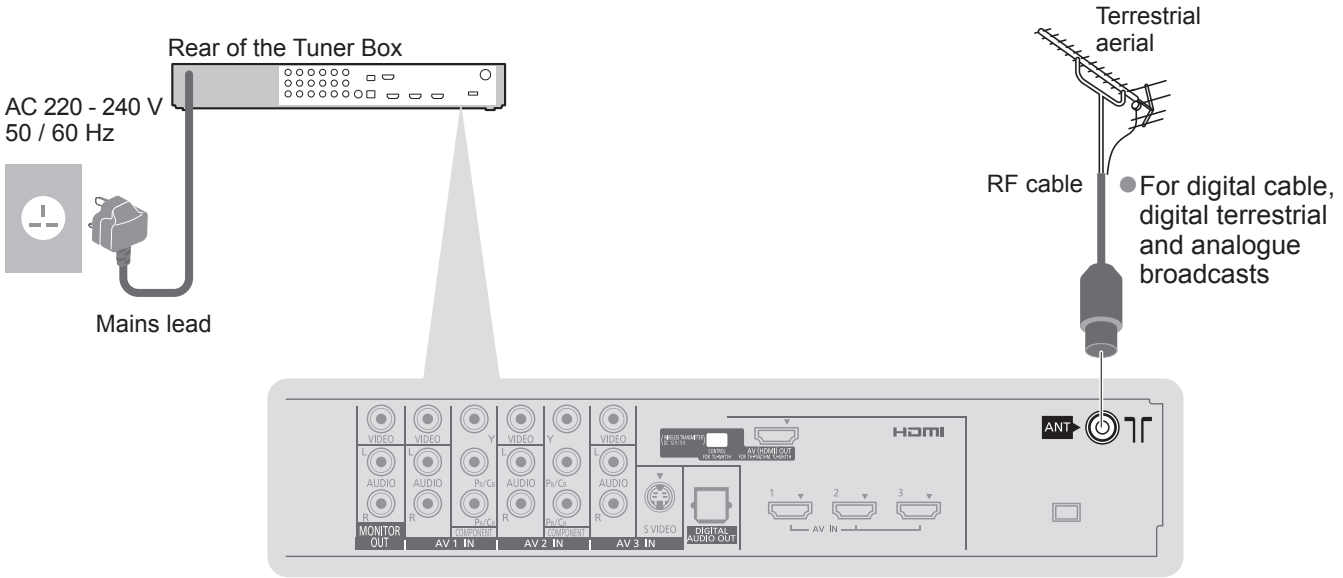
Note

If the display unit is connected to external equipment other than supplied tuner box, the following icon will be displayed on the screen.

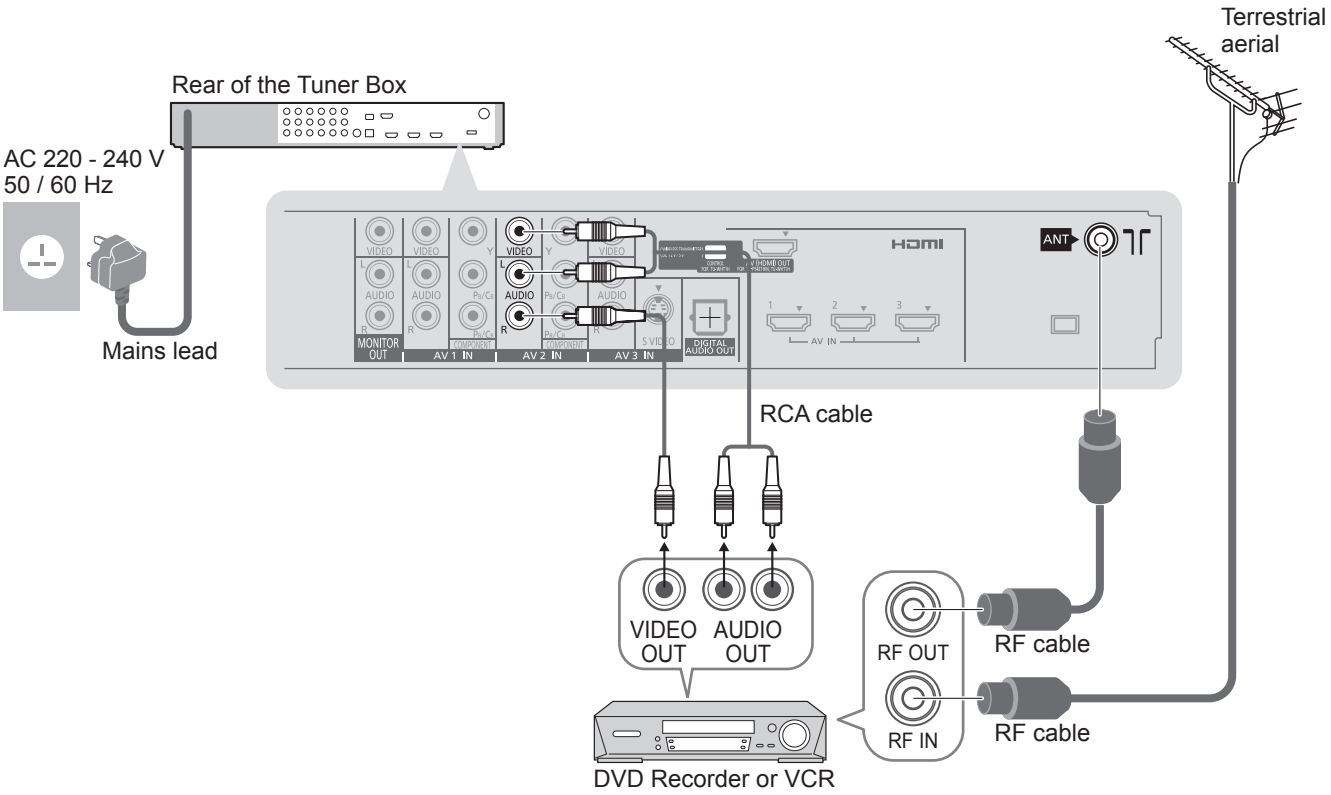
⚠HDMI

- Some functions may not be available depending on the connected equipment.

Connecting the Tuner Box and aerial



Connecting the Tuner Box and DVD Recorder / VCR

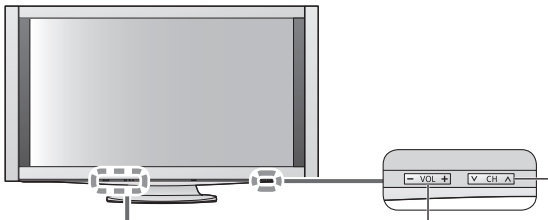


Note

- Do not put the RF cable close to the mains lead to avoid noise.
- Do not place the RF cable under the tuner box.
- To obtain optimum quality picture and sound, an Aerial, the correct cable (75 Ω coaxial) and the correct terminating plug are required.
- If a communal Aerial system is used, you may require the correct connection cable and plug between the wall Aerial socket and the TV.
- Your local Television Service Centre or dealer may be able to assist you in obtaining the correct Aerial system for your particular area and the accessories required.
- Any matters regarding Aerial installation, upgrading of existing systems or accessories required, and the costs incurred, are the responsibility of you, the customer.
- VIERA Link connection ➡ p. 46
- Read the manual of the equipment, too.

Identifying Controls

Display Unit



Selects channel in sequence

Volume Up / Down

Power LED
- Standby: red
  On: green
- When using the remote control, indicates the TV has received a command.

Mains power On / Off switch
- Turn the display unit On or Off. When turning Off the display unit, tuner box will also be turned to Standby mode after 1 min.

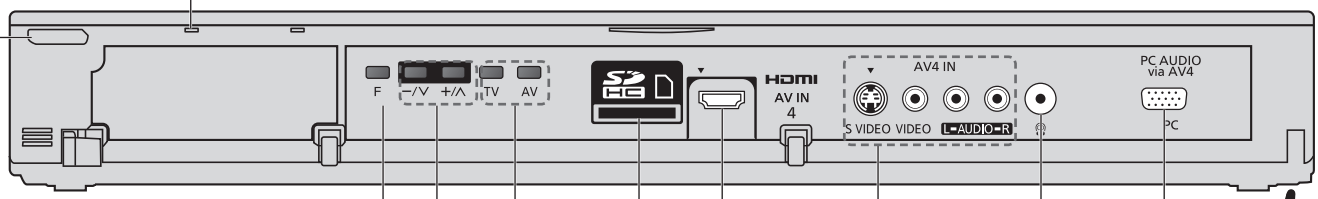
C.A.T.S. (Contrast Automatic Tracking System) sensor
- Senses brightness to adjust picture quality when "Eco Mode" in the Picture Menu is set to "On" (p. 30)

Remote control signal receiver
- Do not place any objects between the TV remote control signal receiver and remote control.

Tuner Box

Standby switch
- Turn the tuner box on or off to standby mode

Power LED
- Standby: red
  On: green
- When using the remote control, indicates the TV has received a command.



Function select
- Volume / Contrast / Brightness / Colour / Sharpness / Tint (NTSC mode) / Bass / Treble / Balance / Auto Tuning (p. 30 and p. 31)
- Remote Pairing (p. 41)

SD Card slot (p. 42)

HDMI4 terminal (p. 52)

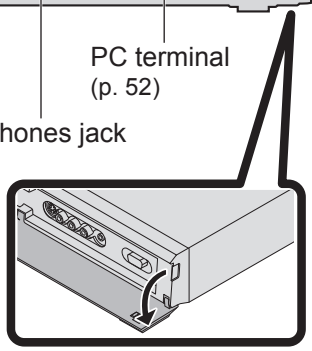
AV4 terminals (p. 52)

Headphones jack (p. 52)

PC terminal (p. 52)

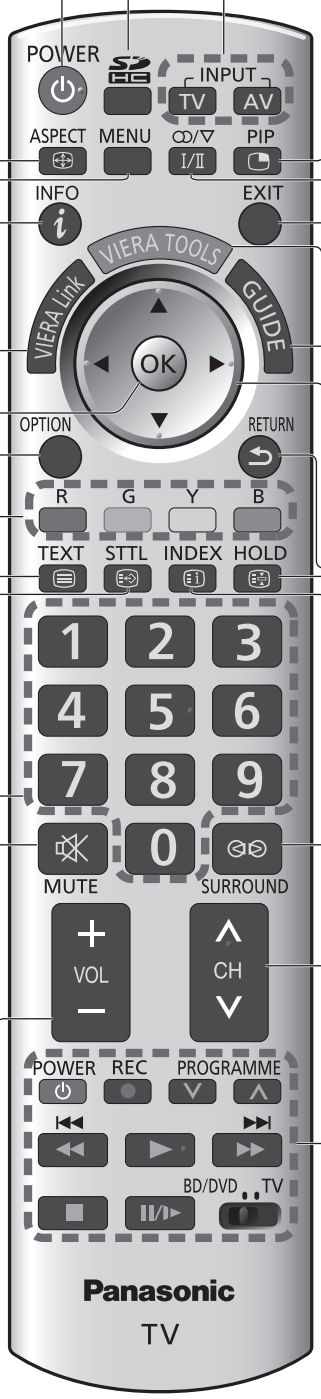
Changes the input mode

Change the channel up/down. When a function is displayed, press up/down to adjust the setting of the selected function. When in standby mode, switches TV on.



Remote control

This remote control is RF (Radio Frequency) remote control.
Signals are sent in virtually every direction, so that you can operate the TV even if the remote control is not facing the display unit or the tuner box. In addition, as the radio waves reflect on walls or other obstacles, the remote control is operable even there are obstacles between the remote control and the tuner box.
- This remote control uses 2.4 GHz frequency band.



SD Card (p. 42)
- Switches to SD Card viewing mode

Standby On / Off switch
- Switches TV On or Off standby

Aspect (p. 20)
- Changes aspect ratio from Aspect Selection list
- Also possible by pressing this button repeatedly until you reach the desired aspect

Main Menu (p. 30)
- Press to access Picture, Sound and Setup Menus

Channel / Programme Information (p. 19)
- Displays channel and programme information

VIERA Link (p. 46)
- Accesses VIERA Link Menu

OK
- Confirms selections and choices
- Press after selecting channel positions to quickly change channel

Option Menu (p. 20)
- Easy setting for viewing and sound options

Coloured buttons
- Used for the selection, navigation and operation of various functions

Teletext (p. 23)
- Switches to teletext mode

Subtitles (p. 19)
- Displays subtitles

Numeric buttons
- Changes channel and teletext pages
- When in Standby mode, switches TV On

Sound Mute
- Switches sound mute On or Off

Volume Up / Down

Input mode selection
- TV - swithes to Digital TV / Analogue TV mode (p. 18)
- AV - switches to AV input mode from Input Selection list (p. 26)

Multi window (p. 21)
- Displays two windows at once

Stereo / Bilingual Sound Selection (p. 55)
- Changes the sound track when more than two choices are available (Digital TV mode) (p. 20)

Exit
- Returns to the normal viewing screen

VIERA TOOLS (p. 51)
- Displays functions of the linked equipment & SD card

Guide (p. 25)
- Displays TV Guide

Cursor buttons
- Makes selections and adjustments

Return
- Returns to the previous menu / page

Hold
- Freeze / unfreeze picture (p. 19)
- Holds the current teletext page (teletext mode) (p. 23)

Index (p. 23)
- Returns to the teletext index page (teletext mode)

Surround (p. 30)
- Switches Surround sound

Channel Up / Down
- Selects channel in sequence

VCR / DVD Panasonic equipment operations (p. 27 and p. 46)

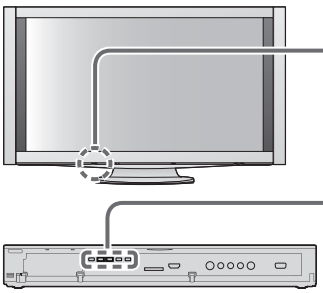
Transmission range
Use the RF remote control within the range of 7 m from the tuner box.
The range may be shortened depending on the obstacles, the surrounding environment or building structure.

Caution
- Keep the remote control away from the devices such as wireless LAN, microwaves, mobile phones or other electric equipment to avoid radio wave interference. Otherwise malfunction or slow response may occur.

Auto Tuning

Search and store TV channels automatically.
These steps are not necessary if the setup has been completed by your local dealer.

- Please complete preparations and setup of all units before starting Auto Tuning. (p. 8 - 13)
- Please complete connections (p. 12 and p. 13) and settings (if necessary) of the connected equipment before starting Auto Tuning. For details of settings for the connected equipment, read the manual of the equipment.

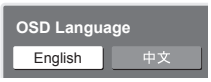


1 Plug the display unit and tuner box into mains socket, and turn on the display unit

⏻/I

- It takes a few seconds to start.

2 Select your language



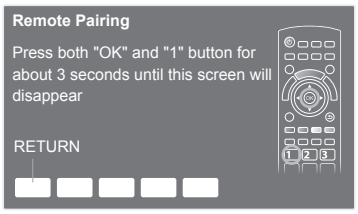
- The remote is not available in this step. Use the buttons on the front of the tuner box to select.

−/∨ +/∧ TV AV (select)

F (set)

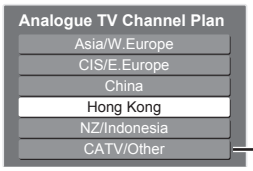
3 Pair the remote control with the TV

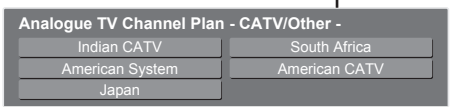
OK 1 (simultaneously)



- Press “OK” and “1” simultaneously for more than 3 seconds to make the remote control usable.
- You can pair the remote control again after Auto Tuning.
  ➡ “Pairing Remote Control” (p. 41)

4 Select your area

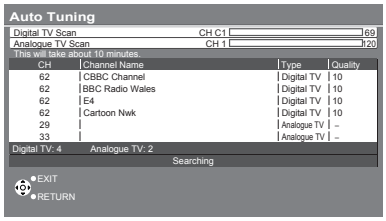




- CATV/Other :
  Press OK ➡ displays sub menu

5 Start Auto Tuning

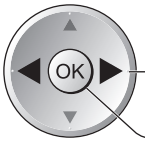
OK



- Auto Tuning will start to search for TV channels and store them. The sorted channel order depends upon the TV signal, the broadcasting system and reception conditions.

6 Select the viewing environment

- “Home” is the recommended mode for viewing at home. Select “Home” for optimal picture / power consumption. “Shop” is for in-store display.
  Home: “Viewing Mode” is set as “Normal”. (p. 30)
  Shop: “Viewing Mode” is set as “Dynamic”. (p. 30)

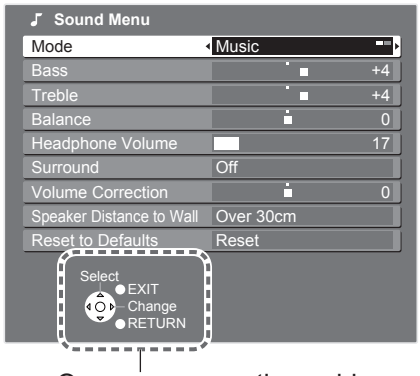


Auto Tuning is complete

Using the On-Screen Displays

Many features available on this TV can be accessed via the On-Screen Display menu.

ON SCREEN HELP Instructions box (example: Sound Menu)



On-screen operation guide

How to use remote control

MENU — Open the Main Menu

OK — Move the cursor / select the menu

OK — Move the cursor / adjust levels / select from a range of options

OK — Access the menu / store settings after adjustments have been made or options have been set

RETURN — Return to the previous menu

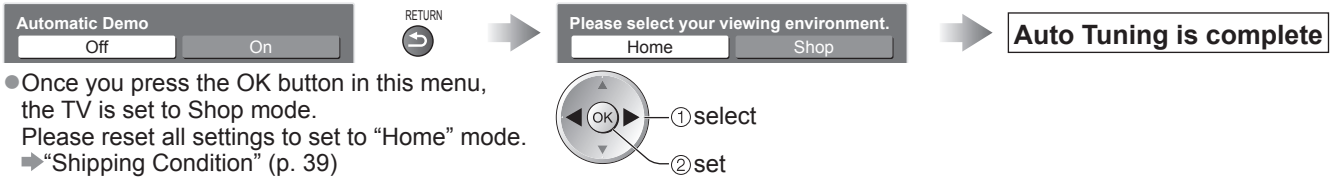
EXIT — Exit the menu system and return to the normal viewing screen

Note

- To edit channels ➡ “Editing Channels” (p. 34)
- If tuning has failed ➡ “Tuning Channels” (p. 36)
- To initialize all settings ➡ “Shipping Condition” (p. 39)
- If you turned the TV Off during Standby mode last time, the TV will be in Standby mode when you turn the TV On with Mains power On / Off switch.

