

**SHARP**®

# PN-K322B

LCD MONITOR

OPERATION MANUAL

**HDMI**™  
HIGH-DEFINITION MULTIMEDIA INTERFACE

**IMPORTANT:**

To aid reporting in case of loss or theft, please record the product's model and serial numbers in the space provided. The numbers are located in the rear of the product.

Model No.:

Serial No.:

U.S.A. ONLY

# IMPORTANT INFORMATION

**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		



The lightning flash with arrowhead symbol, within a triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within a triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

**WARNING:**

FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

**NOTE:**

This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

U.S.A. ONLY

# DEAR SHARP CUSTOMER

---

Thank you for your purchase of a SHARP LCD product. To ensure safety and many years of trouble-free operation of your product, please read the Safety Precautions carefully before using this product.

## SAFETY PRECAUTIONS

---

Electricity is used to perform many useful functions, but it can also cause personal injuries and property damage if improperly handled. This product has been engineered and manufactured with the highest priority on safety. However, improper use can result in electric shock and/or fire. In order to prevent potential danger, please observe the following instructions when installing, operating and cleaning the product. To ensure your safety and prolong the service life of your LCD product, please read the following precautions carefully before using the product.

1. Read instructions — All operating instructions must be read and understood before the product is operated.
2. Keep this manual in a safe place — These safety and operating instructions must be kept in a safe place for future reference.
3. Observe warnings — All warnings on the product and in the instructions must be observed closely.
4. Follow instructions — All operating instructions must be followed.
5. Cleaning — Unplug the power cord from the AC outlet before cleaning the product. Use a dry cloth to clean the product. Do not use liquid cleaners or aerosol cleaners.
6. Attachments — Do not use attachments not recommended by the manufacturer. Use of inadequate attachments can result in accidents.
7. Water and moisture — Do not use the product near water. Do not install the product in a place where water may splash onto it. Be careful of equipment which drains water such as an air-conditioner.
8. Ventilation — The vents and other openings in the cabinet are designed for ventilation. Do not cover or block these vents and openings since insufficient ventilation can cause overheating and/or shorten the life of the product. Do not place the product on a sofa, rug or other similar surface, since they can block ventilation openings. Do not place the product in an enclosed place such as a bookcase or rack, unless proper ventilation is provided or the manufacturer's instructions are followed.
9. Power cord protection — The power cords must be routed properly to prevent people from stepping on them or objects from resting on them.
10. The LCD panel used in this product is made of glass. Therefore, it can break when the product is dropped or applied with impact. Be careful not to be injured by broken glass pieces in case the LCD panel breaks.
11. Overloading — Do not overload AC outlets or extension cords. Overloading can cause fire or electric shock.
12. Entering of objects and liquids — Never insert an object into the product through vents or openings. High voltage flows in the product, and inserting an object can cause electric shock and/or short internal parts. For the same reason, do not spill water or liquid on the product.
13. Servicing — Do not attempt to service the product yourself. Removing covers can expose you to high voltage and other dangerous conditions. Request a qualified service person to perform servicing.
14. Repair — If any of the following conditions occurs, unplug the power cord from the AC outlet, and request a qualified service person to perform repairs.
  - a. When the power cord or plug is damaged.
  - b. When a liquid was spilled on the product or when objects have fallen into the product.
  - c. When the product has been exposed to rain or water.
  - d. When the product does not operate properly as described in the operating instructions.

Do not touch the controls other than those described in the operating instructions. Improper adjustment of controls not described in the instructions can cause damage, which often requires extensive adjustment work by a qualified technician.
  - e. When the product has been dropped or damaged.
  - f. When the product displays an abnormal condition. Any noticeable abnormality in the product indicates that the product needs servicing.
15. Replacement parts — In case the product needs replacement parts, make sure that the service person uses replacement parts specified by the manufacturer, or those with the same characteristics and performance as the original parts. Use of unauthorized parts can result in fire, electric shock and/or other danger.
16. Safety checks — Upon completion of service or repair work, request the service technician to perform safety checks to ensure that the product is in proper operating condition.
17. Wall mounting — When mounting the product on a wall, be sure to install the product according to the method recommended by the manufacturer.
18. Heat sources — Keep the product away from heat sources such as radiators, heaters, stoves and other heat-generating products (including amplifiers).
19. Usage of the monitor must not be accompanied by fatal risks or dangers that, could lead directly to death, personal injury, severe physical damage or other loss, including nuclear reaction control in nuclear facility, medical life support system, and missile launch control in a weapon system.
20. Do not stay in contact with the parts of the product that become hot for long periods of time. Doing so may result in low-temperature burns.

