Panasonic®

Operating Instructions
Display Operations
Touch Screen LCD Display (for business use)

HƏMI

English

Please read these instructions before operating your set and retain them for future reference.

Dear Panasonic Customer

Welcome to the Panasonic family of customers. We hope that you will have many years of enjoyment from your new LCD Display.

To obtain maximum benefit from your set, please read these Instructions before making any adjustments, and retain them for future reference.

Retain your purchase receipt also, and note down the model number and serial number of your set in the space provided on the rear cover of these instructions.

Visit our Panasonic Web Site   http://panasonic.net

Table of Contents

Note:
Image retention may occur. If you display a still picture for an extended period, the image might remain on the screen. However, it will disappear after a while.

Important Safety Instructions

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments / accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart / apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15) To prevent electric shock, ensure the grounding pin on the AC cord power plug is securely connected.

FCC STATEMENT

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

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

This device complies with Part15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC CAUTION:
To assure continued compliance, follow the attached installation instructions and use only shielded interface cables when connecting to computer or peripheral devices. Some recommended user provided interface cables may require usage of the attached ferrite core kit(s), refer to interface cable connection instructions for details. Any changes or modifications not expressly approved by Panasonic Corp. of North America could void the user's authority to operate this device.

FCC Declaration of Conformity

Model No. TH-80LFB70U

Responsible Party:	Panasonic Corporation of North America
	Two Riverfront Plaza, Newark, New Jersey 07102-5490
Contact Source:	Panasonic System Communications Company of North America
	1-877-655-2357

CANADIAN NOTICE:
This Class B digital apparatus complies with Canadian ICES-003.

Note:
Image retention may occur. If you display a still picture for an extended period, the image might remain on the screen. However, it will disappear after a while.

Trademark Credits
- VGA is a trademark of International Business Machines Corporation.
- Microsoft®, Windows®, Windows Vista®, and Internet Explorer® are the registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Macintosh, Mac, Mac OS, OS X and Safari are the trademarks of Apple Inc. registered in the United States and other countries.
- SVGA, XGA, SXGA and UXGA are registered trademarks of the Video Electronics Standard Association. Even if no special notation has been made of company or product trademarks, these trademarks have been fully respected.
- HDMI, the HDMI Logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.
- RoomView, Crestron RoomView and Fusion RV are registered trademarks of Crestron Electronics, Inc, and Crestron Connected is the trademark of Crestron Electronics, Inc.
- Miracast is a trademark of Wi-Fi Alliance.
- Android is a registered trademark of Google Inc.
- iPad, iPhone, and iPod touch are trademarks of Apple Inc., registered in the U.S. and other countries.

Important Safety Notice

WARNING
1) 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 set. (including on shelves above, etc.)
   No naked flame sources, such as lighted candles, should be placed on / above the set.
2) To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.
3) Do not remove the earthing pin on the power plug. This apparatus is equipped with a three pin earthing-type power plug. This plug will only fit an earthing-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician.
   Do not defeat the purpose of the earthing plug.
4) To prevent electric shock, ensure the earthing pin on the AC cord power plug is securely connected.

CAUTION
This appliance is intended for use in environments which are relatively free of electromagnetic fields.
Using this appliance near sources of strong electromagnetic fields or where electrical noise may overlap with the input signals could cause the picture and sound to wobble or cause interference such as noise to appear.
To avoid the possibility of harm to this appliance, keep it away from sources of strong electromagnetic fields.

IMPORTANT INFORMATION
If a display is not positioned in a sufficiently stable location, it can be potentially hazardous due to falling. Many injuries, particularly to children, can be avoided by taking simple precautions such as:
• Using cabinets or stands recommended by the manufacturer of the display.
• Only using furniture that can safely support the display.
• Ensuring the display is not overhanging the edge of the supporting furniture.
• Not placing the display on tall furniture (for example, cupboards or bookcases) without anchoring both the furniture and the display to a suitable support.
• Not standing the displays on cloth or other materials placed between the display and supporting furniture.
• Educating children about the dangers of climbing on furniture to reach the display or its controls.

IMPORTANT: THE MOULDED PLUG

FOR YOUR SAFETY, PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This display is supplied with a moulded three pin mains plug for your safety and convenience. A 10 amp fuse is fitted in this plug. Shall the fuse need to be replaced, please ensure that the replacement fuse has a rating of 10 amps and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark ⟨ASA⟩ or the BSI mark ▽ on the body of the fuse.

If the plug contains a removable fuse cover, you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic dealer.

Do not cut off the mains plug.
Do not use any other type of mains lead except the one supplied with this display.
The supplied mains lead and moulded plug are designed to be used with this display to avoid interference and for your safety.
If the socket outlet in your home is not suitable, get it changed by a qualified electrician.
If the plug or mains lead becomes damaged, purchase a replacement from an authorized dealer.

WARNING : — THIS DISPLAY MUST BE EARTHED.

How to replace the fuse. Open the fuse compartment with a screwdriver and replace the fuse.
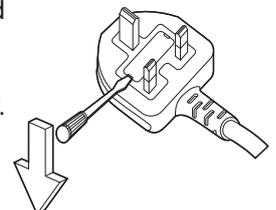
Safety Precautions

WARNING

■ Setup

<u>This LCD Display is for use only with the following optional accessories.</u> **Use with any other type of optional accessories may cause instability which could result in the possibility of injury.**

(All of the following accessories are manufactured by Panasonic Corporation.)

- Pedestal TY-ST65P20
- Mobile stand for Display... TY-ST80LF70
- Wall-hanging bracket (vertical).. TY-WK70PV50
- BNC Dual Video Terminal Board TY-FB9BD
- HD-SDI Terminal Board.. TY-FB9HD
- HD-SDI Terminal Board with audio TY-FB10HD
- Dual Link HD-SDI Terminal Board.. TY-FB11DHD
- Dual HDMI Terminal Board TY-FB10HMD
- DVI-D Terminal Board TY-FB11DD
- Digital Interface Box ET-YFB100G

Always be sure to ask a qualified technician to carry out set-up.

Small parts can present choking hazard if accidentally swallowed. Keep small parts away from young children. Discard unneeded small parts and other objects, including packaging materials and plastic bags/sheets to prevent them from being played with by young children, creating the potential risk of suffocation.

Do not place the Display on sloped or unstable surfaces, and ensure that the Display does not hang over the edge of the base.
- The Display may fall off or tip over.

Do not place any objects on top of the Display.
- If water is spills onto the Display or foreign objects get inside it, a short-circuit may occur which could result in fire or electric shock. If any foreign objects get inside the Display, please consult your local Panasonic dealer.

Transport only in upright position!
- Transporting the unit with its display panel facing upright or downward may cause damage to the internal circuitry.

Ventilation should not be impeded by covering the ventilation openings with items such as newspapers, table cloths and curtains.

For sufficient ventilation;
Leave a space of 3 15/16" (10 cm) or more at the top, left and right, and 2 3/4" (7 cm) or more at the rear, and also keep the space between the bottom of the display and the floor surface.

Cautions for Wall Installation
- Wall installation should be performed by an installation professional. Installing the Display incorrectly may lead to an accident that results in death or serious injury. Use the specified accessories.
- If you terminate the use of the Display on the wall, ask a professional to remove the Display as soon as possible.

Do not install the product to a place where the product is exposed to direct sunlight.
- If the screen is exposed to direct sunlight, the liquid crystal panel may have adverse effect.

■ When using the LCD Display

The Display is designed to operate on 110 - 127 or 220 - 240 V AC, 50/60 Hz.

Do not cover the ventilation holes.
• Doing so may cause the Display to overheat, which can cause fire or damage to the Display.

Do not stick any foreign objects into the Display.
• Do not insert any metal or flammable objects into the ventilations holes or drop them onto the Display, as doing so can cause fire or electric shock.

Do not remove the cover or modify it in any way.
• High voltages which can cause severe electric shocks are present inside the Display. For any inspection, adjustment and repair work, please contact your local Panasonic dealer.

Ensure that the mains plug is easily accessible.

An apparatus with CLASS I construction shall be connected to a mains socket outlet with a protective earthing connection.

Do not use any power supply cord other than that provided with this unit.
• Doing so may cause fire or electric shocks.

Securely insert the power supply plug as far as it will go.
• If the plug is not fully inserted, heat may be generated which could cause fire. If the plug is damaged or the wall socket is loose, they shall not be used.

Do not handle the power supply plug with wet hands.
• Doing so may cause electric shocks.

Do not do anything that may damage the power cable. When disconnecting the power cable, pull on the plug body, not the cable.
• Do not damage the cable, make any modifications to it, place heavy objects on top of it, heat it, place it near any hot objects, twist it, bend it excessively or pull it. To do so may cause fire and electric shock. If the power cable is damaged, have it repaired at your local Panasonic dealer.

Do not remove covers and NEVER modify the Display yourself
• Do not remove the rear cover as live parts are accessible when it is removed. There are no user serviceable parts inside. (High-voltage components may cause serious electrical shock.)
• Have the Display checked, adjusted, or repaired at your local Panasonic dealer.

Keep the Pen Stand fixing screw and washer out of reach of children to prevent swallowing.

If the Display is not going to be used for any prolonged length of time, unplug the power supply plug from the wall outlet.

To prevent the spread of fire, keep candles or other open flames away from this product at all times.

■ If problems occur during use

If a problem occurs (such as no picture or no sound), or if smoke or an abnormal odour starts to come out from the Display, immediately unplug the power supply plug from the wall outlet.
• If you continue to use the Display in this condition, fire or electric shock could result. After checking that the smoke has stopped, contact your local Panasonic dealer so that the necessary repairs can be made. Repairing the Display yourself is extremely dangerous, and shall never be done.

If water or foreign objects get inside the Display, if the Display is dropped, or if the cabinet becomes damages, disconnect the power supply plug immediately.
• A short circuit may occur, which could cause fire. Contact your local Panasonic dealer for any repairs that need to be made.

⚠ CAUTION

■ When using the LCD Display

Do not bring your hands, face or objects close to the ventilation holes of the Display.
- Heated air comes out from the ventilation holes at the top of Display will be hot. Do not bring your hands or face, or objects which cannot withstand heat, close to this port, otherwise burns or deformation could result.

Be sure to disconnect all cables before moving the Display.
- If the Display is moved while some of the cables are still connected, the cables may become damaged, and fire or electric shock could result.

Disconnect the power supply plug from the wall socket as a safety precaution before carrying out any cleaning.
- Electric shocks can result if this is not done.

Clean the power cable regularly to prevent it becoming dusty.
- If dust built up on the power cord plug, the resultant humidity can damage the insulation, which could result in fire. Pull the power cord plug out from the wall outlet and wipe the mains lead with a dry cloth.

Do not burn or breakup batteries.
- Batteries must not be exposed to excessive heat such as sunshine, fire or the like.

Cleaning and maintenance

The front of the display panel has been specially treated. Wipe the panel surface gently using only a cleaning cloth or a soft, lint-free cloth.
- If the surface is particularly dirty, wipe with a soft, lint-free cloth which has been soaked in pure water or water in which neutral detergent has been diluted 100 times, and then wipe it evenly with a dry cloth of the same type until the surface is dry.
- Do not scratch or hit the surface of the panel with fingernails or other hard objects, otherwise the surface may become damaged. Furthermore, avoid contact with volatile substances such as insect sprays, solvents and thinner, otherwise the quality of the surface may be adversely affected.

If the cabinet becomes dirty, wipe it with a soft, dry cloth.
- If the cabinet is particularly dirty, soak the cloth in water to which a small amount of neutral detergent has been added and then wring the cloth dry. Use this cloth to wipe the cabinet, and then wipe it dry with a dry cloth.
- Do not allow any detergent to come into direct contact with the surface of the Display. If water droplets get inside the unit, operating problems may result.
- Avoid contact with volatile substances such as insect sprays, solvents and thinner, otherwise the quality of the cabinet surface may be adversely affected or the coating may peel off. Furthermore, do not leave it for long periods in contact with articles made from rubber or PVC.

Wipe off dirt on the IR transmission part with soft cloth.
- Wipe off dirt on the IR transmission part with soft cloth once a day.
  If malfunction is due to dirt on the IR transmission part, simply wiping it off lightly can recover the performance. If dirt is sticky, wipe it off with cloth wrung out of neutral detergent diluted with water and then wipe the part with dry cloth.

Usage of a chemical cloth
- Do not use a chemical cloth for the panel surface.
- Follow the instructions for the chemical cloth to use it for the cabinet.

Ask your dealer to clean the inside at least once a year.
- Dust accumulated inside may interfere with the infrared beam for touch detection, resulting in poor performance. Ask your dealer to clean the inside at least once a year.

Touch panel

Carefully observe the following instructions as the display has an optical touch panel.

Do not expose the display to direct sunlight or strong light source during use.
- Otherwise malfunction may occur since the optical touch panel of the display uses infrared rays.

After turning on the power of the display, do not touch the IR transmission part and the screen until any image is displayed.
- Otherwise the touched part may be detected as defective elements, resulting in abnormal operation. If this occurred, turn the display off and then on.

IR transmission part
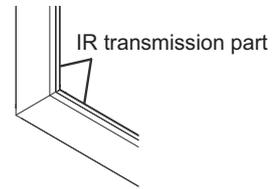
Always use a finger or the supplied pen to operate the touch panel. Do not use a hard or sharp tip such as nail, ball-point pen, and pencil.

When using any other infrared device, keep a distance to prevent erroneous operation.

Accessories

Accessories Supply

Check that you have the accessories and items shown

Operating
Instruction book
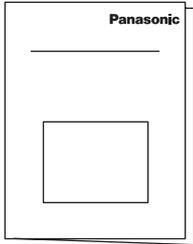
Software CD-ROM × 1
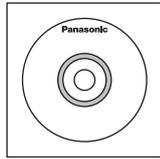
Remote Control
Transmitter
N2QAYB000691

Batteries for the Remote
Control Transmitter
(R6 (UM3) Size × 2)
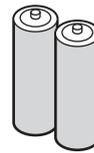
Clamper × 1
TMME289
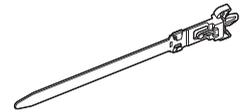
Pen × 4
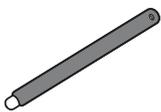
Eraser × 1
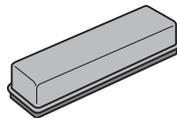
Pen Stand × 1
(see page 9)
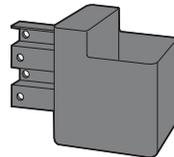
Screw × 2
(see page 9)

Washer × 2
(see page 9)

USB cable × 1
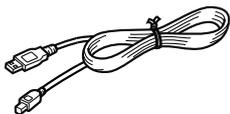
Ferrite core × 2
J0KG00000014
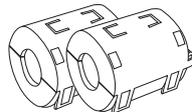
Use the Ferrite cores
to comply with the EMC
standard. (see page 13)

Cable tie × 2
TMM17499

Power supply cord		
TH-80LFB70U	TH-80LFB70E	TH-80LFB70W
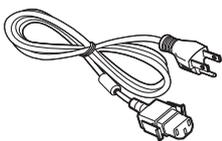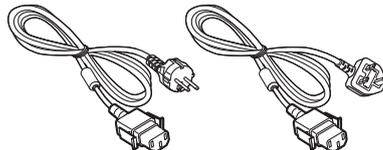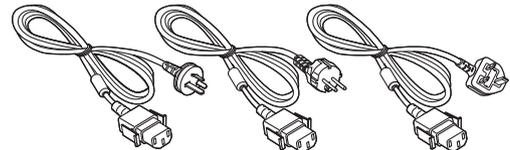
Attention
Store small parts in an appropriate manner, and keep them away from young children.

Contents in the CD-ROM

The contents below are included in the supplied CD-ROM.

Instruction (PDF)	Operating Instructions - Display Operations	
	Operating Instructions - Network Operations	
	Operating Instructions - Wireless Manager ME	
	Software license	GNU GENERAL PUBLIC LICENSE GNU LESSER GENERAL PUBLIC LICENSE
Software	WhiteBoard Software (Windows)	Allows the display to be used as whiteboard. You can run the software directly from external storage without installing it in your computer. (see page 44)
	Wireless Manager ME (Windows/Mac)	Allows the image on the computer screen to be sent wirelessly or via wired LAN. Switch the input to Panasonic APPLICATION before use. For more details, see the instruction manual of Wireless Manager ME.

Remote Control Batteries

Requires two R6 batteries.

1. Pull and hold the hook, then open the battery cover.

2. Insert batteries - note correct polarity (+ and -).

"R6 (UM3)" size

3. Replace the cover.
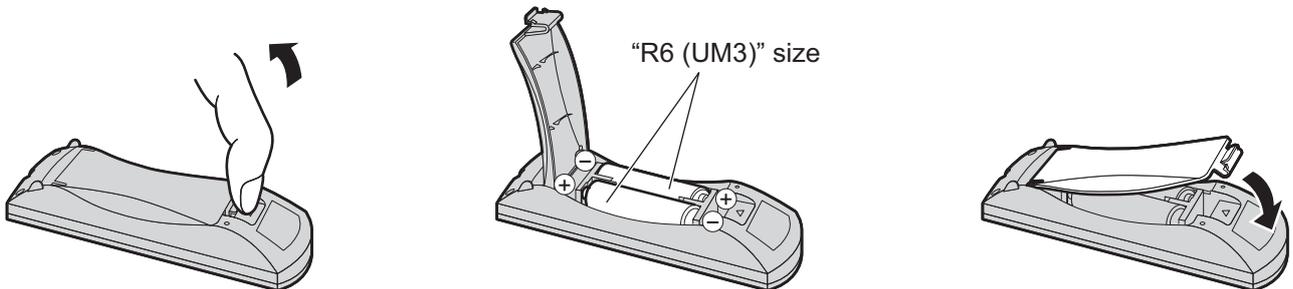
Helpful Hint:
For frequent remote control users, replace old batteries with Alkaline batteries for longer life.

⚠ Precaution on battery use

Incorrect installation can cause battery leakage and corrosion that will damage the remote control transmitter.
Disposal of batteries should be in an environment-friendly manner.

Observe the following precaution:

1. Batteries shall always be replaced as a pair. Always use new batteries when replacing the old set.
2. Do not combine a used battery with a new one.
3. Do not mix battery types (example: "Zinc Carbon" with "Alkaline").
4. Do not attempt to charge, short-circuit, disassemble, heat or burn used batteries.
5. Battery replacement is necessary when remote control acts sporadically or stops operating the Display set.
6. Do not burn or breakup batteries.
7. Batteries must not be exposed to excessive heat such as sunshine, fire or the like.

Mounting Pen Stand

The supplied Pen Stand can be mounted on one of the nine positions on the back of the Display.

1 Remove a screw from the back cover.

4 Mount the Pen Stand with the supplied screw.

Screw
(supplied)

Pen Stand

2 Peel the paper backing off the supplied washer.
3 Paste the washer to a screw hole for the pen stand.
Any of the hole A to D can be used to fix the pen stand.

A
B
C
D

Pen Stand
(supplied)

Washer (supplied)
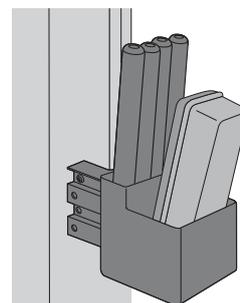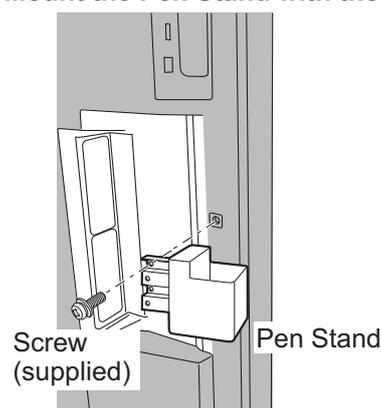
The Pen Stand can hold four pens and one Eraser.

Connections

AC cord connection and fixing, cable fixing

AC cord fixing
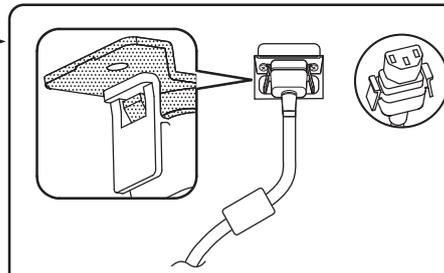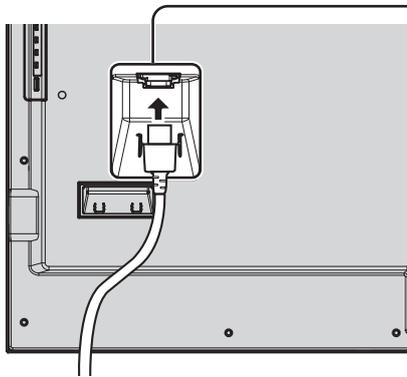
Plug the AC cord into the display unit.
Plug the AC cord until it clicks.
Note:
Make sure that the AC cord is locked on both the left and right sides.

Unplug the AC cord
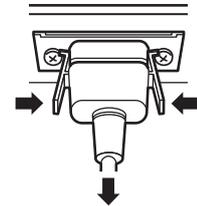
Unplug the AC cord pressing the two knobs.
Note:
When disconnecting the AC cord, be absolutely sure to disconnect the AC cord plug at the socket outlet first.

Using the clamper
Secure any excess cables with clamper as required.
Note:
One clamper is supplied with this unit. In case of securing cables at four positions, please purchase it separately.
If you need more clampers, purchase them from your dealer. (Available from the customer service)

1 **Attach the clamper**

hole

Insert the clamper in a hole.

To remove from the unit:

snaps

①Keep pushing both side snaps

2 **Bundle the cables**

hooks

②Set the tip in the hooks

To loosen:

knob

①Keep pushing the knob
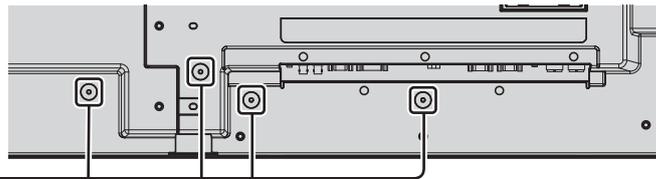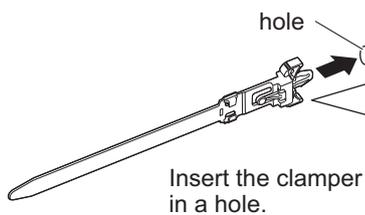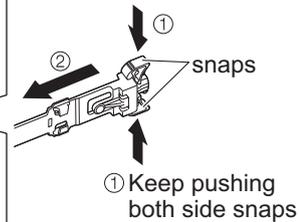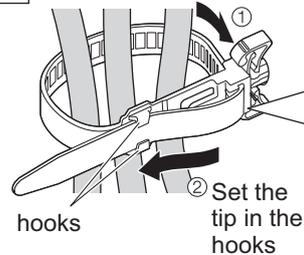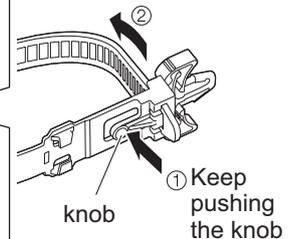
Speaker connection

Please use 8 Ω/10 W speaker.

Red
Black
Red
Black
① While pressing the lever, insert the core wire.
② Return the lever.
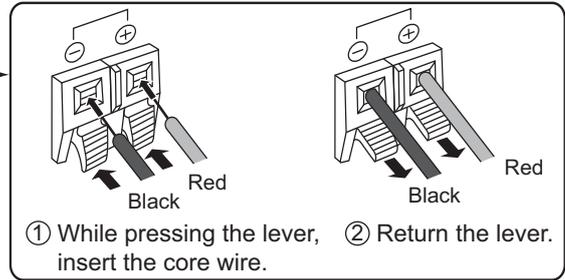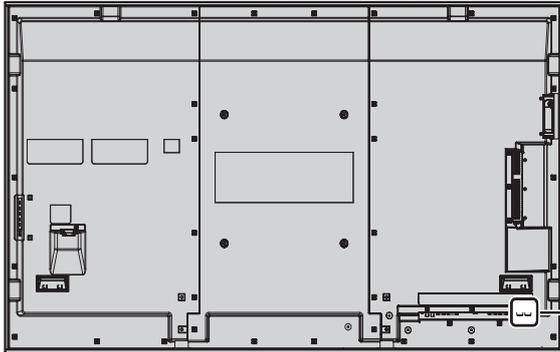
Video equipment connection
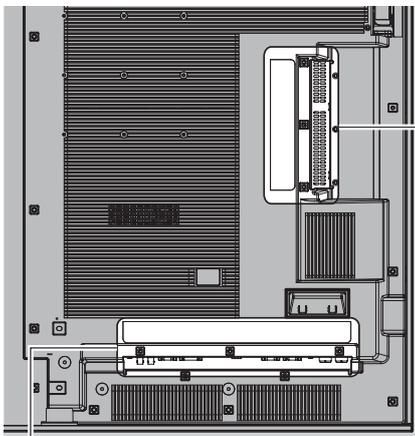
SLOT: Terminal board (optional accessories) insert slot (see page 4)
Note:
The upper side slot is for terminal board with 2-slot width. The terminal board with 1-slot width does not function when installed in the upper side slot.

AV IN (VIDEO): Composite Video Input Terminal (see page 12)
COMPONENT/RGB IN: Component/RGB Video Input Terminal (see page 12)

SERIAL:
Serial Control Terminal. Control the Display by connecting to PC. (see page 15)

PC OUT:
Monitor Out Terminal. Video signals being reproduced on the display are output to another sub monitor as PC video signals. (see page 16)

AUDIO 1 IN:
Audio input terminal shared with VIDEO and COMPONENT/ RGB IN. (see page 12)

AV IN (HDMI 1, HDMI 2): HDMI Input Terminal (see page 12)
Connect to video equipment such as VCR or DVD player.

AUDIO 2 IN:
Audio input terminal shared with DVI-D IN and PC IN. (see page 13, 14)
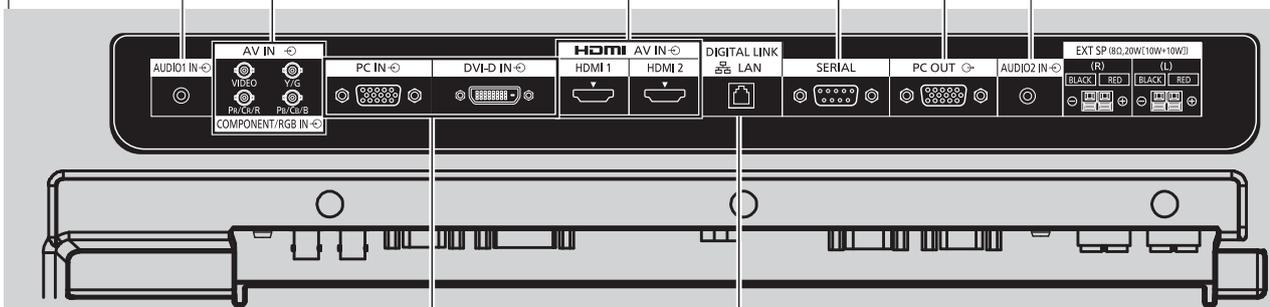
PC IN: PC Input Terminal
Connect to video terminal of PC or equipment with Y, $P_B(C_B)$ and $P_R(C_R)$ output (see page 14).
DVI-D IN: DVI-D Input Terminal (see page 13)

LAN, DIGITAL LINK*
Connect to a DIGITAL LINK input terminal network to control the Display. Alternatively, connect to a device that sends video and audio signals via the DIGITAL LINK terminal. (see page 17)

* DIGITAL LINK is technology that enables signals such as audio and video to be transmitted using twisted pair cables. For details, see the Operating Instructions - "Network Operations".

VIDEO and COMPONENT / RGB IN connection

Note:
Additional equipment, cables and adapter plugs
shown are not supplied with this set.

Stereo mini plug (M3)

L
R
AUDIO OUT

VIDEO OUT

VCR

Pin-BNC
Adapter plug

AUDIO 1 IN:
Shared with VIDEO and
COMPONENT/RGB IN

AV IN
AUDIO IN
VIDEO
Y/G
PR/CR/R   PB/CB/B
COMPONENT/RGB IN
PC IN
DVI-D IN

Pin-BNC
Adapter plug

Notes:
• Change the "Component/RGB-in select" setting in the "Setup"
menu to "Component" (when Component signal connection)
or "RGB" (when RGB signal connection). (see page 68)
• Signals input to COMPONENT/RGB IN terminals correspond
to Sync on G or Sync on Y.

DVD Player

Computer   RGB Camcorder

Y
P_B
P_R
Y, P_B, P_R, OUT
L
R
AUDIO OUT

HDMI connection

[Pin assignments and signal names]

Pin No.	Signal name	Pin No.	Signal name
①	T.M.D.S Data2+	⑪	T.M.D.S Clock Shield
②	T.M.D.S Data2 Shield	⑫	T.M.D.S Clock-
③	T.M.D.S Data2-	⑬	CEC
④	T.M.D.S Data1+	⑭	Reserved (N.C. on device)
⑤	T.M.D.S Data1 Shield		
⑥	T.M.D.S Data1-	⑮	SCL
⑦	T.M.D.S Data0+	⑯	SDA
⑧	T.M.D.S Data0 Shield	⑰	DDC/CEC Ground
⑨	T.M.D.S Data0-	⑱	+5V Power
⑩	T.M.D.S Clock+	⑲	Hot Plug Detect

PC IN   DVI-D IN   AV IN   DIGITAL LINK
HDMI 1   HDMI 2   LAN

HDMI cable

HDMI AV OUT   HDMI AV OUT

DVD player
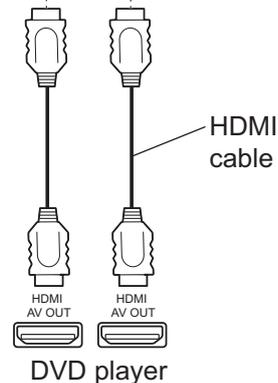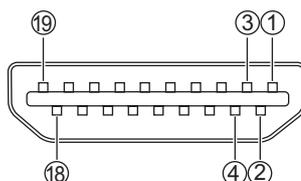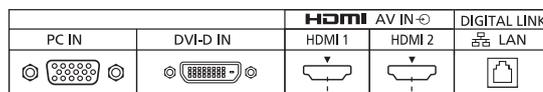
Note:
Additional equipment and HDMI cable shown are not supplied with this set.

DVI-D IN connection

PC with DVI-D video out

Shared with PC IN.

Stereo mini plug (M3)

Less than 1.97 inch (5 cm)

Ferrite core (supplied)

Less than 1.97 inch (5 cm)

DVI-video cable (Within 5 m)

Installing the Ferrite core

1.

Pull back the tabs (in two places)

2.

Open the Ferrite core

3.

Route the cable through and close

4.