If you select “Shop” by mistake

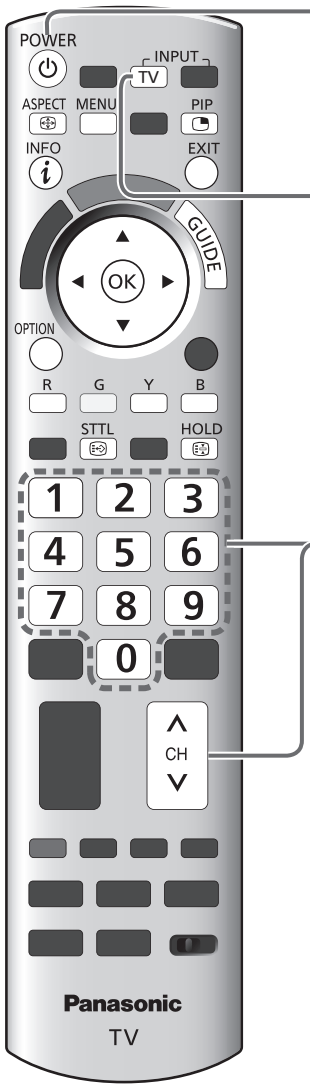
Return to the “Home” or “Shop” Selection menu



Select “Home”

- Once you press the OK button in this menu, the TV is set to Shop mode. Please reset all settings to set to “Home” mode. ➡“Shipping Condition” (p. 39)

Watching TV



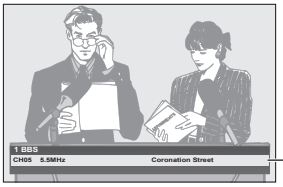
1 Turn power on

POWER

- Mains power On / Off switch of the display unit should be On. (p. 14)

2 Select Digital TV or Analogue TV mode

TV

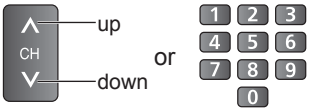


Information banner appears whenever you select a channel

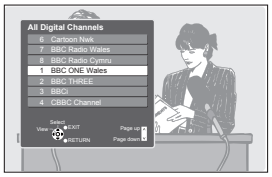
- For details ➡ p. 19

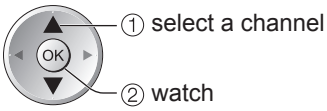
- Also possible to select the mode pressing the TV button repeatedly on the remote control or the TV button on the front of the tuner box. (p. 14)

3 Select a channel



- To select the two or three-digit channel number, e.g. 39 ➡ 3 ➡ 9 (in a short time)
- If one or two-digit channel number ➡ OK ➡ quickly changes the channel
- To select from the Channel List ➡ OK





Note

- When the TV is switched to standby, there will be a clicking sound after a short delay. This is normal.

Select a channel using information banner (p. 19)

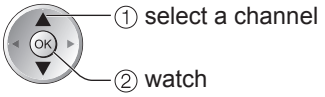
Possible to confirm the programme name before selecting channels.

Display information banner if it is not displayed

INFO

- Possible to set display timeout in “Banner Display Timeout” (p. 31).

While the banner is displayed, select a channel

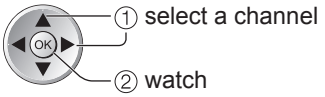


Select a channel using TV Guide (Digital TV mode) (p. 25)

Possible to confirm the TV Guide (EPG) before selecting channels.

Display TV Guide

Select a channel



Other useful functions

Hold

HOLD

Freeze / unfreeze picture

Display subtitles

STTL

Display / hide subtitles (if available)

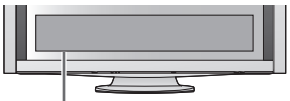
- To change the language for Digital TV (if available) ➡ “Preferred Subtitles” (p. 31)

Display information banner

INFO

Display information banner

- Also appears when changing channels



Digital TV: Programme Start / Finish time
Analogue TV: Channel status

(example)

Features available / Message meanings

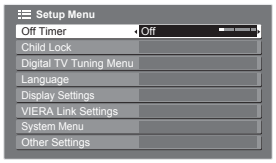
	Sound mute On	**Bad signal**	Poor TV signal quality (Digital TV mode)		Teletext service available (Analogue TV mode)
, I, II,	Audio mode (p. 55) (Analogue TV mode)	**Encrypted**	Scrambled programme (Digital TV mode)	I/II	Multiple image or audio available (Digital TV mode)
Dolby D	Dolby Digital audio track (Digital TV mode)		Subtitle service available (Digital TV mode)	**1 - 90**	Off Timer remaining time ● For settings ➡ See below

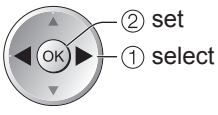
- To confirm another tuned channel name ➡ OK
- To select a favourite list (Digital TV mode) ➡ B
- Information on the next programme (Digital TV mode) ➡ OK
- To watch the channel listed in the banner ➡ OK
- To hide ➡ EXIT
- To set display timeout ➡ “Banner Display Timeout” (p. 31)
- Extra information (press again to hide the banner) (Digital TV mode) ➡ INFO

Off Timer

Turn the TV off automatically after a fixed period of time (Off / 15 / 30 / 45 / 60 / 75 / 90 minutes)

MENU





Select “Off Timer” and set the time

- To cancel ➡ Set to “Off” or turn the TV off.
- To display the remaining time ➡ Information banner
- When the remaining time is within 3 minutes, the remaining time will flash on screen.

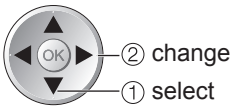
Watching TV

Other useful functions

Display the selectable settings for the current programme

OPTION

Check or change the current programme status instantly



Change the settings

Channel Colour Set (Analogue TV mode)
Sets colour depth

Multi Video (Digital TV mode)
Allows you to select the image (if available)

Multi Audio (Digital TV mode)
Allows you to select between alternative language for sound tracks (if available)

Subtitle Language (Digital TV mode)
Allows you to select the language in which subtitles should appear (if available)

Teletext Character Set
Sets the teletext language ➡ Setup Menu (p. 31)

MPX (Analogue TV mode)
➡ Sound Menu (p. 30)

Volume Correction
Adjusts volume of individual programme or input mode

Note

- Also possible to change the settings in Menu list (p. 30 and p. 31).

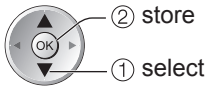
Change aspect ratio

ASPECT

Change the aspect ratio

Enjoy viewing the picture at its optimum size and aspect.

ASPECT Display Aspect Selection list ➡



While the list is displayed, select the mode

- To change the mode using the ASPECT button only
  ➡ ASPECT Press repeatedly until you reach the desired mode

16:9

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

14:9

Displays the image at the standard “14:9” without distortion.

Just

Displays a “4:3” image full-screen. Stretching is only noticeable at the left and right edges.

4:3

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

4:3 Full

Displays a “4:3” image enlarged horizontally to fit the screen.
- Digital TV mode and HD signal only

Zoom1

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

Zoom2

Displays a “16:9” letterbox (anamorphic) image full-screen without distortion.

Zoom3

Displays a “2.35:1” letterbox (anamorphic) image full-screen without distortion. At “16:9”, displays the image at its maximum (with slight enlargement).

Note

- Only “16:9” and “4:3 Full” are available in Digital TV mode.
- Only “16:9” and “4:3” are available in PC mode.
- Only “16:9” is available when “Viewing Mode” is set to “Game”.
- Not available in teletext mode and multi window.
- Aspect mode can be memorized separately for SD (Standard definition) and HD (High definition) signals. (except Digital TV mode)

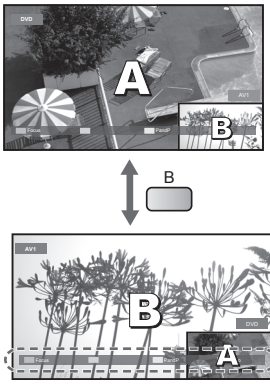
Other useful functions

Watch TV,DVD, etc. in multiwindow

View in multi window PIP

Enjoy viewing two images at once, such as a TV programme and a DVD.

Picture-in-Picture mode (PinP)



Y

G

B

Colour bar

Picture-and-Picture mode (PandP)

Main screen Sub screen

- Remote control operations apply to the main screen.

Operations in multi window

- To exit multi window (return to the single-screen view with main screen) ➡ PIP
- To change the layout, images or first show the colour bar ➡ INFO
  - To change the layout ➡ G Y
  - To change the focus to sub window ➡ R
  - To change the input mode or position of sub screen
    ➡ Swap sub screen for main screen B ➡ Change the input mode or position with the remote control (p. 26) ➡ Swap again B

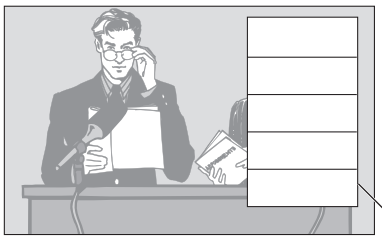
Note

- The same input mode cannot be displayed at once.
- The sound is active for main screen only in multi window.
- You cannot change the aspect ratio in multi window.
- This function is not available for PC and SD card.
- Component or HDMI input is available only as the main screen.
- Some signals are reformatted for suitable viewing on your display.
- The display timeout for the input mode or programme position can be adjusted by “Banner Display Timeout” in Setup Menu (p. 31).

Viewing Teletext

You can enjoy timely news, weather forecasts, stock market and other various information in digital teletext services provided by broadcasters.

- When the teletext service is available, a bar appears on the screen indicating how to start the service. The operation method depends on the broadcasters.

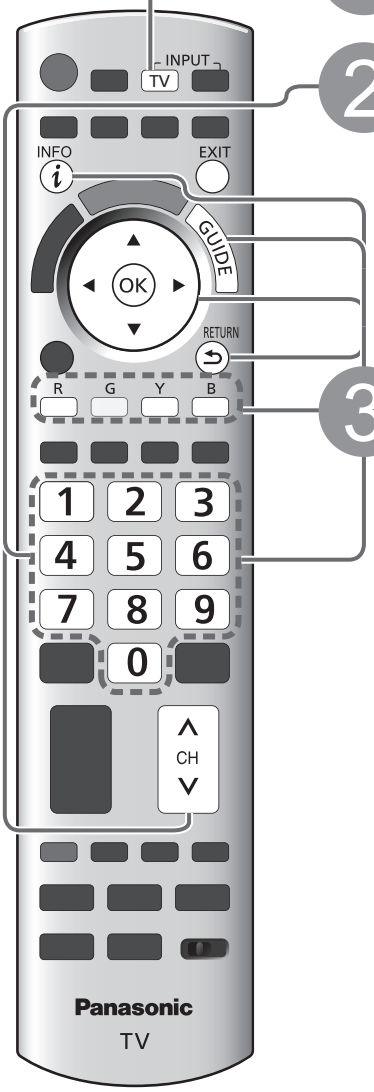


(example)

Digital teletext (MHEG)

Digital teletext services

Digital teletext services differ greatly from analogue teletext.
In a digital teletext service, you can see the images that contain graphics and text, laid out and controlled in a manner decided by the broadcaster.



To return to TV ➡ EXIT

1 Select Digital TV mode

TV

2 Select a programme

CH or 1 2 3 / 4 5 6 / 7 8 9 / 0 ➡ Wait for a few seconds

(example)

3 Follow the instruction on the screen

In all cases, it is possible to navigate the pages using buttons on the remote control, but because the commands available must apply to all manufacturers of digital equipment, some on screen commands may not correspond exactly to the remote control buttons.
For example:

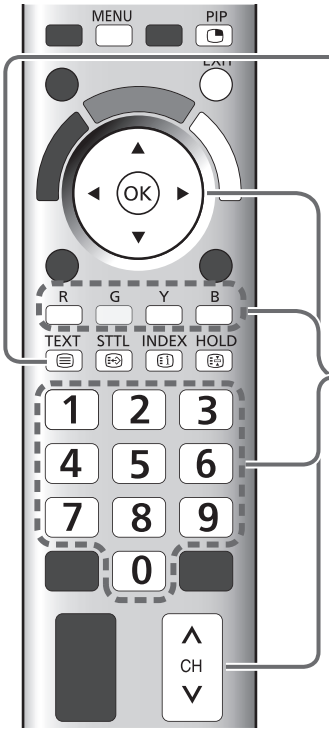
- When “select” or “go” is displayed ➡ OK
- When “◄”, “►”, “▲”, “▼” symbol is displayed ➡ OK
- When “back key” is displayed ➡ RETURN
- When a colour is used ➡ R G Y B
- When options with numbers are displayed ➡ 1 2 3 / 4 5 6 / 7 8 9 / 0
- When “i” is displayed ➡ INFO (information)
- When “EPG” is displayed ➡ GUIDE

Note

- As soon as you switch to a digital channel with links to a teletext service, software is downloaded in the background to enable the teletext function. Please wait for a few seconds before the download is complete.
- While navigating digital teletext, you will find there is a short delay when moving between pages while the page downloads. There is often a prompt shown somewhere on the page (for example “Loading”) to let you know that this is happening.

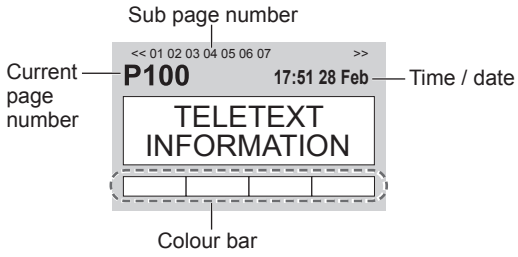
Analogue teletext

To change mode ➡ “Teletext” in Setup Menu (p. 31)



1 Switch to Teletext

TEXT ●Displays Index (content varies depending on the broadcasters)



2 Select the page (up to page 899)

1 2 3 4 5 6 7 8 9 0 or OK or CH or R G Y B

(Corresponds to the colour bar)

To adjust contrast

➡ MENU (Press three times) ➡ OK As the blue bar is displayed

To return to TV ➡ TEXT or EXIT

What is FASTEXT mode?

In FASTEXT mode, four differently coloured subjects are situated at the bottom of the screen. To access more information about one of these subjects, press the appropriately coloured button. This facility enables fast access to information on the subjects shown.

What is TOP mode? (in case of TOP text broadcasting)

TOP is a particular improvement of the standard teletext service that results in an easier search and effective guide.

- ●Fast overview of the teletext information available
- ●Easy to use step-by-step selection of the topical subject
- ●Page status information at the bottom of the screen

Available page up / down ➡ R G

To select among subject blocks ➡ B

To select next subject within the subject block ➡ Y
(After the last subject, it moves to the next subject block.)

What is List mode?

In List mode, four differently coloured page numbers are situated at the bottom of the screen. Each of these numbers can be altered and stored in the TV’s memory. (“Store frequently viewed pages”, p. 24)

Using teletext conveniently

Hold	Reveal hidden data
HOLD **Stop automatic updating** (If you wish to hold the current page without updating) **To resume** ➡ HOLD	MENU ➡ R Reveal hidden words e.g. quiz page answers **Re-hide** ➡ R
INDEX	**Call up a favourite page**
INDEX **Return to the main index page**	STTL **View a favourite page stored** ●Call up the page stored in “blue”. ●Factory setting is “P103”.

Viewing Teletext

Using teletext conveniently

View in multiwindow

Watch TV and Teletext in two windows at once

MENU (Press twice) → OK — Select teletext only or picture / teletext

or

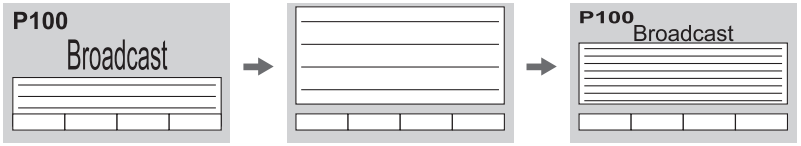
PIP

- Operations can be made only in Teletext screen.

FULL / TOP / BOTTOM

MENU → G

(TOP) → (BOTTOM) → Normal (FULL)

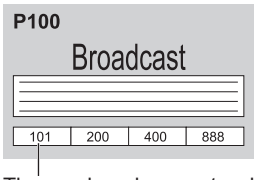


(Expand the TOP half) (Expand the BOTTOM half)

Store frequently viewed pages

Store frequently viewed pages in the colour bar (List mode only)

Corresponding colour button (As page is displayed) → OK press and hold



The number changes to white.

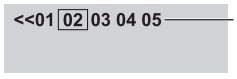
To change stored pages

Colour button you want to change → 1 2 3 4 5 6 7 8 9 0 Enter new page number → OK press and hold

View sub page

View sub page (Only when teletext is more than one page)

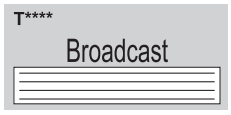
OK



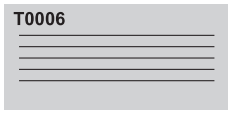
Appears at top of the screen

To view specific sub page

MENU → B



→ 0 0 0 6 example: P6 → Enter the 4-digit number →



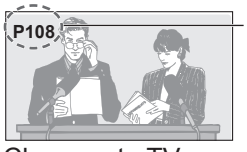
- Sub pages:
  The number of sub pages varies depending on the broadcasters.
  It may take some time for searching, during which time you can watch TV.

Watch TV while waiting for update

View the TV picture while searching for a teletext page

Teletext automatically updates itself when new information becomes available.

MENU → Y →



Appears when updating is completed

Changes to TV screen temporarily
(You cannot change the programme.)

→ Y → View the updated page

- The news page provides a function that indicates arrival of latest news (“News Flash”).

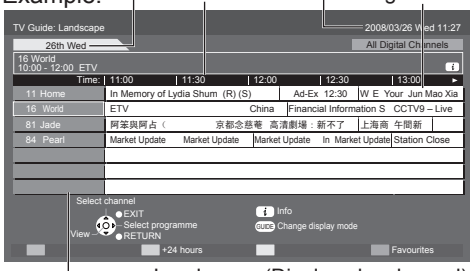
Using TV Guide (Digital TV mode)

Using TV Guide enables you to select programme easily, view programme informations, etc.
TV Guide—Electronic Programme Guide (EPG) provides an on-screen listing of the programmes currently broadcast and the future broadcasts over the next seven days (depending on the broadcasters).

View TV Guide

Each time pressed, the layout will be changed.
(Landscape / Portrait)

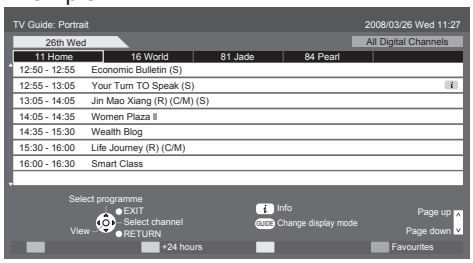
Example:



Landscape (Displays by channel)

Channel

Example:

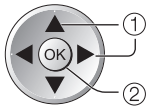


Portrait (Displays by time)

To the previous day ➡ R

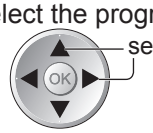
To the next day ➡ G

To watch the programme

➡ 

To view details of the programme

Select the programme

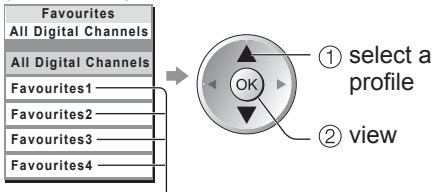
➡ 

➡ INFO ● Press again to return to TV Guide.

To view a channel list of the selected favourite list

➡ B

(favourite list)



To list favourite channels ➡ p. 35

To return to TV ➡ EXIT

Note

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

Watching Videos and DVDs

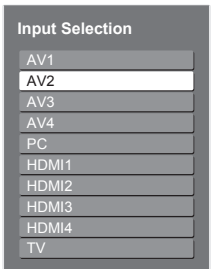
Connect the external equipment (VCRs, DVD equipment, etc.) and you can watch the input.
- To connect the equipment ➡ p. 12 and p. 13

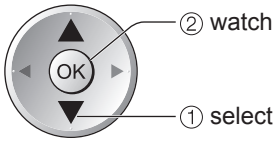
You can operate some functions of selected Panasonic external equipment with this remote control.