# SAFETY PRECAUTIONS (Continued)

---

**WARNING:**

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate counter measures.

To maintain compliance with EMC regulations, use shielded cables to connect to the following terminals: HDMI input terminal and DisplayPort input terminal.

If a monitor 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 fixing devices like wall mount brackets recommended by the manufacturer.
- Only using furniture that can safely support the monitor.
- Ensuring the monitor is not overhanging the edge of the supporting furniture.
- Not placing the monitor on tall furniture (for example, cupboards or bookcases) without anchoring both the furniture and the monitor to a suitable support.
- Not standing the monitors on cloth or other materials placed between the monitor and supporting furniture.
- Educating children about the dangers of climbing on furniture to reach the monitor or its controls.

**Especially for child safety**

- Don't allow children to climb on or play with the monitor.
- Don't place the monitor on furniture that can easily be used as steps, such as a chest of drawers.
- Remember that children can become excited while watching a program, especially on a "larger than life" monitor. Care should be taken to place or install the monitor where it cannot be pushed, pulled over, or knocked down.
- Care should be taken to route all cords and cables connected to the monitor so that they cannot be pulled or grabbed by curious children.

# TIPS AND SAFETY INSTRUCTIONS

- The TFT color LCD panel used in this monitor is made with the application of high precision technology. However, there may be minute points on the screen where pixels never light or are permanently lit. Also, if the screen is viewed from an acute angle there may be uneven colors or brightness. Please note that these are not malfunctions but common phenomena of LCDs and will not affect the performance of the monitor.
- Do not display the same image for an extended time. Displaying the same image for an extended time may cause a residual image. In particular, an image with strong contrast may cause a residual image after several hours.
- Never rub or tap the monitor with hard objects.
- Please understand that SHARP CORPORATION bears no responsibility for errors made during use by the customer or a third party, nor for any other malfunctions or damage to this product arising during use, except where indemnity liability is recognized under law.
- This monitor and its accessories may be upgraded without advance notice.
- Do not use the monitor where there is a lot of dust, where humidity is high, or where the monitor may come into contact with oil or steam, as this could lead to fire.
- Ensure that the monitor does not come into contact with water or other fluids. Ensure that no objects such as paper clips or pins enter the monitor as this could lead to fire or electric shock.
- Do not place the monitor on top of unstable objects or in unsafe places. Do not allow the monitor to receive strong shocks or to strongly vibrate. Causing the monitor to fall or topple over may damage it.
- Do not use the monitor near heating equipment or in places where there is likelihood of high temperature. Do not use in an environment where there are corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc.). As this may lead to generation of excessive heat and outbreak of fire.
- Do not use the monitor in places where it may be exposed to direct sunlight.
- Images cannot be rotated on this monitor. When using in portrait orientation, you will need to prepare appropriately orientated content in advance.
- The AC outlet shall be installed near the equipment and shall be easily accessible.
- Do not touch the screen when starting the LCD monitor. If the screen is touched, the monitor may not function correctly. In this situation, turn the LCD monitor off, wait at least 5 seconds, and then turn on the monitor again.
- Do not operate the screen with a hard or pointed object such as a fingernail, pen other than the supplied touch pen, or a pencil.
- Depending on the application used, the supplied touch pen may not function.
- If another USB device is connected to the computer to which the touch panel is connected, do not operate the USB device during touch panel input. Input may not take place correctly.
- Do not use liquid such as alcohol in cleaning the screen.
- Keep all cables off the touch panel. Not doing so may lead to LCD monitor malfunctions.
- If used in a room (or location) with drastic temperature differences, the display quality of the screen and the quality of touch panel performance may decrease.

## The Power Cord and AC adapter

- Use only the power cord and AC adapter supplied with the monitor.
- When handling the AC adapter, observe the following: Incorrect handling may result in fire, electric shock, or injury.
  - Do not drop the AC adapter or subject it to impact.
  - Never disassemble the AC adapter. It contains high voltage parts that are dangerous to touch.
  - The AC adapter is for indoor use only. Do not use it outside.
  - Do not use the supplied AC adapter with other devices.
- Do not damage the power cord and AC adapter nor place heavy objects on it, stretch it or over bend it. Also, do not add extension cords. Damage to the cord may result in fire or electric shock.
- Do not use the power cord with a power tap. Adding an extension cord may lead to fire as a result of overheating.
- Do not remove or insert the power plug with wet hands. Doing so could result in electric shock.
- Unplug the power cord if it is not used for a long time.
- Do not attempt to repair the power cord if it is broken or malfunctioning. Refer the servicing to the service representative.
- Do not stay in contact with the parts of the product and the AC adapter that become hot for long periods of time. Doing so may result in low-temperature burns.
- Do not fasten the AC adapter to the monitor or other equipment. Doing so may result in fire and electrical shock.