Fix the Ferrite core with the cable tie
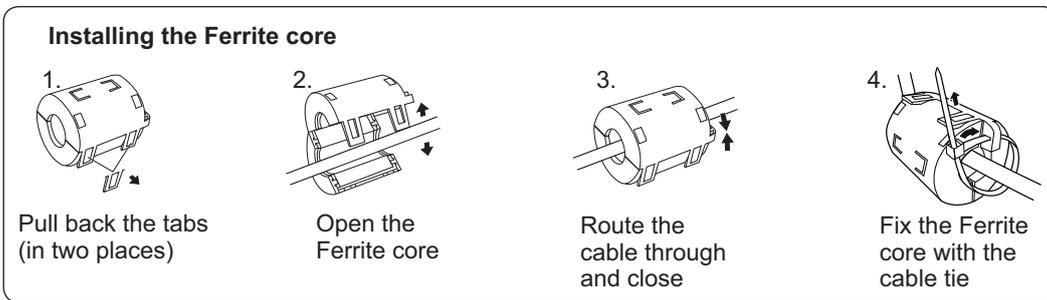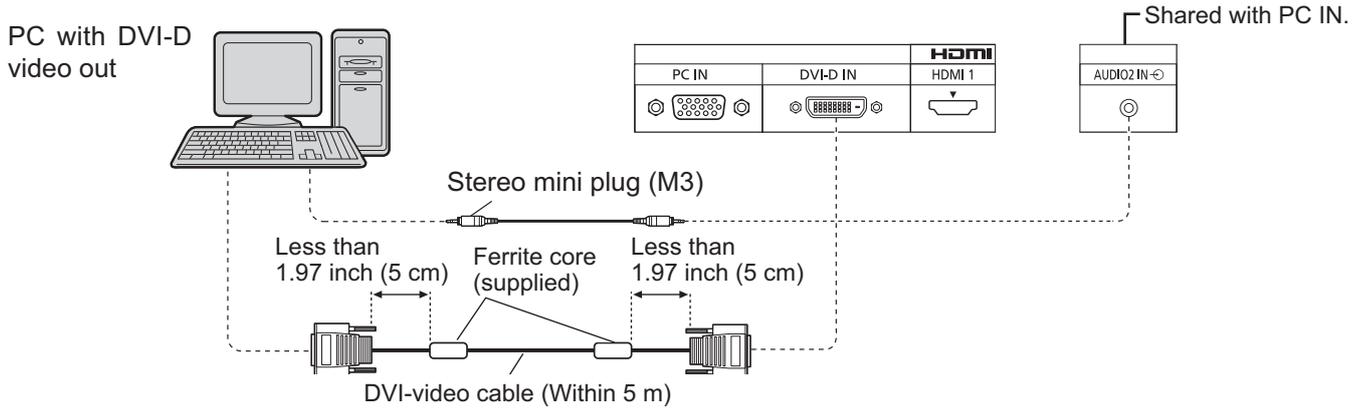
DVI-D Input Connector Pin Layouts

Connection port view
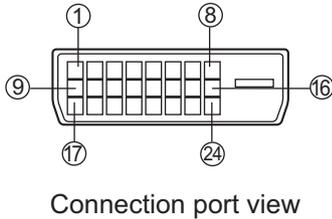
Pin No.	Signal Name	Pin No.	Signal Name
①	T.M.D.S. data 2-	⑬	———
②	T.M.D.S. data 2+	⑭	+5 V DC
③	T.M.D.S. data 2 shield	⑮	Ground
④	———	⑯	Hot plug detect
⑤	———	⑰	T.M.D.S. data 0-
⑥	DDC clock	⑱	T.M.D.S. data 0+
⑦	DDC data	⑲	T.M.D.S. data 0 shield
⑧	———	⑳	———
⑨	T.M.D.S. data 1-	㉑	———
⑩	T.M.D.S. data 1+	㉒	T.M.D.S. clock shield
⑪	T.M.D.S. data 1 shield	㉓	T.M.D.S. clock+
⑫	———	㉔	T.M.D.S. clock-

Notes:
• Additional equipment and cables shown are not supplied with this set.
• Use the DVI-D cable complying with the DVI standard. Image deterioration may occur depending on the length or the quality of the cable.

PC Input Terminals connection

COMPUTER

Shared with DVI-D IN.

Conversion adapter
(if necessary)

AV IN
VIDEO Y/G
PR/CR/R PB/CB/B
COMPONENT/RGB IN
PC IN
DVI-D IN
AUDIO2 IN

(Female)
Mini D-sub 15p

RGB
PC cable

(Male)

Audio Stereo mini plug (M3)

Connect a cable which matches
the audio output terminal on the computer.
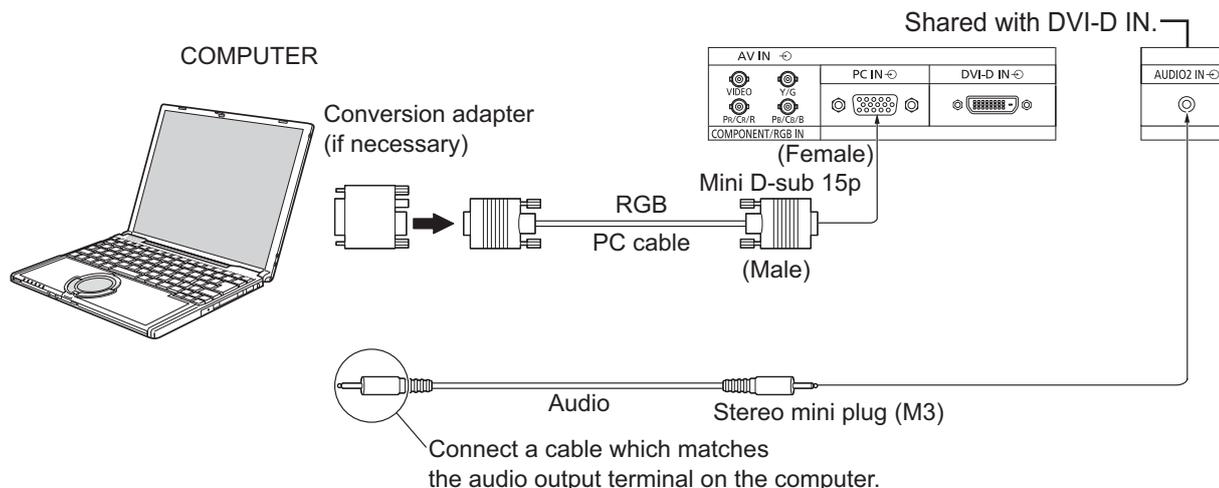
Notes:
• With regard to the typical PC input signals that are described in the applicable input signals list (see page 85), adjustment values such as for the standard picture positions and sizes have already been stored in this unit. You can add up to eight PC input signal types that are not included in the list.
• Computer signals which can be input are those with a horizontal scanning frequency of 15 to 110 kHz and vertical scanning frequency of 48 to 120 Hz. (However, the image will not be displayed properly if the signals exceed 1,200 lines.)
• The display resolution is a maximum of 1,440 × 1,080 dots when the aspect mode is set to "4:3", and 1,920 × 1,080 dots when the aspect mode is set to "16:9". If the display resolution exceeds these maximums, it may not be possible to show fine detail with sufficient clarity.
• The PC input terminals are DDC2B-compatible. If the computer being connected is not DDC2B-compatible, you will need to make setting changes to the computer at the time of connection.
• Some PC models cannot be connected to the set.
• There is no need to use an adapter for computers with DOS/V compatible Mini D-sub 15P terminal.
• The computer shown in the illustration is for example purposes only.
• Additional equipment and cables shown are not supplied with this set.
• Do not set the horizontal and vertical scanning frequencies for PC signals which are above or below the specified frequency range.
• Component Input is possible with the pin 1, 2, 3 of the Mini D-sub 15P Connector.
• Change the "Component/RGB-in select" setting in the "Setup" menu to "Component"
  (when Component signal connection) or "RGB" (when RGB signal connection). (see page 68)

Signal Names for Mini D-sub 15P Connector

⑤ ④ ③ ② ①
⑩ ⑨ ⑧ ⑦ ⑥
⑮ ⑭ ⑬ ⑫ ⑪

Pin Layout for PC Input
Terminal
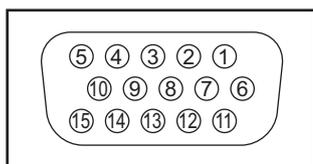
Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
①	R (P_R/C_R)	⑥	GND (Ground)	⑪	NC (not connected)
②	G (Y)	⑦	GND (Ground)	⑫	SDA
③	B (P_B/C_B)	⑧	GND (Ground)	⑬	HD/SYNC
④	NC (not connected)	⑨	+5 V DC	⑭	VD
⑤	GND (Ground)	⑩	GND (Ground)	⑮	SCL

SERIAL Terminals connection

The SERIAL terminal is used when the Display is controlled by a computer.

Note: To use serial control for this unit, make sure to set the "Control I/F Select" in the "Network Settings" menu to "RS-232C". (refer to "Operating Instructions, Network Operations")

COMPUTER

(Male)

RS-232C Straight cable

(Female)

D-sub 9p

Pin layout for SERIAL Terminal
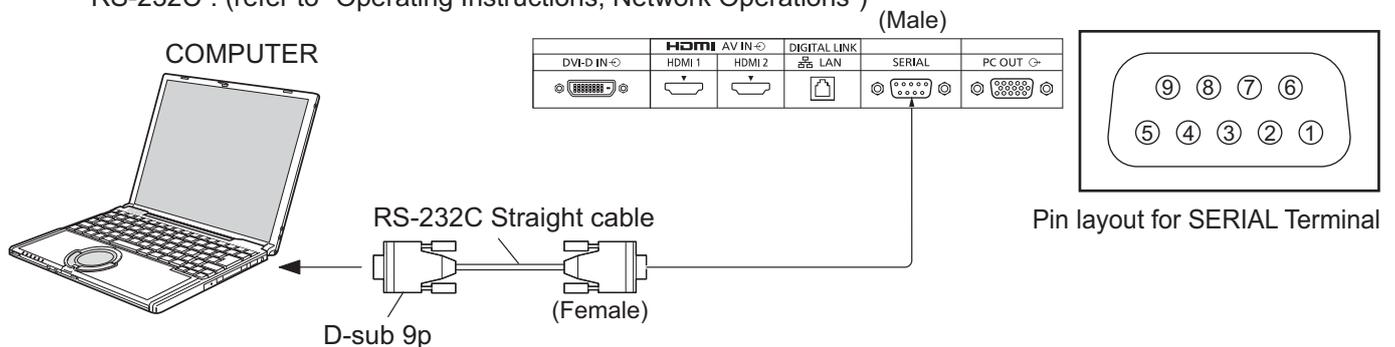
Notes:
- Use the RS-232C straight cable to connect the computer to the Display.
- The computer shown is for example purposes only.
- Additional equipment and cables shown are not supplied with this set.

The SERIAL terminal conforms to the RS-232C interface specification, so that the Display can be controlled by a computer which is connected to this terminal.
The computer will require software which allows the sending and receiving of control data which satisfies the conditions given below. Use a computer application such as programming language software. Refer to the documentation for the computer application for details.

Communication parameters

Signal level	RS-232C compliant
Synchronization method	Asynchronous
Baud rate	9600 bps
Parity	None
Character length	8 bits
Stop bit	1 bit
Flow control	None

Basic format for control data

The transmission of control data from the computer starts with a STX signal, followed by the command, the parameters, and lastly an ETX signal in that order. If there are no parameters, then the parameter signal does not need to be sent.

STX	C1 C2 C3	:	P1 P2 P3 P4 P5	ETX

Start (02h) — 3-character command (3 bytes) — Colon — Parameter(s) (1 - 5 bytes) — End (03h)
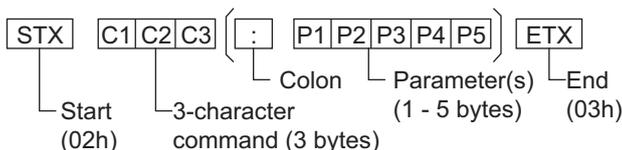
Notes:
- If multiple commands are transmitted, be sure to wait for the response for the first command to come from this unit before sending the next command.
- If an incorrect command is sent by mistake, this unit will send an "ER401" command back to the computer.
- S1A and S1B of Command IMS are available only when a dual input terminal board is attached.
- Consult your local Panasonic dealer for detail instructions on command usage.
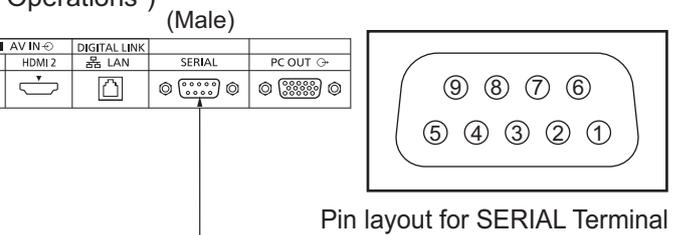
Signal names for D-sub 9P connector

Pin No.	Details
②	R X D
③	T X D
⑤	GND
④ • ⑥	Non use
⑦ ⑧	(Shorted in this set)
① • ⑨	NC

These signal names are those of computer specifications.

Command

Command	Parameter	Control details
PON	None	Power ON
POF	None	Power OFF
AVL	**	Volume 00 - 63
AMT	0	Audio MUTE OFF
	1	Audio MUTE ON
IMS	None	Input select (toggle)
	SL1	SLOT input (SLOT INPUT)
	S1A	SLOT input (SLOT INPUT A)
	S1B	SLOT input (SLOT INPUT B)
	VD1	VIDEO input (VIDEO)
	YP1	COMPONENT/RGB IN input (COMPONENT)
	HM1	HDMI 1 input (HDMI1)
	HM2	HDMI 2 input (HDMI2)
	DV1	DVI-D IN input (DVI)
	PC1	PC IN input (PC)
	DL1	DIGITAL LINK input (DIGITAL LINK)
	MG1	Miracast input (Miracast(TM))
	MV1	Memory veiwer input (MEMORY VIEWER)
	WB1	WhiteBoard input (WHITEBOARD)

With the power off, this display responds to PON command only.

PC OUT connection

The image being reproduced on the display including the image input from video equipment and the contents drawn on the whiteboard can be displayed on another sub monitor.

To use the function, set "Monitor Out" to "On" in "Setup". (see page 66)
Note: Setting it to "On" will adjust the "Picture" menu values to the standard values.

Computer, DVD player and other video equipment

USB memory
(To be viewed in Memory Viewer)

Sub monitor

PC OUT

(Female)

PC input terminal

(Male)

Mini D-sub 15p cable
(Commercially available)
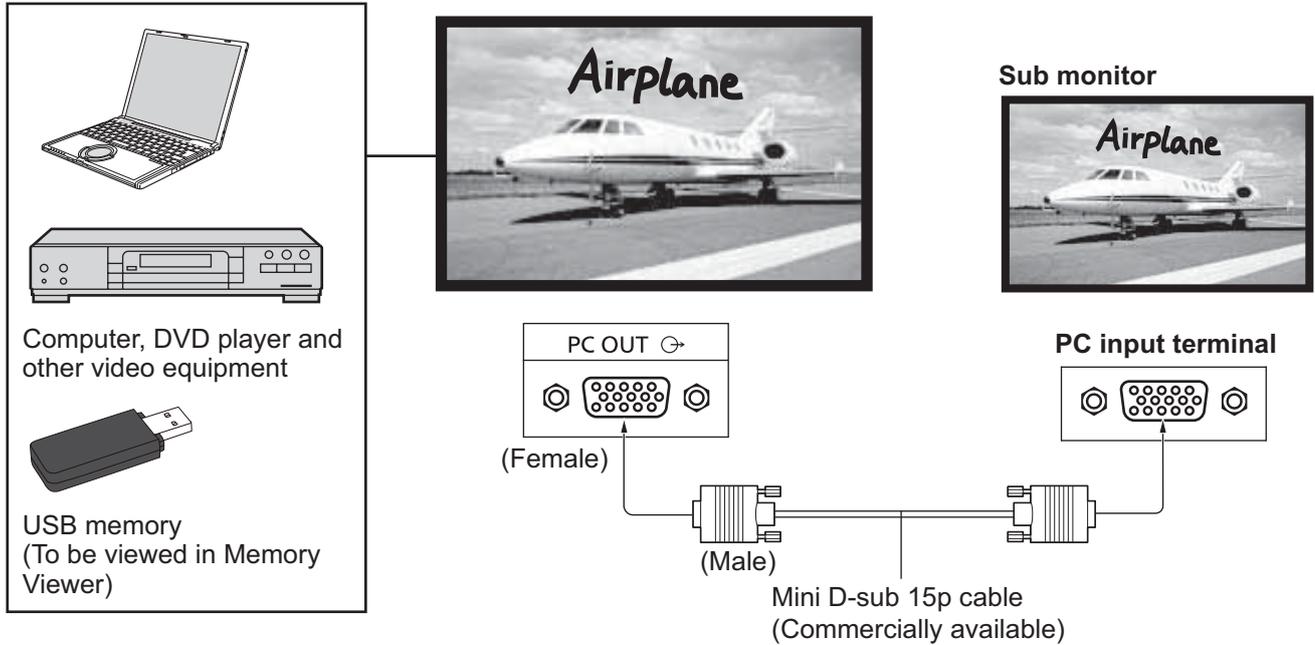
Input signals and drawn images that can be output

Input signal / Drawn image	Output signal
HDMI input signal (HDMI 1, HDMI 2) HDCP (copy protection) not supported	1,920 x 1,080@50 Hz or 1,920 x 1,080@60 Hz
DVI input signal (DVI-D IN) HDCP (copy protection) not supported	1,920 x 1,080@50 Hz or 1,920 x 1,080@60 Hz
PC input signal (PC IN) When "Component/RGB-in select" is set to "RGB"	1,920 x 1,080@50 Hz or 1,920 x 1,080@60 Hz
Whiteboard screen	1,920 x 1,080@60 Hz
Memory Viewer screen (MEMORY VIEWER)	1,920 x 1,080@60 Hz

Notes:
• The aspect ratio of the output signal is changed so that it can be shown on the screen.
• The following input signals cannot be output.
  Component input (COMPONENT/RGB IN)
  Composite video input (VIDEO)
  Miracast image (Miracast(TM))
  Wireless Manager (Panasonic APPLICATION)

Pin Layout and Signal Names of Monitor Out Terminal (Mini-D-sub 15P)
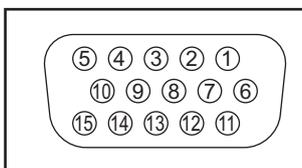
Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
①	R	⑥	GND (Ground)	⑪	NC (not connected)
②	G	⑦	GND (Ground)	⑫	NC (not connected)
③	B	⑧	GND (Ground)	⑬	HD
④	NC (not connected)	⑨	+5 V DC	⑭	VD
⑤	GND (Ground)	⑩	GND (Ground)	⑮	NC (not connected)

Example connection using the DIGITAL LINK Terminal

A twisted pair cable transmitter such as the Panasonic Digital Interface Box (ET-YFB100G) uses twisted pair cables to transmit inputted video and audio signals, and these digital signals can be input to the Display via the DIGITAL LINK terminal.

Display Connection Terminals

HDMI AV IN		DIGITAL LINK	
HDMI 1	HDMI 2	品 LAN	SERIAL

Control Computer

When a Panasonic ET-YFB100G is used

Video Cassette Recorder

Computer

DVD Player
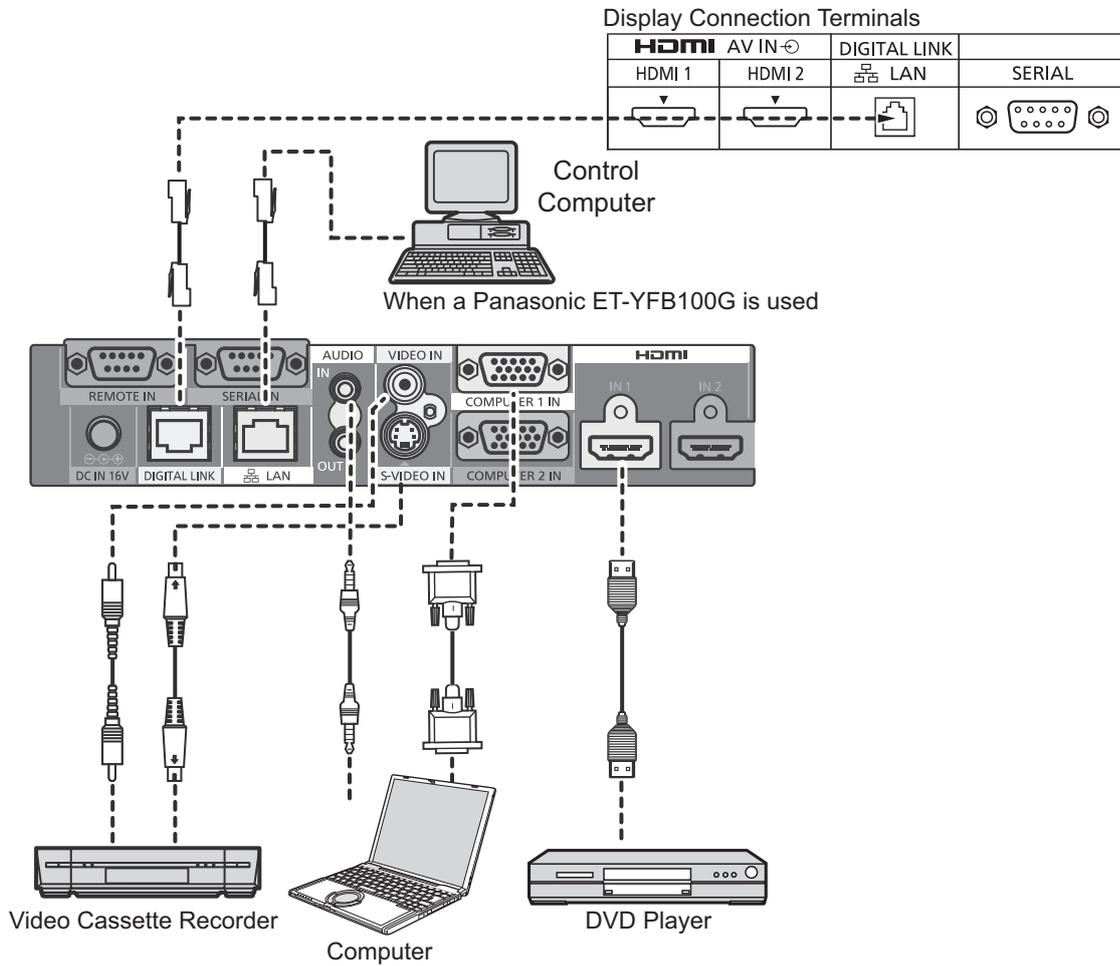
Note:
When connecting with DIGITAL LINK, be sure to configure each of the "Network Settings" settings.
For the cautions for DIGITAL LINK setting and connection, refer to "Operating Instructions - Network Operations".

Power On / Off

Connecting the AC cord plug to the Display.
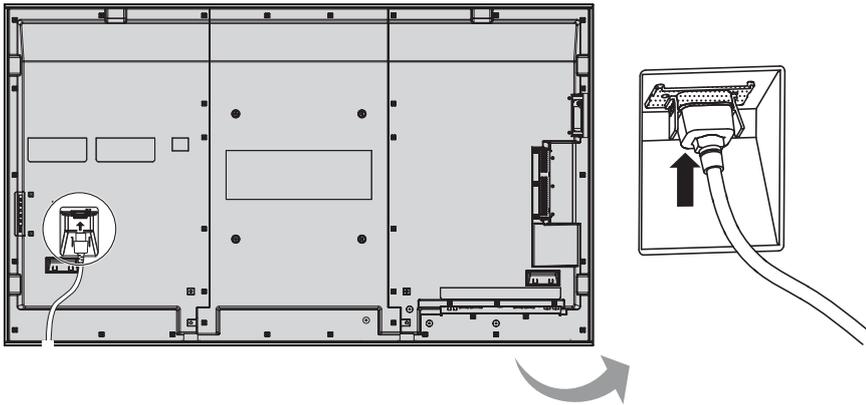
Connecting the plug to the Wall Outlet

Notes:
• Main plug types vary between countries. The power plug shown at right may, therefore, not be the type fitted to your set.
• When disconnecting the AC cord, be absolutely sure to disconnect the AC cord plug at the socket outlet first.

Press the Power switch on the Display to turn the set on: Power-On.

Power Indicator: Green

[Starting up the touch screen and network]
It takes some time for the touch screen and network to start up just after the power is turned on.
During that time, "Touch Screen Settings", "Network Settings" in the "Setup" menu is grayed out and cannot be set.

Power switch

Power Indicator   Remote Control Sensor
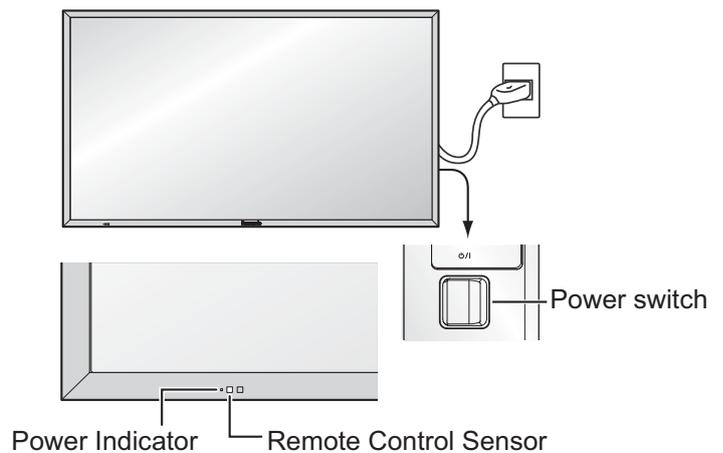
POWER

Press the POWER button on the remote control to turn the Display off.

Power Indicator: Red (standby)

Press the POWER button on the remote control to turn the Display on.

Power Indicator: Green

Turn the power to the Display off by pressing the ⏻/l switch on the unit, when the Display is on or in standby mode.

Note:
During operation of the power management function, the power indicator turns orange in the power off state.

When first switching on the unit

Following screen will be displayed when the unit is turned on for the first time.
Use the remote control to make the settings. Pressing the buttons on the main unit or multi-touch operation will not work.

OSD Language

OSD Language
English (UK)
Deutsch
Français
Italiano
Español
ENGLISH (US)
中文
日本語
Русский

① Select the language.
② Set.

Day/Time Settings

Day/Time Settings		
	Time	MON 99:99
Set		
Day		MON
Time		18:00

① Select "Day" or "Time".
② Setup "Day" or "Time".

Day/Time Settings		
	Time	TUE 99:99
Set		
Day		TUE
Time		18:00

① Select "Set".
② Set.
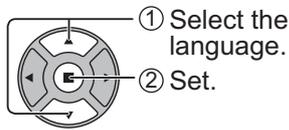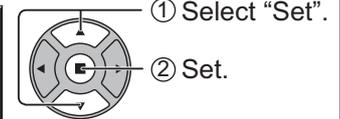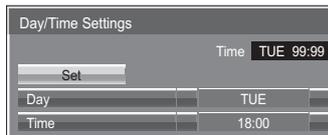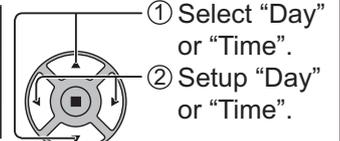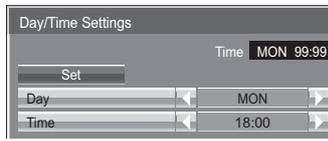
Notes:
• Once the items are set, the screens won't be displayed when switching on the unit next time.
• After the setting, the items can be changed in the following menus.
  OSD Language (see page 67)
  Day/Time Settings (see page 58)

Power ON message

The following message may be displayed when turning the unit power ON:

WhiteBoard Startup screen

> ✎ **WhiteBoard**
>
> Now Loading...

When the power is turned ON with the Input switch of the WHITEBOARD, the built-in WhiteBoard starts up.

Touch screen connection status display

When not connected to a computer via USB

Initializing Touch Screen...

Touch Screen detected.

Touch operation of the display is possible after this message appears.

When connected to a computer via USB

Touch Screen connected to external device.

No activity power off Precautions

'No activity power off' is enabled.

If "No activity power off" in Setup menu is set to "Enable", a warning message is displayed every time the power is turned ON. (see page 67)

Power Management Information

Last turn off due to 'Power management'.

If "Power management" is functioned, an information message is displayed every time the power is turned ON. (see page 63)

These message displays can be set with the following menu: Options menu
Power On Message (No activity power off)
(see page 75)
Power On Message (Power Management)
(see page 75)

Selecting the input signal

INPUT

Press to select the input signal to be played back from the equipment which has been connected to the Display.

Alternatively you can press INPUT, press ▲▼ to select the input and press ■.

INPUT	
HDMI1	HDMI input in HDMI 1 terminal
HDMI2	HDMI input in HDMI 2 terminal
SLOT INPUT	Input signal in a Terminal Board*1
VIDEO	Composite video input in VIDEO terminal
COMPONENT	Component/RGB input in COMPONENT/RGB IN terminal*2
PC	Computer's signal input in PC IN terminal
DVI	DVI-D input in DVI-D IN terminal
DIGITAL LINK	DIGITAL LINK input in DIGITAL LINK terminal
Miracast(TM)	Select this input when using the Miracast function. (see page 45)
Panasonic APPLICATION	Select this input when using "Wireless Manager" via wired/wireless LAN.
MEMORY VIEWER	Select this input when using the Memory Viewer function. (see page 32)
WHITEBOARD	

The screen switches WHITEBORAD input*3.
(see page 37)

*1 "SLOT INPUT" appears when an optional Terminal Board is connected.
When a Terminal Board with dual input terminals is connected, "SLOT INPUT A" and "SLOT INPUT B" will appear.
When a Terminal Board incompatible with the Display is installed, "Non-Compatible Function Board" is displayed.
*2 "COMPONENT" may be displayed as "RGB" depending on the setting of "Component/RGB-in select".
(see page 68)
*3 The WHITEBOARD input can be selected when "Touch Screen" of "Touch Screen Settings" is "On".

Notes:
- Selecting is also possible by pressing the INPUT button on the unit.
- Outputs the sound as set in "Audio input select" in the Options menu. (see page 77)
- Select to match the signals from the source connected to the component/RGB input terminals. (see page 68)
- Image retention (image lag) may occur on the LCD display panel when a still picture is kept on the panel for an extended period. To prevent such a problem, using the screensaver is recommended. (see page 61)
- The connection of the Wireless Manager is interrupted if the input is switched from Panasonic APPLICATION to Miracast(TM) or MEMORY VIEWER.
The connection of Miracast is interrupted if the input is switched from Miracast(TM) to Panasonic APPLICATION or MEMORY VIEWER.
Please check the setting again after switching the input.
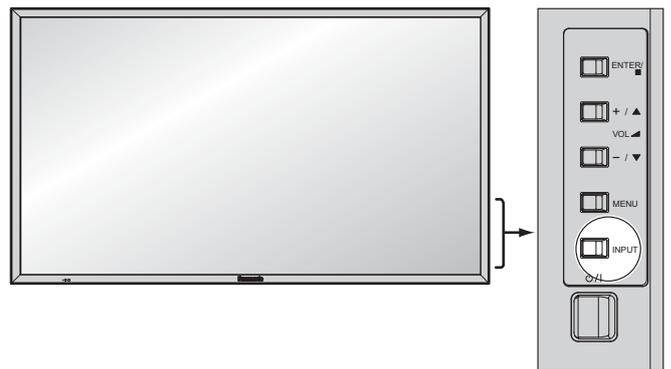
Basic Controls

Main Unit

Touch panel IR transmission part
Installed on the four sides of the display panel.

Remote control sensor
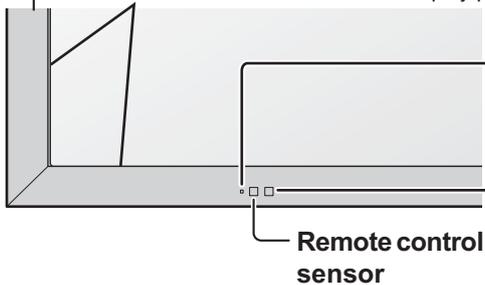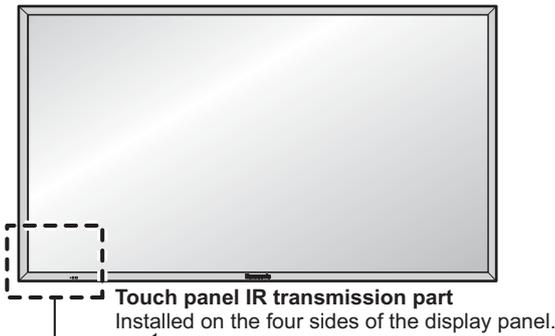
Power Indicator
The Power Indicator will light.
- Power-OFF .... Indicator not illuminated (The unit will still consume some power as long as the power cord is still inserted into the wall outlet.)
- Standby .... Red
    Orange (When "Slot power" is set to "On" and Terminal Board is installed. See page 74)
    Orange (Depending on the type of the function board installed, when the power is supplied to the slot)
    Orange (When "Control I/F Select" is set to "DIGITAL LINK/LAN" or "Wireless Network Standby" is set to "On". Refer to "Operating Instructions, Network Operations")
    Orange (When "Quick Launch" is set to "On". See page 59)
- Power-ON ...... Green
- HDMI1 Power management
  HDMI2 Power management
  .... Orange (With HDMI1 or HDMI2 input signal. See page 63)
  * These functions are not supported by TH-80LFB70E.
- PC Power management (DPMS)
  ....Orange (With PC input signal. See page 63)
- DVI-D Power management
  ....Orange (With DVI input signal. See page 63)

Note:
If the power indicator is orange, power consumption during standby is generally larger than that of when the power indicator is red.