1 Display the input selection menu

AV

2 Select the input mode of the connected equipment

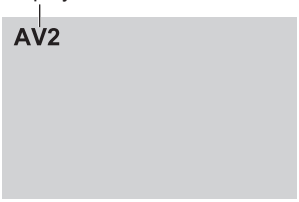




- You can also select the input using the AV button on the remote control or the front of the tuner box.
  Press the button repeatedly until the desired input is selected.
- You can label or skip each input mode ➡ “Input Labels” (p. 32)

3 View

Displays the selected mode



Note

- If the external equipment has an aspect adjustment function, set to “16:9”.
- For details, see the manual of the equipment or ask your local dealer.

To return to TV ➡ TV

Panasonic equipment connected to the TV can be directly operated with the remote control.

BD/DVD, TV	**BD/DVD / TV switch∗** Switch to BD/DVD to operate Panasonic DVD Recorder, DVD Player, Player theatre, Blu-ray Disc theatre or VCR ● Radio frequency function (p. 15) is not available when you select “BD/DVD”. Point the remote control at the connected equipment to operate. Switch to TV to operate VIERA Link equipment ➡ “VIERA Link Control” (p. 49)
POWER	**Standby** Set to Standby mode / Turn on
▶	**Play** Playback videocassette / DVD
■	**Stop** Stop the operations
⏮ ◀◀	**Rewind / Skip / Search** VCR: Rewind, view the picture rapidly in reverse DVD: Skip to the previous track or title Press and hold to search backward
⏭ ▶▶	**Fast-forward / Skip / Search** VCR: Fast-forward, view the picture rapidly forward DVD: Skip to the next track or title Press and hold to search forward
❚❚/▶	**Pause** Pause / Resume DVD: Press and hold to play at slow speed
PROGRAMME ∨ ∧	**Programme Up / Down** Select programme
REC	**Record** Start recording

∗Setting your remote control to operate Panasonic equipments

① Switch to BD/DVD ➡ BD/DVD, TV

② Press and hold POWER during the following operations

Enter the appropriate code
See table below

1 2 3
4 5 6
7 8 9
0

➡ Press ■

Type of equipment	Code
DVD Recorder / DVD Player / Blu-ray Disc Player	70 (default)
Player theatre / Blu-ray Disc theatre	71
VCR	72

Note

- Confirm if the remote control works correctly after changing the code.
- The codes will be reset to default values if batteries are replaced.
- Some operations may not be possible on some equipment models.

How to Use Menu Functions

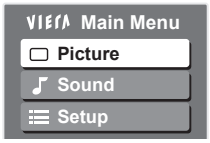
Various menus allow you to make settings for the picture, sound, and other functions.

1 Display the menu

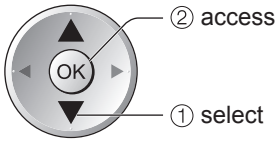
MENU

- Displays the functions that can be set (varies according to the input signal)

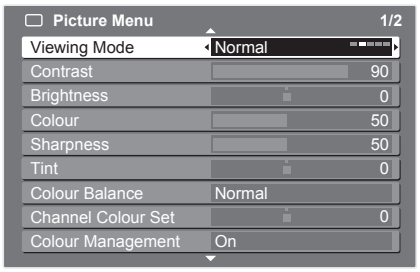
2 Select the menu



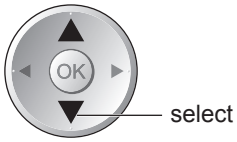
(example)



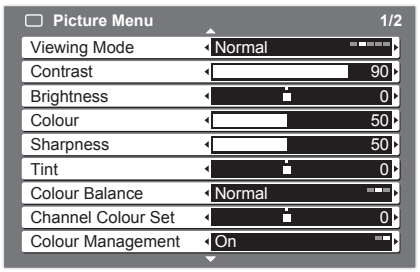
3 Select the item



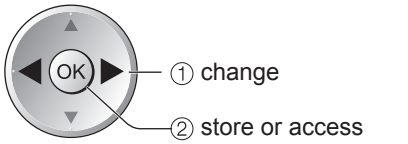
(example)



4 Adjust or select



(example)



To return to TV at any time

EXIT

To return to the previous screen

RETURN

To change menu pages

CH up down

Choose from among alternatives

Number and positions of alternatives

Changed

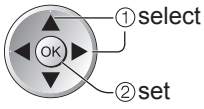
Adjust using the slide bar

Moved

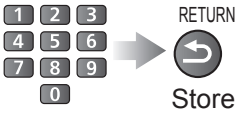
Go to the next screen

Displays the next screen

Enter characters by free input menu



or



- To delete a character ➡ R
- To delete all characters ➡ B

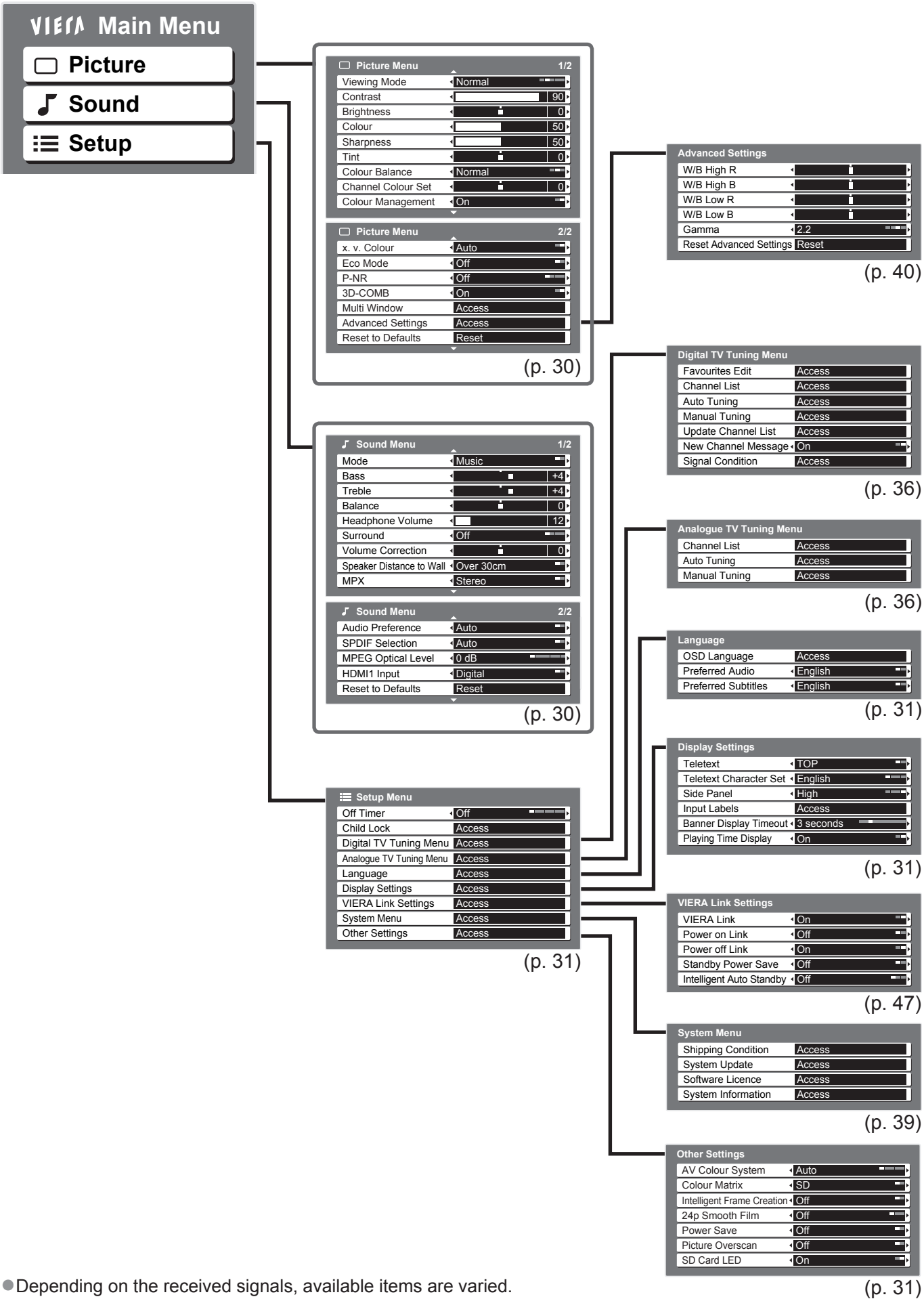
Every press changes the character by one. Leave it for a second to set the character, or press OK or any numeric button within a second.
See the table below for the corresponding characters for each numeric button.

Numeric buttons	Characters	Numeric buttons	Characters
1	. 1 ! : # + - * _ ( )	6	m n o 6 M N O
2	a b c 2 A B C	7	p q r s 7 P Q R S
3	d e f 3 D E F	8	t u v 8 T U V
4	g h i 4 G H I	9	w x y z 9 W X Y Z
5	j k l 5 J K L	0	Space 0

To reset the settings

- To reset the picture settings only
  ➡ "Reset to Defaults" in Picture Menu (p. 30)
- To reset the sound settings only
  ➡ "Reset to Defaults" in Sound Menu (p. 30)
- To reset all settings
  ➡ "Shipping Condition" (p. 31) in Setup Menu

Overview



● Depending on the received signals, available items are varied.

How to Use Menu Functions

Menu	Item	Adjustments / Configurations (alternatives)
Picture	**Viewing Mode**	Basic picture mode **(Dynamic / Normal / Cinema / THX / Game)** Dynamic : Provides enhanced picture contrast and sharpness when viewing in a bright room Normal : Recommended for viewing under normal ambient room lighting conditions Cinema : For watching movies in a darkened room producing a cinema-like picture THX : Provides the ultimate image quality and cinematic experience at home Game : Game playing time is displayed only when connecting a game equipment. ●Set for each input signal.
	Contrast, Brightness, Colour, Sharpness	Increases or decreases the levels of these options according to your personal preference
	Tint	With an NTSC signal source connected to the TV, the picture hue can be adjusted to suit your taste. ●For NTSC or Component / HDMI input signal reception only
	Colour Balance	Allows you to set the overall colour tone of the picture **(Cool / Normal / Warm)** ●Not valid when the viewing mode is set to THX
	Channel Colour Set	Colour density varying between broadcast channels can be adjusted to three levels for each reception channel. ●Select the channel you want to adjust and set this function.
	Colour Management	Automatically adjusts colours to vivid ones **(Off / On)** ●Not valid on PC signal
	x.v.Colour	Increases the colour gradations **(Off / Auto)** This is effective when watching HD moving pictures with extended gamut (xvYCC) from external equipment. ●HDMI input mode or Movie View mode only ●Not valid when the viewing mode is set to THX
	Eco Mode	Adjusts picture settings automatically dependent on ambient lighting conditions **(Off / On)**
	P-NR	Automatically reduces unwanted picture noise and flicker noise in the contoured parts of a picture **(Off / Min / Mid / Max)** ●Not valid on PC signal
	3D-COMB	Occasionally, whilst viewing still or slow moving pictures, colour patterning may be seen. Set to “On” to display sharper and more accurate colours. **(Off / On)** ●For PAL or NTSC signal reception only ●Not valid on S-Video, Component, PC, HDMI and SD Card
	Multi Window	Splits the screen into two windows (p. 21)
	Advanced Settings	Set for colour balance, view and position. (p. 40) Set for colour balance in Normal, Cinema or THX viewing mode.
	Reset to Defaults	Press the OK button to reset the present Picture Menu to the default settings.
Sound	**Mode**	Basic sound mode **(Music / Speech)** ●Set for each input signal.
	Bass	Increases or decreases level to enhance or minimise lower, deeper sound output
	Treble	Increases or decreases level to enhance or minimise sharper, higher sound output
	Balance	Adjusts volume level of right and left speakers
	Headphone Volume	Adjusts the volume of the headphones
	Surround	Surround sound settings **(Off / V-Audio / V-Audio Surround / V-Audio ProSurround)** V-Audio: Provides a dynamic enhancer to simulate improved spatial effects V-Audio Surround: Provides a dynamic enhancer of width and depth to simulate improved spatial effects V-Audio ProSurround: Provides a three-dimentional sound space with digital reverb effects ●Switching is also possible by the Surround button on the remote control. (p. 15)
	Volume Correction	Adjusts volume of individual channel or input mode
	Speaker Distance to Wall	Adjusts the low frequency sound **(Over 30cm / Up to 30cm)** ●Over 30cm: Recommended when the back space between the display unit and wall is over 30 cm ●Up to 30cm: Recommended when the back space between the display unit and wall is within 30 cm
	MPX	Selects stereo / monaural **(Mono / Stereo)** (p. 55) ●Normally: Stereo ●Stereo signal cannot be received: Mono ●M1 / M2: Available while mono signal is transmitted ●Analogue TV mode only
	Audio Preference	Selects the initial setting for audio tracks **(Auto / MPEG)** Auto : Automatically selects the audio tracks if programme has more than two tracks. The priority is given in the following order - Dolby Digital, MPEG. MPEG : The priority is given to MPEG as long as the programme contains MPEG audio. ●Dolby Digital is the method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2ch) audio, these signals can be multi-channel audio. ●MPEG is an audio compression method that compresses audio to the smaller size without any considerable loss of audio quality. ●Digital TV mode only
	SPDIF Selection	Selects the initial setting for digital audio output signal from DIGITAL AUDIO OUT terminal **(Auto / PCM)** Auto: Dolby Digital is output as Dolby Digital Bitstream. MPEG is output as PCM. PCM: Dolby Digital is output as PCM. MPEG is output as PCM. ●Digital TV mode only
	MPEG Optical Level	You can adjust the audio level of MPEG output from DIGITAL AUDIO OUT terminal as the initial setting. ●0dB to -12dB in -2dB reductions ●Digital TV mode only
	HDMI1 / 4 Input	Select to fit the input signal. **(Digital / Analogue)** (p. 55) Digital: HDMI cable connection Analogue: HDMI-DVI adapter cable connection ●HDMI input mode only ●HDMI2 / 3 terminals are for digital signal only.
	Reset to Defaults	Press the OK button to reset the present Sound Menu to the default settings.

Menu	Item		Adjustments / Configurations (alternatives)
Setup	**Off Timer**		Sets the time the TV automatically turns Off **(Off / 15 / 30 / 45 / 60 / 75 / 90 minutes)** (p. 19)
	Child Lock		Locks a channel / AV input to prevent access to it (p. 38)
	Tuning Menu	**Favourites Edit**	Creates list of favourite channels (Digital TV mode) (p. 35)
		Channel List	Skips the unwanted channels (p. 35)
		Auto Tuning	Sets all Digital TV or Analogue TV channels automatically (p. 36)
		Manual Tuning	Sets the TV channels manually (p. 37)
		Update Channel List	Update the channel list. (Digital TV mode) (p. 37)
		New Channel Message	Displays a message when new Digital TV channels are found. **(Off / On)** (p. 37)
		Signal Condition	Checks the Digital TV signal condition (p. 37)
	Language	**OSD Language**	Changes language for on-screen displays **(English / 中文)**
		Preferred Audio	Selects the preferred language for Digital TV multiaudio (depending on the broadcaster)
		Preferred Subtitles	Selects the preferred language for Digital TV subtitles (depending on the broadcaster) ●To display subtitles (p. 19)
	Display Settings	**Teletext**	Teletext display mode **(TOP (FASTEXT) / List)** (p. 23)
		Teletext Character Set	Selects teletext language **(English / CIS / E.Europe / Persian)**
		Side Panel	Increases the brightness of the side panel **(Off / Low / Mid / High)** ●The recommended setting is “High” to prevent panel “image retention”.
		Input Labels	Labels or skips each input mode (p. 32)
		Banner Display Timeout	Sets how long the information banner stays on screen from 0 (No display) to 10 sec. in 1-sec. increments
		Playing Time Display	Displays the length of time in every thirty minutes for playing game **(Off / On)** ●When “Viewing Mode” is set to “Game”
	VIERA Link Settings	**VIERA Link**	Sets to use VIERA Link functions **(Off / On)** ●VIERA Link functions become available when “VIERA Link” is set to “On”. (p. 47)
		Power on Link	Sets to use Power on Link functions **(Off / On)** (p. 47)
		Power off Link	Sets to use Power off Link functions **(Off / On)** (p. 47)
		Standby Power Save	Controls the power consumption in Standby mode of the connected equipment to reduce the consumption **(Off / On)** (p. 47)
		Intelligent Auto Standby	Makes unwatched or unused connected equipment go into Standby mode to reduce the power consumption **(Off / On (With reminder) / On (No reminder))** (p. 47)
	System menu	**Shipping Condition**	Resets all settings to the original condition (p. 39)
		System Update	Downloads new software to TV (p. 33)
		Software Licence	Displays the software licence information
		System Information	Displays the system information of this TV
	Other Settings	**AV Colour System**	Selects optimum colour system based on video signals in AV mode **(Auto / PAL / SECAM / M.NTSC / NTSC)**
		Colour Matrix	Available only with 480p or 576p input on video signals in a natural colour from digital equipment connected to AV1/AV2 component or HDMI1/HDMI2/HDMI3/HDMI4 terminals. Select SD or HD to adjust suitable colour parameters for SD (standard definition) or HD (high definition) ●SD: Input signal is a normal TV system. ●HD: Input signal is a high definition system.
		Intelligent Frame Creation	Automatically compensates the picture frame rate to make the image smooth **(Off / On)** ●Set to “Off” if the image wiggles.
		24p Smooth Film	Automatically compensates the picture frame rate to make the image smooth **(Off / Mid / Max)** ●24p signal input only ●Set to “Off” if noise is generated on the screen.
		Power Save	Reduces brightness of picture to minimise power consumption **(Off / On)**
		Picture Overscan	Selects the screen area for displaying the image **(Off / On)** On: Enlarges the image to hide the edge of the image Off: Displays the image in the original size ●Set to “On” if noise is generated on the edges of the image. ●This function is available when aspect is set to “16:9”. ●This function can be memorized separately for SD (Standard Definition) and HD (High Definition) signals.
		SD Card LED	Lights blue LED while SD Card is inserted **(Off / On)** (p. 42)

●A different menu will be displayed while PC or SD Card is used. (p. 40 and p. 42)
●Only available items can be selected.