## Manual Scope

- Microsoft, Windows and Internet Explorer are registered trademarks of Microsoft Corporation.
- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.
- DisplayPort is a registered trademark of Video Electronics Standards Association.
- Adobe, Acrobat, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- Intel, Celeron, and Intel Core 2 Duo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the U.S.A. and other countries.
- AMD, AMD Sempron, AMD Athlon, and combinations thereof are trademarks of Advanced Micro Devices, Inc.
- This product comes with RICOH Bitmap Fonts produced and sold by RICOH COMPANY, LTD.
- All other brand and product names are trademarks or registered trademarks of their respective holders.
- Language of OSD menu used in this manual is English by way of example.
- Illustrations in this manual may not exactly represent the actual product or display.
- This manual assumes use in landscape orientation, except where specifically noted.

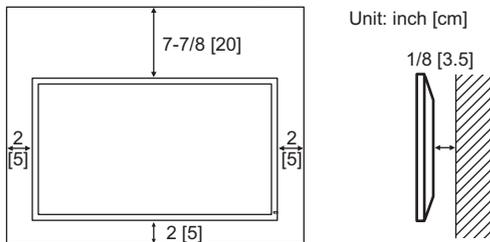
## LED Backlight

- The LED backlight in this product has a limited lifetime.
  - \* If the screen gets dark or does not turn on, it may be necessary to replace the LED backlight. This LED backlight is exclusive to this product and must be replaced by an authorized SHARP servicing dealer or service center.
  - \* Please contact your local SHARP servicing dealer or service center for assistance.

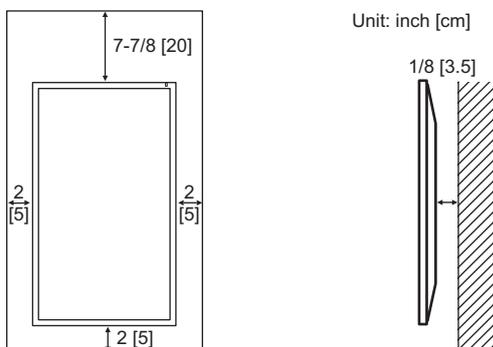
# MOUNTING PRECAUTIONS

- This product is for use indoors.
- A mounting bracket compliant with VESA specifications is required.
- To install on a stand (commercially available) or on a wall, or to remove or move the monitor, consult your dealer.
- Mounting the monitor on the wall requires special expertise and the work must be performed by an authorized SHARP dealer. You should never attempt to perform any of this work yourself. Our company will bear no responsibility for accidents or injuries caused by improper mounting or mishandling.
- Use the monitor with the surface perpendicular to a level surface. If you are tilting the monitor without using the supplied stand, the monitor may be tilted up to 25 degrees upward or 20 degrees downward.
- This monitor should be used at an ambient temperature between 41°F (5°C) and 95°F (35°C). Provide enough space around the monitor to prevent heat from accumulating inside.

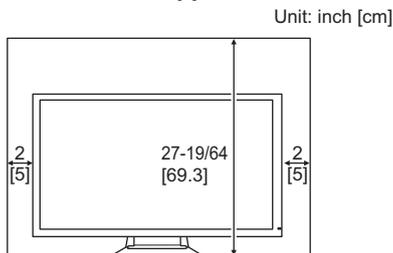
## For the monitor in landscape orientation



## For the monitor in portrait orientation

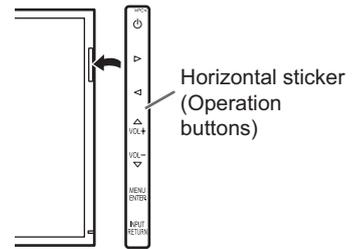


## For the monitor on the supplied stand



- If it is difficult to provide sufficient space for any reason such as the installation of the monitor inside a housing, or if the ambient temperature may be outside of the range of 41°F (5°C) to 95°F (35°C), install a fan or take other measures to keep the ambient temperature within the required range.
- Do not block any ventilation openings. If the temperature inside the monitor rises, this could lead to a malfunction.
- Do not place the monitor on a device which generates heat.

- When installing the monitor in landscape orientation, you can attach the supplied horizontal sticker (operation buttons) to the front.

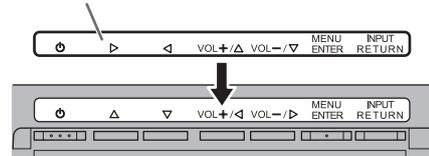


- Use the supplied vertical sticker when you install the monitor in portrait orientation.