Brightness Sensor
Detects the brightness in the viewing environment. (see page 63)
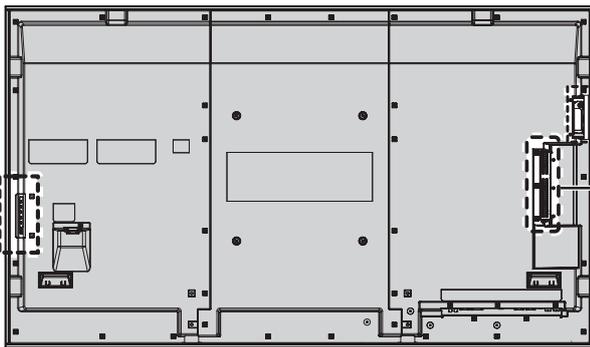
USB (VIEWER): Connect to USB memory. (see page 31)
USB (TOUCH): When using the "WhiteBoard Software" from the supplied CD-ROM, connect the computer via USB cable. (see page 44)
SLOT: Terminal board (optional accessories) insert slot (see page 4)

Note:
The upper side slot is for terminal board with 2-slot width. The terminal board with 1-slot width does not function when installed in the upper side slot.

Enter / Aspect button
(see page 23, 46)

Volume Adjustment
Volume Up "+" Down "–"
When the menu screen is displayed:
"+" : press to move the cursor up
"–" : press to move the cursor down
(see page 46)

MENU Screen ON / OFF
Each time the MENU button is pressed, the menu screen will switch. (see page 46)

⟶ Normal Viewing ⟶ Picture
Sound ⟵ Pos. /Size ⟵ Setup ⟵

INPUT button (INPUT signal selection)
(see page 20)

Main Power On / Off Switch

ENTER/■
+ / ▲
VOL▲
– / ▼
MENU
INPUT
⏻/|
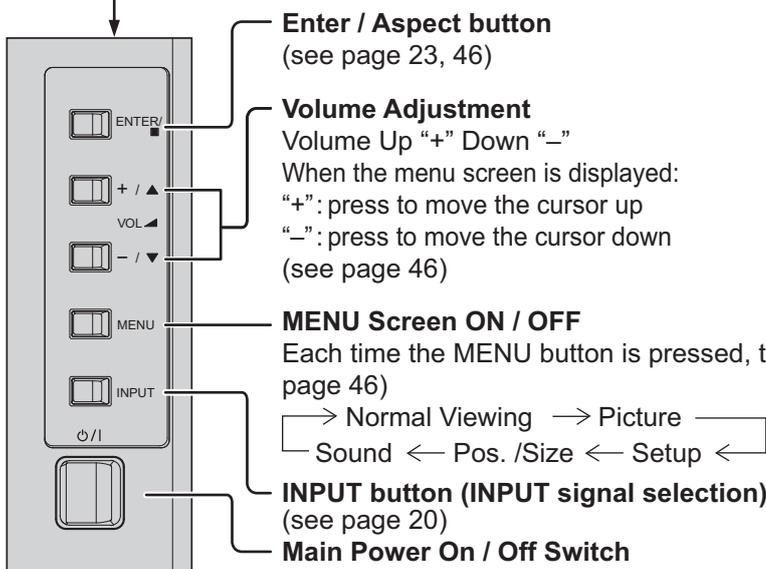
Remote Control Transmitter

ACTION button
Press to make selections.

ASPECT button
Press to adjust the aspect.
(see page 23)

Standby (ON / OFF) button
The Display must first be plugged into the wall outlet and turned on at the power switch (see page 18).
Press this button to turn the Display On, from Standby mode. Press it again to turn the Display Off to Standby mode.

POS./SIZE button
(see page 48)

PICTURE button
(see page 51)

Sound mute On / Off
Press this button to mute the sound.
Press again to reactivate sound. Sound is also reactivated when power is turned off or volume level is changed.

N button
(see page 50, 51, 52, 56)

POSITION buttons

INPUT button
Press to select Input signal sequentially. (see page 20)

ECO MODE (ECO)
Press to change the ECO MODE setup status. (see page 63)

FUNCTION buttons (FUNCTION)
(see page 65)

OFF TIMER button
The Display can be preset to switch to stand-by after a fixed period. The setting changes to 30 minutes, 60 minutes, 90 minutes and 0 minutes (off timer cancelled) each time the button is pressed.

30 min → 60 min → 90 min
0 min (Cancel)
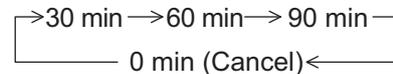
When three minutes remain, "Off timer 3 min" will flash.
The off timer is cancelled if a power interruption occurs.

AUTO SETUP button
Automatically adjusts the position/ size of the screen. (see page 48)

SET UP button (see page 57)

SOUND button (see page 56)

Volume Adjustment
Press the Volume Up "+" or Down "–" button to increase or decrease the sound volume level.

R button (see page 46)
Press the R button to return to previous menu screen.

RECALL button
Press the "RECALL" button to display the current system status.
① Input label
② Aspect mode (see page 23)
   Audio input (see page 77)
   Profile name (see page 55)
③ Off timer
   The off timer indicator is displayed only when the off timer has been set.
④ Clock display (see page 74)

PC — ①
4:3
♪ COMPONENT — ②
Memory name: MEMORY2

④ → 10:00   Off timer 90min — ③

Digital Zoom (see page 24)

POWER

ASPECT OFF TIMER AUTO SETUP

POS./SIZE PICTURE SOUND SET UP

MUTE

N   R

INPUT   RECALL

ECO FUNCTION ZOOM
     1   2

Panasonic
DISPLAY
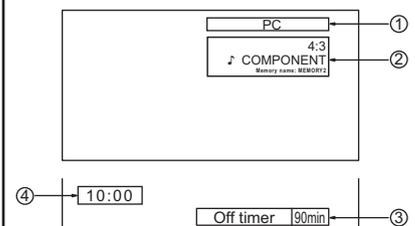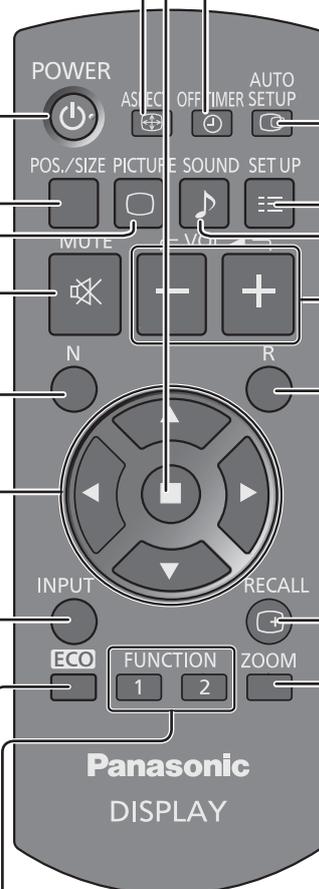
ASPECT Controls

The Display will allow you to enjoy viewing the picture at its maximum size, including wide screen cinema format picture.

Note:
Be aware that if you put the display in a public place for commercial purposes or a public showing and then use the aspect mode select function to shrink or expand the picture, you may be violating the copyright under copyright law. It is prohibited to show or alter the copyrighted materials of other people for commercial purposes without the prior permission of the copyright holder.

ASPECT

Press repeatedly to move through the aspect options:
For details about the aspect mode, please see "List of Aspect Modes" (page 83).

[from the unit]

ENTER/

The aspect mode changes each time the ENTER button is pressed.

[For TH-80LFB70U]

For VIDEO (S VIDEO) signal input:
→ 4:3 → ZOOM → FULL → JUST

For PC signal input: For SD signal input (525 (480) / 60i • 60p, 625 (575) / 50i • 50p):
→ 4:3 → ZOOM → FULL   → 4:3 → ZOOM → FULL → JUST

For HD signal input [1125 (1080) / 60i • 50i • 60p • 50p • 24p • 25p • 30p • 24psF, 1250 (1080) / 50i, 750 (720) / 60p • 50p]:
→ 4:3 → H-FILL → ZOOM → FULL → JUST

With the following inputs, the aspect will be fixed to "FULL" and you cannot switch it.
Miracast(TM), MEMORY VIEWER, WHITEBOARD

[For TH-80LFB70E and TH-80LFB70W]

For VIDEO (S VIDEO) signal input:
→ 4:3 → Zoom1 → Zoom2 → Zoom3 → 16:9 → 14:9 → Just

For PC signal input: For SD signal input (525 (480) / 60i • 60p, 625 (575) / 50i • 50p):
→ 4:3 → Zoom → 16:9   → 4:3 → Zoom1 → Zoom2 → Zoom3 → 16:9 → 14:9 → Just

For HD signal input [1125 (1080) / 60i • 50i • 60p • 50p • 24p • 25p • 30p • 24psF, 1250 (1080) / 50i, 750 (720) / 60p • 50p]:
→ 4:3 → 4:3 Full → Zoom1 → Zoom2
→ Just ← 14:9 ← 16:9 ← Zoom3 ←

With the following inputs, the aspect will be fixed to "16:9" and you cannot switch it.
Miracast(TM), MEMORY VIEWER, WHITEBOARD

Notes:
• The aspect mode is memorized separately for each input terminal.
• Do not allow the picture to be displayed in 4:3 mode for an extended period, as this can cause a permanent image retention to remain on the Display Panel.

All Aspect mode
Set "All Aspect" to "On" in Options menu to enable the extended aspect mode (page 74). When All Aspect mode, the aspect mode of pictures is switched as follows. For details about the aspect mode, please see "List of Aspect Modes". (page 83)

For VIDEO (S VIDEO) signal input:
→ 4:3 → Zoom1 → Zoom2 → Zoom3 → 16:9 → 14:9 → Just

For PC signal input: For SD signal input (525 (480) / 60i • 60p, 625 (575) / 50i • 50p):
→ 4:3 → Zoom → 16:9   → 4:3 → Zoom1 → Zoom2 → Zoom3 → 16:9 → 14:9 → Just

For HD signal input [1125 (1080) / 60i • 50i • 60p • 50p • 24p • 25p • 30p • 24psF, 1250 (1080) / 50i, 750 (720) / 60p • 50p]:
→ 4:3 Full → Zoom1 → Zoom2 → Zoom3 → 16:9 → 14:9 → Just1 → Just2 → 4:3 (1) → 4:3 (2)

Digital Zoom

This displays an enlargement of the designated part of the displayed image.

1 **Display the operation guide.**

ZOOM — Press to access Digital Zoom.
The operation guide will be displayed.
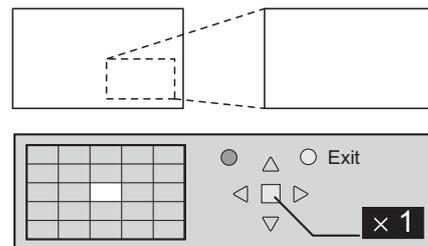
During Digital Zoom, only the following buttons can be operated.

[Remote control]

OFF TIMER button

[Unit]

VOL button

MUTE button

POSITION / ACTION button

VOL button

---
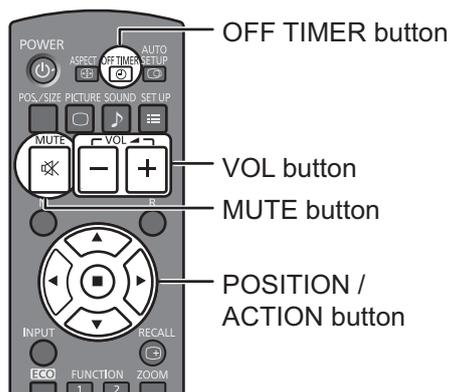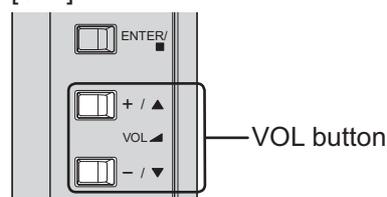
2 **Select the area of the image to be enlarged.**

Press on the enlargement location to select.
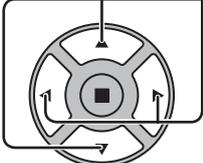
The cursor will move.

---
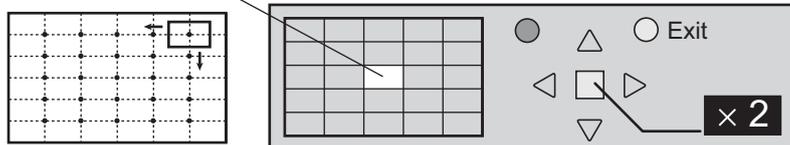
3 **Select the magnification required for the enlarged display.**

Each time this is pressed, the magnification factor changes.
This is shown in the image being displayed.

$\times 1$ → $\times 2$ → $\times 3$ → $\times 4$

---
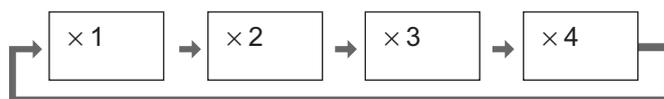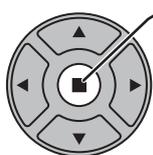
4 **Return to normal display (quit Digital Zoom).**

R — Press to exit from the Digital Zoom.

Notes:

• When power goes OFF (including "Off Timer" operation), Digital Zoom terminates.
• The Digital Zoom function cannot be selected while in the following operation state:
  When WHITEBOARD input.
  When two screen display.
  When Screensaver (except for Negative image) is running (see page 61)
  When the thumbnail view or file list view of Memory Viewer is displayed
• While Digital Zoom is in operation, "Adjusting Pos./Size" cannot be used.

MULTI PIP

You can display two pictures, such as a video image and computer image, in a two-screen display.
Notes:
• If "Input lock" in Options menu is set to other than "Off", two screen display function isn't available (see page 73).
• 2k1k signals that are received with the Dual Link HD-SDI Terminal Board (TY-FB11DHD) cannot be displayed in two-screen display.

MULTI PIP Settings

Set the functions and mode for two-screen display in "MULTI PIP Settings" in the Setup menu. (see page 60)

PIP Mode

There are two modes for two screen display:

Pic in Pic
Displays two input images combined.

Main screen input
Sub screen input

The following four system inputs are combined:
A Panasonic APPLICATION
B SLOT INPUT
C HDMI1/HDMI2/DVI/DIGITAL LINK/COMPONENT/PC
D VIDEO
Note:
Two screen display cannot be displayed with the same system inputs such as HDMI1-DVI combined.

Pic in WHITEBOARD
Displays the built-in WhiteBoard with the other input image combined.
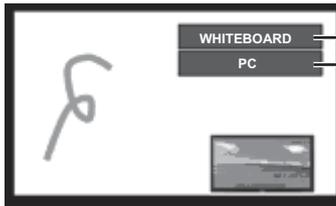
Main screen is fixed to WHITEBOARD.
Inputs supported for the sub screen: HDMI1/HDMI2/DVI/DIGITAL LINK/COMPONENT/PC/VIDEO/SLOT INPUT

Note:
SD signal is displayed in 4:3 mode on the sub screen.

Using Two Screen Display

Set "MULTI PIP" in "MULTI PIP Settings" to "On" (see page 60).
Two screen display appears.

Using the FUNCTION button

FUNCTION
1 2 ➡ On/Off of "MULTI PIP" switches.

FUNCTION
1 2 ➡ "MULTI PIP Settings" menu appears.

Note:
Please use the "Function Button Settings" to set the FUNCTION button (see page 65).

Switching Sub Screen Position

Press to switch the sub screen position.
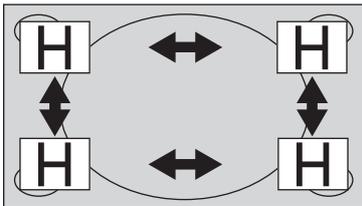
Changing the Size of Sub Screen

Press to change the size of the sub screen.
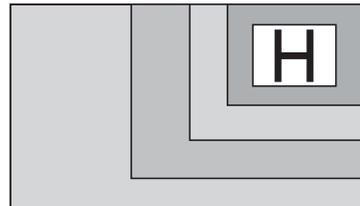
Note:
Alternatively, "Sub screen size" and "Sub screen position" in "MULTI PIP Settings" can be used for the same operation (see page 60).

Multi-touch Operation

The built-in touch panel function of the display enables the screen control with a finger or the supplied pen.

This section explains about the multi-touch operation on the display main unit.

Note:

To enable multi-touch operation, select "Setup" - "Touch Screen Settings" and set "Touch Screen" to "On". (see page 59)

Touch gestures

You can use the following touch operations.

Name	Operation
Tap (single tap) Touch once lightly	■ **Control menu operation** 　• Controlling the display setting menus. 　• Starting the Touch Zoom mode. 　• Starting the whiteboard. ■ **Memory Viewer operation** Showing/hiding the touch operation icons when the MEMORY VIEWER input is selected. You can tap the displayed icons to perform operation. **Memory Viewer** see page 30
Double-tap Touch twice	■ **Touch Zoom operation** Enlarging the image up to about three times its normal size during Touch Zoom. When the image is already enlarged, the zoom rate will be returned to 100%. **Touch zoom** see page 29
Scroll Slide a finger	■ **Touch Zoom operation** Moving the displayed position of the image while the image is enlarged. ■ **Memory Viewer operation** Skipping forward or backward the file. **Memory Viewer** see page 30
Swipe from the screen edge Slide a finger from the screen edge	■ **Control menu display** Displaying the control menu.
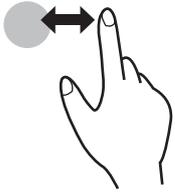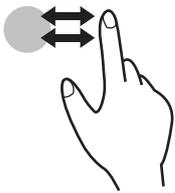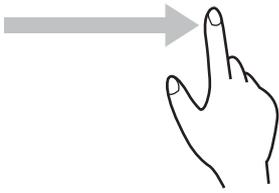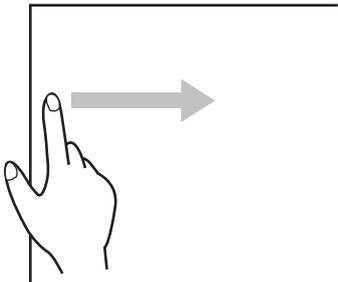
Name	Operation
Zoom in Pinch out with two fingers	■ **Touch Zoom operation** Enlarging the image.
Zoom out Pinch in with two fingers	■ **Touch Zoom operation** Shrinking the image.
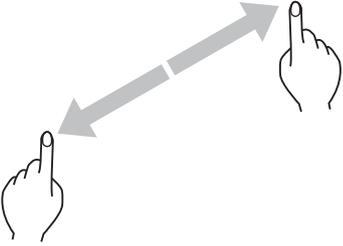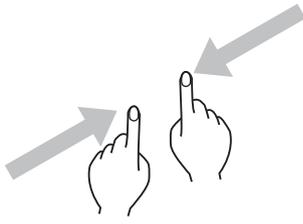
Operations that can be performed with multi-touch gestures

Selecting the input and adjusting the volume (see page 28)

Touch Zoom (see page 29)

Memory Viewer operation (see page 30)

Pen drawing on the built-in WhiteBoard (see page 37)

Pen drawing in the WhiteBoard Software (see page 44)

Controlling the display setting menus (see page 47)

Notes for multi-touch operation
Always use a finger or the supplied pen to perform multi-touch operation or pen drawing. Do not use a hard or sharp tip such as nail, ball-point pen, and pencil. Otherwise it may cause incorrect performance or damage of the display panel.

Multi-touch Operation

Control menu

Displaying the control menu
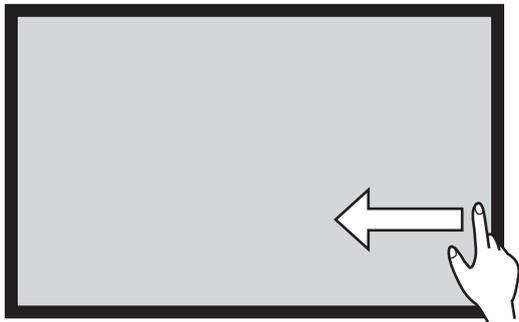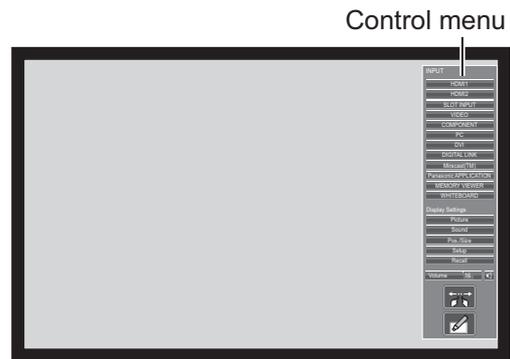
Control menu

Swiping from the right edge of the screen will display the control menu on the right. Swiping from the left edge will display the control menu on the left.

Swipe from the screen edge.

> **You can also press** [icon] INPUT **or** [icon] MENU **on the main unit to display the control menu.**
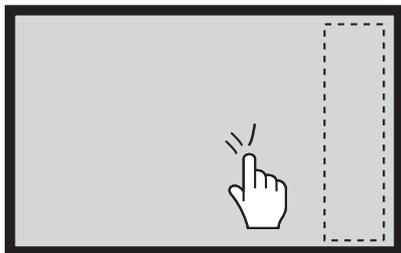
Touching any other area than the menu screen will close the menu.

Control menu

Tap the desired function in the control menu.
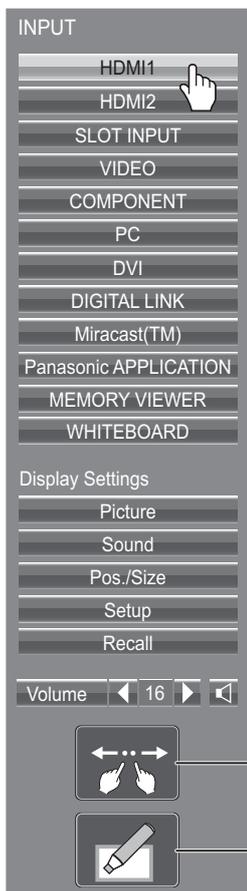
Input selection
Switches to the tapped input.
"**Selecting the input signal**" see page 20

In the two-screen display, the input selectable for the main screen will be displayed.
Operation in the two-screen display "**MULTI PIP**" see page 25

Displaying the display setting menus
Displays the tapped menu. (see page 47)

Status information
Displays the status of the input signal, aspect mode and other settings. (see page 22)

Volume, Sound mute
Raises or lowers the volume when ◁ ▷ on the right and left are tapped.
Tapping 🔊 will mute the sound changing the icon to 🔇 and disable volume adjustment. Tapping the icon again will cancel mute.

Touch Zoom
Activates the Touch Zoom mode allowing you to enlarge or shrink the image. (see page 29)

Whiteboard
Activates the transparent mode or WhiteBoard mode. (see page 37)

Touch Zoom

You can enlarge or shrink the picture with touch operation.

1 **Swipe from the screen edge to display the control menu.**

Control menu see page 28

Control menu
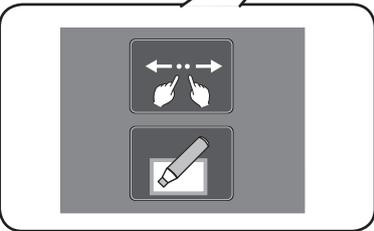
2 **Tap** 🔛 **.**

The Touch Zoom mode is now active.

Zoom in

3 **Zoom in the part you want to enlarge.**

Touch the screen with two fingers and pinch out.
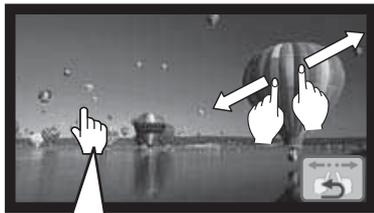
> **If you double-tap on a full size picture, it will be enlarged to 300%.**
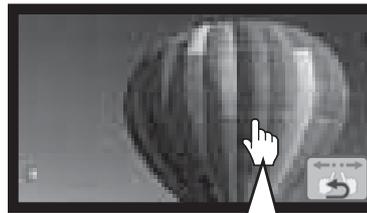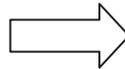
Zooming in is non-step magnification from 100% to 400%.

> **If you double-tap on a magnified picture, it will return to 100%.**

Zoom out

Pinch in with two fingers to shrink the picture.
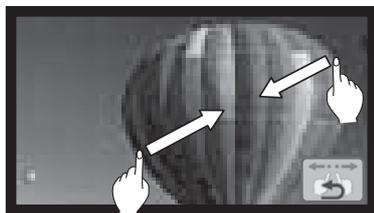
Scroll

Moves the displayed position of the image while the picture is enlarged.
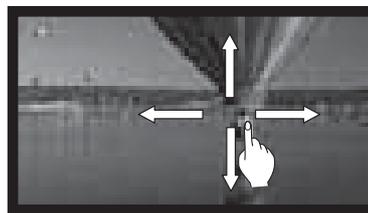
4 **Tab** 🔙 **to end the Touch Zoom mode.**

Note:

The aspect mode will be fixed to "FULL/16:9" in the Touch Zoom mode.

The Touch Zoom mode cannot be activated in the following cases.

- When two screen display.
- When Screensaver (except for Negative image) is running (see page 61)

The enlarged picture has less resolution than that of the original size.

Memory Viewer Function

The Memory Viewer function makes it is possible to display the video and pictures which are stored in the USB memory when the USB memory is inserted into the display.

What you can display with the Memory Viewer function

The following files are supported.

Picture	Extension	Format
	jpg/jpeg	Maximum resolution: 8000 × 8000
	bmp	Maximum resolution: 8000 × 8000 support: 1, 4, 8, 16, 24, 32 bit

Video	Extension	Video codec	Audio codec	Video format	Audio format
	mov	H.264/AVC MotionJpeg	AAC Linear PCM	Maximum: 1920 × 1080/30 fps	Maximum: 48 kHz 2 ch (It is up to 16 kHz stereo when the codec is linear PCM)
	avi	H.264/AVC MotionJpeg Mpeg4	mp3 AAC Linear PCM		
	mp4	H.264/AVC Mpeg4	AAC Mpeg4 AAC-LC		
	mpg/mpeg	Mpeg2	Mpeg1 Layer2		
	wmv	WMV9	WMA		

Notes:
- The maximum size of file is 2 GB.
- The maximum number of file/folder is up to 1000. If it exceeds, the folder cannot display and an error message appears.
- You cannot play the files which are protected by Digital Rights Management (DRM).
- The maximum number of files that can hold resume information is 50. If it exceeds 50, the oldest information will be deleted.
- It may be impossible to resume playing the file from the stopped position.
- It may be impossible to play some files even if they are in the supported format.

Applicable device

The function is compatible with USB memories sold in the market. (Devices with security feature are not supported) Devices not formatted with FAT16 or FAT32 cannot be used.

Inserting the USB memory

Insert the USB memory to the USB (VIEWER) port on the side of the display.

USB
(VIEWER)
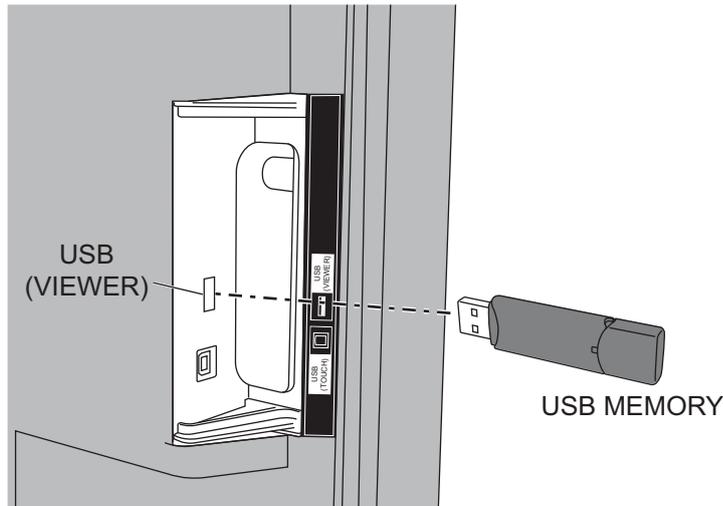
USB MEMORY

Notes:
- When inserting the USB memory, confirm the direction of the plug not to damage the terminal.
- Please note following points to insert and remove the USB memory.
  - The indicator of the inserted USB memory will be blinking while the display is reading out the data. Do not remove the USB memory while it is blinking.
  - When using a USB memory without indicator, you cannot recognize when the display is reading out the data. Please remove it from the display after closing the Memory Viewer function or turning off the display.
  - Do not insert and remove the USB memory frequently. Remove the USB memory at least 5 seconds after insertion. And insert at least 5 seconds after removal. The display needs some time to detect insertion or removal of the USB memory.

Caution on handling and storing the USB memory

- Do not put USB memory or its cap within close reach of children. Swallowing it may cause suffocation.
- If the smoke or questionable odor rises, remove the USB memory from the equipment and contact the manufacturer.
- Do not put water, chemical or oil to the USB memory. It may cause short out or fire.
- Do not put foreign objects or put metal objects to the USB terminal. Static electricity may cause data loss or data corruption.
- Do not remove the USB memory from the computer or the display while the USB memory is reading out or writing the data. It may cause data loss or data corruption.
- Do not store the USB memory in hot, humid or dusty place or near magnetized items.

Notes:
- During accessing to the USB memory, do not turn off the power or remove the USB memory because the data in the USB memory might get damaged. During accessing, the USB memory is blinking.
- The USB memory allows you to insert or remove regardless of the power status of the display.

Memory Viewer Function

Displaying the Memory Viewer screen

Remote control operation

Press ⬭ (INPUT) **to select the MEMORY VIEWER input.**

If "MEMORY VIEWER" has been assigned to a FUNCTION button, simply pressing it can switch the input to MEMORY VIEWER. (see page 65)
The thumbnails or the file list is displayed.
You can switch the display between the thumbnail view and file list view by setting "Setup" - "Memory Viewer Settings". (see page 66)

Touch operation

Tap MEMORY VIEWER in the control menu.

MEMORY VIEWER

Control menu see page 28

Thumbnail view

Folder list

Information of the selected file.

Remote control operation guide
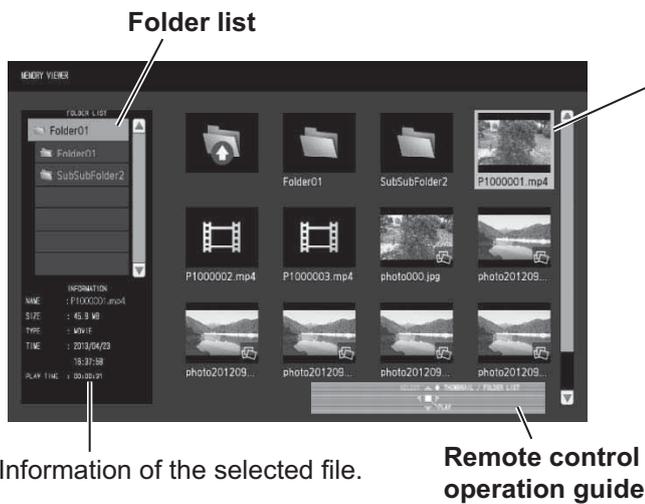
Thumbnails

Folders, pictures and videos in the folder.
The following icons will be displayed.

	Moves to the upper level when selected.
	Moves to the lower level when selected.
	Picture file.
	Video file.
	The file has a supported extension but cannot be played.