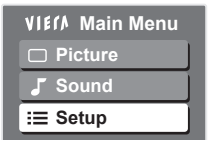
Input Labels

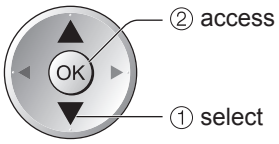
For easier identification and selection of the input mode, you can label each input terminals or skip terminal that is not connected to any equipment. (p. 26)

1 Display the menu

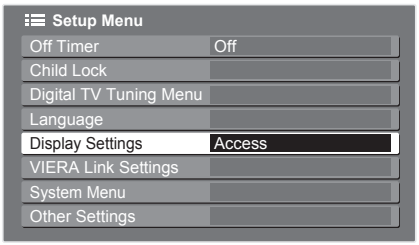
MENU

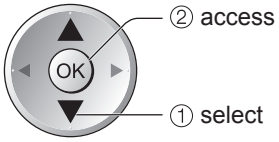
2 Select “Setup”



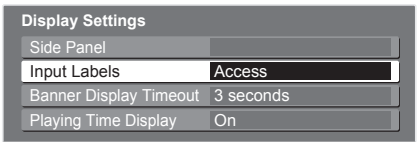


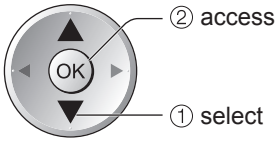
3 Select “Display Settings”



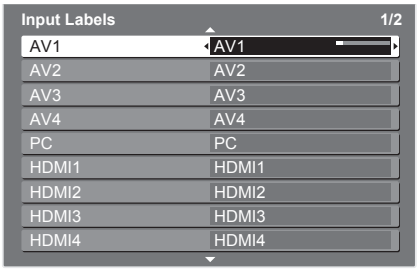


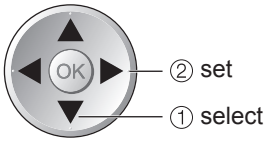
4 Select “Input Labels”

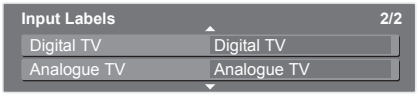




5 Select an input terminal and set







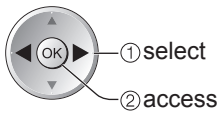
The labels you set will be displayed in “Input Selection” menu (p. 26) or banner.

- If “Skip” is selected, you cannot select the mode.

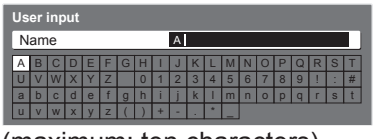
To return to TV ➡ EXIT

User input

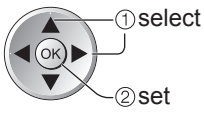
You can name each input terminals freely.



Select “User input”



(maximum: ten characters)
You can set characters by using numeric buttons. ➡ p. 28

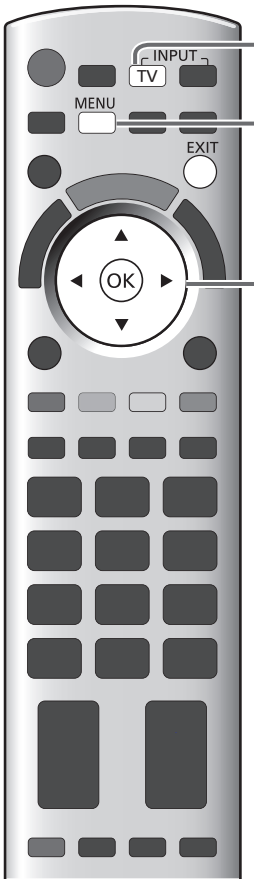


Set characters

Store

Digital TV Settings (Digital TV mode)

Digital TV Settings provide access to various advanced features.

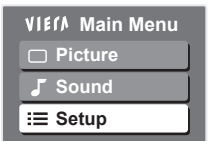


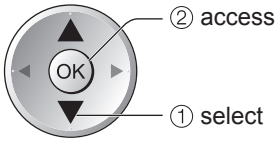
To return to TV ➡ EXIT

1 If in Analogue TV mode
Select Digital TV mode
TV

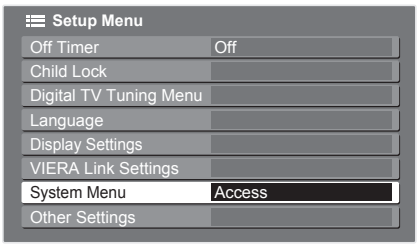
2 **Display the menu**
MENU

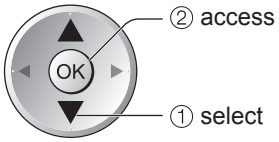
3 **Select “Setup”**



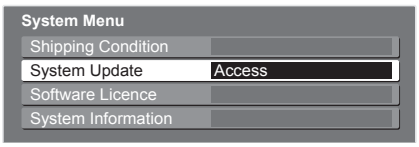


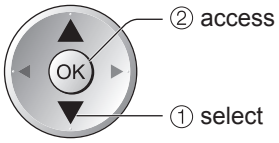
4 **Select “System Menu”**





5 **Select “System Update”**





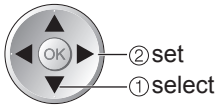
6 **Set**

Update TV’s software system System Update

Download new software to TV.
●For details ➡ p. 55

If System Update is performed, the software will be updated. It may change TV functions. If you do not wish to do so, set “Auto Update Search in Standby” to Off.

Select “Auto Update Search in Standby” and then set “On” or “Off”



●On: Automatically performs a search in standby and downloads an update, if any software updates are available

Note

●When the TV is switched to standby, there will be a clicking sound after a short delay. Similar clicking sounds will also occur at 3:00 AM and 5:00 AM (p. 55) when “Auto update Search in Standby” is set to “On”. These sounds are normal.

To update immediately

Select “System Update Search Now”

➡ Searches for an update (for several minutes) and displays a corresponding message if any ➡ Download (OK)

●Download may take for about 1 hour.

Note

●During downloading, the TV will display a blank screen for 40 to 50 seconds. Do not interrupt the TV during this procedure.

Editing Channels

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

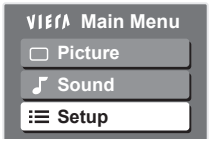
1 Select Digital TV or Analogue TV

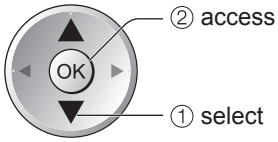
TV

2 Display the menu

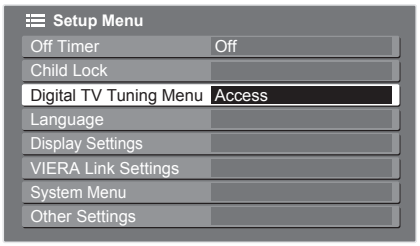
MENU

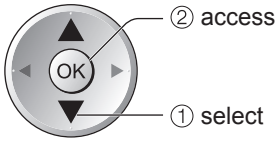
3 Select “Setup”



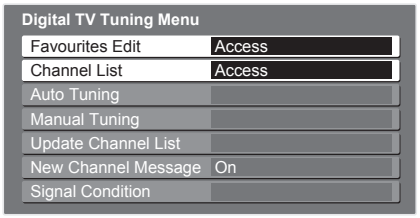


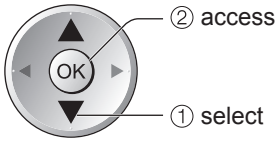
4 Select “Digital TV Tuning Menu” or “Analogue TV Tuning Menu”





5 Select “Favourites Edit” or “Channel List”





6 Set

To return to TV ➡ EXIT

List favourite channels (Digital TV mode) Favourites Edit

Create your favourite channel list (Favourites) from various broadcasters (up to 4: Favourites1 to 4).
The list is added to “Favourites” list in TV Guide (p. 25) and information banner (p. 19) and then easily accessed.

Select a channel and add it to the list

To edit List

Select the field of List to edit and:

- To name the Favourites → R → ①select ②set (Set characters)

You can set characters by using numeric buttons. ➡ p. 28

- To move the channel → G → Select the new position → Confirm G
- To delete the channel → OK
- To delete all channels → Y

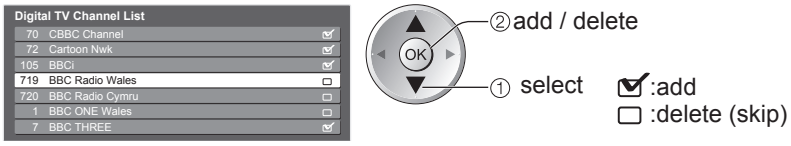
Note

- Channel numbers are defined by the broadcaster and cannot be changed.
- Hidden channels (see below) can be selected but not viewed.

Skip unwanted channels / Edit channels (Change name, Move) Channel List

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

Select a channel and add / delete

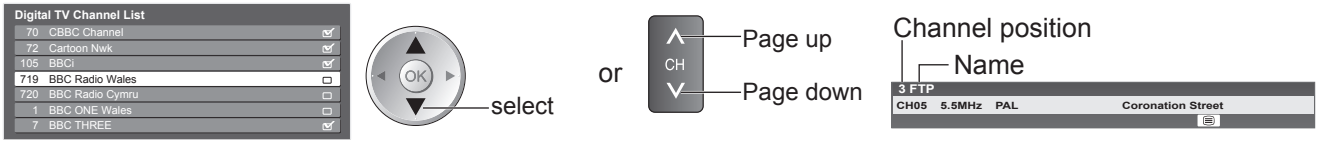


- To retune each channel (Manual Tuning) (p. 37) → R

You can edit channels.

- If a VCR is connected only with the RF cable, edit “VCR”. (Analogue TV mode)

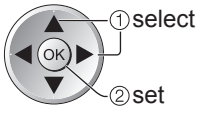
① Select a channel to edit



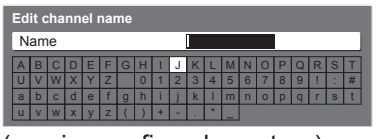
② Edit

To change the displayed name when selecting channels (Only in Analogue TV mode)

B → Select “Rename”



Set characters



(maximum: five characters)

You can set characters by using numeric buttons. ➡ p. 28

To move channel position

G → select → Store G

For Analogue TV channels

To swap channels

G → 1 2 3 4 5 6 7 8 9 0 → Store G

For Digital TV channels

Tuning Channels

You can retune all the TV channels when moving house or search for new channels which may have recently started broadcasting.

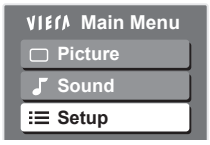
1 Select Digital TV or Analogue TV

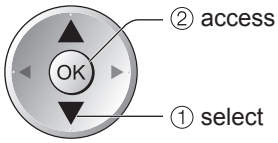
TV

2 Display the menu

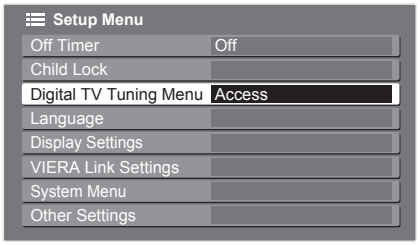
MENU

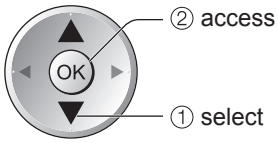
3 Select “Setup”



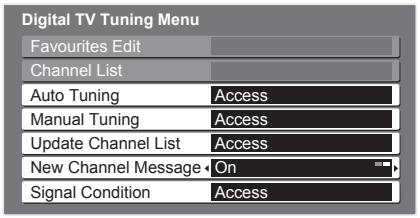


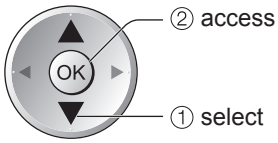
4 Select “Digital TV Tuning Menu” or “Analogue TV Tuning Menu”





5 Select a function





6 Set

To return to TV ➡ EXIT

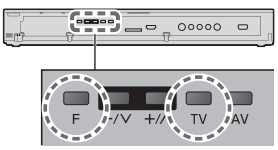
For Auto Tuning, using the buttons on the front of the tuner box (p. 14)

① Press repeatedly until “Auto Tuning” appears F

② Access “Auto Tuning” TV

③ Start “Auto Tuning” TV

● To return to TV ➡ F



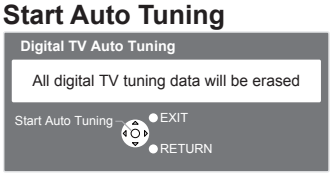
Set all Digital TV or Analogue TV channels automatically

Digital TV Auto Tuning or Analogue TV Auto Tuning

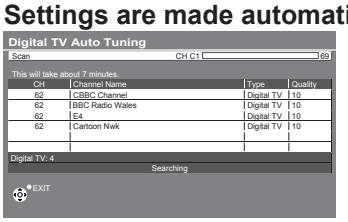
Automatically retune all Digital TV or Analogue TV channels received in the area.

- Only Digital TV channels are retuned in Digital TV mode.
- Only Analogue TV channels are retuned in Analogue TV mode.

Start Auto Tuning



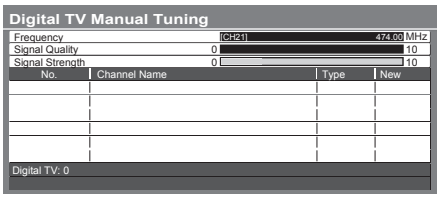
Settings are made automatically

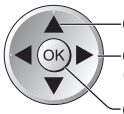


- All the previous tuning settings are erased.
- When the operation is completed, the channel at channel position “1” will be displayed.
- Search begins in the order from the lower channels to the higher channels. Channels received during this process are added to the list. (p. 35)
- If tuning has not been done completely ➡ “Digital TV Manual Tuning”, “Analogue TV Manual Tuning” (p. 37)

Set Digital TV channel manually **Digital TV Manual Tuning**

Normally use “Digital TV Auto Tuning” or “Update Channel List” to update Digital TV channels on your channel list.
If tuning has not been done completely or for adjusting the direction of the aerial, use this function.





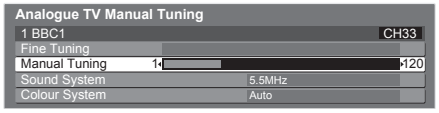
①select channel
②adjust frequency (set where the level of “Signal Quality” becomes the maximum)
③search

- All channels found will be added to the Digital TV Channel List.

Set Analogue TV channel manually **Analogue TV Manual Tuning**

Fine Tuning
Use to make small adjustments to the tuning of an individual channel (affected by weather conditions, etc.)

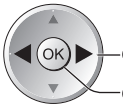
Manual Tuning
Set Analogue TV channel manually after Analogue TV Auto Tuning.
- Set Sound System and Colour System, and then perform this function.
  Normally set Colour System “Auto”.
- If a VCR is connected only with the RF cable, select channel position “0”.



Select a channel position

Select a channel

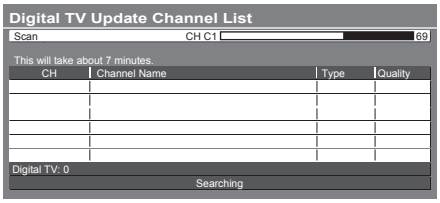
Search and store



①search
②store

Update channels automatically **Update Channel List**

You can add new channels, delete dublicated channels, update channel name and position automatically.



- The Digital TV Channel List is updated with the current settings saved as they are.

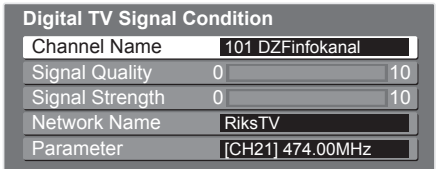
Display a message **New Channel Message**

Selects whether to give a message when new Digital TV channels are found. **(Off / On)**

Check Digital TV signal **Digital TV Signal Condition**

Selects a channel and checks the Digital TV signal condition.

- To change the channel ➡



A good Signal Strength is not an indication of suitable signal for Digital TV reception. Please use the Signal Quality indicator as follows:
Signal Quality:
- Green bar ➡ Good
- Yellow bar ➡ Poor
- Red bar ➡ Bad (Check the aerial)

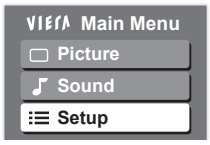
Control Channel Audience

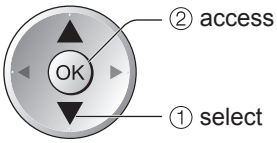
You can lock specific programmes / AV input terminals and control who watches them.
When the locked programme / input is selected, a message appears; by entering the PIN number, you can watch it.

1 Display the menu

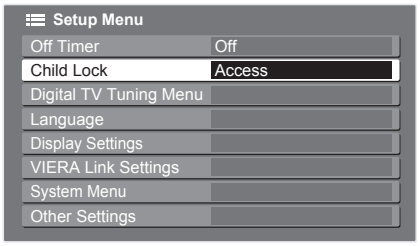
MENU

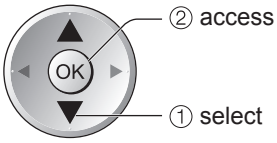
2 Select “Setup”





3 Select “Child Lock”





4 Set

To return to TV ➡ EXIT

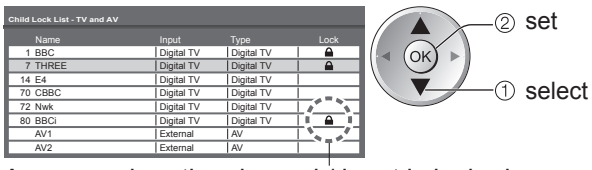
Control channel audience Child Lock

① Enter the PIN number (4 digits)

- Enter the PIN number twice at first setting.
- Make a note of the PIN number in case you forget it.

② Select “Child Lock List”

③ Select the channel / input to be locked



Appears when the channel / input is locked

- To cancel
  ➡ Select the locked channel / input
  ➡ OK
- To lock all ➡ G
- To cancel all locks ➡ Y
- To jump to the next block of channels ➡ R

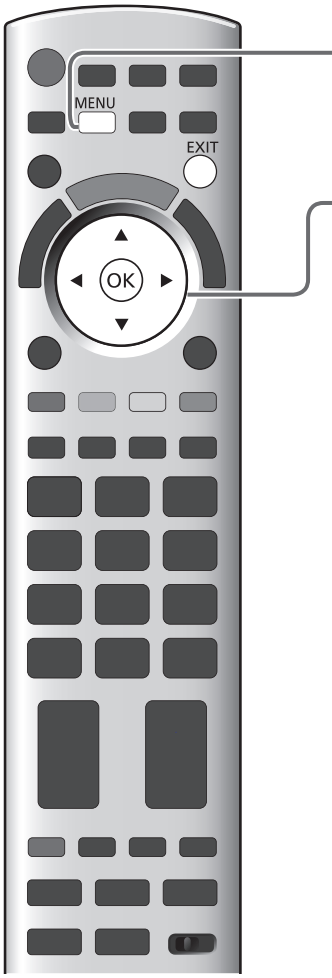
To change the PIN number
Select “Change PIN” in “Child Lock” and enter a new PIN number twice.

Note

- Performing “Shipping Condition” (p. 39) erases the PIN number and all settings.

Restore Settings
(Shipping Condition)

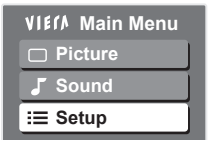
Resets the unit to its original condition, i.e. no channels tuned in.
All settings (channels, picture, sound quality, etc.) are reset.

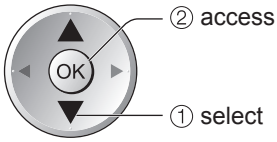


1 Display the menu

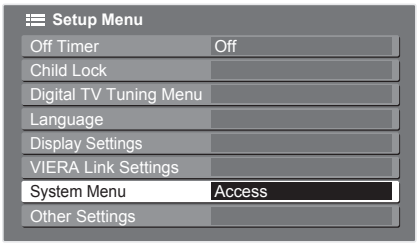
MENU

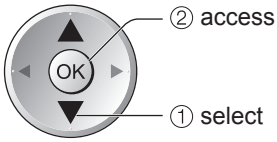
2 Select “Setup”



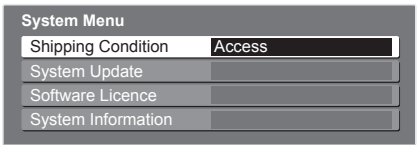


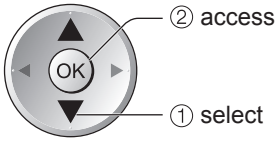
3 Select “System Menu”





4 Select “Shipping Condition”



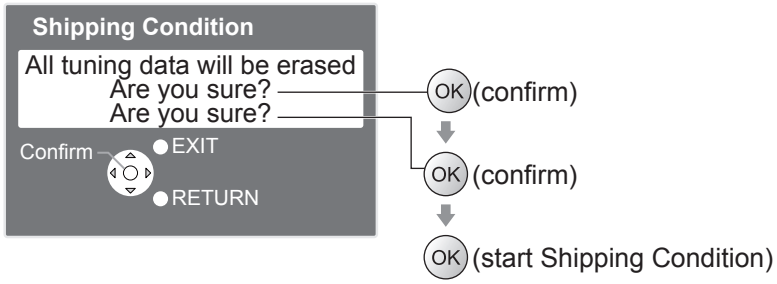


5 Set

To return to TV ➡ EXIT

Restore Settings Shipping Condition

① **Check the message and reset**



② **Follow the on-screen instructions**

Reset to Factory Shipping Condition Completed.
Please disconnect the mains lead of the tuner unit from the socket outlet.

- “Auto Tuning” will automatically start when mains plug of the tuner box is reconnected to the socket outlet. (p. 16)

To retune TV channels only, e.g. after moving house
➡ “Digital TV Auto Tuning” or “Analogue TV Auto Tuning” (p. 36)

Displaying PC Screen on TV

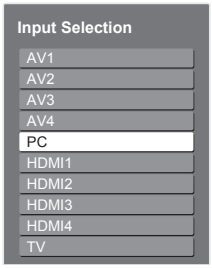
The screen of the PC connected to the TV can be displayed on the TV.
You can also listen to PC sound with the audio cable connected.

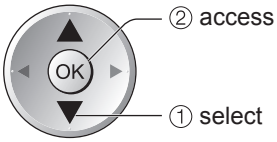
●To connect PC ➡ p. 52

1 Select the external input

AV

2 Select "PC"





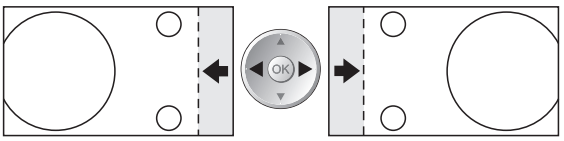
●Corresponding signals ➡ p. 57
●If "H-freq." or "V-freq." is shown in red, the signals may not be supported.

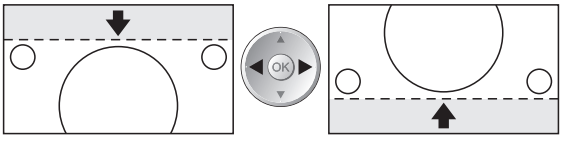
To return to TV ➡ TV

PC menu setting (changed as desired)

Menu	Item		Adjustments / Configurations (options)
Picture	Advanced Settings	W/B High R	White balance of bright red area
		W/B High B	White balance of bright blue area
		W/B Low R	White balance of dark red area
		W/B Low B	White balance of dark blue area
		Gamma	**(S Curve / 2.0 / 2.2 / 2.5)**
		Reset to Defaults	Press the OK button to reset to the default Picture settings
Setup	PC Setup	Input Resolution	Switches to a wide view ●VGA (640 × 480 pixels), WVGA (852 × 480 pixels), XGA (1,024 × 768 pixels), WXGA (1,280 × 768 pixels, 1,366 × 768 pixels) ●Options change depending on signals
		Clock	Set to the minimum level if noise occurs
		H-pos	Adjusts horizontal position
		V-pos	Adjusts vertical position
		Clock Phase	Eliminates flicker and distortion ●Adjust after Clock adjustment ●Set to the minimum level if noise occurs
		Sync	PC sync signal type **(H & V / On Green)** ●H & V : Horizontal and Vertical sync from your PC (Most common sync format) On Green : Sync on Green sync from your PC
		Reset to Defaults	Press the OK button to reset to the default Setup settings

① and ② repeatedly adjusted



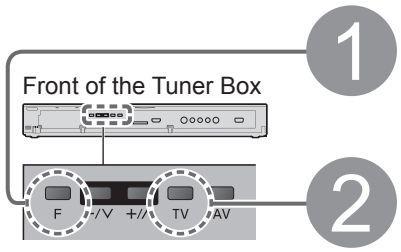


●Other items ➡ p. 30 and p. 31

Pairing Remote Control

You can pair the remote control with the TV again after Auto Tuning (p. 16).
Use this function if you change or add the remote control.

- Up to five remote controls can be used at the same time.



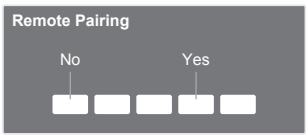
1 Display “Remote Pairing” menu

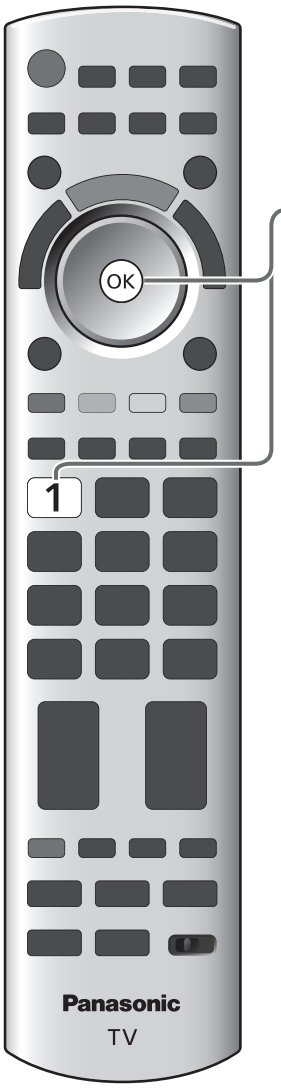
F

- Press the button on the tuner box repeatedly until “Remote Pairing” menu is displayed.

2 Select “Yes”

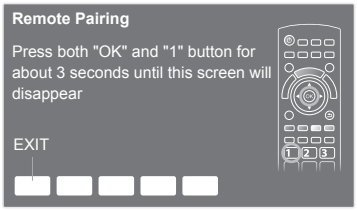
TV





3 Register the remote control

Press OK and 1 buttons simultaneously at least 3 seconds.



Note

- Performimg “Shipping Condition” (p. 39) erases all the registered pairing data.

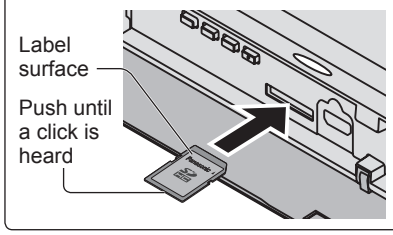
To return to TV ➡ F

Viewing from SD Card
(VIERA IMAGE VIEWER)

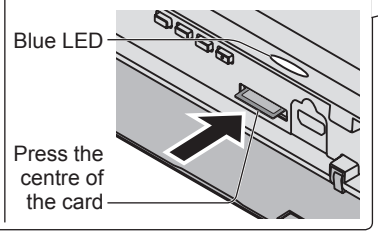
Photo View: Still images recorded by digital cameras will be displayed.
Movie View: Moving pictures recorded by digital video cameras will be played back.

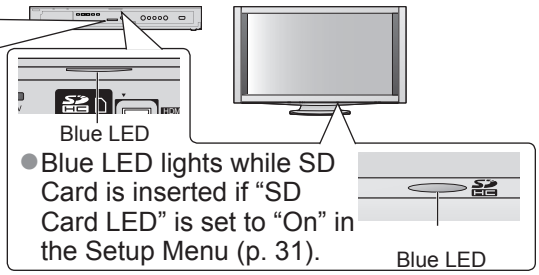
- During the operation, no signals are output from any of the AV terminals. But the sound in Movie View can be output from AUDIO OUT and DIGITAL AUDIO OUT terminals.
- "Date" shows the date on which the recording was made by the digital camera or digital video camera. The file without record of the date is shown "****/**/**".
- For details on SD Cards ➡ p. 56

To insert SD Card



To remove SD Card



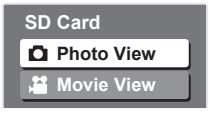


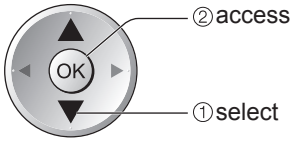
- Blue LED lights while SD Card is inserted if "SD Card LED" is set to "On" in the Setup Menu (p. 31).

Photo View

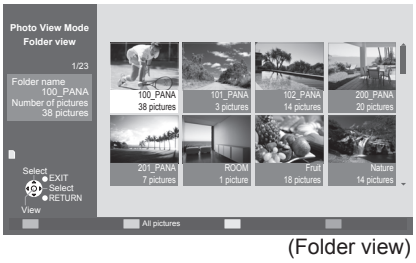
1 Insert the SD Card

2 Select "Photo View"

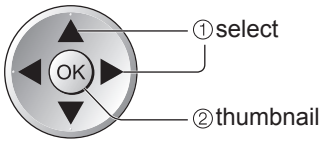




3 Select a folder to display the thumbnail

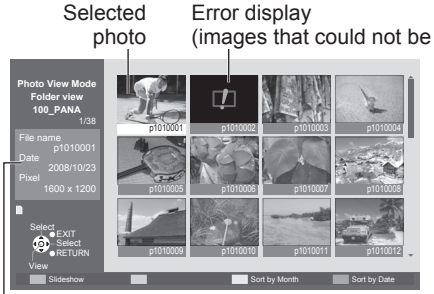


(Folder view)



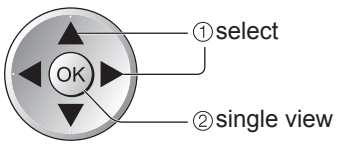
- The files which are not in a folder will be collected to the folder named "/".
- To display all the photos ➡ p. 43

4 Select a photo from the thumbnail to be viewed



(Thumbnail)

Selected photo information is displayed



- Slideshow ➡ p. 43
- To sort by date or month recorded ➡ p. 43

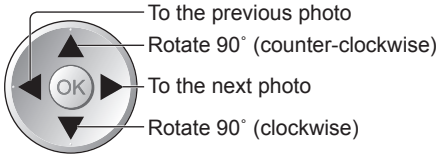
Operation guide

(Single view)

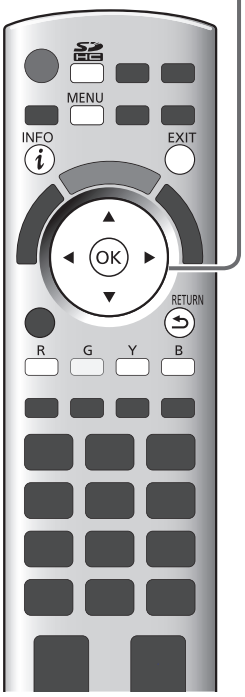
Displayed one at a time

- To display / hide the operation guide

INFO



- To return to thumbnail ➡ RETURN



To return to TV

➡ EXIT or SD HC

To return to the previous screen

➡ RETURN

Slideshow

Start Slideshow (operate in step 4)

Select the photo for the first view

Start Slideshow

● To pause ➡

● To return to Single view ➡

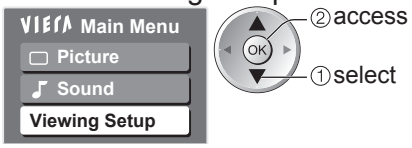
Note

● Slideshow is done within the thumbnail.

Slideshow settings (operate in Photo View Mode)

Display the menu

Select “Viewing Setup”



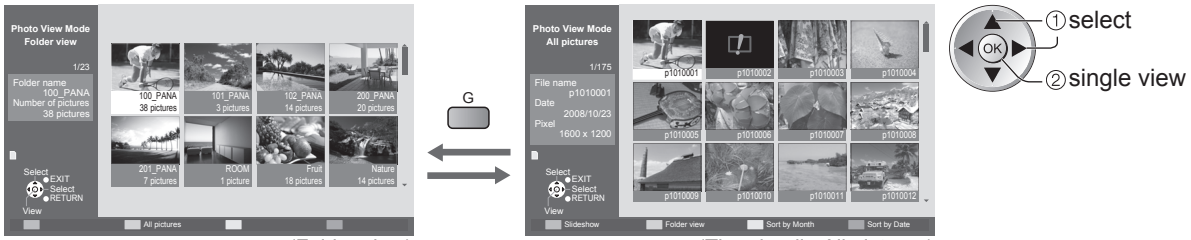
Select the items and set

● Other Items ➡ p. 30 - 31

Menu	Item	Adjustments / Configurations (alternatives)
Viewing Setup	**Back Ground Music**	Selects the back ground music during the slideshow **(Off / Type1 / Type2 / Type3)**
	Effect	Selects the effect for switching the photo during the slideshow **(Off / Fade / Slide / Dissolve / Random)** Fade : The next photo fades in gradually Slide : The next photo slides and appears from the left side Dissolve : The photo is replaced by an indefinite block unit Random : Selects each effect at random
	Interval	Selects slideshow interval **(5 / 10 / 15 / 30 / 60 / 90 / 120 seconds)**
	Repeat	Slideshow repeat **(Off / On)**

To display all the photos

Display the thumbnail of all the photos in SD Card.

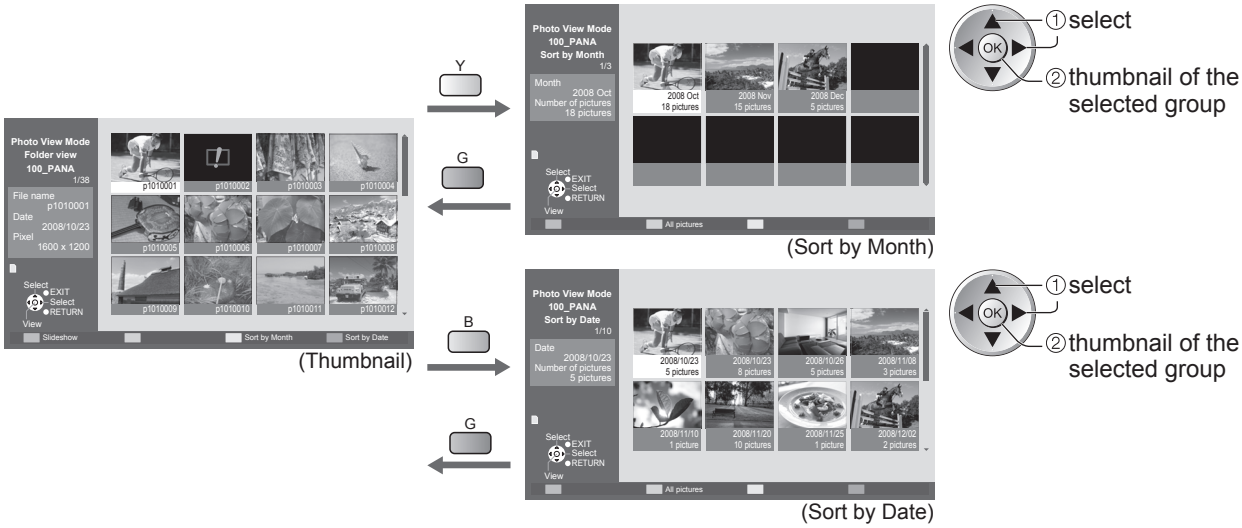


(Folder view) (Thumbnail - All pictures)

To sort by date or month recorded

Display the list of groups sorted by the same date or the same month.

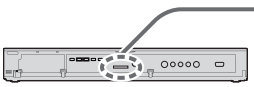
● The group of the photos without record of the date is shown as “Unknown”.



(Thumbnail) (Sort by Month) (Sort by Date)

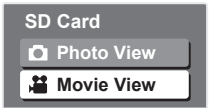
Viewing from SD Card
(VIERA IMAGE VIEWER)

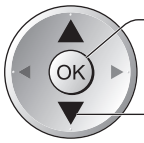
Movie View



1 Inse rt the SD Card

2 Select “Movie View”

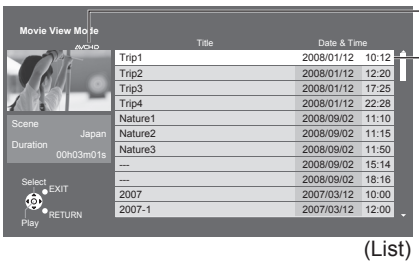




②access

①select

3 Select the file to be viewed



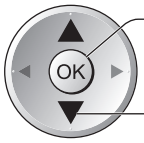
(List)

File format

Only AVCHD or MPEG2 is supported.

●For details ➡ p. 56

Selected file



②playback

①select

Operation guide

(Playback) information banner ➡ INFO

Playback will start

●To display the operation guide

➡ R G Y B or OK

●To hide the operation guide ➡ RETURN

●To return to list ➡ OK (stop)

●To change aspect ratio
(only for the 4:3 movie content)

➡ ASPECT

●To the previous movie ➡ R

●To the next movie ➡ G

To return to TV

➡ EXIT or

To return to the previous screen

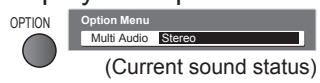
➡ RETURN

Audio Settings

You can enjoy the multi-channel sound via an amplifier connected to DIGITAL AUDIO OUT terminal.

To confirm or change the current sound status (during playback)

Display the Option menu



(Current sound status)

Change the sound (if the movie has multiple audio signals)

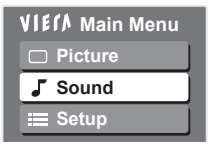
change

- It may take several seconds to change the sound.

Audio output settings (operate in step ❸)

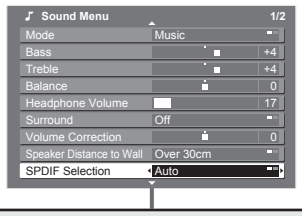
Display the menu

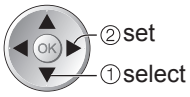
Select “Sound”



- Other items ➡ p. 30 - 31

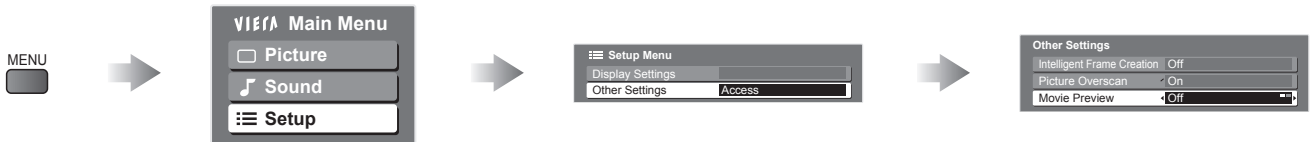
Select “SPDIF Selection” and set





Menu	Item	Adjustments / Configurations (alternatives)
Sound	**SPDIF Selection**	SPDIF : A standard audio transfer file format Selects the initial setting for digital audio output signal from DIGITAL AUDIO OUT terminal **(Auto / PCM)** Auto: Dolby Digital is output as Dolby Digital Bitstream. MPEG is output as PCM. PCM: Digital output signal is fixed to PCM.

- Image may not be displayed for a while when you select the file. Please set the Movie Preview off to resolve this.



VIERA Link "HDAVI Control™"

Enjoy additional HDMI interoperability with Panasonic products which have "HDAVI Control" function.
This TV supports "HDAVI Control 4" function.
Connections to the equipment (DIGA Recorder, HD Video Camera, Player theatre, Amplifier, etc.) with HDMI cable allow you to interface them automatically.
These features are limited to models incorporating "HDAVI Control" and "VIERA Link".