File list view

Folder list
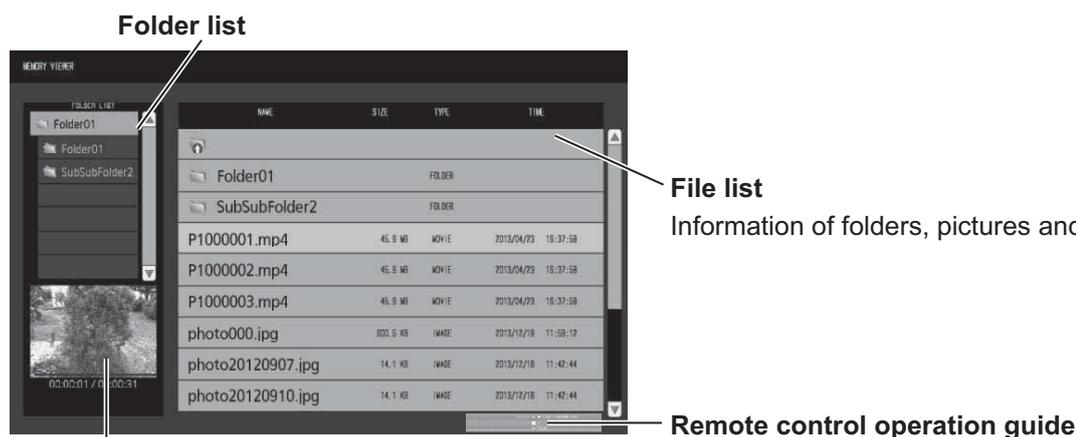
Preview of the selected file.

File list
Information of folders, pictures and videos in the folder.

Remote control operation guide

Exiting Memory Viewer

Exit Memory Viewer before removing the USB memory.

Playing the pictures - Remote control

Moves between the folder list and thumbnails
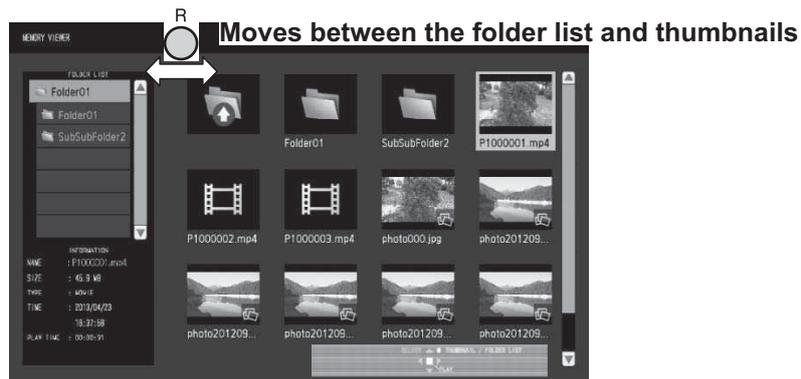
Select a file in the same manner in the file list view.

Folder list

1 Press ▲ ▼ to select the desired folder.

The selected folder opens.

Thumbnails / File list

2 Press ▲ ▼ ◀ ▶ to select the desired file.

Press @@ to return to the folder list.

3 Press (■).

The picture will be displayed on the full screen.

Remote control operation guide

Press the remote control buttons to perform the following operations.

◀   Skip to the previous file

▶   Skip to the next file

▲   Rotate the picture clockwise (90°)

▼   Rotate the picture counterclockwise (90°)

(■)   Stop temporarily or restart the Auto Play

○   Return to the thumbnail view or file list view

When [Auto Play] is set to [On]

All pictures in the same folder will be played automatically.

Pressing (■) during Auto Play will stop the play temporarily. Press it again to restart the play.

Pressing ◀ during Auto Play will start the play from the previous picture and pressing ▶ from the next picture.

You can set the Auto Play interval and screen-switching effect in "Setup" - "Memory Viewer Settings".

(see page 66)

4 Press ○.

The display returns to the thumbnail view or file list view.

Memory Viewer Function

Playing the video - Remote control

Select the desired file in the same manner as "Playing the pictures - Remote control". (see page 33)

Folder list

1 Press ▲ ▼ to select the desired folder.

The selected folder opens.

Thumbnails / File list

2 Press ▲ ▼ ◀ ▶ to select the desired file.

Press ⊖ (R) to return to the folder list.

3 Press ⏹.

The video will be displayed on the full screen.

Fast-forward / Rewind / Pause indication

Remote control operation guide

Press the remote control buttons to perform the following operations.

◀ Rewind (3 steps)
Skip back to the previous file (during a pause)

▶ Fast forward (3 steps)
Skip to the next file (during a pause)

▲ Play from the beginning

⏹ Pause / Restart playing

⊖ (R) Return to the thumbnail view or file list view

Time bar

Pressing ◀ during play will rewind and ▶ will fast-forward the video. The speed changes in three steps each time you press the button.

When [Auto Play] is set to [On]

All videos in the same folder will be played automatically.

When the last file ends, Auto Play starts from the first file again.

4 Press ⊖ (R).

The display returns to the thumbnail view or file list view.

Resume play

If you stop the video on the way and play it again, the play starts from the stopped position.

The video is being played → **The screen returns to the thumbnail view or file list view** → **The play starts from the last stopped position**

Notes:

• The resume function is enabled when [Auto Play] is set to [Off]. (see page 66)
• The resume position is held until the display is turned off or the USB memory is disconnected.
Up to 50 files can hold the resume position.

Playing the pictures - Touch operation

Tap to open the folder

Double-tap to start playing

Tap to switch the see page
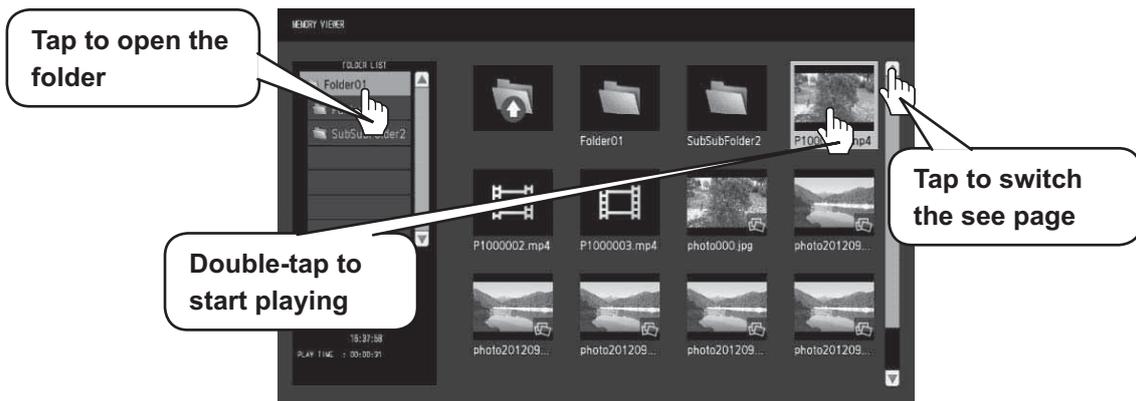
Select a file in the same manner in the file list view.

1 **Tap the desired folder in the folder list.**
The selected folder opens.

2 **Tap to select the desired file.**

3 **Double-tap the selected file.**
The picture will be displayed on the full screen.

Touch operation icons

Tap to perform the following operations.

▦	Return to the thumbnail view or file list view
✎	Pen drawing mode
▶	Restart the Auto Play
‖	Stop the Auto Play temporarily
←	Skip to the previous file
→	Skip to the next file
↶90°	Rotate the picture counterclockwise (90°)
90°↷	Rotate the picture clockwise (90°)

When [Auto Play] is set to [On]

All pictures in the same folder will be played automatically.

Tapping ‖ during Auto Play will stop the play temporarily. Tap ▶ to restart the play.

You can set the Auto Play interval and screen-switching effect in "Setup" - "Memory Viewer Settings". (see page 66)

You can use the following touch operations during playing pictures.
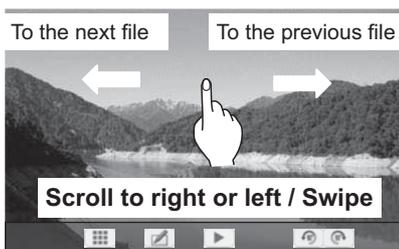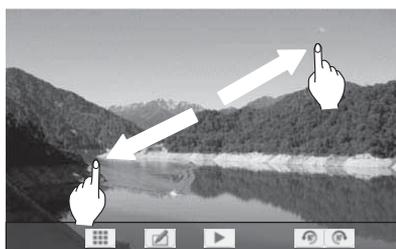
To the next file   To the previous file

Scroll to right or left / Swipe

Moving to another file

Touch Zoom (see page 29)

4 **Tap ▦ .**
The display returns to the thumbnail view or file list view.

Memory Viewer Function

Playing the video - Touch operation

Select the desired file in the same manner as "Playing the pictures - Touch operation". (see page 35)

1 Tap the desired folder in the folder list.
The selected folder opens.

2 Tap to select the desired file.

3 Double-tap the selected file.
The video will be displayed on the full screen.

Fast-forward / Rewind / Pause indication

Touch operation icons
Tap to perform the following operations.

	Return to the thumbnail view or file list view
	Pen drawing mode (during a pause)
	Play from the beginning
	Rewind (3 steps)
	Pause
	Restart playing
	Fast-forward (3 steps)
	Skip to the next file

Tapping the time bar can change the play position.

Tapping ◀◀ during play will rewind and ▶▶ will fast-forward the video. The speed changes in three steps each time you tap the icon.

When [Auto Play] is set to [On]
All videos in the same folder will be played automatically.
When the last file ends, Auto Play starts from the first file again.

You can use the following touch operations during playing videos.
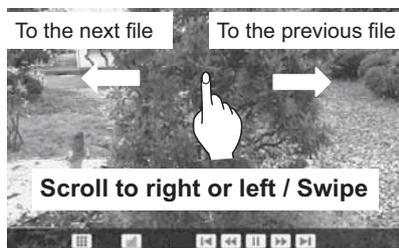
To the next file   To the previous file

Scroll to right or left / Swipe

Moving to another file

Touch Zoom (see page 29)

4 Tap ▦ .
The display returns to the thumbnail view or file list view.

Resume play
see page 34

Using Built-in WhiteBoard

The built-in WhiteBoard allows you to use the display as whiteboard and perform pen drawing such as marking on the on-screen image.

About the built-in WhiteBoard
- **To enable pen drawing, select "Setup" - "Touch Screen Settings" and set "Touch Screen" to "On". (see page 59)**
- **Use a finger or the supplied pen to perform pen drawing.**
- **Up to four people can draw at the same time. (Four pens can be used at the same time.)**
- **The image with markings and its background can be saved in the built-in memory or USB memory or can be sent by e-mail.**

Note:

In the case that you use this Product by entering the data or the work, including but not limited to, motion picture and photography through external input to this Product, the data or the work you are permitted to use in this Products except for the quoting shall be created by yourself or shall be authorized to use by the author of the data or the work. Panasonic has no authority and no right to grant you any license, rights and titles to use, modify, copy, distribute and the like of such data or the work.

There are two modes of pen drawing.

WhiteBoard mode

With the WHITEBOARD input, drawing will be made on the white background.

Select the WHITEBOARD input.

The mode will be WhiteBoard if the display is turned on with the WHITEBOARD input selected. (see page 19)

Remote control operation

Press ⬤^{INPUT} to select the WHITEBOARD input.

Press ◯ to select the WHITEBOARD input.

If "INPUT (WHITEBOARD)" has been assigned to a FUNCTION button, simply pressing it can switch the input to WHITEBOARD. (see page 65)

Touch operation

Tap WHITEBOARD in the control menu.

WHITEBOARD

Control menu see page 28

The display enters the WhiteBoard mode allowing you to perform pen drawing on the white background.

Main menu

ABC
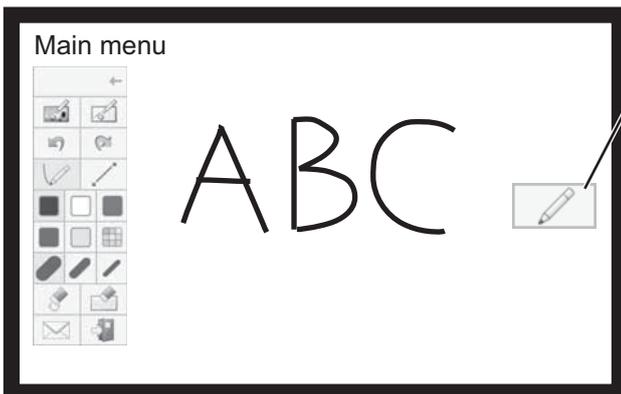
To display the main menu

Tap 🖊 to display the main menu for pen drawing.

Main menu see page 39

You can switch from the transparent mode to the WhiteBoard mode. (see page 41)

The background color of WhiteBoard can be changed to any other color than white in "Setup" - "Touch Screen Settings". (see page 59)
It can also be changed in the main menu.

If the input is not WHITEBOARD, switch the mode to WhiteBoard in "Mode Selection" of the main menu. see page 41

How to perform pen drawing see page 40

To end pen drawing   Tap 🖻 in the main menu.

Using Built-in WhiteBoard

Transparent mode (Drawing on video and still image)

Drawing will be made on the image of the computer or HDMI input shown on the display.

1 With any other input than WHITEBOARD, swipe from the screen edge to display the control menu.

Control menu see page 28

2 Tap [✏️] **.**

The display enters the transparent mode allowing you to draw on video or still image.
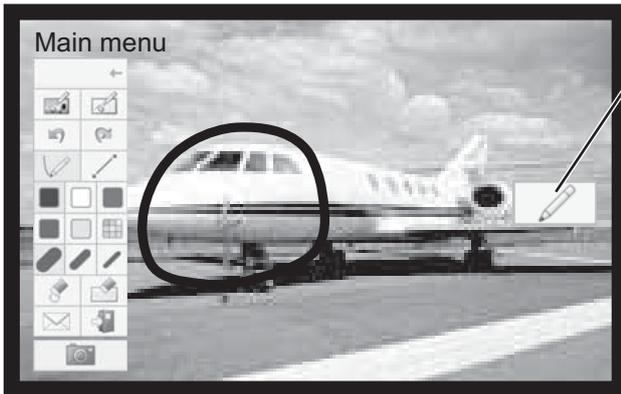
Main menu

To display the main menu

Tap [✏️] to display the main menu for pen drawing.

Main menu see page 39

How to perform pen drawing see page 40

To save the background image and drawn content, you need to capture them.

To end pen drawing Tap [🚪] in the main menu.

Capturing (Capturing video and still image)

1 In the transparent mode, tap [📷] **.**

Tap to capture

2 Tap "Yes".

Capture

Capture this image?
Do you want to continue?

| Yes | No |
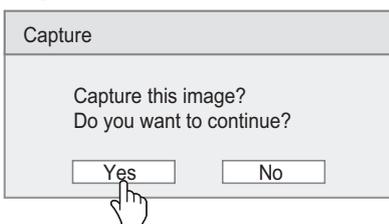
The background image is captured as still image allowing you to draw on it. **How to perform pen drawing see page 40**

To end pen drawing Tap [🚪] in the main menu.

Main menu

Tap the function button of the main menu to activate the desired function.
The function buttons displayed differ depending on the mode.

Main menu display

The main menu will appear on the side where you tap [pen icon] shown in the right or left of the screen.
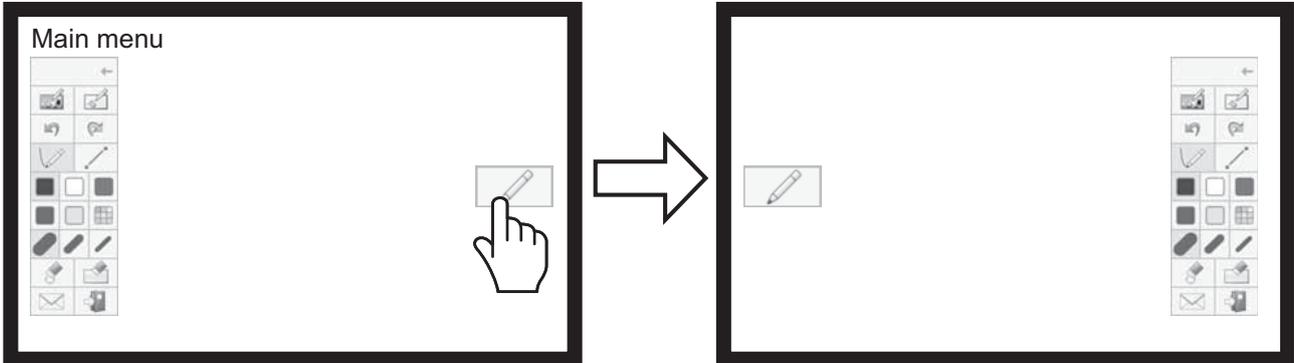
Main menu

Tap to hide the pen tool.

Mode selection / Split screen
see page 41

Undo / Redo
Undo the previous action or redo the canceled action.

Marker
Draw a freeform line such as a text and figure.

Line
Draw a line segment.

Color
Select the pen color or background color.

Thickness
Select the pen thickness.

Eraser
Remove a part of the drawn item.

Clear all
Remove all the drawn items.

Send by e-mail
see page 43

Exit
Close the whiteboard.

Image capture
see page 38

Using Built-in WhiteBoard

How to perform pen drawing

Select the desired function before starting drawing.

Note:

Always use a finger or the supplied pen to perform pen drawing. Do not use a hard or sharp tip such as nail, ball-point pen, and pencil.

Pen (supplied)
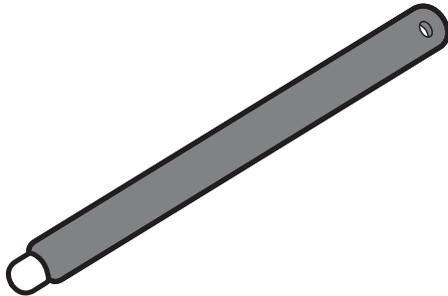
On the whiteboard, up to four people can draw at the same time.
The pen color, pen thickness and other preferences selected in the main menu will be shared.

1 Tap "Marker" or "Line".

Marker   Line

2 Draw an item on the display.

Marker   Line

Changing the pen color

Pallet menu
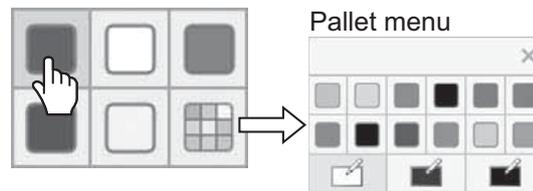
Select any other color or the background color.

Note:

When you change the whiteboard background color, a message will appear asking if you save the contents drawn before the change. Save them as a file as necessary.

Changing the pen thickness

Removing the drawn item

To remove a small part

1 Tap "Eraser".

2 Touch and stroke the desired part with a finger or the pen.
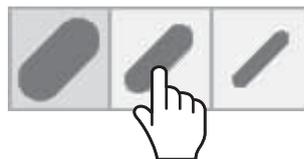
To remove a large part

Besides the "Eraser" tool, it is possible to use your palm or the supplied eraser to remove the drawn item.
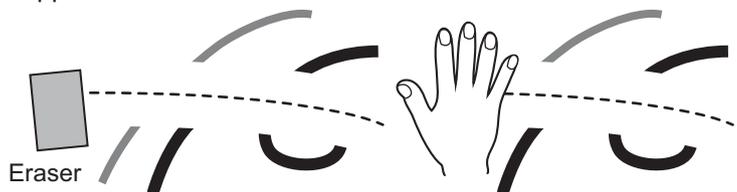
Eraser

Note:

Any item of 3 cm (L) × 3 cm (W) or larger can work as eraser.

To clear all

Tap "Clear all".

All the drawn items are removed.

Selecting the mode

Tap "Mode selection" of the main menu to switch the drawing mode.
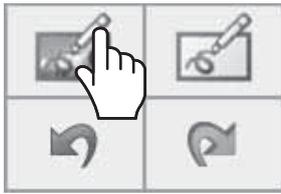
Switches to the Whiteboard mode.
The input does not switch to WHITEBOARD.

Switches to the transparent mode.

Mode selection

Notes:

• **When the input is WHITEBOARD, only the WhiteBoard mode can be used. It is not possible to change the mode.**

• **When you change the mode, a message will appear asking if you save the contents drawn before the change. Save them as a file as necessary.**

Split screen

The whiteboard and input image can be displayed in the split screen.

1 In the WhiteBoard mode, tap [ ].

The Split screen menu is displayed.
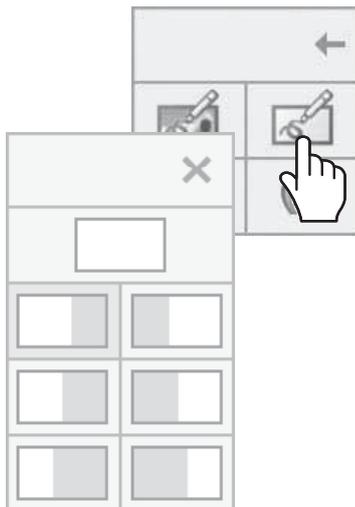
Split screen menu

2 Tap to select the desired split mode.

Returns to the full-screen whiteboard.
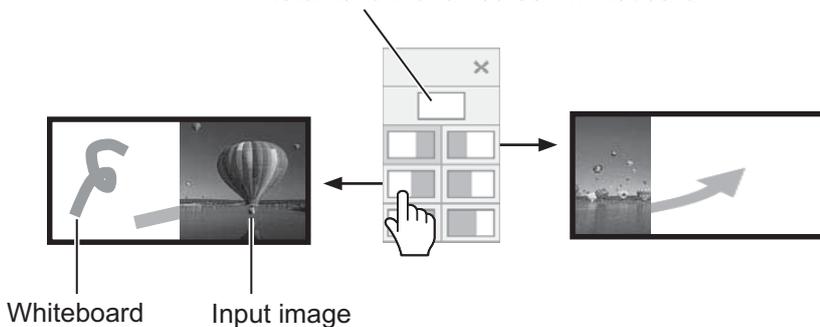
Whiteboard   Input image

Note:

The split screen is not possible with the WHITEBOARD input.

Using Built-in WhiteBoard

Saving pen drawing content (Page Menu)

Page Menu will be enabled in the WhiteBoard mode or during drawing on the captured image.
The drawn content and its background can be saved in the built-in memory or USB memory and can be read as a see page.
Connect a USB memory to the USB (VIEWER) terminal on the side of the display.
USB Memory see page 30
Notes:
• To use the built-in memory, select "Setup" - "Touch Screen Settings" and set "Built-in MEMORY SETTING" to "On". (see page 59)
• For confidentiality reasons, it is recommended that you delete unnecessary files saved in the built-in memory.

Page Menu (Built-in Memory)

003 / 003 Built-in Memory
Page Menu

003 / 003 Built-in Memory
Page Menu
New Page
Save
Save as a new page
Delete this page
Delete all pages
Save to USB Memory
USB Memory mode

Page Menu (USB Memory)

001 / 001 USB Memory
Page Menu

001 / 001 USB Memory
Page Menu
New page
Save
Save as a new page
Delete this page
Remove USB Memory
Built-in Memory mode
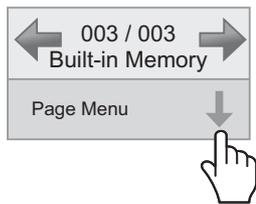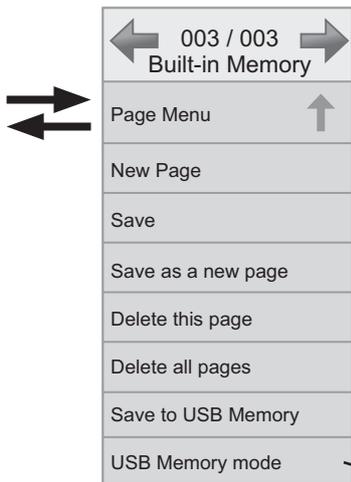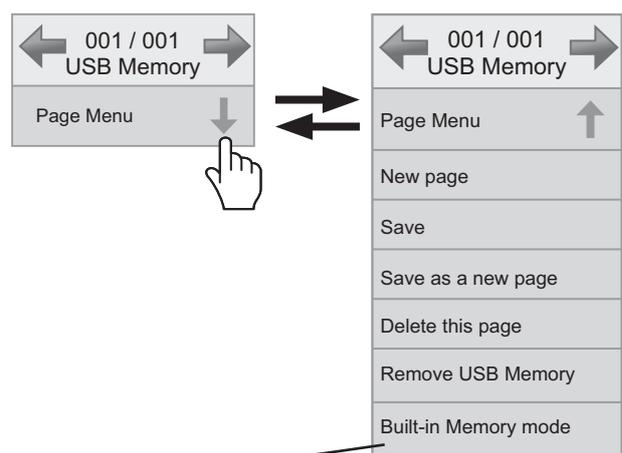
The memory mode changes.

Common items in the built-in memory and USB memory

| 003 / 003 Built-in Memory | : Switches see pages of the drawn data saved in the memory storage when ⬅ ➡ is tapped. The left number is the current see page number and the right is the last see page number. |

Notes:
• The total number of all the see pages saved in the memory storage is not displayed.
• "Read-Only" will appear below "Page Menu" if you read the drawn data in the memory storage that is write-protected or does not have enough space for writing.

New page   : Creates a new see page.
Save   : Overwrites the current see page.
Save as new page : Saves the drawn content as a new see page while keeping the original see page as it is.
Delete this page : Deletes the current see page and displays the next see page.

Built-in Memory only
Delete all pages   : Deletes all the see pages saved in the built-in memory.
Save to USB Memory : Copies the see pages saved in the built-in memory to the USB memory. You can copy the current see page only or all the see pages.
When copying a file, a message will appear asking if you delete the file in the built-in memory. Delete the copied file as necessary.

USB Memory only
Remove USB Memory : Makes the USB memory ready for removal. Be sure to perform this operation before removing the USB memory.

File save format
See pages are saved as file in the USB memory.
A JPEG file that is a synthetic image of the background image and the content drawn with pen will be saved under the screen synthesis folder (/WHITEBOARD/JPEG).
Also in the internal processing folder (/WHITEBOARD/SYS_DATA), the background image will be saved in the JPEG format and the drawn content in the PNG format.
The see page number will be shown in the file name.
Example: File of the second see page
        Synthetic image file: /WHITEBOARD/JPEG/WB_002.JPG
        Background file for internal processing: /WHITEBAORD/SYS_DATA/WB_002BG.JPG
        Drawn content file for internal processing: /WHITEBOARD/SYS_DATA/WB_002.PNG
The same files as above will be saved internally in case of the built-in memory.

Sending the pen drawing content by e-mail

It is possible to send the pen drawing content and the background image together as an attached file of e-mail.
Note:
E-mails cannot be sent while in the transparent mode.

Setting the destination address
You need to specify the destination address and subject using the Web Browser function of the display.
For details, see page 32 of Operating Instructions - "Network Operations".
If no e-mail address is set in the web browser, the "Send by e-mail" icon will be shown in gray and use will not be possible.

Sending e-mail
• **The body of the e-mail message will be blank.**
• **The attached file will be named in order from img00001.jpg up to img99999.jpg every time sent by e-mail.**

Sending by e-mail

1 Tap [✉] in the main menu.
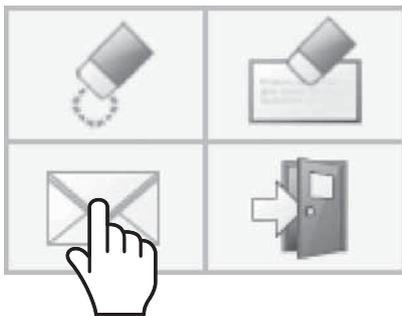
2 Check the destination address(es) and tap "Ok".

Selecting the destination addresses
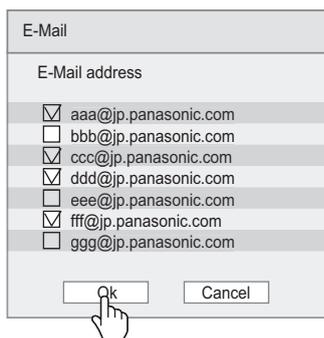
Notes:
• The scroll bar will appear if 21 or more addresses are registered.
• The check marks added to the destination addresses will be cleared after the e-mail is sent.
  You need to put them every time you send an e-mail.

3 Confirm the destination address(es) and tap "Ok".
The e-mail will be sent.

Confirming the destination addresses
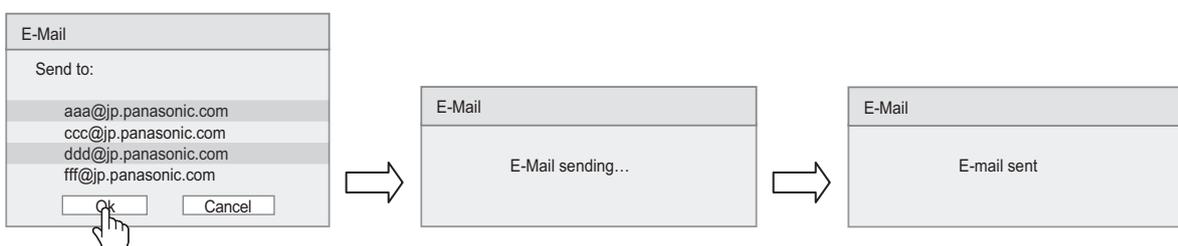
Using WhiteBoard Software

The "WhiteBoard software" included in the supplied CD-ROM allows you to perform various functions in addition to pen drawing, such as controlling computer's desktop with touch gestures.

Preparation

1 **Connect the computer to the USB (TOUCH) terminal on the side of the display with the supplied USB cable.**

USB (TOUCH)

USB cable (supplied)
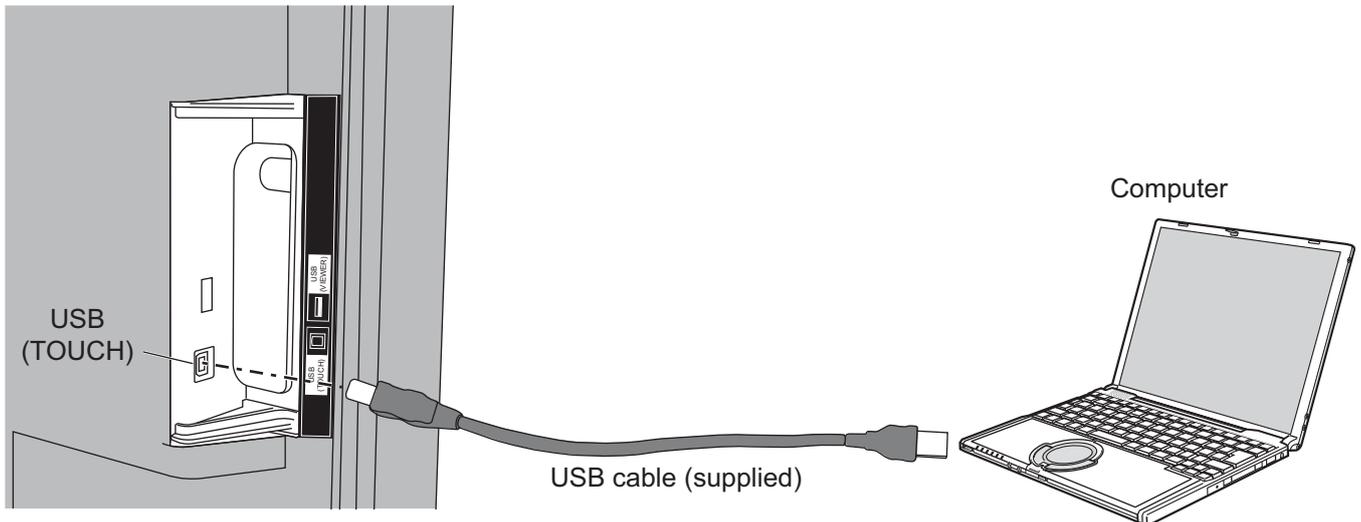
Computer

2 **Connect the computer to the video input terminal on the display.**
Connect to one of the following input terminals.
PC IN (See page 16)
HDMI 1, HDMI 2, DVI-D IN (See page 15)

Setting the display
Make the following display settings.
• Switch the input signal to the video input of the computer.
• Set "Pos./Size" so that the computer's screen can be displayed correctly on the display. (see page 48)

Starting the WhiteBoard software
It is not necessary to install the WhiteBoard software. You can start it directly from the executable file.

1 **Insert the supplied CD-ROM into the CD-ROM drive.**

The computer's desktop screen will be displayed allowing you to perform touch operation.

2 **Double-tap the "WhiteBoard.exe" file in the "WhiteBoardSoft" folder in the CD-ROM.**

Notes:
• See the instruction manual of the WhiteBoard software for more details about how to use the WhiteBoard software.
• Before starting the WhiteBoard software, set the computer's screen resolution to within the range supported by the WhiteBoard software.

Exiting the WhiteBoard software

Tap [Exit application] in the main menu.