- Some functions are not available depending on the equipment's version of HDAVI Control. Please confirm the connected equipment's version of HDAVI Control.
- VIERA Link "HDAVI Control", based on the control functions provided by HDMI which is an industry standard known as HDMI CEC (Consumer Electronics Control), is a unique function that we have developed and added. As such, its operation with other manufacturers' equipment that supports HDMI CEC cannot be guaranteed.
- Please refer to individual manuals for the equipments. About applicable Panasonic equipment, consult your local Panasonic dealer.

VIERA Link features and connections

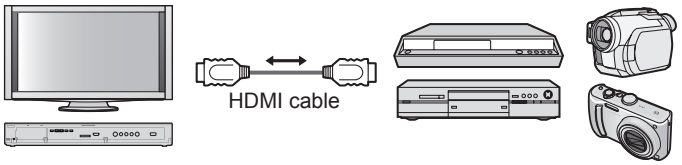
VIERA Link

Features \ Connected equipment with VIERA Link function	DIGA Recorder*1	DVD Player / Blu-ray Disc Player*1	HD Video Camera / LUMIX Camera*1	Player theatre*2	Blu-ray Disc theatre*2	Amplifier*2
Channel download	○*4	–	–	–	–	–
Easy playback	○	○	○	○*7	○*7	–
Power on link	○	○	○	○	○	–
Power off link	○	○	○	○	○	○
Reduce unnecessary power consumption in standby	○*5	○*5	–	–	○*5	–
Auto standby for unnecessary equipment	○*3	○*3	–	○*3 *8	○*3 *8	○*3
Pause Live TV programme	○*4 *6	–	–	–	–	–
Direct TV Recording	○*4	–	–	–	–	–
Control the menu of the connected equipment by VIERA remote control	○*3	○*3	○*3	○*3	○*3	–
Speaker control	–	–	–	○	○	○

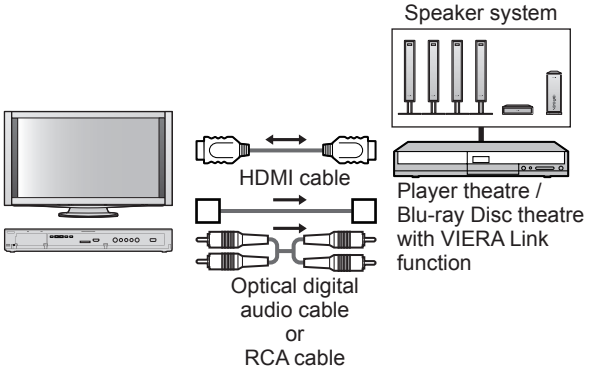
∗1: HDMI Connection only
∗2: HDMI and Audio out connections
∗3: available with the equipment which has "HDAVI Control 2 or later" function
∗4: available with the equipment which has "HDAVI Control 3 or later" function
∗5: available with the equipment which has "HDAVI Control 4" function
∗6: available with DIGA Recorder which has HDD
∗7: while playingback a disc
∗8: except for watching a disc

Connection

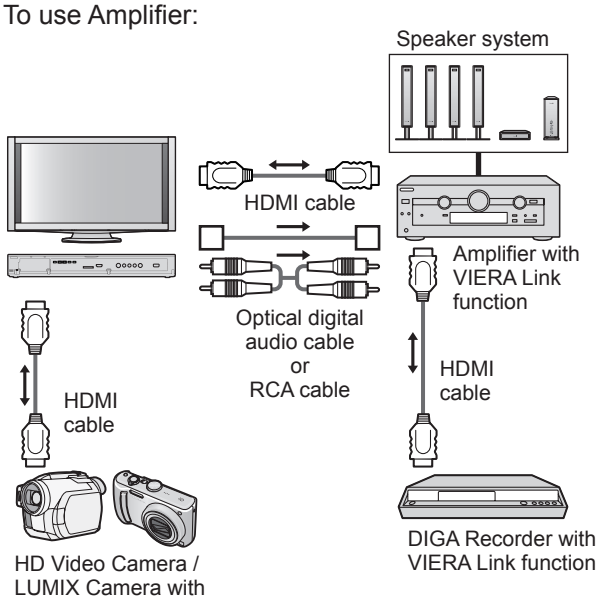
- To use DIGA Recorder / DVD Player / Blu-ray Disc Player / HD Video Camera / LUMIX Camera



- To use Player theatre / Blu-ray Disc theatre:



- To use Amplifier:



Note

- This function may not work properly depending on the connected equipment.
- For DIGA Recorder / DVD Player / Blu-ray Disc Player / HD Video Camera / LUMIX Camera with VIERA Link function, connect to HDMI1, HDMI2, HDMI3 or HDMI4 terminal via an HDMI cable.
- For Player theatre / Blu-ray Disc theatre / Amplifier, connect to HDMI1, HDMI2, HDMI3 or HDMI4 terminal via an HDMI cable and/or either the optical digital audio cable or RCA cable for audio output from the TV.
- Use fully wired HDMI compliant cable. Non-HDMI-compliant cables cannot be utilized.
  Recommended Panasonic's HDMI cable part number:
  • RP-CDHG10 (1.0 m) • RP-CDHG15 (1.5 m) • RP-CDHG20 (2.0 m) • RP-CDHG30 (3.0 m) • RP-CDHG50 (5.0 m)

Preparations

- Connect the equipment supporting VIERA Link.
- Set up the connected equipment. Read the manual of the equipment.
- For optimal recording, the settings of the recorder might be required. For details, read the manual of the recorder.
- Set VIERA Link On in Setup Menu ➡ "VIERA Link" (p. 31)
- Set up the TV ➡ **After connection, turn the equipment on and then switch the TV on. Select the input mode to HDMI1, HDMI2, HDMI3 or HDMI4 (p. 26), and make sure that an image is displayed correctly.**
  This setup should be done each time when the following conditions occur:
  • for the first time / • when adding or reconnecting equipment / • when changing setup

Features available

Channel download

Channel setting can be downloaded to the recorder.

Easy playback

Automatic input switching - When the connected equipment is operated, input mode is switched automatically.

Power on link

Set Power on Link "On" in Setup Menu to use this function ➡ "Power on Link" (p. 31)
When the connected equipment starts playback or direct navigator / function menu for the equipment are activated, the TV is automatically turned on. (Only when the TV is in Standby mode.)

Power off link

Set Power off Link "On" in Setup Menu to use this function ➡ "Power off Link" (p. 31)
When the TV is set to Standby mode, the connected equipment is also automatically set to Standby.

- This function will work even if the TV enters standby mode automatically by Off Timer function or auto power standby function.

Reduce unnecessary power consumption in standby **Standby Power Save**

Set Standby Power Save "On" in the Setup Menu to use this function ➡ "Standby Power Save" (p. 31)
The power consumption in Standby mode of the connected equipment is controlled higher or lower in synchronization with the TV On / Off state to reduce the consumption.
When the TV is set to Standby mode, the connected equipment is automatically set to Standby and the power consumption in Standby mode of the connected equipment is automatically minimized.
When the TV is turned on, the connected equipment is still in Standby mode, but the power consumption is increased to make startup time early.

- This function is effective if the connected equipment can change the power consumption in Standby mode and is set to higher consumption.

Auto standby for unnecessary equipment **Intelligent Auto Standby**

Set Intelligent Auto Standby "On (With reminder)" or "On (No reminder)" in the Setup Menu to use this function ➡ "Intelligent Auto Standby" (p. 31)
When the TV is on, the connected equipments not in use go into Standby mode automatically to reduce the power consumption.

- If you select "On (With reminder)", the on screen message will be displayed to be noticed before working this function.

VIERA Link "HDAVI Control™"

Features available (Using VIERA Link Menu)

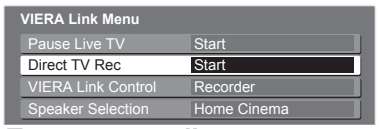
Direct TV Recording - What you see is What you record **Direct TV Rec**

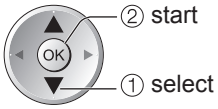
Recording the current programme in DIGA Recorder immediately.

- If you connect several recorders including other manufacturers' recorders at the same time, please connect DIGA Recorder to the TV's lower HDMI terminal number.
- If you cannot operate, check the settings and the equipment ➡ "VIERA Link features and connections" (p. 46)

① **Display "VIERA Link Menu"**

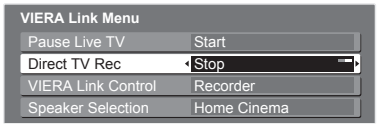
② **Select "Direct TV Rec" and start recording**

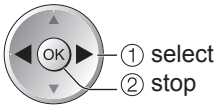




To stop recording

Select "Stop" in "Direct TV Rec" and access



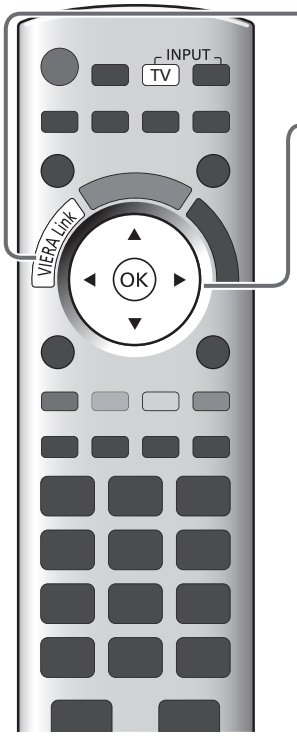


Pause Live TV programme **Pause Live TV**

You can pause the live TV programme and resume later.
Live TV programme will be recorded on HDD of the connected DIGA Recorder.

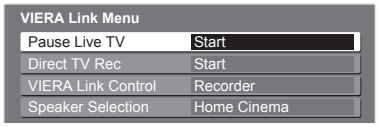
- This function is available with DIGA Recorder which has HDD.
- If you connect several recorders including other manufacturers' recorders at the same time, please connect DIGA Recorder which has HDD to the TV's lower HDMI terminal number.
- If you cannot operate, check the settings and the equipment ➡ "VIERA Link features and connections" (p. 46)

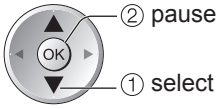
Access and pause the live TV programme



① **Display "VIERA Link Menu"**

② **Select "Pause Live TV" and pause**

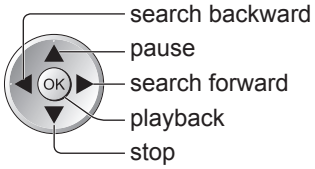




TV picture will be paused.

- Live TV programme is recorded on HDD from where it was paused.
- Follow the operation guide to operate Pause Live TV function.

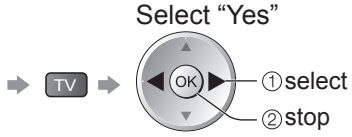
To operate Pause Live TV

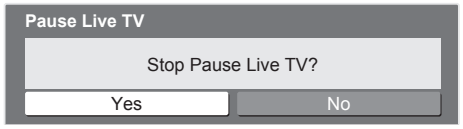


To return to Live TV

(stop playback of Pause Live TV / cancel pause)

Select "Yes"





- If you stop playback or cancel pause, the recorded programme will be deleted from HDD.

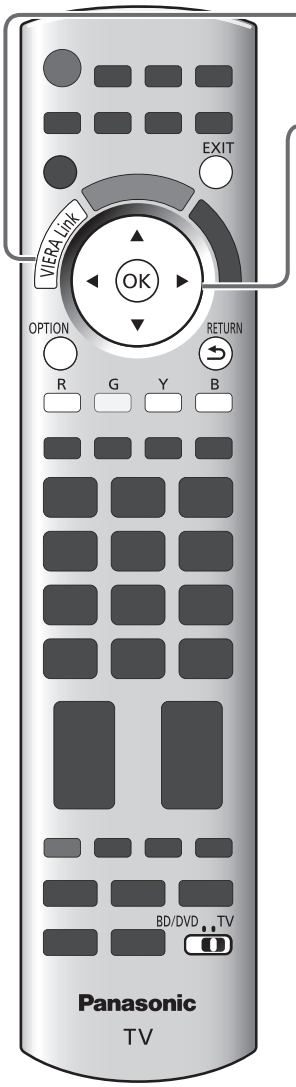
Features available (Using VIERA Link Menu)

Operate the connected equipment with VIERA remote control VIERA Link Control

You can control some functions of the connected equipment with this TV remote control by pointing at the TV's signal receiver.

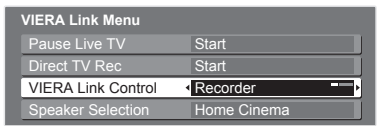
- If you cannot operate, check the settings and the equipment ➡ “VIERA Link features and connections” (p. 46)
- For details of the operations for the connected equipment, read the manual of the equipment.

Access and operate the menu of the equipment



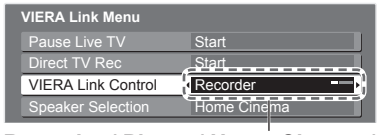
① **Display “VIERA Link Menu”**

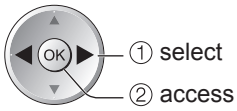
② **Select “VIERA Link Control”**



③ **Select the equipment you want to access**

The type of the connected equipment is displayed.
Select the type of the equipment and access.





Recorder / Player / Home Cinema / Video Camera / LUMIX / Other

- “Home Cinema” means Player theatre, Blu-ray Disc theatre or Recorder theatre.
- “Other” means Tuner set top box.

The menu of the accessed equipment
(Input mode will be changed automatically)

④ **Operate the connected equipment**

1. Switch to TV BD/DVD TV

2. Follow the operation guide

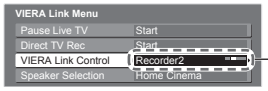
To display the operation guide ➡ OPTION
Store / set / access ➡ OK
Move the cursor / select the menu ➡
Return to the previous menu ➡ RETURN
Move the cursor / access / adjust ➡
Exit the menu ➡ EXIT
When the key words are displayed on colour bar ➡ R G Y B

Note

- Some operations may not be available for some equipment. If so, use its own remote control.

If several recorders or players are connected

You can connect up to three recorders or players at the same time.

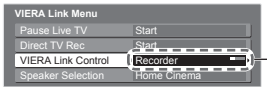


Recorder1-3 / Player1-3

The number is given from the TV’s lower HDMI terminal connected to the same type of equipment. For example, when two recorders are connected to HDMI2 and HDMI3, one connected to HDMI2 is displayed as Recorder1 and the other as Recorder2.

If you access the invalid equipment

When the equipment with “HDAVI Control” function is connected



Recorder1-3 / Player1-3

Type of the connected equipment is displayed. You can access the menu of the equipment. But you cannnot operate it. Use its own remote control to operate the equipment.

VIERA Link "HDAVI Control™"

Features available (Using VIERA Link Menu)

Speaker control Speaker Selection

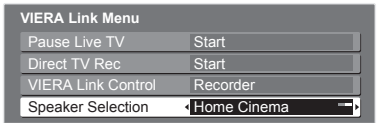
You can control the theatre speaker with this TV remote control by pointing at the TV's signal receiver.

- If you cannot operate, check the settings and the equipment ➡ "VIERA Link features and connections" (p. 46)

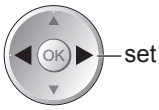
Access and control the speaker volume

① **Display "VIERA Link Menu"**

② **Select "Speaker Selection"**



③ **Set to "Home Cinema" or "TV"**



Home Cinema
Player theatre, Blu-ray Disc theatre or Amplifier will be automatically turned on if it is in Standby mode and the sound is from theatre speakers connected to the equipment.

- Volume up / down

➡

(Volume slide bar will be displayed when adjusting the volume of the equipment.)

- Mute ➡

- The sound of TV speakers is mute.
- When the equipment is turned off, TV speakers will be active.

TV
TV speakers are active.

Note

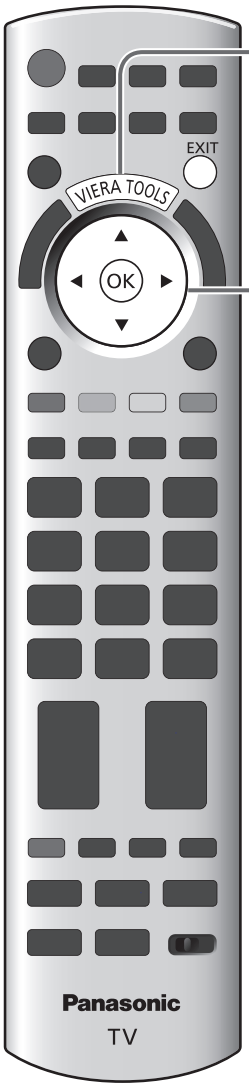
- If you wish to enjoy the multi-channel sound (e.g. Dolby Digital 5.1ch) via an Amplifier, connect with HDMI cable and Optical digital audio cable (p. 46), and then select "Home Cinema".
  To enjoy the sound from the DIGA Recorder in multi-channel sound, connect an HDMI cable from the DIGA Recorder to the Amplifier (p. 46).
- Easy playback may be available by using the remote control for Player theatre, Blu-ray Disc theatre or Amplifier. Read the manual of the equipment.

Note

- These functions may not work properly depending on the connected equipment.
- Image or sound may not be available for the first few seconds when input mode is switched.
- "HDAVI Control 4" is the newest standard (current as of December, 2008) for HDAVI Control compatible equipment. This standard is compatible with conventional HDAVI equipment.
- To confirm this TV's version of HDAVI Control ➡ "System Information" (p. 31)

VIERA Tools

With VIERA Tools, you can directly access to some of the useful functions of connected equipment or SD card.



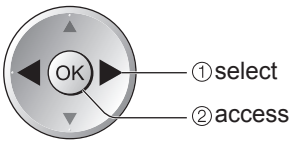
To return to TV

EXIT or VIERA TOOLS

1 Display VIERA Tools Menu

VIERA TOOLS

2 Select a feature



3 Follow the operation of each feature

VIERA Link Control

VIERA Link Control (p. 49)
The connected device can be operated with the VIERA remote control.
When multiple devices are connected, an indicator appears below the icon so that one device can be selected.

Pause Live TV

Pause Live TV (p. 48)
A live TV programme can be paused and resumed later.

Direct TV Rec

Direct TV Rec (p. 48)
What is on TV can be recorded immediately.

Speaker Selection

Speaker Control (p. 50)
Theatre speaker can be set.

Slideshow

SD card slideshow (p. 43)
Photo slideshow will start.

Photos

SD card photo view (p. 42)
Photo folders are displayed.