Touch operation when USB connected with computer
• With the following inputs, the display's touch function is enabled.
  Miracast(TM), MEMORY VIEWER, WHITEBOARD
• If connected to the computer via USB, it is not possible to display the control menu by swiping from the screen edge.
  You can display the control menu by pressing INPUT or MENU on the main unit and switch the input or control the display setting menu with touch operation. The WhiteBoard software functions are disabled during the touch operation.
  They will recover when the menu screen disappears after the touch operation.
Control menu see page 28

Using Miracast(TM)

The function allows the image shown on the smartphone or tablet device to be sent and displayed on the display.

1 **Select the Miracast(TM) input.**

The display switches to the [Miracast(TM)] screen and the standby screen will be displayed.

2 **Start the Miracast application on the Miracast-compatible device or computer**

Connect the device of the name shown on the display.

The name of the Miracast application and how to start it may differ depending on the device model.

For how to use the Miracast application, see the instruction manual of your device.

3 **Select "OK" in the connected device authentication screen**

The image on the connected device will be displayed.

Notes:
• This function can be used with Miracast-compatible Android devices and WiDi compatible computers.
• The Miracast function will be disabled if "Wireless LAN" of "Network Settings" is set to "Off".
• If [Display Name] includes a space, the characters after the space may not be displayed on some device models.
• If you have any problem in Miracast connection, see "When using Miracast" on page 82.

On-Screen Menu Displays

Remote Control		Unit

1 Display the menu screen.

POS./SIZE PICTURE SOUND SET UP
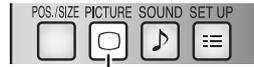
Press to select.
(Example: Picture menu)

ENTER/■ — ❷ Press.

+ / ▲
VOL◀

– / ▼

MENU — ❶ Press several times.

Display Settings
- Picture
- Sound
- Pos./Size
- Setup
- Recall

2 Select the item.

☐ Picture

Normalise	Normal
Picture Mode	◀ Normal ▶
Backlight	100
Contrast	100
Brightness	50
Colour	50
Hue	50
Sharpness	5
White balance	Normal
Advanced settings	
FRAME CREATION	Max
Memory save	
Memory load	
Memory edit	
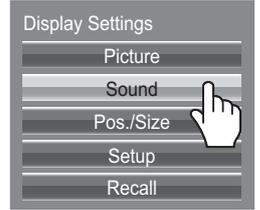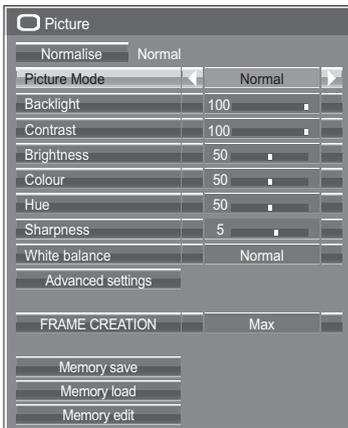
(Example: Picture menu)

Select.

ENTER/■ — ❷ Press.

+ / ▲
VOL◀

– / ▼ — ❶ Select.

3 Set.

Set.

ENTER/■ — ❷ Press.

+ / ▲
VOL◀

– / ▼ — ❶ Adjust.

4 Exit the menu.

POS./SIZE PICTURE SOUND SET UP

Press.
Press ◯ R to return to the
previous menu.

+ / ▲
VOL◀

– / ▼

MENU — Press several times.

Menu display list

Note: Menu that cannot be adjusted is grayout. Adjustable menu changes depending on signal, input and menu setting.

Picture menu

☐ Picture

Normalise	Normal
Picture Mode	◀ Normal ▶
Backlight	100
Contrast	100
Brightness	50
Colour	50
Hue	50
Sharpness	5
White balance	Normal
Advanced settings	
FRAME CREATION	Max
Memory save	
Memory load	
Memory edit	
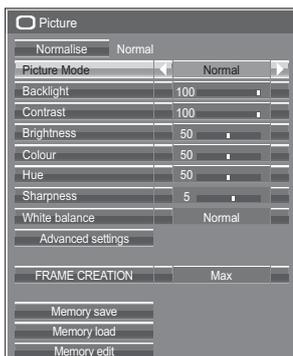
see page 51-55

Setup menu

≡ Setup

Touch Screen Settings	
MULTI PIP Settings	
Network Settings	
Memory Viewer Settings	
Signal	
Screensaver	
ECO Mode settings	
Input label	
Function Button Settings	
On/Off Timer Settings	
Day/Time Settings	
Component/RGB-in select	RGB
Monitor Out	Off
No activity power off	Disable
Menu Display Duration	30 S
OSD Brightness	5
OSD Language	English (UK)

see page 57-71

Pos./Size menu

Pos./Size

Normalise	Normal
Auto Setup	
⊡ H-Pos	0
⊟ H-Size	0
⊡ V-Pos	0
↕ V-Size	0
Dot Clock	0
Clock Phase	0
Clamp Position	0
1:1 Pixel Mode	Off
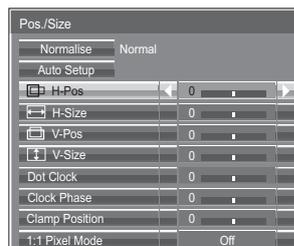
see page 48-50

Sound menu

♪ Sound

Normalise	Normal
Speaker	Internal
Sound Mode	Normal
Bass	0
Mid	0
Treble	0
Balance	0
Surround	Off
Audio Out (PIP)	Main
Left Channel	Channel 1
Right Channel	Channel 1
Sound Out	Off
Level Meter	Off
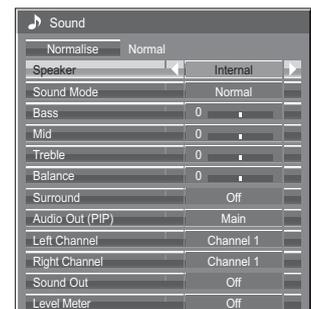
see page 56

👆 **Menu operation with multi-touch gestures**

1 Swipe from the screen edge to display the control menu

Control menu see page 28

2 Tap the desired menu

The selected menu screen is displayed.

Display Settings
Picture
Sound
Pos./Size
Setup
Recall

3 Tap the desired item

♪ Sound

Back

Normalise   Normal

Speaker	Internal
Sound Mode	Normal
Bass	0
Mid	0
Treble	0
Balance	0
Surround	Off
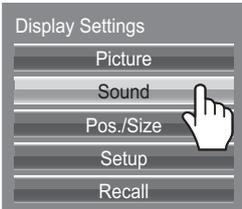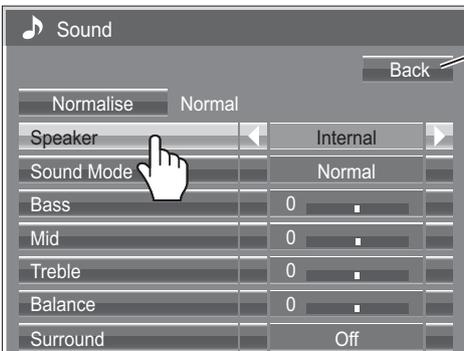
(Example: Sound menu)

Tap [Back] to return to the previous screen.

Note:

The [Back] button does not appear when the remote control or main unit buttons are used for operation.

4 Make the settings

Tap ◁ ▷ to switch the set value.

♪ Sound

Back

Normalise   Normal

Speaker	Internal
Sound Mode	Normal
Bass	0
Mid	0
Treble	0
Balance	0
Surround	Off

To set the value

Bass   ◀   0   ▶
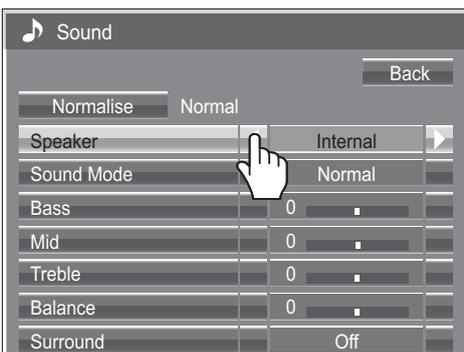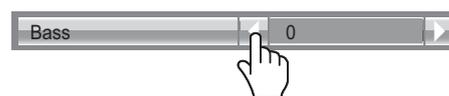
Pressing and holding ◁ ▷ will skip some amount of value to increase or decrease the set value.

To input the text
Tap the keyboard to enter the text.

Memory name input

MY PICTURE▮

A	B	C	D	E	F	G	H	I	J	K	L	M	All delete
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Delete
a	b	c	d	e	f	g	h	i	j	k	l	m	
n	o	p	q	r	s	t	u	v	w	x	y	z	
0	1	2	3	4	5	6	7	8	9		Space		
!	"	#	$	%	&	'	*	+	–	/	=	?	@	\	^
_	`			~	<	>	(	)	[	]	{	}	,	.	;	:

Ok   Cancel

5 Exit the setting menu

Touch any other area than the menu screen to close the menu.
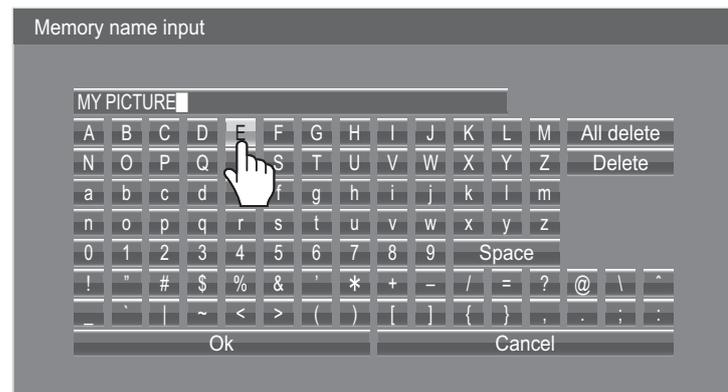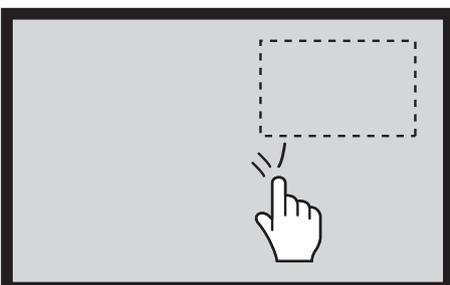
Adjusting Pos./Size

1 POS./SIZE ——————— Press to display the Pos./Size menu.

2 ——————— Press to select the menu to adjust.
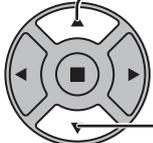
3 ——————— Press to adjust the menu.

4 POS./SIZE ——————— Press to exit from adjust mode.

Pos./Size		
Normalise	Normal	
Auto Setup		
H-Pos	0	
H-Size	0	
V-Pos	0	
V-Size	0	
Dot Clock	0	
Clock Phase	0	
Clamp Position	0	
1:1 Pixel Mode	Off	
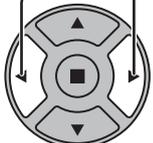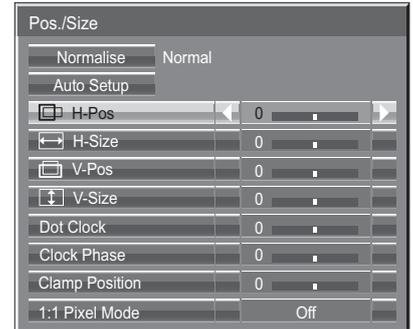
Note:
Unadjustable items are grayed out.
Adjustable items differ depending on the input signal and the display mode.

Notes:
• Pos./Size cannot be adjusted with two screen display.
• Adjustment details are memorized separately for different input signal formats (Adjustments for component signals are memorized for 525 (480) / 60i · 60p, 625 (575) / 50i · 50p, 1125 (1080) / 60i · 50i · 60p · 50p · 24p · 25p · 30p · 24psF, 1250 (1080) / 50i, 750 (720) / 60p · 50p each, and RGB/PC/Digital signals are memorized for each frequency.)
• If a "Cue" or "Rew" signal from a VCR or DVD player is received, the picture position will shift up or down. This picture position movement cannot be controlled by the Picture Pos./Size function.

Auto Setup When inputting a PC signal as an example, "H-Pos/V-Pos", "H-Size/V-Size", "Dot Clock" and "Clock Phase" are automatically corrected.
This setting is enabled under the following conditions:
• When inputting an analog signal (Component/PC):
  This setting is enabled if "Component/RGB-in select" (see page 68) in Setup menu is "RGB".
• When inputting a digital signal (HDMI/DVI):
  A PC format signal enables this setting.
When the signal is not PC format, this setting is enabled only if "Over Scan" (see page 49) is "Off" or "1:1 Pixel Mode" (see page 50) is "On". "H-Size/V-Size" is not automatically adjusted.
This setting will be invalid and will not work under the following conditions:
• When one of the following inputs is selected
  Miracast(TM), MEMORY VIEWER, WHITEBOARD, Panasonic APPLICATION
• When VIDEO signal input
• During two screen or Digital Zoom.
• Aspect is set to "Just"
• "Display size" in the Options menu (see page 73) is set to "On"

Using Remote Control

When AUTO SETUP on the remote control is pressed, "Auto Setup" will be executed.

When Auto Setup does not work, "Invalid" is displayed.

Auto mode
When the "Auto Setup" is set to "Auto" in the Options menu (see page 74), automatic position adjustment starts:
• When the display power is turned ON.
• When the input signal is switched.

Notes:
- If the dot clock frequency of an analog signal is 162 MHz or higher, "Dot Clock" and "Clock Phase" cannot be automatically corrected.
- When digital signal input, Dot Clock and Clock Phase cannot be made.
- Auto Setup may not work when a cropped or dark image is input. In such case, switch to a bright image with borders and other objects are clearly shown, and then try auto setup again.
- Depending on the signal, out of alignment may occur after Auto Setup. Carry out fine tuning for the position/size as required.
- If Auto Setup cannot set properly for vertical frequency 60Hz XGA signal (1024×768@60Hz, 1280×768@60Hz, and 1366×768@60Hz), pre-selecting the individual signal in "XGA Mode" (see page 69) may results in correct Auto Setup.
- Auto Setup does not work well when a signal such as additional information is superimposed out of valid image period or intervals between synchronizing and image signals are short, or for image signal with tri-level synchronizing signal added.
- If Auto Setup cannot adjust correctly, select "Normalise" once and press ACTION (■), then adjust Pos./Size manually.

H-Pos   Adjust the horizontal position.
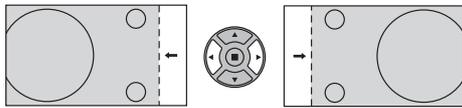
V-Pos   Adjust the vertical position.
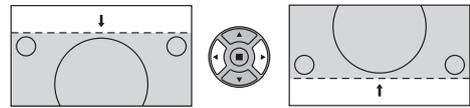
H-Size   Adjust the horizontal size.
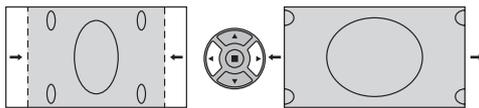
V-Size   Adjust the vertical size.
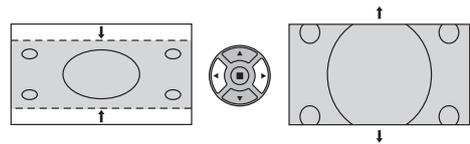
Dot Clock   **(During Component/PC input signal)**
Periodic striped pattern interference (noise) may occur when a striped pattern is displayed. If this happens, adjust so that any such noise is minimized.

Clock Phase   **(During Component/PC input signal)**
Eliminate the flickering and distortion.

Over scan   Turn image over scan On/Off.
Configurable signals are as follows:
525i, 525p, 625i, 625p, 750/60p, 750/50p (Component Video, RGB, DVI, SDI, HDMI)
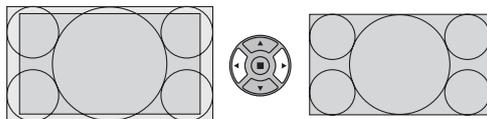
On   Off

Notes:
- When "Off" is set, "H-Size" and "V-Size" cannot be adjusted.
- When the "Display size" is set to "On" in the Options menu, this setting will be invalid. (see page 73)

Clamp Position   **(During Component/PC input signal)**
Adjusts the clamp position when black parts of the image have no detail due to underexposure or are tinged with green.
Optimum value for Clamp Position adjustment
When black parts have no detail due to underexposure (blackout)
→ Value that causes least blackout is the optimum.
When black parts are tinged with green
→ Value that cancels the greenishness without causing blackout is the optimum.

1:1 Pixel Mode   Adjusts the display size when 1125i, 1125p or 1250i signal is input.
Notes:
• Select On when you would like to replay 1920 × 1080 input signal.
• Applicable input signal;
  1125 (1080) / 50i · 60i · 24psF · 24p · 25p · 30p · 50p · 60p, 1250 (1080) / 50i
• Select Off when flickering is shown around the image.
• H-Size and V-Size cannot be adjusted when On is selected.

Off   On
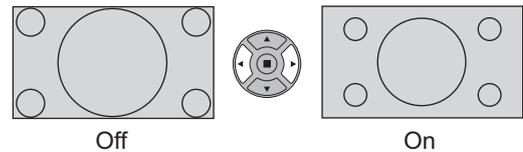
1:1 Pixel Mode   When the input signal is a 2k1k signal (2048 × 1080 / 24p, 2048 × 1080 / 24psF), the display size
(2k1k)   is adjusted as follows.
(For 2k1k signals)

Off   On (Left)   On (Center)   On (Right)
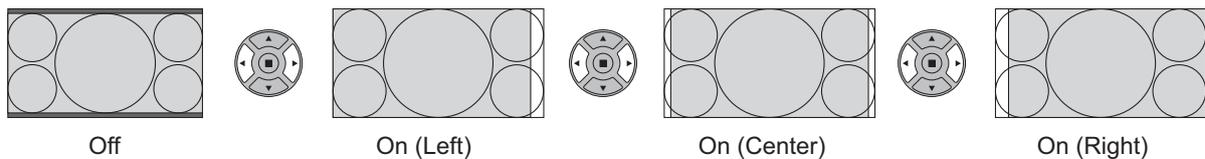
Note:
2k1k signals can only be received when the Dual Link HD-SDI Terminal Board (TY-FB11DHD) is installed.

Helpful Hint ($\overset{N}{\bigcirc}$ / ▢ Normalise ▢ Normalisation)

While the Pos./Size display is active, if either the N button on the remote control is pressed at any time or the ACTION (■) button is pressed during "Normalise", then all adjustment values are returned to the factory settings.

Picture Adjustments

1 PICTURE ⬜ ——— Press to display the Picture menu.

2 Select to adjust each item.

——— Press to select the menu to adjust.

——— Select the desired level by looking at the picture behind the menu.

Note:
Menu that cannot be adjusted is grayout. Adjustable menu changes depending on signal, input and menu setting.

Picture	
Normalise Normal	
Picture Mode	Normal
Backlight	100
Contrast	100
Brightness	50
Colour	50
Hue	50
Sharpness	5
White balance	Normal
Advanced settings	
FRAME CREATION	Max

Press to enter Advanced settings.

Advanced settings
Enables fine picture adjustment at a professional level (see next see page).

Advanced settings	
Normalise Normal	
Input level	0
Gamma	2.2
W/B High R	50
W/B High G	50
W/B High B	50
W/B Low R	50
W/B Low G	50
W/B Low B	50

Press "◀" or "▶" button to switch between modes.

→ Normal* ⟷ Dynamic ⟵
→ Cinema ⟵

Normal
For viewing in standard (evening lighting) environments. This menu selects the normal levels of Brightness and Contrast.
* In "ENGLISH (US)" OSD language, this is displayed as "STANDARD".

Dynamic
For viewing in brighter environments. This menu selects higher than normal levels of Brightness and Contrast.

Cinema
For use in viewing tone-focused pictures with brightness reduced.

Notes:
• If you would like to change the picture and colour of the selected Picture menu to something else, adjust using the items in the Picture menu. (see next page)
• In "ENGLISH (US)" OSD language, the "Picture Mode" is displayed as "PICTURE MENU".

Press "◀" or "▶" button to switch between modes.

→ Normal (9300K) ⟷ Cool (11500K) ⟷ Warm (6500K) ⟵

• In "ENGLISH (US)" OSD language, the "White balance" is displayed as "COLOR TEMP".

FRAME CREATION
Improves motion picture quality by reducing motion blur. Press the left ◀ or right ▶ button to switch between modes.

→ Off ⟷ Min ⟷ Mid ⟷ Max ⟵

Notes:
• The mode is memorized per input terminal.
• Even if "Normalise" is selected, the Normal setting will not be restored.
• The picture and menu will disappear for a moment if you switch the mode to Off, or switch from Off to another mode.

Helpful Hint (N ⬭ / Normalise Normalisation) (except "FRAME CREATION")

While the "Picture" menu is displayed, if either the N button on the remote control is pressed at any time or the ACTION (■) button is pressed during "Normalise", then all adjustment values are returned to the factory settings.

Picture Adjustments

Item	Effect	Adjustments
Backlight	◀ Darker ▶ Brighter	Adjusts luminance of the back light.
Contrast*	◀ Less ▶ More	Selects the proper brightness and density for the room.
Brightness	◀ Darker ▶ Brighter	Adjusts for easier viewing of dark pictures such as night scenes and black hair.
Colour	◀ Less ▶ More	Adjusts colour saturation.
Hue	◀ Reddish ▶ Greenish	Adjusts for nice skin colour.
Sharpness	◀ Less ▶ More	Adjusts picture sharpness.

Notes:
- You can change the level of each function (Contrast, Brightness, Colour, Hue, Sharpness) for each Picture Mode.
- The setting details for Normal, Dynamic and Cinema respectively are memorized separately for each input terminal.
- "Backlight" can be adjusted when "ECO Mode" is set to "Custom" and "Power save" to "Off". (see page 63)

* In "ENGLISH (US)" OSD language, this is displayed as "PICTURE".

Advanced settings

Item	Effect	Details
Input level	◀ Less ▶ More	Adjustment of parts which are extremely bright and hard to see.
Gamma	◀ Down ▶ Up	S Curve ⟷ 2.0 ⟷ 2.2 ⟷ 2.6
W/B High R	◀ Less ▶ More	Adjusts the white balance for light red areas.
W/B High G	◀ Less ▶ More	Adjusts the white balance for light green areas.
W/B High B	◀ Less ▶ More	Adjusts the white balance for light blue areas.
W/B Low R	◀ Less ▶ More	Adjusts the white balance for dark red areas.
W/B Low G	◀ Less ▶ More	Adjusts the white balance for dark green areas.
W/B Low B	◀ Less ▶ More	Adjusts the white balance for dark blue areas.

Notes:
- Advanced settings cannot be adjusted with two screen display.
- Carry out "W/B" adjustment as follows.
    1. Adjust the white balance of the bright sections using the "W/B High R", "W/B High G" and "W/B High B" settings.
    2. Adjust the white balance of the dark sections using the "W/B Low R", "W/B Low G" and "W/B Low B" settings.
    3. Repeat steps **1** and **2** to adjust.
    Steps **1** and **2** affect each other's settings, so repeat each step in turn to make the adjustment.
- The adjustment values are memorized separately for each input terminal.
- The adjustment range values should be used as an adjustment reference.

Helpful Hint (N◯ / ▭Normalise▭ Normalisation)

On the remote control unit, while the "Advanced settings" menu is displayed, if either the N button is pressed at any time or the ACTION (■) button is pressed during "Normalise", then all adjustment values are returned to the factory settings.

Picture Profiles

Up to 8 combinations of picture adjustment values (in the Picture menu and Advanced settings) can be stored in the display memory as profiles and applied as needed, for a convenient way to enjoy your preferred picture settings.
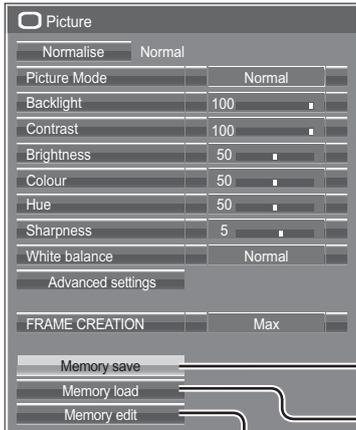
Memory save — **Save profiles** (page 54)

Memory load — **Load profiles** (page 55)

Memory edit — **Edit profiles** (page 55)
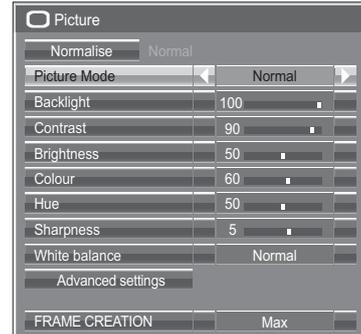
Save profiles → Save the picture adjustment values in the MEMORY1 profile

Edit the profile
Delete or rename the profile

MY PICTURE	MEMORY1
MEMORY2	MEMORY2
MEMORY3	MEMORY3
MEMORY4	MEMORY4
MEMORY8	MEMORY8

Load the profile → Apply the MEMORY1 profile

Original picture

Custom picture
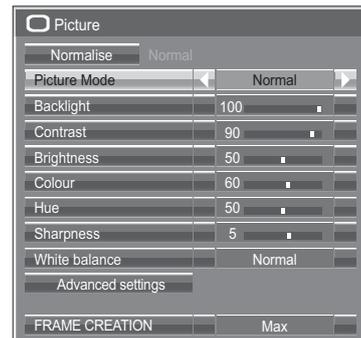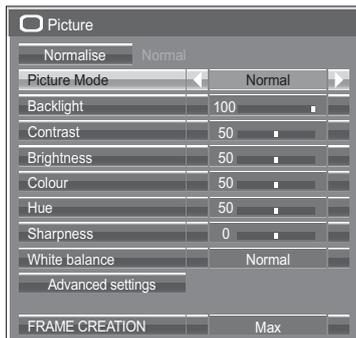
Saving profiles

Follow these steps to save picture adjustment values as profiles.

1 Specify the picture quality in the Picture menu and Advanced settings. (see page 51, 52)

2 In the Picture menu, select "Memory save".

| Memory save |
| Memory load |
| Memory edit |

① select
② access

3 Select a profile name for saving the picture adjustment values.

Memory save

1. [ ]　MEMORY1
2. [＊]　MEMORY2
3. [＊]　MEMORY3
4. [ ]　MEMORY4
5. [ ]　MEMORY5
6. [ ]　MEMORY6
7. [ ]　MEMORY7
8. [ ]　MEMORY8
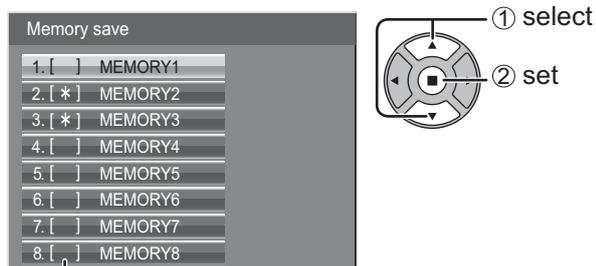
① select
② set

"＊" appears for a profile in which the picture adjustments have already been saved.

4 Select "Ok".

Memory save

Save the adjusted value in "MEMORY1"

Ok　　Cancel

① select
② set

5 Enter a name for the profile.
[Entering profile names]
Profile names can be up to 40 characters.
To enter text, select characters in the on-screen keyboard.
Edit the default profile name in the text box as desired.

Memory name input

MEMORY1
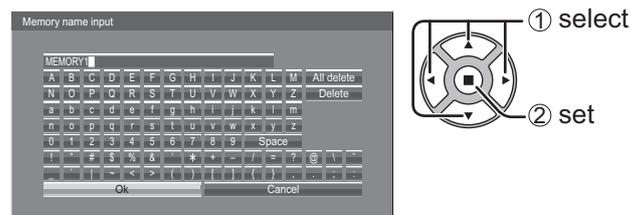
① select
② set

Example: Specifying "MY PICTURE"

① Select "All delete".

MEMORY1

All text is deleted.
To delete individual characters, select "Delete".

② Select "M".

M

Repeat this process to enter the next character.

③ Select "Y".

MY

④ Select "Space".

MY

6 When you finished entering the profile name, select "Ok".
To cancel saving the profile, select "Cancel".

Memory name input

MY PICTURE
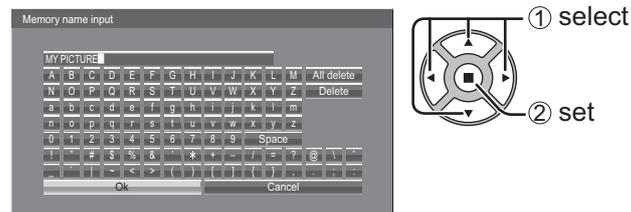
① select
② set

Loading profiles

Load profiles and apply the picture adjustment values to the display as follows.
Note:
Loaded profiles are stored in memory according to the selected input terminal. (see page 20)

1 In the Picture menu, select "Memory load".

| Memory save |
| Memory load |
| Memory edit |

① select
② access

2 Select the profile to load.

| Memory load |
| 1. [＊]   MEMORY1 |
| 2. [＊]   MEMORY2 |
| 3. [＊]   MEMORY3 |

① select
② set

When profile is being loaded, profile name is displayed.

PC
16:9
Memory name: MEMORY2
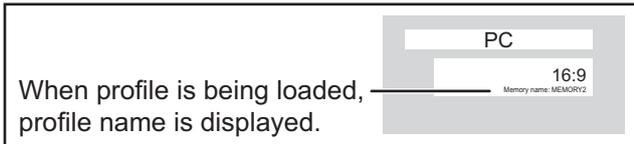
Editing profiles

Delete or rename profiles as follows.

<Deleting profiles>

1 In the Picture menu, select "Memory edit".

| Memory save |
| Memory load |
| Memory edit |

① select
② access

2 Select "Memory delete".

| Memory edit |
| Memory delete |
| Memory name change |

① select
② set

3 Select the profile to delete.
To delete all profiles, select "All delete".

| Memory delete |
| 1. [＊]   MEMORY1 |
| 2. [＊]   MEMORY2 |
| 3. [＊]   MEMORY3 |
| All delete |

① select
② set

4 Select "Ok".

| Memory delete |
| Delete the "MEMORY1" data. |
| Ok   Cancel |

① select
② set

<Renaming profiles>

1 In the Picture menu, select "Memory edit".

| Memory save |
| Memory load |
| Memory edit |
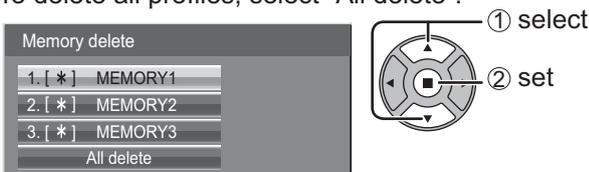
① select
② access

2 Select "Memory name change".

| Memory edit |
| Memory delete |
| Memory name change |

① select
② set

3 Select the profile to rename.

| Memory name change |
| 1. [＊]   MEMORY1 |
| 2. [＊]   MEMORY2 |
| 3. [＊]   MEMORY3 |

① select
② set

4 Enter a name for the profile.
Entering profile names ➡ page 54

Memory name input

MEMORY1

A	B	C	D	E	F	G	H	I	J	K	L	M	All delete
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Delete
a	b	c	d	e	f	g	h	i	j	k	l	m	
n	o	p	q	r	s	t	u	v	w	x	y	z	
0	1	2	3	4	5	6	7	8	9		Space		
!	"	#	$	%	&	＊	+	–	/	=	?	@	\	
^	_	~	<	>	(	)	[	]	{	}			
Ok							Cancel						
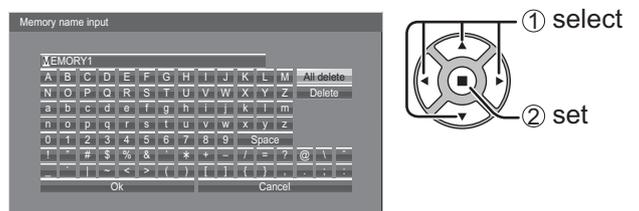
① select
② set

5 When you finished entering the profile name, select "Ok".
To cancel renaming the profile, select "Cancel".

| Ok | Cancel |
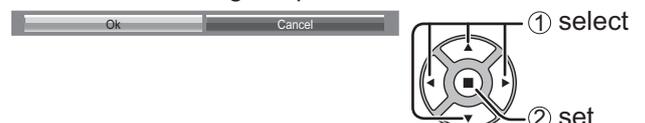
① select
② set

Sound Adjustment

1 SOUND ♪ ——— Press to display the Sound menu.

2 Select to adjust each item.

——— Press to select the menu to adjust.

——— Select the desired level by listening to the sound.

3 SOUND ♪ ——— Press to exit from adjust mode.

♪ Sound	
Normalise Normal	
Speaker	◄ Internal ►
Sound Mode	Normal
Bass	0
Mid	0
Treble	0
Balance	0
Surround	Off
Audio Out (PIP)	Main
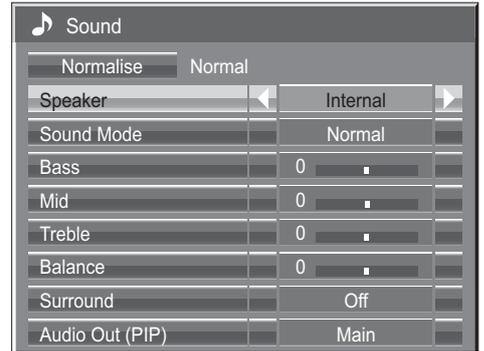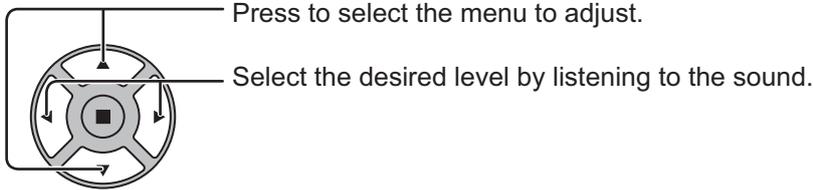
Item	Details
Speaker	Select the audio output. **Internal:** Internal speakers **External:** External speakers
Sound Mode	**Normal:** Emits the original sound. **Dynamic:** Accentuates sharp sound. **Clear:** Attenuates human voice.
Bass	Adjusts low pitch sounds.
Mid	Adjusts normal sounds.
Treble	Adjusts high pitch sounds.
Balance	Adjusts left and right volumes.
Surround	Select On or Off.
Audio Out (PIP)	**Main:** Selects main picture sound. **Sub:** Selects PIP frame sound. [VIDEO ♪ / PC] [VIDEO / PC ♪] Musical note ♪ is displayed on right side of the audio output screen label.
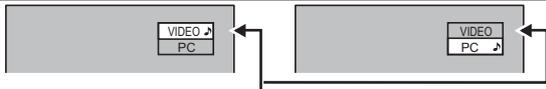
Note: Bass, Mid, Treble and Surround settings are memorized separately for each Sound Mode.

Helpful Hint (◯ᴺ / Normalise Normalisation)

While the "Sound" menu is displayed, if either the N button on the remote control is pressed at any time or the ACTION (■) button is pressed during "Normalise", then all adjustment values are returned to the factory settings.

SDI Sound Output

This menu is available only when selecting a slot that any of the following terminal boards is installed:
HD-SDI Terminal Board with audio (TY-FB10HD) or Dual Link HD-SDI Terminal Board (TY-FB11DHD)

Left Channel	Channel 1
Right Channel	Channel 1
Sound Out	Off
Level Meter	Off
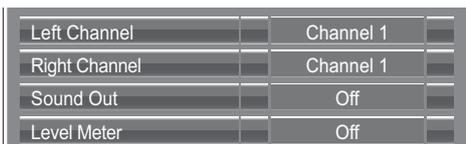
Note:
This menu is unavailable when two screen display mode is active.

Item	Details
Left Channel	**Channel 1 to Channel 16** Selects left audio channel.
Right Channel	**Channel 1 to Channel 16** Selects right audio channel.
Sound Out	**On ⟷ Off** **On:** Enables audio output. **Off:** Disables audio output.
Level Meter	**Off ⟷ 1-8ch ⟷ 9-16ch** Sets audio channels to show in the audio level meter. 8 channels are displayed in the audio level meter; 4 channels each on both right and left sides of the display. **Off:** Hides the audio level meter. **1-8ch:** Displays the audio level meter (1-8ch) **9-16ch:** Displays the audio level meter (9-16ch)

Setup menu

1
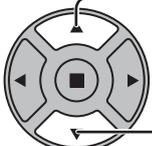
SET UP

⊟ ——— Press to display the Setup menu.

2

——— Press to select the menu to adjust.

3

——— Press to adjust the menu.

4
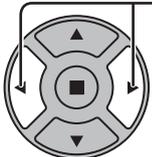
SET UP

⊟ ——— Press to exit from adjust mode.

Press ◯ R to return to the previous menu.

:≣ Setup	
Touch Screen Settings	
MULTI PIP Settings	
Network Settings	
Memory Viewer Settings	
Signal	
Screensaver	
ECO Mode settings	
Input label	
Function Button Settings	
On/Off Timer Settings	
Day/Time Settings	
Component/RGB-in select	RGB
Monitor Out	Off
No activity power off	Disable
Menu Display Duration	30 S
OSD Brightness	5
OSD Language	English (UK)
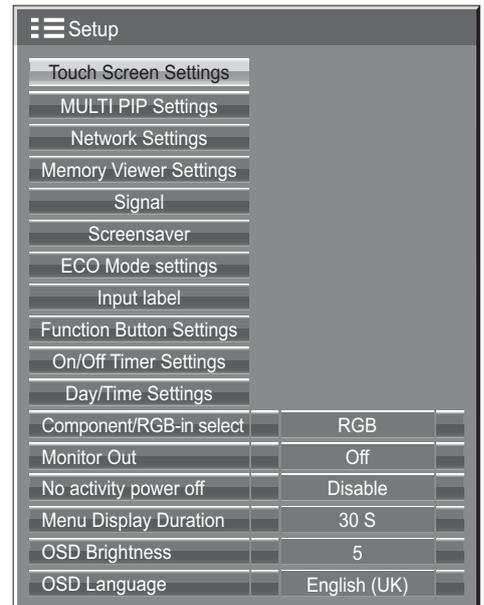
Setup menu screen

:≣ Setup	
Touch Screen Settings	
MULTI PIP Settings	
Network Settings	
Memory Viewer Settings	
Signal	
Screensaver	
ECO Mode settings	
Input label	
Function Button Settings	
On/Off Timer Settings	
Day/Time Settings	
Component/RGB-in select	RGB
Monitor Out	Off
No activity power off	Disable
Menu Display Duration	30 S
OSD Brightness	5
OSD Language	English (UK)

Network Settings

Set this to connect the Display to a computer via a network. For details of PJLink and Network, refer to "Operating Instructions, Network Operations".

Day/Time Settings / On/Off Timer Settings

The timer can switch the Display On or Off.

Before attempting Timer Set, confirm the Time and adjust if necessary.
Then set POWER ON Time / POWER OFF Time.

1 SET UP
⊞ ——— Press to display the Setup menu.

2 ——— Press to select On/Off Timer Settings or Day/Time Settings.

——— Press to display the On/Off Timer Settings screen or
Day/Time Settings screen.

Day/Time Settings
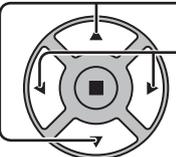
1 ——— Press to select Day or Time.
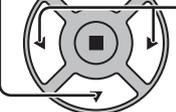
——— Press to setup Day or Time.
► button: Forward
◄ button: Back
Notes:
• Pressing "◄" or "►" button once changes Time
  1 minute.
• Pressing "◄" or "►" button continuously changes Time by 15 minutes.

Day/Time Settings		
	Time	MON 99:99
Set		
Day	◄ MON	►
Time	99:99	
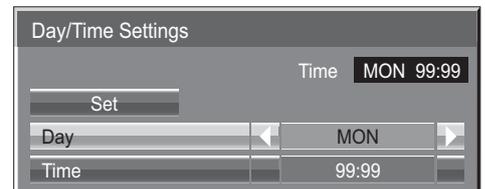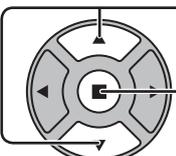
2 ——— Press to select Set.
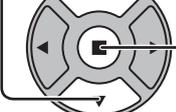
——— Press to store Day/Time Settings.
Notes:
• Set cannot be selected unless Time is set.
• Unless setting the present time other than "99:99", "Day" and "Time" cannot be set.
• The settings of "Day" and "Time" are reset when leaving the display turned off for
  about 7 days for the following reasons:
  Pressing ⏻/| switch of the unit to turn off the display.
  Disconnecting the AC cord.
  Interruption of power supply.

On/Off Timer Settings
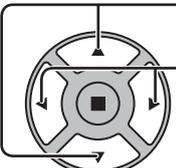
1 ——— Press to select
POWER ON Time / POWER OFF Time.
——— Press to setup
POWER ON Time / POWER OFF Time.
► button: Forward
◄ button: Back
Notes:
• Pressing "◄" or "►" button once changes POWER
  ON Time / POWER OFF Time 1 minute.
• Pressing "◄" or "►" button continuously changes
  POWER ON Time / POWER OFF Time by 15 minutes.
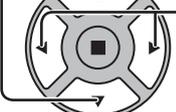
On/Off Timer Settings		
	Time	99:99
POWER ON Function	◄ Off	►
POWER ON Time	0:00	
POWER OFF Function	Off	
POWER OFF Time	0:00	
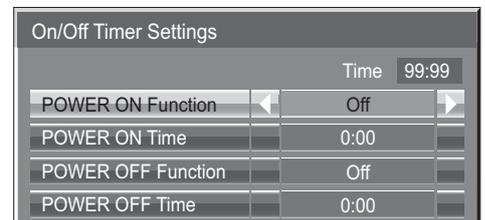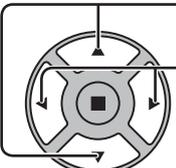
2 ——— Press to select POWER ON Function/POWER OFF
Function.
——— Press to select On.
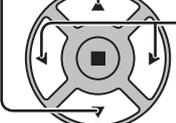
Note: Timer function will not work unless "Time" is set.

Touch Screen Settings

Sets the multi-touch function and built-in WhiteBoard.

Select "Touch Screen Settings" in "Setup" menu and press (■) button.
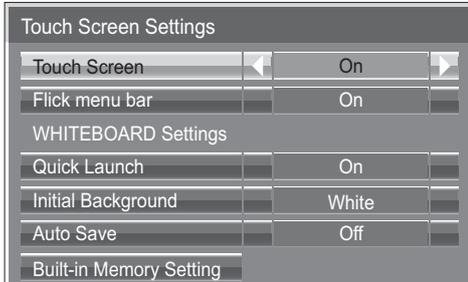
Touch Screen
To enable the multi-touch function, set this to "On".
When this is set to "On", "WHITEBOARD Settings" are enabled.

Flick menu bar
On: Enables to display the control menu with swipe.
Off: Disables to display the control menu with swipe.
However you can display the menu with button operation on the main unit. (see page 28)

WHITEBOARD Settings

Quick Launch
When this is set to "On", the built-in WhiteBoard will be in the standby mode when the display is in the standby mode (power OFF with remote control) and the start up is quicker.
Notes:
• When set to "On", the power consumption during standby is higher.
• This sett ing is automatically turned "On" and cannot be changed in the following cases.
  When "Slot power" is set to "On" and Terminal Board is installed
  When "Control I/F Select" is set to "DIGITAL LINK/LAN"
  When "Wireless Network Standby" is set to "On"

Initial Background
Sets the initial background colour to create a new page on the WhiteBoard.

Auto Save
Sets the Auto Save function of the WhiteBoard to a built-in memory or a USB memory.
On: Saves the drawing contents automatically when the page is changed while drawing on the WhiteBoard without prompting to save.
Off: Prompts users to save when the page is changed while drawing on the WhiteBoard.

Built-in Memory
Sets the built-in memory usage.
Set either "On" or "Off" and select "Save".
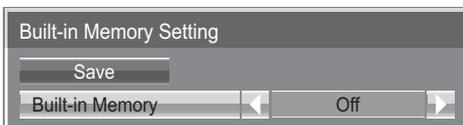
On: Built-in memory can be used.
Off: Built-in memory is disabled. Files saved in the built-in memory will be deleted.

Confirmation screen is displayed. Select "Yes" to apply the settings.
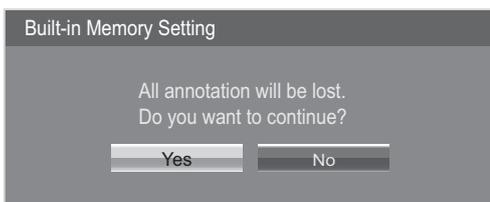
MULTI PIP Settings

Set the two screen display function.
Two screen display function ➡ MULTI PIP (page 25)

Select "MULTI PIP Settings" in "Setup" menu and press ⬛ button.

⬇

MULTI PIP Settings	
MULTI PIP	◀ On ▶
PIP Mode	Pic in Pic
Main input	COMPONENT
Sub input	VIDEO
Sub screen size	1
Sub screen position	Lower right
Swap	
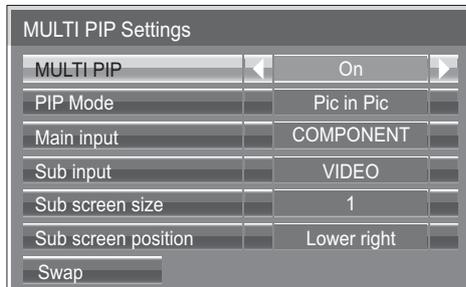
MULTI PIP
Set this "ON" to have two screen display. Various settings such as "PIP Mode" can be set.

PIP Mode
Sets the two screen display mode.
Pic in Pic: Displays two input images combined.
Pic in WHITEBOARD: Displays the built-in WhiteBoard with the other input image combined. Main screen is fixed to WHITEBOARD.

Main input
Sets the input image for the main screen.

Sub input
Sets the input image for the sub screen.

Sub screen size
1 (small) - 4 (large): Sets the size of the sub screen.

Sub screen position
Sets the display position of the sub screen.

Swap
Swap the main and sub screens.

Note:
When "Pic in WHITEBOARD" is selected, "Swap" cannot be used.

Screensaver (For preventing image retention)

Do not display a still picture, especially in 4:3 mode, for any length of time.
If the display must remain on, a Screensaver should be used.

1 Select "Screensaver" in "Setup" menu and press (■) button.

2 Function selection

Press to select Function.

Press to select the desired function.

→ Negative image ⟷ Scrolling bar only ←
→ White screen ⟷ Overlay scrolling bar ←
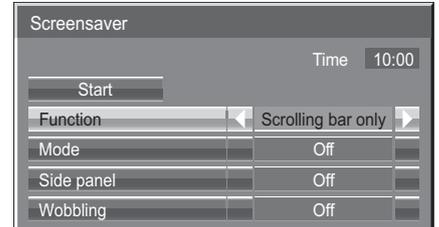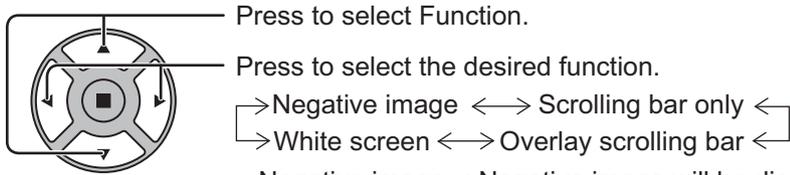
Negative image	: Negative image will be displayed on the screen.
Scrolling bar only	: A white bar will scroll from left to right. The image won't be displayed.
Overlay scrolling bar	: The brightness of the image will be decreased and a white bar will scroll on it.
White screen	: The whole screen will be white.

Note: Overlay scrolling bar is not effective during two screen display.

Screensaver

	Time	10:00
Start		
Function	◀	Scrolling bar only ▶
Mode		Off
Side panel		Off
Wobbling		Off

3 Mode selection

Press to select Mode.

Press to select each mode items.
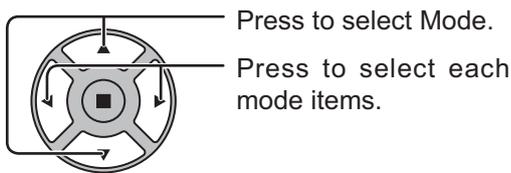
Standby after SCR Saver	: Operates while Screensaver duration, and display enters standby mode.
On	: Operates when Start is selected and the ACTION (■) button is pressed.
Off	
Interval	: Operates when Periodic Time and Operating Time are setup and those times arrive.
Time Designation	: Operates when Start Time and Finish Time are setup and those times arrive.

4 Start setting

When the Mode is set to On, press to select Start.
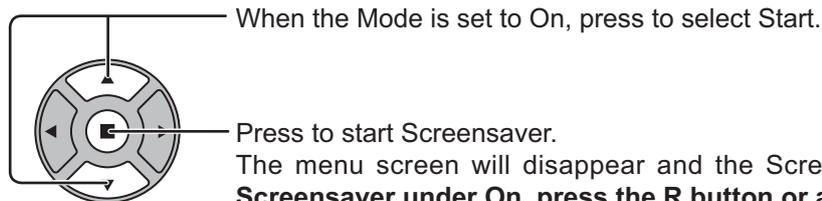
Press to start Screensaver.
The menu screen will disappear and the Screensaver will be activated. **To stop the Screensaver under On, press the R button or any buttons on the main unit.**

Note: When the display is turned off, the Screensaver will be deactivated.

Screensaver (For preventing image retention)

Setup of Screensaver Time

After selecting Time Designation, Interval or Standby after SCR Saver, the relevant Time Setup will become available for selection and the Operating Time may be set. (Time cannot be set when "Mode" is "On" or "Off".)

Press to select Start Time / Finish Time
(when Time Designation is selected).
Press to select Periodic Time / Operating Time
(when Interval is selected).
Press to select Screensaver duration
(when Standby after SCR Saver is selected).
Press to setup.
▶ button: Forward
◀ button: Back

Screensaver		
	Time	15:00
Start		
Function	Scrolling bar only	
Mode	Time Designation	
Start Time	◀ 6:15	▶
Finish Time	◀ 12:30	▶

Screensaver		
	Time	15:00
Start		
Function	Scrolling bar only	
Mode	Interval	
Periodic Time	◀ 12:00	▶
Operating Time	◀ 3:00	▶

Screensaver		
	Time	15:00
Start		
Function	Scrolling bar only	
Mode	Standby after SCR Saver	
Screensaver duration	◀ 6:15	▶

Notes:
- Pressing "◀" or "▶" button once changes the Time 1 minute. [However, switching occurs every 15 minutes when Periodic Time is selected.]
- Pressing "◀" or "▶" button continuously changes the Time by 15 minutes.
- "Screensaver duration" of the "Standby after SCR Saver" can be set from 0:00 to 23:59. When this is set to "0:00", " Standby after SCR Saver" will not be activated.

Note: Timer function will not work unless "Time" is set.

Side panel

Do not display a picture in 4:3 mode for an extended period, as this can cause an image retention to remain on the side panels on either side of the display field.
To reduce the risk of such an image retention, illuminate the side panels.
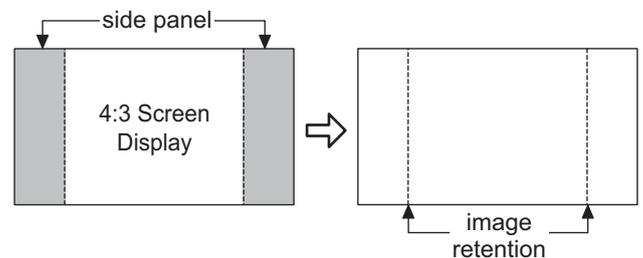
This function may be applicable to the non-picture area.

side panel

4:3 Screen
Display

image
retention

Off: Darken both ends.
Low: Make it dark gray.
Mid: Make it gray.
High: Make it light gray.

Note:
To reduce the occurrence of image retention, set the Side panel to High.

Wobbling
Automatically shifts the display image (therefore unnoticeable to the eye) to prevent image retention of sharper contour of image.

Note:
When this function is operating, part of the screen may appear to be missing.

ECO Mode settings

Select "ECO Mode settings" in "Setup" menu and press (■) button.

ECO Mode settings		
ECO Mode	◄ Custom ►	
Power save	Off	
HDMI1 Power management	Off	
HDMI2 Power management	Off	
PC Power management	Off	
DVI-D Power management	Off	
No signal power off	Disable	
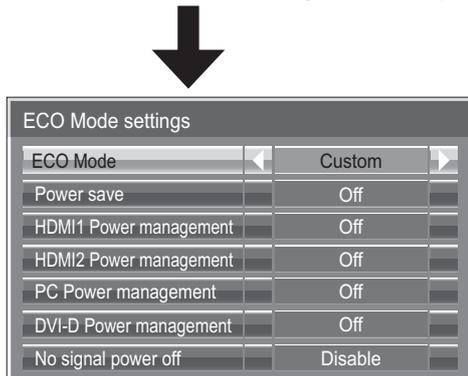
ECO Mode

Custom: The menu of power consumption reduction is individually set.
On: The following fixed values are set to the menu of power consumption reduction. Individual setting is not available.

Power save: On   DVI-D Power management: On
HDMI1 Power management: On   No signal power off: Enable
HDMI2 Power management: On
PC Power management: On

Using Remote Control

When [ECO] is pressed, the "ECO Mode" setting changes.

ECO Mode	On

Custom settings

The menu of the power consumption reduction is individually set. This setting is enabled when "ECO Mode" is set to "Custom".

Power save

This function adjusts the brightness of the backlight to reduce power consumption.
Off: This function does not operate.
On: Backlight brightness is reduced.
Sensor: The backlight brightness is automatically adjusted according to the viewing environment.
Note:
When this function is set to "On" or "Sensor", the "Backlight" setting in the Picture menu is disabled.
For TH-80LFB70U, TH-80LFB70W
HDMI1 Power management, HDMI2 Power management
When this function is set to On, it operates under the following conditions to turn the power on or off automatically.
When no pictures (sync signal) are detected for 60 or so seconds during HDMI1 or HDMI2 signal input:
   → Power is turned off (standby); the power indicator lights up orange.
When pictures (sync signal) are subsequently detected:
   → Power is turned on; the power indicator lights up green.
Note:
This function is not supported by TH-80LFB70E.

PC Power management
When this function is set to On, it operates under the following conditions to turn the power on or off automatically.
When no pictures (HD/VD sync signals) are detected for 60 or so seconds during PC signal input:
   → Power is turned off (standby); the power indicator lights up orange.
When pictures (HD/VD sync signals) are subsequently detected:
   → Power is turned on; the power indicator lights up green.
Note:
This function is effective when "Sync" is set to "Auto", "Component / RGB-in select" is set to "RGB" and during normal viewing.

DVI-D Power management
When this function is set to On, it operates under the following conditions to turn the power on or off automatically.
Standard mode
When no pictures (sync signal) are detected for 60 or so seconds during DVI signal input:
   → Power is turned off (standby); the power indicator lights up orange.
When pictures (sync signal) are subsequently detected:
   → Power is turned on; the power indicator lights up green.
Low power mode
When +5V DC in DVI-D IN terminal or pictures (sync signal) are not detected for about 60 seconds with DVI input:
   → Power is turned off (standby); the power indicator lights up orange.
When +5V DC or pictures (sync signal) are subsequently detected:
   → Power is turned on; the power indicator lights up green.
In the Standard mode, power consumption during sleep is higher than that in the Low power mode.
You can switch the Standard mode/Low power mode in "DVI Power management mode" of the Options menu. (see page 74)
Notes:
• This function is invalid during input from DVI-D Terminal Board (TY-FB11DD).
• Depending on the type of terminal board equipped, this function may be invalid.

No signal power off
Equipment power supply is turned Off when there is no signal.
When this is set to "Enable", the power supply of the unit goes Off 10 minutes after the input signals stop.
• For WHITEBOARD input, it is judged as no signal until page loading or pen drawing is performed.
• For MEMORY VIEWER input, it is judged as no signal when a USB memory is not connected.

Customizing the Input labels

This function can change the label of the Input signal to be displayed. (see page 20)

Select "Input label" in "Setup" menu and press (■) button.

↓

Input label	
HDMI1	◄ HDMI1 ►
HDMI2	HDMI2
SLOT INPUT	SLOT INPUT
VIDEO	VIDEO
COMPONENT	COMPONENT
PC	PC
DVI	DVI
DIGITAL LINK	DIGITAL LINK
Miracast(TM)	Miracast(TM)
Panasonic APPLICATION	Panasonic APPLICATION
MEMORY VIEWER	MEMORY VIEWER
WHITEBOARD	WHITEBOARD
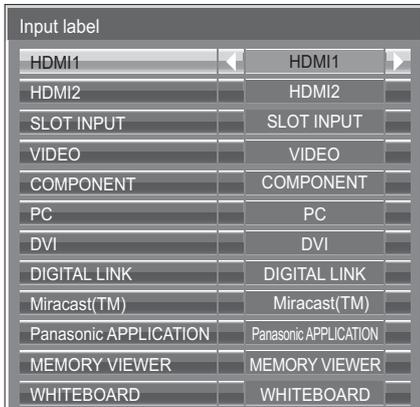
Image input   Input label

[HDMI1]   HDMI1 / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

[HDMI2]   HDMI2 / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

[SLOT INPUT]*1   SLOT INPUT / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

[VIDEO]   VIDEO / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

[COMPONENT]*2   COMPONENT / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

[PC]   PC / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

[DVI]   DVI / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

[DIGITAL LINK]   DIGITAL LINK / (Skip)
[Miracast(TM)]   Miracast(TM) / (Skip)
[Panasonic APPLICATION]   Panasonic APPLICATION / (Skip)
[MEMORY VIEWER]   MEMORY VIEWER / (Skip)
[WHITEBOARD]   WHITEBOARD / (Skip)

(Skip): The INPUT button press will skip its input.

*1 "SLOT INPUT" is displayed when a Terminal Board is installed.

*2 "COMPONENT" may be displayed as "RGB" depending on the setting of "Component/RGB-in select". (see page 68)

When a Terminal Board with dual input terminals is installed

"SLOT INPUT" is displayed as "SLOT INPUT A" and "SLOT INPUT B" and independent settings are available.

[SLOT INPUT A]   SLOT INPUT A / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

[SLOT INPUT B]   SLOT INPUT B / DVD1 / DVD2 / DVD3 / DVD4 / Blu-ray1 / Blu-ray2 / Blu-ray3 / Blu-ray4 / CATV / VCR / STB / (Skip)

When a Terminal Board with fixed display (such as Tuner Board) is installed

Only fixed display and (Skip) are available as Input label of "SLOT INPUT".

[SLOT INPUT]   fixed display / (Skip)

Function Button Settings

Set the functions that operates when ^{FUNCTION} [1] [2] is pressed.

Select "Function Button Settings" in "Setup" menu and press ■ button.

Function Button Settings	
Function Button 1	◀ INPUT (WHITEBOARD) ▶
Function Button 2	INPUT (MEMORY VIEWER)
Function Button Guide	On
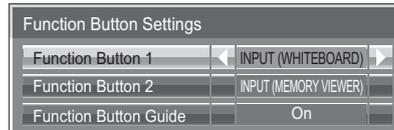
• Function Button 1, Function Button 2

The following functions are set to the FUNCTION button.

Note:
Factory settings are as follows.
FUNCTION1 button: INPUT (WHITEBOARD)
FUNCTION2 button: INPUT (MEMORY VIEWER)

ECO Mode settings / Signal / On/Off Timer Settings / MULTI PIP Settings

The menu is displayed. (Example: ECO Mode settings)

FUNCTION
[1] [2]

ECO Mode settings	
ECO Mode	◀ Custom ▶
Power save	Off
HDMI1 Power management	Off
HDMI2 Power management	Off
PC Power management	Off
DVI-D Power management	Off
No signal power off	Disable
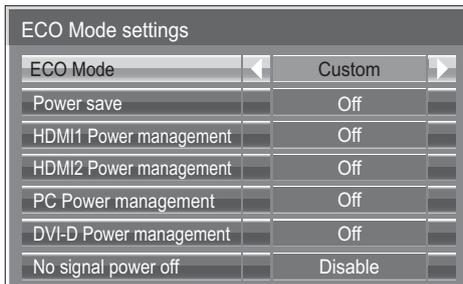
Pressing the FUNCTION button clears the menu.

Scrolling bar

Activates the "Scrolling bar only" screensaver.
After 15 minutes, the display enters standby mode.

To exit this mode, press ◯ button.

INPUT (SLOT)* - INPUT (WHITEBOARD)

Simply press ^{FUNCTION} [1] [2] to select the input.
* "INPUT (SLOT)" is displayed when an optional Terminal Board is installed.
When a Terminal Board with dual input terminals is installed, "INPUT (SLOT A)" and "INPUT (SLOT B)" are displayed.

Network Settings

"Network Settings" menu is displayed.

Note:

For the network function, refer to "Operating Instructions, Network Operations" and the instruction manual of "Wireless Manager" in use.

AV Mute

Mutes the audio and video. To exit this mode, press any button.

Multi-Live

Switch to the Multi-Live mode when using the "Wireless Manager".

MULTI PIP

Press ^{FUNCTION} [1] [2] to turn MULTI PIP On/Off.

• Function Button Guide

The function display setting for the FUNCTION button is configured.
On: Press the FUNCTION button to display the function list of the button.
Off: The function list is not displayed.

FUNCTION
[1] [2]

FUNCTION
[1] [2]

The operation starts.

Function
1:INPUT (WHITEBOARD)   2:INPUT (MEMORY VIEWER)
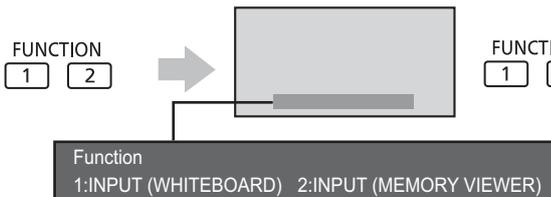
Memory Viewer Settings

Set the display styled of the Memory Viewer screen and Auto Play settings.

Select "Memory Viewer Settings" in "Setup" menu and press (■) button.

Memory Viewer Settings		
View	◄	Thumbnail	►
Sort		Name	
Auto Play		On	
Interval		5 S	
Effect		Wipe left	
Guide		On	
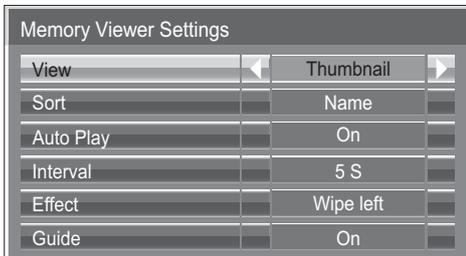
View
   Switches the thumbnail and list views.
Sort
   Name/Time/Type: Sets the sort order of the thumbnail or list files.
Auto Play
   Set to "On" to Auto Play the still pictures or videos.
Interval
   5 S - 120 S: Sets the intervals for still picture Auto Play.
Effect
   Sets the effect used when the screen is changed during Auto Play.
Guide
   Sets the remote control operation guide On/Off.

Monitor Out

Sets the monitor output from the PC OUT terminal.
Off: Disables monitor output.
On: Enables monitor output.
When "On" is set, the following "Picture" menu settings will be fixed to the standard values.
   Brightness: 50
   Colour: 50
   Hue: 50
   Sharpness: 0
   Advanced settings
   Gamma: 2.2

No activity power off

Disable ⟵⟶ Enable

When this function is set to "Enable", the power is turned off (standby) automatically when there is no operation of the Display for 4 hours.
Starting from 3 minutes before the turn off, the remaining time will be displayed.

Press any key to abort.	
No activity power off	3min
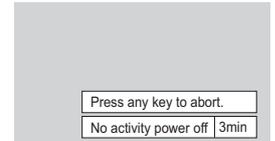
When the power is turned off due to this function, a message "Last turn off due to 'No activity power off'." is displayed next time the power is turned on.

Note:
During the screensaver is running, this function is disabled.

Menu Display Duration / OSD Brightness

Set the display time and brightness of the on-screen menu display.
Menu Display Duration: 5 S - 30 S
OSD Brightness: 1 - 5

OSD Language

Select your preferred language.