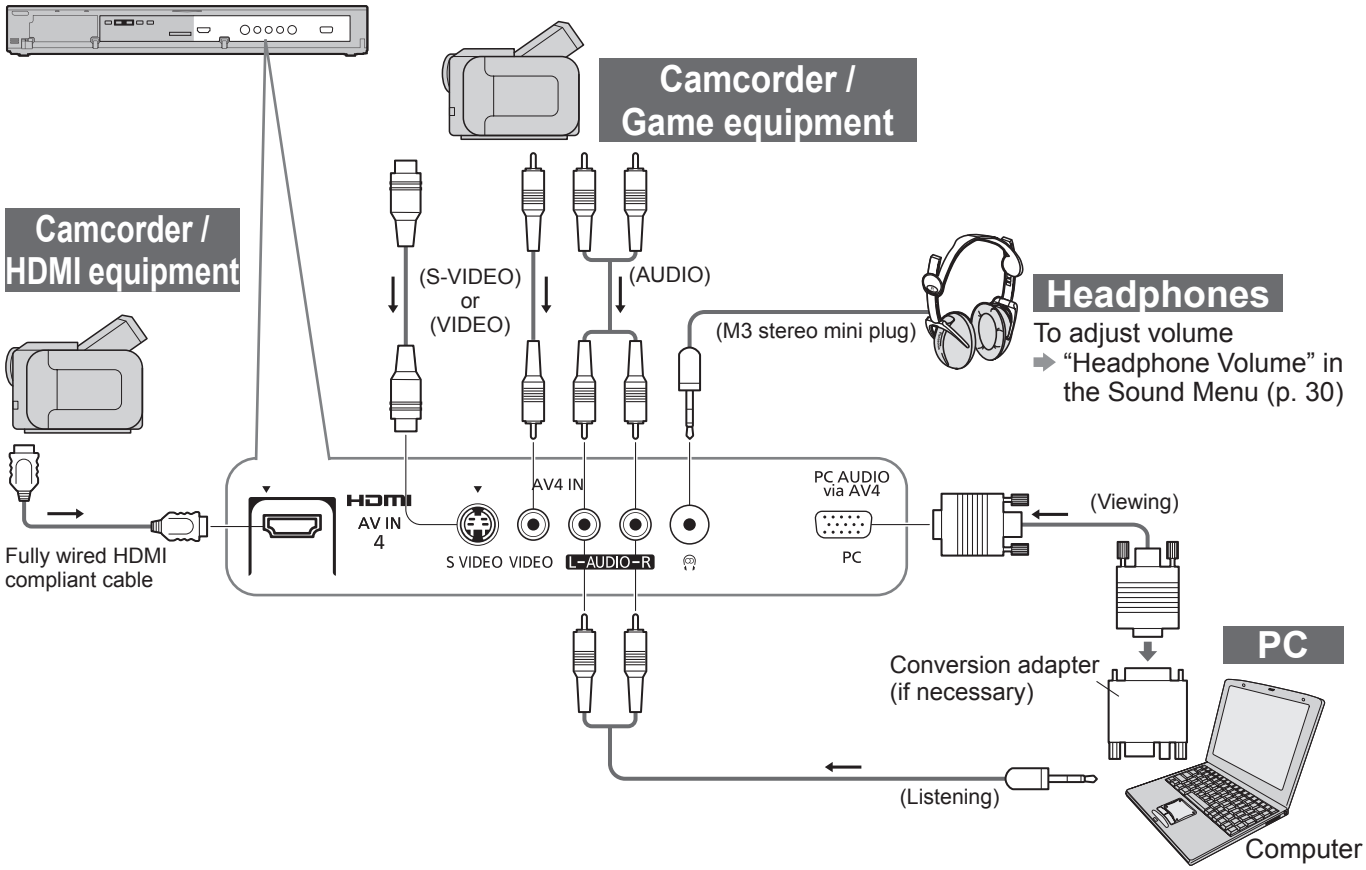
Movies

SD card movie view (p. 44)
The title list for SD movie image is displayed.

External Equipment

These diagrams show our recommendations for how to connect the TV to your various equipment. For other connections, consult the instructions for each piece of equipment, the table below, and the specifications (p. 61).

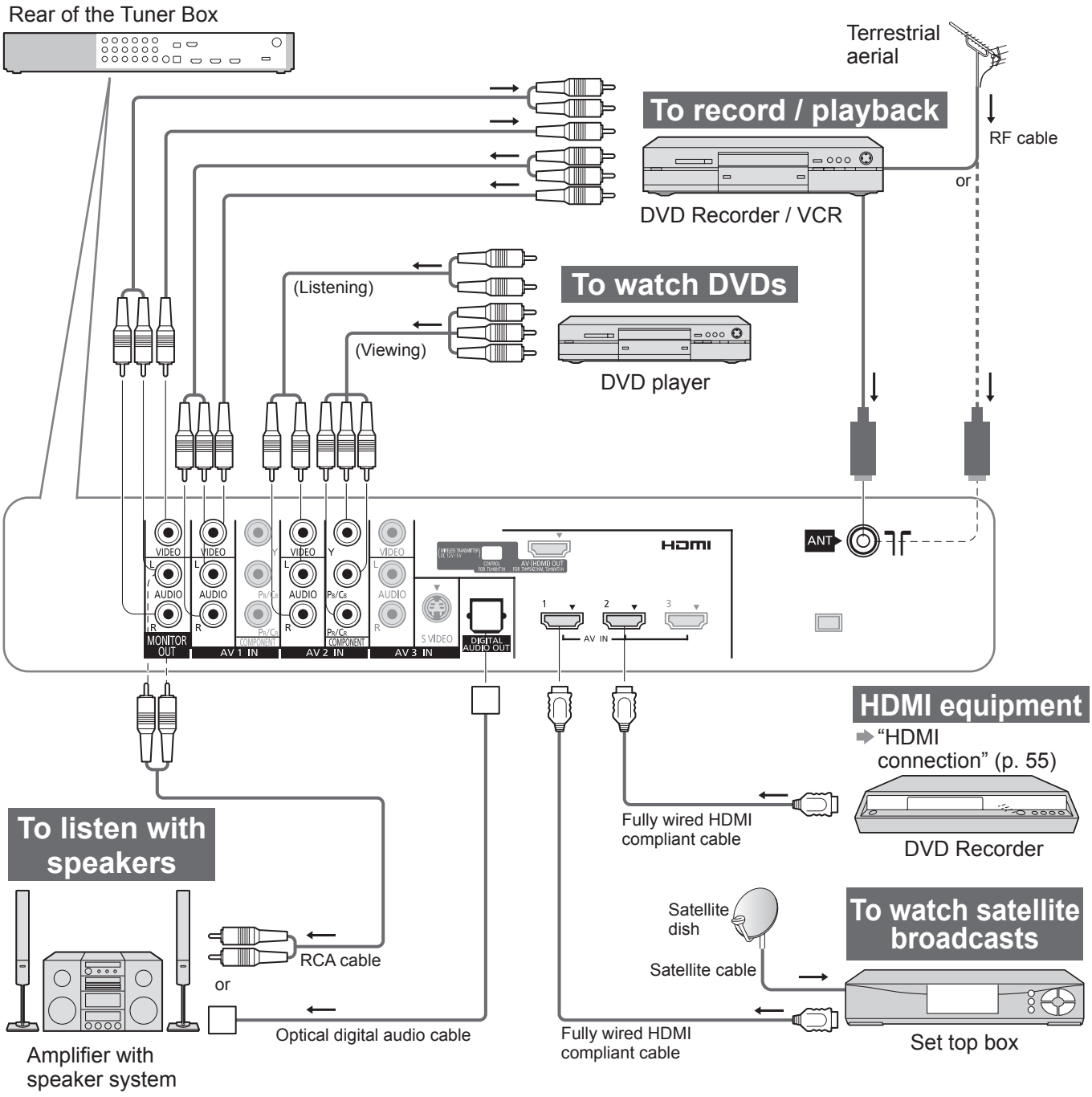
Front of the Tuner Box



Types of connectable equipment to each terminal

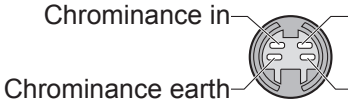
Terminal / Recording / Playback (equipment)	AV1 IN	AV2 IN	AV3 IN	AV4 IN	MONITOR OUT
To record / playback videocassettes / DVDs (VCR / DVD recorder)	○	○	○	○	○
To watch DVDs (DVD player)	○	○	○	○	
To watch camcorder images (Video camera)	○	○	○	○	
To watch satellite broadcasts (Set top box)	○	○	○	○	
To play games (Game equipment)	○	○	○	○	
To use amplifier with speaker system					○
VIERA Link					

○: Recommended Connection

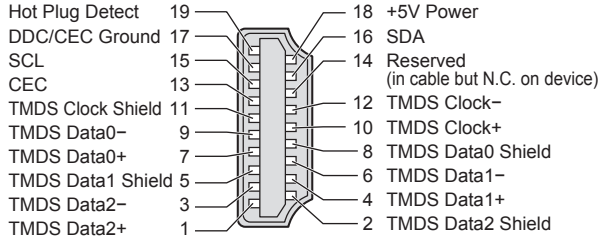


	DIGITAL AUDIO OUT	HDMI			
		1	2	3	4
		○	○	○	○
		○	○	○	○
		○	○	○	○
		○	○	○	○
	○	○	○	○	○
		○	○	○	○

S VIDEO 4 pin terminal



HDMI terminal



- Connect the S VIDEO or VIDEO terminal when using AV3 / AV4 IN terminals.
- Connect the COMPONENT or VIDEO terminal when using AV1 / AV2 IN terminals.

Technical Information

Channel Allocation (Analogue TV mode)

Channel Plan	Asia / W. Europe	CIS / E.Europe	China	Hong Kong	NZ / Indonesia	Indian CATV	South Africa	American System	American CATV	Japan
CH DISPLAY	Receive channel									
0	–	–	–	–	–	–	–	–	–	–
1	–	1	1	–	1	1	1	–	1	1
2	2	2	2	–	2	2	2	2	2	2
3	≀	≀	≀	–	≀	3	≀	≀	≀	≀
4	≀	≀	≀	–	≀	4	≀	≀	≀	≀
5	≀	≀	≀	–	≀	S'1	≀	≀	≀	≀
6	≀	≀	≀	–	≀	S'2	≀	≀	≀	≀
7	≀	≀	≀	–	≀	S'3	≀	≀	≀	≀
≀	≀	≀	≀	–	≀	S1	≀	≀	≀	≀
11	11	11	≀	–	11	S2	11	≀	≀	≀
12	12	12	12	–	–	S3	12	≀	≀	12
13	–	–	13	–	–	S4	13	13	≀	13
14	–	–	≀	–	–	≀	–	14	≀	≀
15	–	–	≀	–	–	≀	–	≀	≀	≀
16	–	–	≀	–	–	≀	–	≀	≀	≀
≀	–	–	≀	–	–	≀	–	≀	≀	≀
19	–	–	≀	–	–	S10	–	≀	≀	≀
20	–	–	≀	–	–	5	–	≀	≀	≀
21	21	21	≀	21	21	6	21	≀	≀	≀
22	≀	≀	≀	≀	≀	≀	≀	≀	≀	≀
23	≀	≀	≀	≀	≀	≀	≀	≀	≀	≀
24	≀	≀	≀	≀	≀	≀	≀	≀	≀	≀
≀	≀	≀	≀	≀	≀	12	≀	≀	≀	≀
28	≀	≀	≀	≀	≀	S11	≀	≀	≀	≀
≀	≀	≀	≀	≀	≀	≀	≀	≀	≀	≀
57	≀	≀	57	≀	≀	S40	≀	≀	≀	≀
58	≀	≀	–	≀	≀	S41	≀	≀	≀	≀
59	≀	≀	–	≀	≀	21	≀	≀	≀	≀
≀	≀	≀	–	≀	≀	≀	≀	≀	≀	≀
62	62	62	–	62	62	24	62	62	62	62
63	63	63	–	63	63	25	63	63	63	C13
≀	≀	≀	–	≀	≀	≀	≀	≀	≀	≀
69	69	69	–	69	69	31	69	69	≀	≀
70	–	–	–	–	–	32	–	–	≀	≀
≀	–	–	–	–	–	≀	–	–	≀	≀
73	–	–	–	–	–	≀	–	–	≀	≀
74	S'1	S'1	–	S'1	S'1	≀	S'1	–	≀	≀
75	S'2	–	–	S'2	S'2	≀	S'2	–	≀	≀
76	S'3	–	–	S'3	S'3	≀	S'3	–	≀	≀
77	–	–	–	–	–	≀	–	–	≀	≀
78	–	–	–	–	–	≀	–	–	≀	≀
79	–	–	–	–	–	41	–	–	≀	≀
80	S1	S1	–	S1	S1	42	S1	–	≀	≀
81	S2	S2	Z1	S2	S2	≀	S2	–	≀	≀
≀	≀	≀	≀	≀	≀	≀	≀	–	≀	≀
89	S10	S10	Z9	S10	S10	51	S10	–	≀	≀
90	S11	S11	Z10	S11	S11	52	–	–	≀	≀
91	S12	S12	Z11	S12	S12	≀	–	–	≀	≀
92	S13	S13	Z12	S13	S13	≀	–	–	≀	≀
93	S14	S14	Z13	S14	S14	≀	S14	–	≀	≀
94	S15	S15	Z14	S15	S15	≀	S15	–	≀	≀
95	S16	S16	Z15	S16	S16	≀	S16	–	≀	≀
96	S17	S17	Z16	S17	S17	≀	S17	–	≀	≀
97	S18	S18	Z17	S18	S18	≀	S18	–	≀	≀
98	S19	S19	Z18	S19	S19	≀	S19	–	≀	≀
99	S20	S20	Z19	S20	S20	61	S20	–	99	C49
100	S21	S21	Z20	S21	S21	62	S21	–	100	–
≀	≀	≀	≀	≀	≀	≀	≀	–	≀	–
107	≀	≀	≀	≀	≀	69	≀	–	≀	–
≀	≀	≀	≀	≀	≀	70	≀	–	≀	–
117	≀	≀	Z37	≀	≀	–	≀	–	≀	–
118	≀	≀	–	≀	≀	–	≀	–	≀	–
≀	≀	≀	–	≀	≀	–	≀	–	≀	–
120	S41	S41	–	S41	S41	–	S41	–	≀	–
≀	–	–	–	–	–	–	–	–	≀	–
125	–	–	–	–	–	–	–	–	125	–

Updating the software system (Digital TV mode)

Update system software to ensure that you have latest version software.
If there is an update available, a notification banner is displayed when the channel has the update information.

- To download new software, press “OK” ➡ Downloading (approx. 1 hour.)
  If you choose not to download, press “EXIT”.

To update automatically

Set “Auto Update Search in Standby” to “On” (p. 33)
If there is a new version software being broadcast, the TV will download this automatically.

- The automatic updating sequence is carried out at 3:00 AM and 5:00 AM every morning under the following condition.
  Standby (TV turned Off with the remote control)
  Recording is not in progress.

To update manually

Perform “System Update Search Now” (p. 33)
If there is an update available, a notification banner is displayed.

Note

- During downloading, do not turn Off the TV or touch any buttons.
  (The TV is automatically activated after downloading is completed.)
- When the TV is switched to standby, there will be a clicking sound after a short delay. Similar clicking sounds will also occur at 3:00 AM and 5:00 AM when “Auto update Search in Standby” (p. 33) is set to “On”. These sounds are normal.

Stereo / Bilingual Sound Selection (Analogue TV mode)

When you receive the stereo / bilingual sound system, sound output modes can be selected by pressing the **Stereo / Bilingual Sound Selection** button.

Audio Signal	STEREO	MAIN I	SUB II	MONO
Mode Indicator	◯◯	I	II	▽

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

Type of broadcast	Regular broadcast (Standard Audio)	Regular + NICAM MONO I (MAIN I)	NICAM STEREO	NICAM DUAL MONO (MAIN I / SUB II)
Mode Indicator	No Indicator ⟷ ▽	I ⟷ ▽	◯◯ ⟷ ▽	I → II ▽

A2 (German) .....Used in Australia, Malaysia etc.

Type of broadcast	Regular broadcast (Standard Audio)	BILINGUAL or DUAL MONO: MAIN I / SUB II	STEREO
Mode Indicator	No Indicator ⟷ ▽	I ⟷ II	◯◯ ⟷ ▽

- If the stereo signal is poor or the receiving conditions are not optimum or if STEREO:MONO automatic switching occurs, it is recommended you switch from STEREO to MONO.
- Even when the contents of the receiving signal undergo changes, selection mode is kept intact.
- When the receiving conditions deteriorate, listening will be easier if the mode is set to the MONO position, using the stereo / bilingual sound selection button.
- DUAL, also known as DUAL MONO or as BILINGUAL is not currently transmitted in some countries.

HDMI connection

HDMI (high-definition multimedia interface) allows you to enjoy high-definition digital images and high-quality sound by connecting the TV and the equipment.
HDMI-compatible equipment (∗1) with an HDMI or DVI output terminal, such as a set top box, a DVD player or a game equipment can be connected to the HDMI terminal using an HDMI compliant (fully wired) cable.
About connections, see “External Equipment” (p. 52).

- HDMI is the world’s first complete digital consumer AV interface complying with a non-compression standard.
- If the external equipment has only a DVI output, connect to the HDMI1 / 4 terminal via a DVI to HDMI adapter cable (∗2).
- When the DVI to HDMI adapter cable is used, connect the audio cable to the audio input terminal (HDMI1: use AV2 IN AUDIO terminal / HDMI4: use AV4 IN AUDIO terminals).
- Audio settings can be made on the “HDMI1 / 4 Input” menu screen. (p. 30)
- Applicable audio signal sampling frequencies (2ch L.PCM): 48 kHz, 44.1 kHz, 32 kHz
- HDMI2 and 3 terminals are for digital audio signal only.
- Use with a PC is not guaranteed. Only HDMI video formats indicated in the HDMI table (p. 57) are applicable.
- 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.
- An equipment having no digital output terminal may be connected to the input terminal of either “COMPONENT”, “S-VIDEO”, or “VIDEO” to receive analogue signals.
- The HDMI input terminal can be used only with the following image signals:
  480i, 480p, 576i, 576p, 720p, 1080i and 1080p. Match the output setting of the digital equipment.
- For details of the applicable HDMI signals, see p. 57.

(∗1): The HDMI logo is displayed on HDMI-compliant equipment.
(∗2): Enquire at your local digital equipment retailer shop.

Technical Information

SD Card

Cautions in handling SD Card

- Do not remove the card while the TV is accessing data (this can damage card or TV).
- Do not touch the pins on the back of the card.
- Do not subject the card to a high pressure or impact.
- Insert the card in the correct direction (otherwise, card may be damaged).
- Electrical interference, static electricity, or erroneous operation may damage the data or card.
- Back up the recorded data at regular intervals in case of deteriorated or damaged data or erratic operation of the TV. (Panasonic is not liable for any deterioration or damage of recorded data.)

Data format for Card browsing

Photo : Still images recorded with digital still cameras compatible with JPEG files of DCF* and EXIF standards
Data format - Baseline JPEG (Sub-sampling 4:4:4, 4:2:2 or 4:2:0)
Max. number of files - 9,999
Image resolution - 8 × 8 to 30,719 × 17,279 pixels

Movie : SD-Video Standard Ver. 1.2 [MPEG-2 (PS format)] and AVCHD Standard compatible files with an audio format that is either MPEG-1/Layer-2 format or Dolby Digital format
(AVCHD files recorded with vertical frequency 50Hz are applicable. A modified data with a PC may not be displayed correctly.)

- Compliant card type (maximum capacity): SDHC Card (32 GB), SD Card (2 GB) and miniSD Card (2 GB) (requiring miniSD adapter)
- If miniSD Card is used, insert / remove it together with the adapter.
- Check the latest information on the card type at the following website. (English only)
  http://panasonic.co.jp/pavc/global/cs/

*DCF (Design rule for camera file system): Unified standard established by Japan Electronics and Information Technology Industries Association (JEITA).

Note

- Format the card with the recording equipment.
- The picture may not appear correctly on this TV depending on the recording equipment used.
- Display may take some time when there are many files and folders.
- This function cannot display Motion JPEG and still image not JPEG formatted (i.e. TIFF, BMP).
- A data modified with a PC may not be displayed.
- Images imported from a PC must be compatible with EXIF (Exchangeable Image File) 2.0, 2.1, and 2.2.
- Partly degraded files might be displayed at a reduced resolution.
- All ".JPG" extension datas in the card will be read in Photo View Mode.
- The folder and file names may be different depending on the digital camera used.
- Do not use two-byte characters or other special codes.
- The card may become unusable with this TV if the file or folder names are changed.

On screen messages

Message	Meaning / Action
Cannot read file	● The file is broken or unreadable. ● The TV does not support the format. (For the applicable formats and data, see above.)
Please confirm the SD card is OK	● The inserted SD card has a problem.
No SD card inserted	● Insert a SD Card.
No valid file to play	● The card has no data.
Over 9999 pictures found. (max. is 9999)	● Maximum valid number of photos is 9,999.
This operation is not possible	● Your operation is not available.

PC connection

A PC may be connected to this TV so that the PC screen is displayed and sound is heard from the TV.

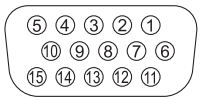
- PC signals that can be inputted: Horizontal scanning frequency 31 to 69 kHz; vertical scanning frequency 59 to 86 Hz (more than 1,024 signal lines could result in incorrect display of the image).
- A PC adapter is not necessary for the DOS/V-compliant D-sub 15-pin connector.

Note

- Some PC models cannot be connected to this TV.
- When using PC, set the colour display quality of PC to the highest position.
- For details of the applicable PC signals, see below.
- Max. display resolution

Aspect	**4:3**	1,440 × 1,080 pixels
	16:9	1,920 × 1,080 pixels

- D-sub 15-pin connector signal



Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
①	R	⑥	GND (Ground)	⑪	NC (not connected)
②	G	⑦	GND (Ground)	⑫	NC (not connected)
③	B	⑧	GND (Ground)	⑬	HD
④	NC (not connected)	⑨	NC (not connected)	⑭	VD
⑤	GND (Ground)	⑩	GND (Ground)	⑮	NC (not connected)

Input signal that can be displayed

COMPONENT (Y, P_B/C_B, P_R/C_R)**, HDMI**

∗ Mark: Applicable input signal

Signal name	COMPONENT	HDMI
525 (480) / 60i	∗	∗
525 (480) / 60p	∗	∗
625 (576) / 50i	∗	∗
625 (576) / 50p	∗	∗
750 (720) / 60p	∗	∗
750 (720) / 50p	∗	∗
1,125 (1,080) / 60i	∗	∗
1,125 (1,080) / 50i	∗	∗
1,125 (1,080) / 60p		∗
1,125 (1,080) / 50p		∗
1,125 (1,080) / 24p		∗

PC (D-sub 15P)

Signal name	Horizontal frequency (kHz)	Vertical frequency (Hz)
640 × 400 @70 Hz	31.47	70.07
640 × 480 @60 Hz	31.47	59.94
640 × 480 @75 Hz	37.50	75.00
800 × 600 @60 Hz	37.88	60.32
800 × 600 @75 Hz	46.88	75.00
800 × 600 @85 Hz	53.67	85.06
852 × 480 @60 Hz	31.44	59.89
1,024 × 768 @60 Hz	48.36	60.00
1,024 × 768 @70 Hz	56.48	70.07
1,024 × 768 @75 Hz	60.02	75.03
1,024 × 768 @85 Hz	68.68	85.00
1,280 × 1,024 @60 Hz	63.98	60.02
1,280 × 768 @60 Hz	47.70	60.00
1,366 × 768 @60 Hz	48.39	60.04
Macintosh13” (640 × 480)	35.00	66.67
Macintosh16” (832 × 624)	49.73	74.55
Macintosh21” (1,152 × 870)	68.68	75.06

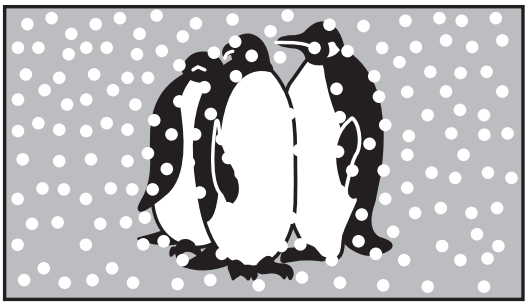
Note

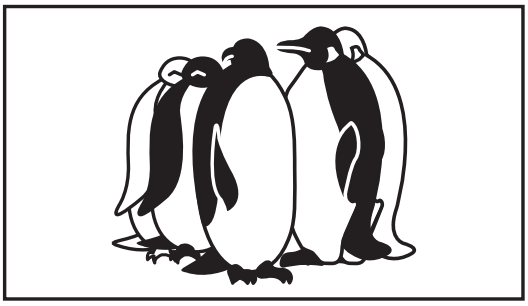
- Signals other than above may not be displayed properly.
- The above signals are reformatted for optimal viewing on your display.
- Applicable input signal for PC is basically compatible to VESA standard timing.
- PC signal is magnified or compressed for display, so that it may not be possible to show fine detail with sufficient clarity.

FAQs

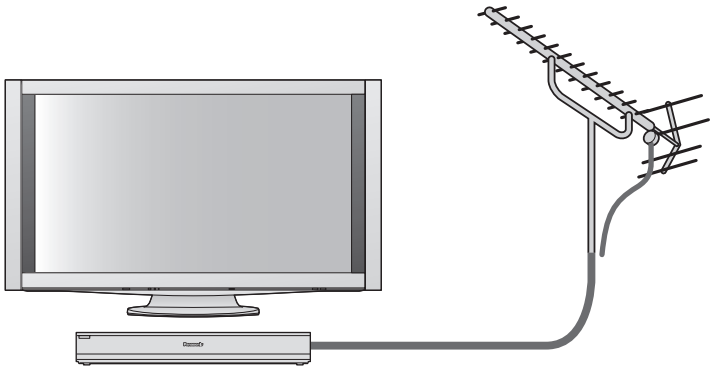
Before requesting service or assistance, please follow these simple guides to resolve the problem.
If the problem still persists, please contact your local Panasonic dealer for assistance.

White spots or shadow images (noise)





- Check the position, direction, and connection of the aerial.



Neither image nor sound is produced

- Is the TV in “AV mode”?
- Is the mains lead plugged into the socket outlet?
- Is the TV turned On?
- Check Picture Menu (p. 30) and volume.
- Check the connection between the display unit and the tuner box. (p. 12 and p. 13)

An error message appears

- Follow the message’s instructions.
- If the problem persists, contact your local Panasonic dealer.

“VIERA Link” function does not work and an error message appears

- Confirm the connection.
- Turn the connected equipment on and then switch the TV on. (p. 46)

Contrast is reduced

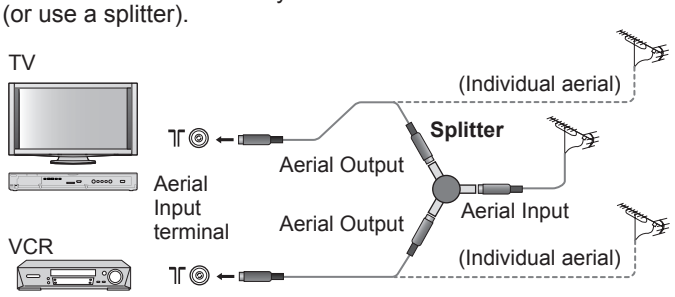
- Contrast is lowered in the following conditions without any user operation for a few minutes:
  - no signal in Digital TV or AV mode
  - selected invalid programme
  - selected radio service
  - displayed menu
  - Thumbnail or still picture in SD Card mode

Permanently lit spots on screen

- Due to production process involved in this technology this may result in some pixels which are permanently lit or unlit. This is not a malfunction.

	Problem	Actions
Screen	**Chaotic image, noisy**	●Set “P-NR” in the Picture Menu (to remove noise). (p. 30) ●Check nearby electrical products (car, motorcycle, fluorescent lamp).
	No image can be displayed	●Is “Colour” or “Contrast” in the Picture Menu set to the minimum? (p. 30)
	Blurry or distorted image (no sound or low volume)	●Reset channels. (p. 39)
	Unusual image is displayed	●Remove the mains plug of the tuner box from the wall socket and connect it again to turn it on. ●If the problem persists, perform “Shipping Condition” (p. 39)
Sound	**No sound is produced**	●Is “Sound Mute” active? (p. 15) ●Is the volume set to the minimum?
	Sound level is low or sound is distorted	●Sound signal reception may be deteriorated. ●Set “MPX” (p. 30) in the Sound Menu to “Mono”.
	Unusual sound from the display unit+6	●When power is on, drive noise may be heard from inside the display unit. This is not a sign of faulty operation.
HDMI	**Sound is unusual**	●Set the sound setting of the connected equipment to “2ch L.PCM”. ●Check the “HDMI1 / 4 Input” setting in the Sound Menu. (p. 30) ●If digital sound connection has a problem, select analogue sound connection. (p. 55)
	Pictures from external equipment are unusual when the equipment is connected via HDMI	●Is the HDMI cable connected properly? (p. 52 - 53) ●Turn Off the TV and equipment, then turn them On again. ●Check an input signal from the equipment. (p. 57) ●Use an equipment compliant with EIA/CEA-861/861B.

FAQs

	Problem	Actions
Digital TV		●Due to the digital reception technologies involved, quality of the Digital TV signals may be relatively low in some cases, despite good reception of Analogue TV channels.
Digital TV	**Unable to receive signals with a high-performance aerial**	●Install an aerial individually for the TV and VCR (or use a splitter). 
Digital TV	**Interference or frozen / disappearing image in Digital TV**	●Check “Digital TV Signal Condition”. (p. 37) If “Signal Quality” or “Signal Strength” are displayed in red, check aerial. If problem persists, consult your local Panasonic dealer. ●Turn the TV off with the Mains power On / Off switch, then turn it On again. ●Remove the mains plug of the tuner box from the wall socket and connect it again to turn it on.
Other	**TV goes into “Standby mode”**	●Off Timer function is activated. ●The TV enters “Standby mode” about 30 mins. after analogue broadcasting ends.
Other	**The remote control does not work or is intermittent**	●Are the batteries installed correctly? (p. 8) ●Has the TV been switched On? ●Has the remote control been registered? (p. 41) ●The batteries may be running low. Replace them. ●Use the remote control within the range of 7 m from the tuner box. ●Keep the remote control away from the devices such as wireless LAN, microwaves, mobile phones or other electric equipment to avoid wave interference.
Other	**Cannot operate the TV**	●Turn the display unit and the tuner box off, and then on again.
Other	**Parts of the display unit or the tuner box become hot**	●The temperature rises will not cause any problems in terms of performance or quality.

Specifications

<table>
<tr><td colspan="3">Power Source</td><td colspan="3">AC 220-240 V, 50 / 60 Hz</td></tr>
<tr><td rowspan="2">Power Consumption</td><td colspan="2">Average use</td><td colspan="3">Display Unit: 445 W / Tuner Box: 40 W</td></tr>
<tr><td colspan="2">Standby condition</td><td colspan="3">Display Unit: 0.5 W / Tuner Box: 0.5 W</td></tr>
<tr><td rowspan="3">Display panel</td><td colspan="2">Aspect Ratio</td><td colspan="3">16:9</td></tr>
<tr><td colspan="2">Visible screen size</td><td colspan="3">137 cm (diagonal) 1,198 mm (W) × 673 mm (H)</td></tr>
<tr><td colspan="2">Number of pixels</td><td colspan="3">2,073,600 (1,920 (W) × 1,080 (H)) [5,760 × 1,080 dots]</td></tr>
<tr><td rowspan="3">Sound</td><td colspan="2">Speaker</td><td colspan="3">Woofer (35 mm × 200 mm) × 2, Tweeter (23 mm × 100 mm) × 2</td></tr>
<tr><td colspan="2">Audio Output</td><td colspan="3">20 W (10 W + 10 W), 10% THD</td></tr>
<tr><td colspan="2">Headphones</td><td colspan="3">M3 (3.5 mm) stereo mini Jack × 1</td></tr>
<tr><td colspan="3">PC signals</td><td colspan="3">VGA, SVGA, WVGA, XGA
SXGA, WXGA·····(compressed)
Horizontal scanning frequency 31 - 69 kHz
Vertical scanning frequency 59 - 86 Hz</td></tr>
<tr><td colspan="3">Receiving Systems / Band name</td><td colspan="3">
<table>
<tr><th>17 Systems</th><th>Function</th></tr>
<tr><td>1 PAL B, G, H</td><td rowspan="7">Reception of broadcast transmissions and Playback from Video Cassette Tape Recorders</td></tr>
<tr><td>2 PAL I</td></tr>
<tr><td>3 PAL D, K</td></tr>
<tr><td>4 SECAM B, G</td></tr>
<tr><td>5 SECAM D, K</td></tr>
<tr><td>6 SECAM K1</td></tr>
<tr><td>7 NTSC M (NTSC 3.58/4.5 MHz)</td></tr>
</table>
GB20600-2006 Mode-C=3780 8 MHz UHF (Hong Kong) free-to-air TV Broadcast reception
<table>
<tr><th>17 Systems</th><th>Function</th></tr>
<tr><td>8 NTSC 4.43/5.5 MHz</td><td rowspan="7">Playback from Special VCR's or DVD</td></tr>
<tr><td>9 NTSC 4.43/6.0 MHz</td></tr>
<tr><td>10 NTSC 4.43/6.5 MHz</td></tr>
<tr><td>11 NTSC 3.58/5.5 MHz</td></tr>
<tr><td>12 NTSC 3.58/6.0 MHz</td></tr>
<tr><td>13 NTSC 3.58/6.5 MHz</td></tr>
<tr><td>14 SECAM I</td></tr>
<tr><td>15 PAL 60 Hz/5.5 MHz</td><td rowspan="3">Playback from Special Disc Players and Special VCR's or DVD</td></tr>
<tr><td>16 PAL 60 Hz/6.0 MHz</td></tr>
<tr><td>17 PAL 60 Hz/6.5 MHz</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Receiving Channels
(Analogue TV)</td><td colspan="3">
VHF BAND
2-12 (PAL/SECAM B, K1)
0-12 (PAL B AUST.)
1-9 (PAL B N.Z.)
1-12 (PAL/SECAM D)
1-12 (NTSC M Japan)
2-13 (NTSC M USA)

UHF BAND
21-69 (PAL G, H, I/SECAM G, K, K1)
28-69 (PAL B AUST.)
13-57 (PAL D, K)
13-62 (NTSC M Japan)
14-69 (NTSC M USA)

CATV
S1-S20 (OSCAR)
1-125 (USA CATV)
C13-C49 (JAPAN)
S21-S41 (HYPER)
Z1-Z37 (CHINA)
5A, 9A (AUST.)
</td></tr>
<tr><td colspan="3">Aerial - Rear</td><td colspan="3">VHF / UHF</td></tr>
<tr><td colspan="3">Operating Conditions</td><td colspan="3">Temperature : 0 °C - 40 °C
Humidity : 20 % - 80 % RH (non-condensing)</td></tr>
<tr><td rowspan="17">Connection Terminals</td><td rowspan="3">AV1 Input</td><td>AUDIO L - R</td><td>RCA PIN Type × 2</td><td>0.5 V[rms]</td></tr>
<tr><td>VIDEO</td><td>RCA PIN Type × 1</td><td>1.0 V[p-p] (75 Ω)</td></tr>
<tr><td>COMPONENT</td><td>Y
P_B/C_B, P_R/C_R</td><td>1.0 V[p-p] (including synchronization)
±0.35 V[p-p]</td></tr>
<tr><td rowspan="3">AV2 Input</td><td>AUDIO L - R</td><td>RCA PIN Type × 2</td><td>0.5 V[rms]</td></tr>
<tr><td>VIDEO</td><td>RCA PIN Type × 1</td><td>1.0 V[p-p] (75 Ω)</td></tr>
<tr><td>COMPONENT</td><td>Y
P_B/C_B, P_R/C_R</td><td>1.0 V[p-p] (including synchronization)
±0.35 V[p-p]</td></tr>
<tr><td rowspan="3">AV3 Input</td><td>AUDIO L - R</td><td>RCA PIN Type × 2</td><td>0.5 V[rms]</td></tr>
<tr><td>VIDEO</td><td>RCA PIN Type × 1</td><td>1.0 V[p-p] (75 Ω)</td></tr>
<tr><td>S VIDEO</td><td>Mini DIN 4-pin</td><td>Y:1.0 V[p-p] (75 Ω) C:0.286 V[p-p] (75 Ω)</td></tr>
<tr><td rowspan="3">AV4 Input</td><td>AUDIO L - R</td><td>RCA PIN Type × 2</td><td>0.5 V[rms]</td></tr>
<tr><td>VIDEO</td><td>RCA PIN Type × 1</td><td>1.0 V[p-p] (75 Ω)</td></tr>
<tr><td>S VIDEO</td><td>Mini DIN 4-pin</td><td>Y:1.0 V[p-p] (75 Ω) C:0.286 V[p-p] (75 Ω)</td></tr>
<tr><td rowspan="2">Monitor Output</td><td>AUDIO L - R</td><td>RCA PIN Type × 2</td><td>0.5 V[rms] (high impedance)</td></tr>
<tr><td>VIDEO</td><td>RCA PIN Type × 1</td><td>1.0 V[p-p] (75 Ω)</td></tr>
<tr><td rowspan="4">Others</td><td>HDMI1 - 4 Input</td><td>TYPE A Connectors</td><td>●This TV supports "HDAVI Control 4" function.</td></tr>
<tr><td>PC Input</td><td>HIGH-DENSITY D-SUB 15PIN</td><td>R, G, B/0.7 V[p-p] (75 Ω)
HD, VD/TTL Level 2.0 - 5.0 V[p-p] (high impedance)</td></tr>
<tr><td>DIGITAL AUDIO OUT</td><td colspan="2">PCM / Dolby Digital, Fiber optic</td></tr>
<tr><td>Card slot</td><td colspan="2">SD Card slot × 1</td></tr>
<tr><td rowspan="2">Dimensions (W × H × D)</td><td colspan="2">Display Unit</td><td colspan="3">1,428 mm × 893 mm × 379 mm (with speakers and pedestal)
1,428 mm × 820 mm × 25 mm (with speakers)</td></tr>
<tr><td colspan="2">Tuner Box</td><td colspan="3">430 mm × 59 mm × 249 mm</td></tr>
<tr><td rowspan="2">Mass</td><td colspan="2">Display Unit</td><td colspan="3">38.0 kg (with speakers and pedestal)
32.0 kg (with speakers)</td></tr>
<tr><td colspan="2">Tuner Box</td><td colspan="3">3.0 kg</td></tr>
</table>

- Design and Specifications are subject to change without notice. Mass and Dimensions shown are approximate.
- TH-P54Z10H complies with China Digital Terrestrial Television National Standard (GB20600-2006) Mode-C=3780

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MEMO

Customer's Record

The model number and serial number of this product may be found on its rear panel. You should note this serial number in the space provided below and retain this book, plus your purchase receipt, as a permanent record of your purchase to aid in identification in the event of theft or loss, and for Warranty Service purposes.

Model Number Serial Number

Panasonic Corporation
Web Site: http://panasonic.net/
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