■ Selectable languages

English(UK)
Deutsch
Français
Italiano
Español
ENGLISH(US)
中文.......(Chinese)
日本語.......(Japanese)
Русский.......(Russian)

Setup for Input Signals

Component / RGB-in select

Component $\longleftrightarrow$ **RGB**

Select to match the signals from the source connected to the Component / RGB or PC input terminals.
Y, P_B, P_R signals $\Longrightarrow$ "Component"
RGB signals $\Longrightarrow$ "RGB"

Note:
Make setting of the selected input terminal (COMPONENT/RGB IN or PC IN).

YUV / RGB-in select

YUV $\longleftrightarrow$ **RGB**

Select to match the signals from the source connected to the DVI input terminals.
YUV signals $\Longrightarrow$ "YUV"
RGB signals $\Longrightarrow$ "RGB"

Notes:
• Selection may not be possible, depending on which optional board is installed.
• Make setting of the selected input terminal (SLOT or DVI-D IN).

Signal menu

Notes:
• "Signal" setup menu displays a different setting condition for each input signal.
• Depending on the input signal type, an optional Terminal Board may be required.

Select "Signal" in "Setup" menu and press (■) button.

For Video (S VIDEO)

Signal	[AV]
3D Y/C Filter (NTSC)	On
Colour system	Auto
Cinema reality	Off
Noise reduction	Off

For RGB

Signal	[RGB]
Sync	Auto
Cinema reality	Off
XGA Mode	Auto
Noise reduction	Off

H-Freq.　63.98　kHz
V-Freq.　60.02　Hz
Signal Format　1280×1024/60i

For Component

Signal	[Component]
Sync	Auto
Cinema reality	Off
XGA Mode	Auto
Noise reduction	Off

H-Freq.　63.98　kHz
V-Freq.　60.02　Hz
Signal Format　1280×1024/60i

For Digital

Signal	[Digital]
Cinema reality	Off
HDMI Range	Auto
Noise reduction	Off

H-Freq.　63.98　kHz
V-Freq.　60.02　Hz
Signal Format　1280×1024/60i

• 3D Y/C Filter (NTSC)

This menu is displayed when BNC Dual Video Terminal Board (TY-FB9BD) is installed to the unit.
Set this menu when the moving image looks unnatural during Video (S Video) input signal.

On ⟷ Off

Note:
When On, this setting only affects NTSC input signals.

• Colour system

$$\rightarrow \text{Auto} \longleftrightarrow \text{PAL} \longleftrightarrow \text{SECAM} \longleftrightarrow \text{M.NTSC} \longleftrightarrow \text{NTSC} \leftarrow$$

Set the colour system to match the input signal. When "Auto" is set, Colour system will be automatically selected from NTSC/PAL/SECAM/M.NTSC.
To display PAL60 signal, select "Auto" or "PAL".

If the picture image becomes unstable:
With the system set on Auto, under conditions of low level or noisy input signals the image may in rare cases become unstable. Should this occur, set the system to match the format of the input signal.

• Cinema reality

When "On", the display attempts to reproduce a more natural interpretation of sources such as movie pictures, which are recorded at 24 frames per second.
If the picture is not stable, turn the setting to "Off".

On ⟷ Off

Note:
When On, this setting only affects the following signal input:
• NTSC / PAL signal input during Video (S Video) input signal.
• 525i(480i), 625i(575i), 1125(1080)/60i signal input during "Component" input signal.

• XGA Mode

This menu is displayed when the input signal is analog (Component/PC). This unit supports three types of XGA signals with 60Hz vertical frequency having different aspect ratios and sampling rates (1,024 × 768 @ 60Hz, 1,280 × 768 @ 60Hz and 1,366 × 768 @ 60Hz).

Auto ⟷ 1024×768 ⟷ 1280×768 ⟷ 1366×768

Auto: Automatically selected from 1024×768/1280×768/1366×768.
　　　　Switch the setting to suit the input signal for better display depends on the angle of view or display resolution condition.

Note:
After making this setting, be sure to make each adjustment (such as "Auto Setup") on the "Pos./Size" menu as necessary. (see page 48)

Setup for Input Signals

• Sync
This function operates only during input from PC IN terminal.

Setting RGB sync signal
Confirm that the input is set to RGB input (this setting is valid only for RGB input signal).

Auto: The H and V sync or synchronized signal is automatically selected. If both input, it is selected the H and V sync.

↕

on G: Uses a synchronized signal on the Video G signal, which is input from the G connector.

Setting Component sync signal
Confirm that the input is set to Component input (this setting is valid only for Component input signal).

Auto: The H and V sync or synchronized signal is automatically selected. If both input, it is selected the H and V sync.

↕

on Y: Uses a synchronized signal on the Video Y signal, which is input from the Y connector.

Note:
Signals input to COMPONENT/RGB IN terminals correspond to Sync on G or Sync on Y.

• SDI Through
Set the active through function of the Dual Link HD-SDI Terminal Board (TY-FB11DHD).

On ⟵⟶ Off

On: Enables active through.

Off: Disables active through.

Note:
Settings can only be performed for this menu when a slot mounted with a Dual Link HD-SDI Terminal Board (TY-FB11DHD) is selected.

• HDMI Range
Switches the dynamic range according to the input signal from HDMI terminal.

Video(16-235) ⟵⟶ Full(0-255) ⟵⟶ Auto

Video(16-235): If the input signal is the video range, Example: HDMI terminal output for DVD player

Full(0-255): If the input signal is full range, Example: HDMI terminal output for personal computer

Auto: Switches the dynamic range automatically between "Video(16-235)" and "Full(0-255)" according to the input signal.

Notes:
• This function can be set only for HDMI signal input.
• "Auto" cannot be selected during the DIGITAL LINK input.

• Noise reduction

Sets the following three NR (Noise Reduction) functions together.
P-NR, Mosquito NR, Block NR

$$\rightarrow \text{Off} \leftrightarrow \text{Min} \leftarrow$$
$$\rightarrow \text{Advanced} \leftrightarrow \text{Max} \leftrightarrow \text{Mid} \leftarrow$$
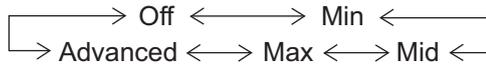
Advanced NR

Sets the three NR functions separately.

1 Press to select "Advanced".

Noise reduction	Advanced
P-NR	Off
Mosquito NR	Off
Block NR	Off

2 Press to select P-NR, Mosquito NR or Block NR.

Press to select "Off", "Min", "Mid", "Max".
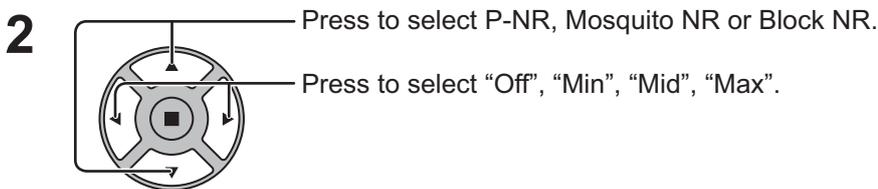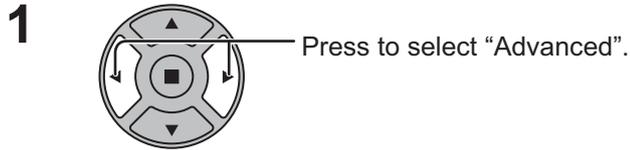
P-NR: Automatically reduces unwanted picture noise.
Mosquito NR: Reduces mosquito noise around subtitles on MPEG videos.
Block NR: Reduces block noise when playing MPEG videos.

Note:
Noise reduction cannot be adjusted while a PC signal is being applied.

• Input signal display

Displays the frequency and the type of the current input signal.

This display is valid only for Component / RGB / PC and Digital input signal.
Display range:
   Horizontal   15 - 110 kHz
   Vertical   48 - 120 Hz

H-Freq.	63.98	kHz
V-Freq.	60.02	Hz
Signal Format	1280×1024/60i	

The dot clock frequency is displayed during DVI signal input.

H-Freq.	63.98	kHz
V-Freq.	60.02	Hz
Dot Clock Freq.	108.0	MHz
Signal Format	1280×1024/60i	

Options Adjustments

The remote control is used for all the Options menu operations. Unit buttons or multi-touch operations cannot be used for this operation.

1 SET UP — Press to display the Setup menu.
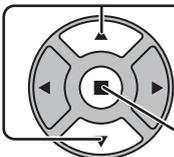
2 — Press to select "OSD Language".

— Press for more than 3 seconds.
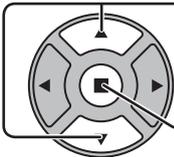
3 — Press to select "Options".
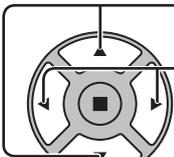
— Press to display the Options menu.

Options
Display Serial Number
Shipping

4 — Press to select your preferred menu.
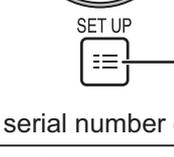
— Press to adjust the menu.

5 SET UP — Press to exit from Options menu.

Options		1/3
Weekly Command Timer		
Audio input select		
Input Search		
Onscreen display	On	
Initial input	Off	
Initial VOL level	Off	0
Maximum VOL level	Off	0
Input lock	Off	
Button lock	Off	
Remocon User level	Off	

Options		2/3
Off-timer function	Enable	
Initial Power Mode	Normal	
ID select	0	
Serial ID	Off	
Display size	Off	
Studio W/B	Off	
Studio Gain	Off	
LAN Control Protocol	Protocol 1	
RS-232C/LAN Information Timing		

Options		3/3
Slot power	Off	
Power On Screen Delay	Off	
DVI-D Power management mode	Standard mode	
Clock Display	Off	
All Aspect	Off	
Auto Setup	Manual	
Power On Message (No activity power off)	On	
Power On Message (Power management)	On	

• The serial number of this device is displayed when "Display Serial Number" is selected in step 3.

Item	Adjustments
Weekly Command Timer	Sets Weekly Command Timer. (see page 75)
Audio input select	Set up the sound when an image input is selected. (see page 77)
Input Search	Set auto input switching for when there is no signal. (see page 78)
Onscreen display	**On:** Displays all the following on screen. • Power on display • Input signal switch display • No signal display • Mute and the remaining time of off-timer after ⊙ (RECALL) was pressed. **Off:** Hides all the items above from view.
Initial input	Adjusts the input signal when the unit is turned on. **Off ⟷ HDMI1 ⟷ HDMI2 ⟷ SLOT INPUT*¹ ⟷ VIDEO ⟷ COMPONENT*² ⟷ PC ⟷ DVI ⟷ DIGITAL LINK ⟷ Miracast(TM) ⟷ Panasonic APPLICATION ⟷ MEMORY VIEWER ⟷ WHITEBOARD** *1 "SLOT INPUT" is displayed when an optional Terminal Board is installed. When a Terminal Board with dual input terminals is installed, "SLOT INPUT A" and "SLOT INPUT B" are displayed. *2 "COMPONENT" may be displayed as "RGB" depending on the setting of "Component/RGB-in select". (see page 68) **Notes:** • Only the adjusted signal is displayed. (see page 20) • This menu is available only when "Input lock" is "Off".
Initial VOL level	Press − + VOL button to adjust the volume when the unit is turned on. **Off ⟷ On** **Off:** Sets normal volume. **On:** Sets your preferred volume. **Notes:** • When "Maximum VOL level" is "On", the volume can only be adjusted between 0 and your maximum range. • You can hear the changed volume regardless of your volume setting before opening the options menu if you adjust the volume when "Initial VOL level" is "On" and cursor is on the menu.
Maximum VOL level	Press − + VOL button to adjust the maximum volume. **Off ⟷ On** **Off:** Sets auto maximum volume. **On:** Sets your preferred maximum volume. **Notes:** • If the "Maximum VOL level" is set lower than the "Initial VOL level", the "Initial VOL level" automatically becomes the same as the "Maximum VOL level". • The volume display can go up to 63 regardless of the settings. • You can hear the changed volume regardless of your volume setting before opening the options menu if you adjust the volume when "Maximum VOL level" is "On" and cursor is on the menu.

Item	Adjustments
Input lock	Locks the input switch operation. **Off ←→ HDMI1 ←→ HDMI2 ←→ SLOT INPUT*1 ←→ VIDEO ←→ COMPONENT*2 ←→ PC ←→ DVI ←→ DIGITAL LINK ←→ Miracast(TM) ←→ Panasonic APPLICATION ←→ MEMORY VIEWER ←→ WHITEBOARD** *1 "SLOT INPUT" is displayed when an optional Terminal Board is installed. When a Terminal Board with dual input terminals is installed, "SLOT INPUT A" and "SLOT INPUT B" are displayed. *2 "COMPONENT" may be displayed as "RGB" depending on the setting of "Component/RGB-in select". (see page 68) **Notes:** • Only the adjusted signal is displayed (see page 20). • Input switch can be used when this is set to "Off". Two screen display cannot be selected. • In two screen display mode, if anything other than "Off" is set, the value will be fixed as the value input in the single screen display mode.
Button lock	**Off ←→ MENU&ENTER ←→ On** **Off:** All the buttons on main unit can be used. **MENU&ENTER:** Locks [ ] MENU and [ ] ENTER/ buttons on main unit. **On:** Locks all the button on main unit except the Power switch. Sets Button lock with the unit buttons in the following procedure. **Off:** Press [ ]+ / ▲ four times→Press [ ] INPUT four times→Press [ ] – / ▼ four times→Press [ ] ENTER/ **MENU&ENTER:** Press [ ] ENTER/ four times→Press [ ]+ / ▲ four times→Press [ ] INPUT four times→Press [ ] ENTER/ **On:** Press [ ] – / ▼ four times→Press [ ] ENTER/ four times→Press [ ]+ / ▲ four times→Press [ ] ENTER/
Remocon User level	**Off ←→ User1 ←→ User2 ←→ User3** **Off:** You can use all of the buttons on the remote control. **User1:** You can only use ⊚, ◯, ⊙, ⊠, –＋ buttons on the remote control. **User2:** You can only use ⊚ button on the remote control. **User3:** Locks all the buttons on remote control.
Off-timer function	**Enable:** Enables the "Off-timer function". **Disable:** Disables the "Off-timer function". **Note:** When "Disable" is set, the Off-timer is cancelled.
Initial Power Mode	**Normal ←→ Standby ←→ On** Sets the power mode of the unit for when the power recovers from failure or after plugging off and in again. **Normal:** Power returns in as the same state as before the power interruption. **Standby:** Power returns in standby mode. (Power Indicator : red/orange) **On:** Power returns in power On. (Power Indicator : green) **Note:** When using multiple displays, "Standby" is preferred to be set in order to reduce a power load.
ID select	Sets panel ID number when panel is used in "Serial ID". Set value range: 0 - 100 (Standard value: 0)
Serial ID	Sets the panel ID Control. **Off:** Disables external control by the ID. **On:** Enables the external control by the ID.

Display size	Adjusts the image display size on screen.
	Off: Sets the normal image display size on screen.
	On: Sets the image display size approximately 95 % of the normal image display.
	Off **On**
	Notes:
	• This setting is valid only when the input signals are as follows;
	  NTSC, PAL, SECAM, M.NTSC, PAL60, PAL-M, PAL-N (Video)
	  525i, 525p, 625i, 625p, 750/60p, 750/50p, 1125/60i, 1125/50i, 1125/24psF, 1125/25p, 1125/24p, 1125/30p, 1125/60p, 1125/50p, 1250/50i (Component Video, RGB, DVI, SDI, HDMI)
	• This setting is invalid when digital zoom is selected.
	• When "Display size" is set to "On", "H-Pos" and "V-Pos" in "Pos./Size" can be adjusted.
	• Refer to each board's operating instruction for DVI, SDI, HDMI's corresponding signals.
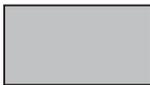
Options Adjustments

Item	Adjustments
Studio W/B	**Off:** Nullify all the settings adjusted. **On:** Sets the colour temperature for TV studio. **Note:** Valid only when the "Warm" is set as "White balance" in Picture menu.
Studio Gain	Sharpens the contrast for a better view when a part of the image is too light to see. **Off:** Disables "Studio Gain". **On:** Enables "Studio Gain". **Note:** This setting is valid only when the input signals are as follows: Component Video, RGB (analog), SDI, HDMI
LAN Control Protocol	Select the LAN control protocol. **Protocol 1:** Control with the Panasonic Display sequence. **Protocol 2:** Control with the sequence that compatible with Panasonic Projector.
RS-232C/LAN Information Timing	Set up the informing manner if error warning occured. (see page 79)
Slot power	**Off ⟷ Auto ⟷ On** **Off:** Power is not transmitted to the slot power. **Auto:** Power is transmitted to the slot power only when main power is on. **On:** Power is transmitted to the slot power when main power is on or in the standby state. **Note:** In some cases, power is transmitted to the slot power when main power is on or in the standby state regardless of the slot power setting.

Power On Screen Delay	**Off ⟷ 1 ⟷ 2 ⟷ 3.... ⟷ 30**
	You can set the power-on delay time of the displays to reduce the power load, when you press ⏻/❘ to turn on the multiple displays that are set together.
	Set each display's setting individually.
	Off: The display will be turned on at the same time as ⏻/❘ is pressed.
	1 to 30 (sec.): Set the power-on delay time (second).
	                  After pressing ⏻/❘, the display will be powered on with time delay depending on this setting.
	Notes:
	• During this function is working, the power indicator is blinking green.
	• This function also works when the power recovers from failure or after plugging off and in again the power cord.
	  After you unplug and plug the power cord in while the unit is in standby mode and also the power is being supplied to a terminal board, the unit will start supplying the power to the board with time delay according to the setting.
	  The power indicator lights up red first and it turns orange when the power starts being supplied to the board.

DVI Power management mode	Sets the operational mode of "DVI-D Power management". **Standard mode:** Activates power management when synchronization signals are not detected. **Low power mode:** Activates power management also when +5V DC in DVI-D IN terminal is not detected.
Clock Display	**Off:** Not display the clock. **On:** Display the clock. The clock is displayed at the lower left of the screen when ⟲ᴿᴱᶜᴬᴸᴸ button is pressed. 10:00 **Note:** When "Day/Time Settings" is not set, the clock is not displayed even if "Clock Display" is "On". (see page 58)

All Aspect	Sets All Aspect mode (advanced aspect setting) or default aspect mode.
	With each press of ⊕ᴬˢᴾᴱᶜᵀ button, the aspect changes in the selected mode.
	Off: Default aspect mode
	On: All Aspect mode
	Aspect mode of each setting is as follows:
	(Example: HD signal)
	Off **For TH-80LFB70U**
	     4:3→H-FILL→ZOOM→FULL→JUST
	     For TH-80LFB70E, TH-80LFB70W
	     4:3→4:3 Full→Zoom1→Zoom2→Zoom3→16:9→14:9→Just
	On 4:3 (1)→4:3 (2)→4:3 Full→Zoom1→Zoom2→Zoom3→16:9→14:9→Just1→Just2

Auto Setup	Sets the operational mode of the automatic position adjustment in the Pos./Size menu.
	Manual: Automatic position adjustment starts when ⬚ᴬᵁᵀᴼˢᴱᵀᵁᴾ is pressed on the remote control or automatic position adjustment is executed from the Pos./Size menu.
	Auto: Other than remote control or menu operation, automatic position adjustment starts:
	          When the display power is turned ON.
	          When the input signal is switched.

Item	Adjustments
Power On Message (No activity power off)	Whether to show/hide No activity power off Precautions at the time of power ON is set. **On:** The warning precautions are shown at the time of power ON. **Off:** The warning precautions are not shown at the time of power ON. **Note:** This setting is enabled only if "No activity power off" is "Enable" (see page 67).
Power On Message (Power Management)	Whether to show/hide an information message that tells the power has been turned off by Power Management when the power is set to ON. **On:** The information is shown at the time of power ON. **Off:** The information is not shown at the time of power ON. **Note:** This setting is enabled only if "Power management" function is "On" (see page 63).

Normalisation

When both main unit buttons and remote control are disabled due to the "Button lock" or "Remocon User level" adjustments, set all the values "Off" so that all the buttons are enabled again.

Press the ▭⁻ / ▼ button on main unit together with R ◯ button on the remote control and hold for more than 5 seconds.

The "Shipping" menu is displayed and the lock is released when it disappears.

Weekly Command Timer

You can set 7-day timer programming by setting time and command.

Note:
Before setting Weekly Command Timer, set Day/Time Settings. (see page 58)

1

Press to select Function.

Press to select "On".

Note:
• When Function is set to On, On/Off Timer Settings (see page 58) is unavailable and Interval / Time Designation in Mode of Screensaver (see page 61) cannot be selected.

Options		1/3
Weekly Command Timer		
Audio input select		
Input Search		
Onscreen display		On

⬇ Press ACTION (■) button

Weekly Command Timer	
Function	On
Monday	Program1
Tuesday	Program3
Wednesday	---
Thursday	Program3
Friday	---
Saturday	Program6
Sunday	Program4
Program Edit	

Program number

2

Press to select a day.

Press to select a program number.

Note:
• You can set the program from 1 to 7.
--- indicates unset.

3

Press to select Program Edit.

Press to show the Program Edit screen.

Thursday	Program3
Friday	---
Saturday	Program6
Sunday	Program4
Program Edit	

Program Edit screen
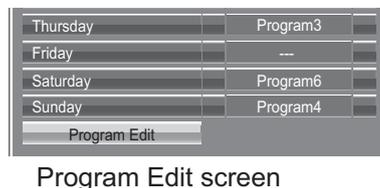
4

Press to select Program.

Press to change the program numbers (1-7).

Weekly Command Timer		1/8
Program		1
01	8:00	PON
02	10:30	IMS:SL1
03	--:--	---
04	--:--	---
05	--:--	---
06	12:00	POF
07	9:12	AVL:10
08	--:--	---
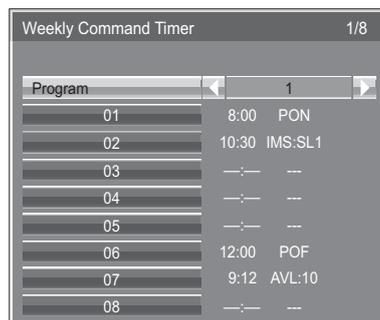
5
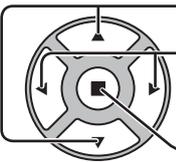
Press to select a command number.

Press to show the previous / next command pages (1-8) of the selected program.

Press to show the command setting screen.

Weekly Command Timer			1/8
Program		1	
01	8:00	PON	
02	10:30	IMS:SL1	
03	—:—	---	
04	—:—	---	
05	—:—	---	
06	12:00	POF	
07	9:12	AVL:10	
08	—:—	---	
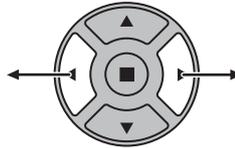
Weekly Command Timer		8/8
Program	1	
57	20:00	AVL:00
58	20:30	DAM:NORM
59	22:00	POF
60	—:—	---
61	—:—	---
62	—:—	---
63	—:—	---
64	—:—	---

Command (--- indicates unset)
Set time of timer(--:-- indicates unset)
Command numbers

Command setting screen

Weekly Command Timer	
	Program 1
Command No	02
Time	12:34
Command	IMS:SL1

6
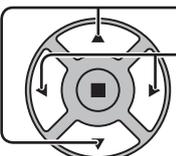
Press to select Command No.

Press to select a command number.

7
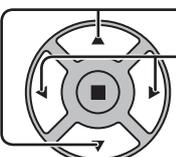
Press to select Time / Command.

Press to set each item.
Time: Set the time to execute a command program.
Pressing "◀" or "▶" button once changes "Time" 1 minute.
Pressing "◀" or "▶" button continuously changes "Time" by 15 minutes.
Command: Select a command to execute at the set time. This unit has 64 commands to set. (see page 87)

Weekly Command Timer	
	Program 1
Command No	02
Time	12:34
Command	IMS:SL1

Notes:
- Command is performed in order of execution time, regardless of the command number.
- If a command execution time overlaps with that of other commands, these commands are performed in number order.
- Pressing $\overset{N}{\bigcirc}$, Time becomes --:-- and Command becomes ---.

Note:
Press $\overset{R}{\bigcirc}$ to return to the previous screen.

Audio input select

Set up the sound when an image input is selected.

```
Options                              1/3
     Weekly Command Timer
     Audio input select
     Input Search
  Onscreen display              On
```

⇓ Press ACTION (■) button

```
Audio input select
  HDMI1          ◄ ♪    HDMI1           ►
  HDMI2            ♪    HDMI2
  SLOT INPUT       ♪    SLOT INPUT
  VIDEO            ♪    AUDIO 1
  COMPONENT        ♪    AUDIO 1
  PC               ♪    AUDIO 2
  DVI              ♪    AUDIO 2
  DIGITAL LINK     ♪    DIGITAL LINK
  Miracast(TM)     ♪    Miracast(TM)
  Panasonic APPLICATION ♪ Panasonic APPLICATION
  MEMORY VIEWER    ♪    MEMORY VIEWER
  WHITEBOARD            NO AUDIO
```
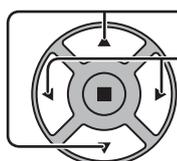
Press to select image input.

Press to select audio input.

Image input	Audio input
[HDMI1]	HDMI1 / SLOT INPUT / AUDIO 1 / AUDIO 2 / NO AUDIO
[HDMI2]	HDMI2 / SLOT INPUT / AUDIO 1 / AUDIO 2 / NO AUDIO
[SLOT INPUT]*1 [VIDEO] [COMPONENT]*2 [PC] [DVI]	SLOT INPUT / AUDIO 1 / AUDIO 2 / NO AUDIO
[DIGITAL LINK]	SLOT INPUT / AUDIO 1 / AUDIO 2 / DIGITAL LINK / NO AUDIO
[Miracast(TM)]	SLOT INPUT / AUDIO 1 / AUDIO 2 / Miracast(TM) / NO AUDIO
[Panasonic APPLICATION]	SLOT INPUT / AUDIO 1 / AUDIO 2 / Panasonic APPLICATION / NO AUDIO
[MEMORY VIEWER]	SLOT INPUT / AUDIO 1 / AUDIO 2 / MEMORY VIEWER / NO AUDIO
[WHITEBOARD]	SLOT INPUT / AUDIO 1 / AUDIO 2 / NO AUDIO

NO AUDIO: No audio input (Mute)

*1 "SLOT INPUT" is displayed when a Terminal Board is installed.
*2 "COMPONENT" may be displayed as "RGB" depending on the setting of "Component/RGB-in select". (see page 68)
When a Terminal Board with dual input terminals is installed
"SLOT INPUT" is displayed as "SLOT INPUT A" and "SLOT INPUT B" and independent settings are available.
To set other image inputs, you can select "SLOT INPUT A" and "SLOT INPUT B".

Image input	Audio input
[HDMI1]	HDMI1 / SLOT INPUT A / SLOT INPUT B / AUDIO 1 / AUDIO 2 / NO AUDIO
[HDMI2]	HDMI2 / SLOT INPUT A / SLOT INPUT B / AUDIO 1 / AUDIO 2 / NO AUDIO
[SLOT INPUT A]	SLOT INPUT A / AUDIO 1 / AUDIO 2 / NO AUDIO
[SLOT INPUT B]	SLOT INPUT B / AUDIO 1 / AUDIO 2 / NO AUDIO
[VIDEO] [COMPONENT] [PC] [DVI]	SLOT INPUT A / SLOT INPUT B / AUDIO 1 / AUDIO 2 / NO AUDIO
[DIGITAL LINK]	SLOT INPUT A / SLOT INPUT B / AUDIO 1 / AUDIO 2 / DIGITAL LINK / NO AUDIO
[Miracast(TM)]	SLOT INPUT A / SLOT INPUT B / AUDIO 1 / AUDIO 2 / Miracast(TM) / NO AUDIO
[Panasonic APPLICATION]	SLOT INPUT A / SLOT INPUT B / AUDIO 1 / AUDIO 2 / Panasonic APPLICATION / NO AUDIO
[MEMORY VIEWER]	SLOT INPUT A / SLOT INPUT B / AUDIO 1 / AUDIO 2 / MEMORY VIEWER / NO AUDIO
[WHITEBOARD]	SLOT INPUT A / SLOT INPUT B / AUDIO 1 / AUDIO 2 / NO AUDIO

When Image input and Audio input differ from each other, the Audio input is displayed as below.

```
              PC
              16:9
         ♪ COMPONENT
```

Notes:
• HDMI Audio is selectable only for HDMI Input.
• You cannot set audio of B for SLOT INPUT A, or audio of A for SLOT INPUT B.

Input Search

When a signal is not detected, another input with a signal is automatically selected.

Options	1/3
Weekly Command Timer	
Audio input select	
Input Search	
Onscreen display	On
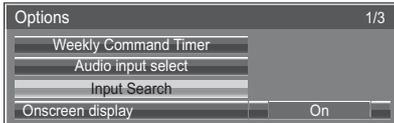
⇩ Press ACTION (■) button

Input Search	
Input Search	Off
Primary Input	
Secondary Input	

① select
② adjust
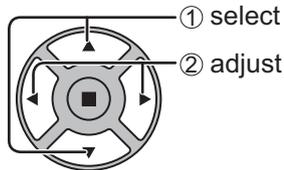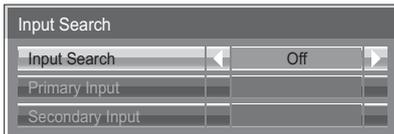
Input Search

Off: When there is no signal, the input is not switched automatically.

All Inputs: Searches all inputs and switches to an input with a signal.

Input search is executed in the following order.

(Example) When the current input is PC

⟶ PC ⟶ DVI ⟶ ·· ⟶ COMPONENT ⟶
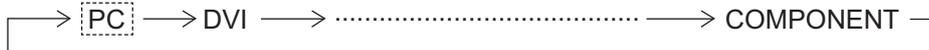
Priority: Searches "Primary Input" and "Secondary Input" in order and switches to an input with a signal.
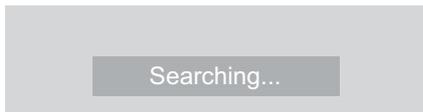
Searching...

"Searching..." is displayed during the input search.

Primary Input, Secondary Input

Set the input to search when "Priority" is selected.

(NONE) ⟷ HDMI1 ⟷ HDMI2 ⟷ SLOT INPUT* ⟷ VIDEO ⟷ COMPONENT ⟷ PC ⟷ DVI ⟷ DIGITAL LINK ⟷ Panasonic APPLICATION

* "SLOT INPUT" is displayed when an optional Terminal Board is installed.

When a Terminal Board with dual input terminals is installed, "SLOT INPUT A" and "SLOT INPUT B" are displayed.

Notes:

• This menu is available only when "Input lock" is "Off". (see page 73)

• If the input is changed by this function, the last input is selected when the power is turned on next time.

If you wish to retain the original input when the power is turned on, set "Initial input" to the original input.

(see page 72)

RS-232C/LAN Information Timing

Set up the informing manner for no signal or temperature rising.
While RS-232C controls: Warning or error message sent on the display atuomatically.
While LAN controls: Acquire the warning or error message from the display.

Options	2/3
Off-timer function	Enable
Initial Power Mode	Normal
ID select	0
Remote ID	Off
Serial ID	Off
Studio W/B	Off
LAN Control Protocol	Protocol 1
RS-232C/LAN Information Timing	

Press ACTION (■) button

RS-232C/LAN Information Timing	
No Signal Warning	On
No Signal Warning Timing	5min
No Signal Error	On
No Signal Error Timing	10min
Temperature Warning	On
Temperature Warning Value	55°C
Temperature Warning Release Value	52°C

① select
② adjust

■ **No Signal Warning**

If set to "On", the display sends out the no signal warning.

■ **No Signal Warning Timing**

Set up the detecting time for no signal warning.

■ **No Signal Error**

If set to "On", the display sends out the no signal error.

■ **No Signal Error Timing**

Set up the detecting time for no signal error.

The warning of "No Signal Warning" and the error of "No Signal Error" are not sent when the no signal state is detected through any of the following functions:
No Signal power off: Enable, PC Power management, DVI-D Power management, HDMI1 Power management, HDMI2 Power management (see page 63)

Setting Example

   No Signal Warning Timing: 5 minutes
   No Signal Error Timing: 10 minutes
   PC Power management: On (30 seconds)
   If there is no signal when PC IN is input, "PC Power management" is activated first and the Display enters the standby mode.

Note:
The "No Signal Error Timing" cannot be set shorter than "No Signal Warning Timing".

■ **Temperature Warning**

If set to "On", the display sends out the warning temperature.

■ **Temperature Warning Value**

Set up the detecting temperature for temperature warning.

■ **Temperature Warning Release Value**

Set up the temperature to release the temperature warning.

Troubleshooting

Before you call for service, determine the symptoms and make a few simple checks as shown below.

Symptoms		Checks
Picture	**Sound**	
Interference	Noisy Sound	Electrical Appliances Cars / Motorcycles Fluorescent light
Normal Picture	No Sound	Volume (Check whether the mute function has been activated on the remote control.)
No Picture	No Sound	Not plugged into AC outlet Not switched on Picture and Brightness/Volume setting (Check by pressing the power switch or stand-by button on the remote control.)
No Picture	Normal Sound	If a signal with a non-applicable colour system format, or frequency is input, only the input terminal indication is displayed.
No Colour	Normal Sound	Colour controls set at minimum level (see page 51, 52)
No remote control operations can be performed.		Check whether the batteries have discharged completely and, if they have not, whether they were inserted properly. Check whether the remote control sensor is exposed to an outdoor light or a strong fluorescent light. Check whether the remote control designed specifically for use with the unit is being used. (The unit cannot be operated by any other remote control.)
A cracking sound is sometimes heard from the unit.		If there is nothing wrong with the picture or sound, this is the sound of the cabinet undergoing very slight contractions in response to changes in the room temperature. There are no adverse effects on the performance or other aspects.
The top or bottom of the picture on the screen is cut off when I use the zoom function.		Adjust the position of the picture on the screen.
Areas at the top and bottom of the screen where the image is missing appear when I use the zoom function.		When using a video software program (such as a cinema size program) with a screen wider than one in the 16:9 mode, blank areas separate from the images are formed at the top and bottom of the screen.
Parts of the unit become hot.		Even when the temperature of parts of the front, top and rear panels has risen, these temperature rises will not pose any problems in terms of performance or quality.
Power automatically turns off unexpectedly.		Check the settings of "No signal power off", "PC Power management", "DVI-D Power management", HDMI1 Power management, HDMI2 Power management and "No activity power off". Any of them may be set to "On (Enable)". (see page 63, 67)
There is no picture displayed or sound output sometimes.		When HDMI or DVI signals are input to the Display using a selector or distributor, sound or images may not be output in the normal fashion depending on the selector or distributor used. The symptoms may be improved by turning the power off and on again, or by replacing the selector or distributor.
Multi-touch operations cannot be performed.		Check if the "Setup" - "Touch Screen Settings" is set to "On". (see page 59) The touch panel is an optical device that uses infrared rays. Incident light that contains large quantities of infrared rays can prevent proper functioning. Move light sources as far away from the touch panel as possible. Fluorescent light: Does not produce infrared light, so it does not cause problems. Sunlight: Locate the touch panel where it is not exposed to direct sunlight. White candescent light: Contains the most infrared light and can readily affect the touch panel. Move light sources as far away from the touch panel as possible. Strong external noise can cause the microcomputer inside the touch panel to malfunction, therefore keep noise sources as far away as possible.
Whirring sounds can be heard from the display unit.		The display unit is fitted with a cooling fan to dissipate heat generated during normal use. The whirring sound is caused by rotation of the fan and is not a malfunction.
The RS-232C is uncontrollable*		Check whether the connection has been made properly. (see page 15) When controlling the RS-232C command on page 15 from the RS-232C terminal in the display, make sure that "Control I/F Select" is "RS-232C", and that "Control I/F Select" is "RS-232C(DIGITAL LINK)", and "DIGITAL LINK mode" is "DIGITAL LINK(RS-232C)" when controlling from the RS-232C terminal of the DIGITAL LINK device.

Symptoms	Checks
The LAN is uncontrollable*	Check whether the connection has been made properly. Check whether "Control I/F Select" is "DIGITAL LINK/LAN" when controlling with the WEB browser control or the command control. Check whether "LAN Setup" has been configured properly. When connecting to a device of AMX, Crestron Electronics, Inc., or Extron, set "AMX D.D.", "Crestron Connected™", or "Extron XTP" according to the device to use. See the "Signal quality" information of "DIGITAL LINK status" to check the LAN cable status such as whether the LAN cable is disconnected or the cable is not shielded.
There is no picture displayed or sound output from the DIGITAL LINK terminal.*	Check whether the connection has been made properly between the video (output) equipment and twisted pair cable transmitter and between the twisted pair cable transmitter and this product. Check that "DIGITAL LINK mode" is not set to "LAN".
Sending e-mail fails.*	Check whether the e-mail setting of Web browser is correct.
Power indicator is blinking in red.	There is possibility of malfunction. Please contact an Authorized Service Center.
This LCD Display uses special image processing. Hence a slight time lag may occur between image and audio, depending on the type of input signal. However, this is not a malfunction.	

* For the network, DIGITAL LINK and E-mail setup, please refer to the "Network Operations" of the Operating Instructions.

LCD Display panel

Symptoms	Check
The screen darkens slightly when bright pictures with minimal movements are shown.	The screen will darken slightly when photos, still images of a computer or other pictures with minimal movements are shown for an extended period. This is done to reduce image retention on the screen and the shortening of the screen's service life: It is normal and not indicative of malfunctioning.
It takes a while for the picture to appear.	The unit digitally processes the various signals in order to reproduce esthetically pleasing images. As such, it sometimes takes a few moments for the picture to appear when the power has been turned on, when the input has been switched.
The edges of the images flicker.	Due to the characteristics of the system used to drive the panel, the edges may appear to flicker in the fast-moving parts of the images: This is normal and not indicative of malfunctioning.
There may be red spots, blue spots, green spots and black spots on the screen.	This is a characteristic of liquid crystal panels and is not a problem. The liquid crystal panel is built with very high precision technology giving you fine picture details. Occasionally, a few non-active pixels may appear on the screen as fixed points of red, blue, green, or black. Please note this does not affect the performance of your LCD.
Example Image retention appears	Image retention may occur. If you display a still picture for an extended period, the image might remain on the screen. However, it will disappear after a while. This is not considered as malfunction.
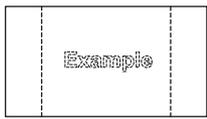
When using Miracast

Please refer to the following items if you have problems with the Miracast connection.

Miracast cannot be connected.

- Is the "Wireless LAN" menu set to "Off"?
- Is the input source [Miracast(TM)] selected correctly?
- Please check the setting of the Miracast-certified device. For details about the connection method of Miracast, refer to the Operating Instructions of the Miracast-certified device.
- Are there any obstacles between the Miracast-certified device and the Display? In addition, is the Miracast-certified device far from the Display?
  Please remove the obstacles or make the Miracast-certified device close to the Display.
- The column "Paired devices" will remain the connection information such as the Miracast-certified device etc., but you cannot reconnect with the screen, please connect with the devices that can be connected from the list.
- Depending on the status of the Miracast-certified device, the connection may be failed.

Disconnected suddenly or Image cannot be updated.

- If the Miracast idle screen is not displayed, the sound cannot be output, the connection is failed, please re-boot the Display and then return the operation according to the following method.
  - Please turn off the power and disconnect the power plug from the power outlet.
  - Please turn on the Display and the Miracast-certified device.

The picture of Miracast is distorted.

- Set the wireless LAN mode to "S-DIRECT" or "M-DIRECT".
- Since Miracast is connected wirelessly, the picture may be distorted by the radio wave environment. In such cases, please try the following measures.
  - Please make the Miracast-certified device close to the Display.
  - Place away from devices that can emit electromagnetic radiation, such as microwave ovens, game machines.
    Do not use these devices if you are still unable to solve the problem.
  - If multiple wireless devices are connected with the same router, the bandwidth will be insufficient.
- If there is a problem with the content itself, the picture may be distorted, please confirm the content.
- The images of Miracast may be distorted depending on the Miracast-certified device. It may be caused by the processing capability and the wireless transmission performance of the Miracast-certified device, and it is not a malfunction of the Display.

The connection of Miracast will be interrupted if there is no operation after connecting with the Miracast.

- Depending on the configuration of your Miracast-certified device, the connection may be lost in some time. Please check the saving power setting of the device.
- The problem will be improved by updating the wireless driver and firmware. Please contact with the manufacturer for the technical support about the device.

Others

- Depending on your Miracast-certified device, the confirmation screen of the reconnection that is the connection name "from UNKNOWN" will be displayed. At this time, please select "CANCEL" to cancel reconnect.
- Depending on your Miracast-certified device, it may be required to remove the profile during connecting. In that case, please remove the device according to the instructions.

List of Aspect Modes

For TH-80LFB70U

Aspect mode		Picture ➡ Enlarged screen	Description
All Aspect: On	**Factory setting All Aspect: Off**		
16:9	FULL		The display of the pictures fills the screen. In the case of SD signals, pictures with a 4:3 aspect ratio are enlarged horizontally, and displayed. This mode is suited to displaying anamorphic pictures with a 16:9 aspect ratio.
14:9	–		Letterbox pictures with a 14:9 aspect ratio are enlarged vertically and horizontally so that their display fills the screen vertically and is slightly smaller than the screen horizontally. The top and bottom edges of the pictures are cut off. Side panels are displayed at the left and right edges of the screen.
Just / Just1	JUST		Pictures with a 4:3 aspect ratio are enlarged horizontally so that the picture distortion is minimized. The display of the areas around the left and right edges of the screen is slightly elongated.
Just2	JUST		Pictures with a 4:3 aspect ratio are enlarged horizontally so that the picture distortion is minimized. The left and right edges of the pictures are cut off. The display of the areas around the left and right edges of the screen is slightly elongated.
4:3 / 4:3 (1)	4:3		Pictures with a 4:3 aspect ratio are displayed with their original aspect ratio. Side panels are displayed at the left and right edges of the screen.
4:3 (2)	4:3		Pictures with a 4:3 aspect ratio are displayed with their original aspect ratio. The left and right edges of the pictures are masked by side panels.
4:3 Full	H-FILL		Pictures with a 4:3 aspect ratio are enlarged horizontally so that their display fills the screen. The left and right edges of the pictures are cut off.
Zoom / Zoom1	ZOOM		Letterbox pictures with a 16:9 aspect ratio are enlarged vertically and horizontally so that their display fills the screen. The top and bottom edges of the pictures are cut off.
Zoom2	ZOOM		Letterbox pictures with a 16:9 aspect ratio are enlarged vertically and horizontally so that their display fills the screen. The top and bottom edges as well as the left and right edges of the pictures are cut off.
Zoom3	–		Letterbox pictures with a 2.35:1 aspect ratio are enlarged vertically and horizontally so that their display fills the screen vertically and is slightly larger than the screen horizontally. The top and bottom edges as well as the left and right edges of the pictures are cut off.
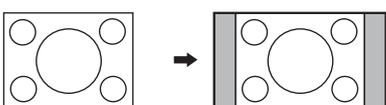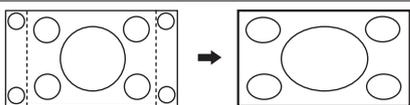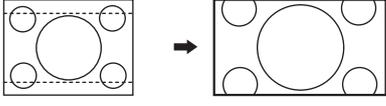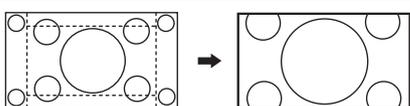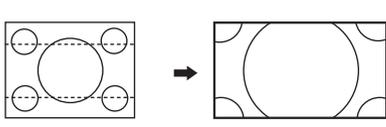
List of Aspect Modes

For TH-80LFB70E, TH-80LFB70W

Aspect mode		Picture ➡ Enlarged screen	Description
All Aspect: On	**Factory setting All Aspect: Off**		
16:9	16:9		The display of the pictures fills the screen. In the case of SD signals, pictures with a 4:3 aspect ratio are enlarged horizontally, and displayed. This mode is suited to displaying anamorphic pictures with a 16:9 aspect ratio.
14:9	14:9		Letterbox pictures with a 14:9 aspect ratio are enlarged vertically and horizontally so that their display fills the screen vertically and is slightly smaller than the screen horizontally. The top and bottom edges of the pictures are cut off. Side panels are displayed at the left and right edges of the screen.
Just ---- Just1	Just		Pictures with a 4:3 aspect ratio are enlarged horizontally so that the picture distortion is minimized. The display of the areas around the left and right edges of the screen is slightly elongated.
Just2	–		The pictures with a 4:3 aspect ratio among the 16:9 aspect ratio signals are enlarged horizontally so that the picture distortion is minimized. The left and right edges of the pictures are cut off. The display of the areas around the left and right edges of the screen is slightly elongated.
4:3 ---- 4:3 (1)	4:3		Pictures with a 4:3 aspect ratio are displayed with their original aspect ratio. Side panels are displayed at the left and right edges of the screen.
4:3 (2)	–		The pictures with a 4:3 aspect ratio among the 16:9 aspect ratio signals are displayed with their original aspect ratio. The left and right edges of the pictures are masked with side panels.
4:3 Full	4:3 Full		The pictures with a 4:3 aspect ratio among the 16:9 aspect ratio signals are enlarged horizontally so that their display fills the screen. The left and right edges of the pictures are cut off.
Zoom ---- Zoom1	Zoom1		Letterbox pictures with a 16:9 aspect ratio are enlarged vertically and horizontally so that their display fills the screen. The top and bottom edges of the pictures are cut off.
Zoom2	Zoom2		The letterbox pictures with a 2.35:1 aspect ratio among the 16:9 aspect ratio signals are enlarged vertically and horizontally so that their display fills the screen. The top and bottom edges as well as the left and right edges of the pictures are cut off.
Zoom3	Zoom3		Letterbox pictures with a 2.35:1 aspect ratio are enlarged vertically and horizontally so that their display fills the screen vertically and is slightly larger than the screen horizontally. The top and bottom edges as well as the left and right edges of the pictures are cut off.

Applicable Input Signals

*Mark: Applicable input signal

	Signal name	Horizontal frequency (kHz)	Vertical frequency (Hz)	COMPONENT / RGB IN / PC IN (Dot clock (MHz))	DVI-D IN (Dot clock (MHz))	HDMI1 HDMI2
1	525 (480) / 60i	15.73	59.94	* (13.5)	* (27.0)	*
2	525 (480) / 60p	31.47	59.94	* (27.0) *5	* (27.0)	*
3	625 (575) / 50i	15.63	50.00	* (13.5)		
4	625 (576) / 50i	15.63	50.00		* (27.0)	*
5	625 (575) / 50p	31.25	50.00	* (27.0)		
6	625 (576) / 50p	31.25	50.00		* (27.0)	*
7	750 (720) / 60p	45.00	60.00	* (74.25)	* (74.25)	*
8	750 (720) / 50p	37.50	50.00	* (74.25)	* (74.25)	*
9	1,125 (1,080) / 60p	67.50	60.00	* (148.5) *1	* (148.5)	*
10	1,125 (1,080) / 60i	33.75	60.00	* (74.25) *1	* (74.25)	*
11	1,125 (1,080) / 50p	56.26	50.00	* (148.5) *1	* (148.5)	*
12	1,125 (1,080) / 50i	28.13	50.00	* (74.25) *1	* (74.25)	*
13	1,125 (1,080) / 24psF	27.00	48.00	* (74.25) *2		
14	1,125 (1,080) / 30p	33.75	30.00	* (74.25) *1	* (74.25)	
15	1,125 (1,080) / 25p	28.13	25.00	* (74.25) *1	* (74.25)	
16	1,125 (1,080) / 24p	27.00	24.00	* (74.25) *1	* (74.25)	*
17	1,250 (1,080) / 50i	31.25	50.00	* (74.25) *3		
18	2,048 × 1,080 / 24psF *7	27.00	48.00			
19	2,048 × 1,080 / 24p *7	27.00	24.00			
20	640 × 400 @70 Hz	31.46	70.07	* (25.17)		
21	640 × 480 @60 Hz	31.47	59.94	* (25.18) *6	* (25.18)	*
22	640 × 480 @72 Hz	37.86	72.81	* (31.5)		
23	640 × 480 @75 Hz	37.50	75.00	* (31.5)		
24	640 × 480 @85 Hz	43.27	85.01	* (36.0)		
25	800 × 600 @56 Hz	35.16	56.25	* (36.0)		
26	800 × 600 @60 Hz	37.88	60.32	* (40.0)	* (40.0)	*
27	800 × 600 @72 Hz	48.08	72.19	* (50.0)		
28	800 × 600 @75 Hz	46.88	75.00	* (49.5)		
29	800 × 600 @85 Hz	53.67	85.06	* (56.25)		
30	852 × 480 @60 Hz	31.47	59.94	* (33.54) *6	* (34.24)	*
31	1,024 × 768 @50 Hz	39.55	50.00		* (51.89)	*
32	1,024 × 768 @60 Hz	48.36	60.00	* (65.0)	* (65.0)	*
33	1,024 × 768 @70 Hz	56.48	70.07	* (75.0)		
34	1,024 × 768 @75 Hz	60.02	75.03	* (78.75)		
35	1,024 × 768 @85 Hz	68.68	85.00	* (94.5)		
36	1,066 × 600 @60 Hz	37.64	59.94	* (53.0)	* (53.0)	*
37	1,152 × 864 @60 Hz	53.70	60.00		* (81.62)	*
38	1,152 × 864 @75 Hz	67.50	75.00	* (108.0)		
39	1,280 × 768 @60 Hz	47.70	60.00	* (80.14)		
40	1,280 × 800 @60 Hz (1)	49.31	59.91	* (71.0)	* (71.0)	*
41	1,280 × 800 @60 Hz (2)	49.70	59.81	* (83.5)	* (83.5)	*
42	1,280 × 960 @60 Hz	60.00	60.00	* (108.0)		
43	1,280 × 960 @85 Hz	85.94	85.00	* (148.5)		
44	1,280 × 1,024 @60 Hz	63.98	60.02	* (108.0)	* (108.0)	*
45	1,280 × 1,024 @75 Hz	79.98	75.03	* (135.0)		
46	1,280 × 1,024 @85 Hz	91.15	85.02	* (157.5)		
47	1,366 × 768 @50 Hz	39.55	50.00		* (69.92)	*
48	1,366 × 768 @60 Hz	48.36	60.00	* (86.71)	* (87.44)	*
49	1,400 × 1,050 @60 Hz	65.22	60.00		* (122.61)	*
50	1,440 × 900 @60 Hz (1)	55.47	59.90	* (88.75)	* (88.75)	*
51	1,440 × 900 @60 Hz (2)	55.93	59.89	* (106.5)	* (106.5)	*
52	1,600 × 1,200 @60 Hz	75.00	60.00	* (162.0)	* (162.0)	*
53	1,600 × 1,200 @65 Hz	81.25	65.00	* (175.5)		
54	1,920 × 1,080 @60 Hz	67.50	60.00	* (148.5) *4	* (148.5)	*
55	1,920 × 1,200 @60 Hz	74.04	59.95		* (154.0)	*
56	Macintosh13" (640 × 480)	35.00	66.67	* (30.24)		
57	Macintosh16" (832 × 624)	49.72	74.54	* (57.28)		
58	Macintosh21" (1,152 × 870)	68.68	75.06	* (100.0)		

*1: Based on SMPTE 274M standard.
*2: Based on SMPTE RP211 standard.
*3: Based on SMPTE 295M standard.
*4: The input signal is recognized as 1,125 (1,080) / 60p.
*5: When selected the RGB format and 525p signal input to the PC IN terminal, it is recognized as VGA 60Hz signal.
*6: When inputted VGA 60Hz format signal from the other than PC IN terminal, it is recognized as 525p signal.
*7: Based on SMPTE 292M and 372M standards. These signals can be received when the Dual Link HD-SDI Terminal Board (TY-FB11DHD) is installed.

Note: Signals without above specification may not be displayed properly.

Applicable Input Signals

Video input (VIDEO)

	Signal name	Horizontal frequency(kHz)	Vertical frequency(Hz)
1	NTSC	15.73	59.94
2	PAL	15.63	50.00
3	PAL60	15.73	59.94
4	SECAM	15.63	50.00
5	Modified NTSC	15.73	59.94

Shipping condition

This function allows you to reset the unit to the factory setting.

1
SET UP

Press to display the Setup menu.

2
Press to select "OSD Language".
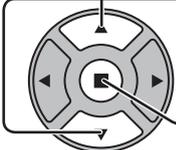
Press for more than 3 seconds.
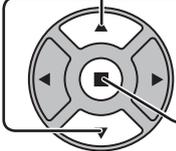
3
Press to select "Shipping".

Press to display the Shipping menu.
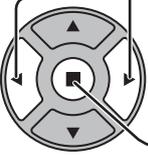
4
Press to select "YES".

Press to confirm.

5 Wait for 10 seconds.

6
Press the power switch (⏻/|) on main unit to turn the power off.

Setup menu:
- Touch Screen Settings
- MULTI PIP Settings
- Network Settings
- Memory Viewer Settings
- Signal
- Screensaver
- ECO Mode settings
- Input label
- Function Button Settings
- On/Off Timer Settings
- Day/Time Settings
- Component/RGB-in select — RGB
- Monitor Out — Off
- No activity power off — Disable
- Menu Display Duration — 30 S
- OSD Brightness — 5
- OSD Language — English (UK)

- Options
- Display Serial Number
- Shipping

Shipping — YES / NO
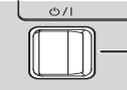
[from the unit]
1 Press the MENU button till the Setup menu is displayed.
2 Press the Volume Up"+" or Down"−" button to select "OSD Language".
3 Press and hold the ENTER button till the Shipping menu is displayed.
4 Press the Volume Up"+" or Down"−" button to select "YES".
5 Press the ENTER button and wait for 10 sec.
6 Press the power switch (⏻/|) on main unit to turn the power off.

Command list of Weekly Command Timer

No.	Command	Control details
1	AAC:MENCLR	Audio Menu (Clear)
2	AAC:MENDYN	Audio Menu (Dynamic)
3	AAC:MENSTD	Audio Menu (Standard)
4	AAC:SURMON	Surround (ON)
5	AAC:SUROFF	Surround (OFF)
6	AMT:0	Audio Mute (OFF)
7	AMT:1	Audio Mute (ON)
8	ASO:M	Audio out when PIP mode (Main Picture)
9	ASO:S	Audio out when PIP mode (Sub Picture)
10	AVL:00	Audio Volume (00)
11	AVL:10	Audio Volume (10)
12	AVL:20	Audio Volume (20)
13	AVL:30	Audio Volume (30)
14	AVL:40	Audio Volume (40)
15	AVL:50	Audio Volume (50)
16	AVL:60	Audio Volume (60)
17	DAM:FULL	Aspect (16:9)
18	DAM:JUST	Aspect (Just)
19	DAM:NORM	Aspect (4:3)
20	–	–
21	DAM:ZOOM	Aspect (Zoom)
22	DWA:OFF	Dual Picture mode (OFF)
23	ISS:SL1	Sub Picture Input Select (SLOT INPUT)
24	ISS:NW1	Sub Picture Input Select (Panasonic APPLICATION)
25	IMS:WB1	Input select (WHITEBOARD) (Main Picture when PIP mode)
26	IMS:HM2	Input select (HDMI2) (Main Picture when PIP mode)
27	IMS:DL1	Input select (DIGITAL LINK) (Main Picture when PIP mode)
28	ISS:HM2	Sub Picture Input Select (HDMI2)
29	ISS:DL1	Sub Picture Input Select (DIGITAL LINK)
30	–	–
31	DWA:PIN0	The location of the sub picture (lower right)
32	DWA:PIN1	The location of the sub picture (lower left)
33	DWA:PIN2	The location of the sub picture (upper left)
34	DWA:PIN3	The location of the sub picture (upper right)
35	DWA:PIP	Dual Picture mode (Picture in Picture)
36	–	–
37	DWA:SWP	Swap main picture and sub picture when PIP mode
38	–	–
39	IMS:SL1	Input select (SLOT INPUT) (Main Picture when PIP mode)
40	IMS:S1A	Input select (SLOT INPUT A) (Main Picture when PIP mode)
41	IMS:S1B	Input select (SLOT INPUT B) (Main Picture when PIP mode)
42	IMS:VD1	Input select (VIDEO) (Main Picture when PIP mode)
43	IMS:YP1	Input select (COMPONENT) (Main Picture when PIP mode)
44	IMS:HM1	Input select (HDMI1) (Main Picture when PIP mode)
45	IMS:DV1	Input select (DVI) (Main Picture when PIP mode)
46	IMS:PC1	Input select (PC) (Main Picture when PIP mode)
47	IMS:NW1	Input select (Panasonic APPLICATION) (Main Picture when PIP mode)
48	ISS:S1A	Sub Picture Input Select (SLOT INPUT A)
49	ISS:S1B	Sub Picture Input Select (SLOT INPUT B)
50	ISS:VD1	Sub Picture Input Select (VIDEO)
51	ISS:YP1	Sub Picture Input Select (COMPONENT)
52	ISS:HM1	Sub Picture Input Select (HDMI1)
53	ISS:DV1	Sub Picture Input Select (DVI)
54	ISS:PC1	Sub Picture Input Select (PC)
55	OSP:SCR0	Screen Saver Scrolling bar only (OFF)
56	OSP:SCR1	Screen Saver Scrolling bar only (ON)
57	POF	Power OFF
58	PON	Power ON
59	SSC:FNC0	Screen Saver function (Scrolling bar only)
60	SSC:FNC1	Screen Saver function (Negative image)
61	SSC:MOD0	Screen Saver (Mode (OFF))
62	SSC:MOD3	Screen Saver (Mode (ON))
63	VMT:0*	Picture Mute (OFF)
64	VMT:1*	Picture Mute (ON)

∗ Picture Mute cannot be unlocked by powering off/on with the remote control. Turn off and on again with the button on the unit or enter the command VMT:0 to unlock Picture Mute.

Specifications

	TH-80LFB70U	TH-80LFB70E / TH-80LFB70W
Power Source	110 - 127 V AC, 50/60 Hz	220 - 240 V AC, 50/60 Hz
Power Consumption		
Power on	350 W	350 W
Stand-by condition	0.5 W	0.5 W
Power off condition	0.3 W	0.3 W
LCD Display panel	80-inch VA panel (LED backlight), 16:9 aspect ratio	
Screen size	69.7" (W) × 39.2" (H) × 80.0" (diagonal) / 1,771 mm (W) × 996 mm (H) × 2,032 mm (diagonal)	
(No.of pixels)	2,073,600 (1,920 (W) ×1,080 (H)) [5,760 × 1,080 dots]	
Operating condition		
Temperature	32 °F - 104 °F (0 °C - 40 °C)	
Humidity	20 % - 80 % (no condensation)	
Applicable signals		
Colour System	NTSC, PAL, PAL60, SECAM, Modified NTSC	
Scanning format	525 (480) / 60i · 60p, 625 (575) / 50i · 50p, 750 (720) / 60p · 50p, 1125 (1080) / 60i · 60p · 50i · 50p · 24p · 25p · 30p · 24psF, 1250 (1080) / 50i	
PC signals	VGA, SVGA, XGA, SXGA UXGA ···· (compressed) Horizontal scanning frequency 15 - 110 kHz Vertical scanning frequency 48 - 120 Hz	

Connection terminals

AV IN	VIDEO	BNC	1.0 Vp-p (75 Ω)
	AUDIO 1 IN	Stereo mini jack (M3) × 1	0.5 Vrms, Shared with COMPONENT/RGB IN
	HDMI 1 HDMI 2	TYPE A Connector × 2	
COMPONENT/RGB IN			
	Y/G	BNC	with sync 1.0 Vp-p (75 Ω)
	P$_B$/C$_B$/B	BNC	0.7 Vp-p (75 Ω)
	P$_R$/C$_R$/R	BNC	0.7 Vp-p (75 Ω)
	AUDIO 1 IN	Stereo mini jack (M3) × 1	0.5 Vrms, Shared with VIDEO
DVI-D IN		DVI-D 24 Pin Content Protection	Compliance with DVI Revision 1.0 Compatible with HDCP 1.1
	AUDIO 2 IN	Stereo mini jack (M3) × 1	0.5 Vrms, Shared with PC IN
PC IN		High-Density Mini D-sub 15 Pin	Y or G with sync 1.0 Vp-p (75 Ω) Y or G without sync 0.7 Vp-p (75 Ω) P$_B$/C$_B$/B: 0.7 Vp-p (75 Ω) P$_R$/C$_R$/R: 0.7 Vp-p (75 Ω) HD/VD: 1.0 - 5.0 Vp-p (high impedance)
	AUDIO 2 IN	Stereo mini jack (M3) × 1	0.5 Vrms, Shared with DVI-D IN
SERIAL		External Control Terminal D-sub 9 Pin	RS-232C compatible
PC OUT		R: 0.7 Vp-p (75 Ω) G: 0.7 Vp-p (75 Ω) B: 0.7 Vp-p (75 Ω) HD/VD: 1.0 - 5.0 Vp-p	
USB (VIEWER)		TYPE A USB connector	
USB (TOUCH)		TYPE B USB connector	
DIGITAL LINK / LAN		For RJ45 network and DIGITAL LINK connections, compatible with PJLink™ Communication method: RJ45 100BASE-TX	
EXT SP		8 Ω, 20 W [10 W + 10 W] (10 % THD)	

Sound		
Speakers	120 mm × 40 mm × 2 pcs	
Audio Output	20 W [10 W + 10 W] (10 % THD)	
Dimensions (W × H × D)	73.6" × 43.1" × 4.1" / 1,868 mm × 1,093 mm × 104 mm	
Mass (weight)	approx. 185.2 lbs / 84.0 kg net	

Notes:

• Design and specifications are subject to change without notice. Mass and dimensions shown are approximate.

• This equipment complies with the EMC standards listed below.
  EN55022, EN55024, EN61000-3-2, EN61000-3-3.

Software License

Software information regarding this product

© Panasonic Corporation 2013
This product incorporates the following software:
(1) the software which is developed independently by or for Panasonic Corporation
(2) the software which is licensed under the GNU GENERAL PUBLIC LICENSE
(3) the software which is licensed under the GNU LESSER GENERAL PUBLIC LICENSE
(4) the software owned by third party and licensed to Panasonic Corporation
(5) open source software

For the software categorized as (2) and (3), the license is available in accordance with GNU GENERAL PUBLIC LICENSE and GNU LESSER GENERAL PUBLIC LICENSE respectively. As for the terms and conditions, please refer to the software licence of the supplied CD-ROM. If you wish to ask any questions as to the software, please contact (oss-cd-request@gg.jp.panasonic.com) by email.

The software categorized as (5) is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY, without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. Please refer to the detailed terms and conditions thereof shown below.

zlib License
Copyright © 2002-2013 MediaArea.net SARL. All rights reserved.

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

MediaInfo(Lib) License
Copyright © 2002-2013 MediaArea.net SARL. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
• Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
• Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Notice about AVC/VC-1/MPEG-4

This product is licensed under the AVC Patent Portfolio License, VC-1 Patent Portfolio License and MPEG-4 Visual Patent Portfolio License for the personal use of a consumer or other uses in which it does not receive remuneration to (i) encode video in compliance with the AVC Standard, VC-1 Standard and MPEG-4 Visual Standard ("AVC/VC-1/MPEG-4 Video") and/or (ii) decode AVC/VC-1/MPEG-4 Video that was encoded by a consumer engaged in a personal activity and/or was obtained from a video provider licensed to provide AVC/VC-1/MPEG-4 Video. No license is granted or shall be implied for any other use. Additional information may be obtained from MPEG LA, LLC. See http://www.mpegla.com

Information for Users on Collection and Disposal of Old Equipment and used Batteries

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste. For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

[Information on Disposal in other Countries outside the European Union]

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

Cd

USA only: Disposal may be regulated in your community due to environmental considerations. For disposal or recycling information, please visit Panasonic website: http://www.panasonic.com/environmental or call 1-888-769-0149.

Customer's Record

The model number and serial number of this product can 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 _____

For TH-80LFB70U
Panasonic System Communications Company of North America
Unit of Panasonic Corporation of North America

Executive Office :
Two Riverfront Plaza, Newark, New Jersey 07102-5490

Panasonic Canada Inc.
5770 Ambler Drive
Mississauga, Ontario
L4W 2T3

Panasonic Corporation

Web Site : http://panasonic.net