Attach the vertical sticker (Operation buttons) to the back or the front.

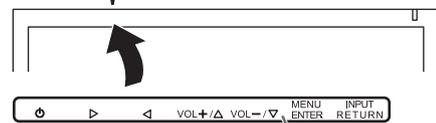
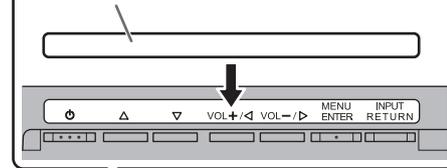
### • Back

Vertical sticker (Operation buttons)

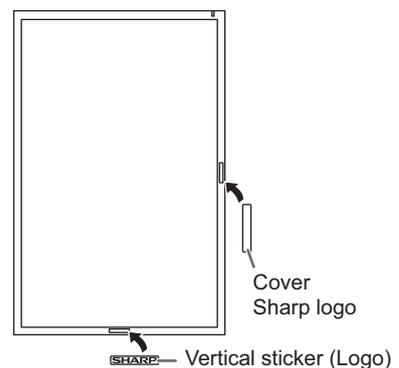


### • Front

Vertical sticker (Blank)



Vertical sticker (Operation buttons)



### ! Caution

- Adhere to the following when installing the monitor in its portrait orientation. Failing to adhere to the following may cause malfunctions.
  - Install the monitor such that the operation buttons are located on the top side.
  - Set the MONITOR on the MONITOR menu to PORTRAIT. (See page 23.)

# Contents

<b>IMPORTANT INFORMATION</b> .....	<b>3</b>	<b>Touch Action</b> .....	<b>18</b>
<b>DEAR SHARP CUSTOMER</b> .....	<b>4</b>	Touch action modes .....	18
<b>SAFETY PRECAUTIONS</b> .....	<b>4</b>	Status display of touch operation mode .....	18
<b>TIPS AND SAFETY INSTRUCTIONS</b> .....	<b>6</b>	Touch action .....	18
<b>MOUNTING PRECAUTIONS</b> .....	<b>7</b>	Other functions .....	20
<b>Supplied Components</b> .....	<b>8</b>	Cautionary points .....	20
<b>System Requirements</b> .....	<b>9</b>	<b>Menu Items</b> .....	<b>21</b>
<b>Part Names</b> .....	<b>10</b>	Displaying the menu screen.....	21
<b>Adjustment of monitor position</b> .....	<b>11</b>	Menu item details .....	22
<b>Connecting Peripheral Equipment</b> .....	<b>12</b>	<b>Initialization (Reset)/Functional Restriction Setting</b> <b>(FUNCTION)</b> .....	<b>26</b>
Connection with a PC or AV equipment .....	12	<b>Controlling the Monitor with a PC (RS-232C)</b> .....	<b>27</b>
<b>Connecting the Power Cord</b> .....	<b>13</b>	PC connection.....	27
<b>Binding Cables</b> .....	<b>14</b>	Communication conditions .....	27
<b>Turning Power On/Off</b> .....	<b>15</b>	Communication procedure .....	27
Turning on the main power.....	15	RS-232C command table.....	29
Turning power on/off .....	15	<b>Troubleshooting</b> .....	<b>33</b>
<b>Basic Operation</b> .....	<b>16</b>	<b>Specifications</b> .....	<b>35</b>
		<b>Mounting Precautions</b> <b>(For SHARP dealers and service engineers)</b> .....	<b>40</b>

For information on the Pen Software, see the Pen Software Operation Manual.

## Supplied Components

If any component should be missing, please contact your dealer.

- Liquid Crystal Display Monitor: 1
  - Touch pen: 1
  - Cable cover: 1
  - Power cord: 1
  - AC adapter: 1
  - CD-ROM (Utility Disk for Windows): 1
  - Setup Manual: 1
  - DisplayPort cable: 1
  - RS-232C conversion cable (Φ3.5 mini-jack): 1
  - USB cable (for touch panel, miniB): 1
  - Cable clamp: 2
  - Cable clamp (small): 1
  - Cable clamp (large): 3
  - Anti-toppling clamp: 2
  - Screws (for anti-toppling) (M4 x 10): 2
  - Vertical sticker (Logo): 1
  - Vertical sticker (Operation buttons): 1
  - Vertical sticker (Blank): 1
  - Horizontal sticker (Operation buttons): 1
  - Cover Sharp logo: 1
- Place this sticker onto the SHARP logo to cover the logo.

\* Sharp Corporation holds authorship rights to the Utility Disk program. Do not reproduce it without permission.

# System Requirements

## ■ Touch Panel

To use the touch panel, the monitor must be connected to a computer using a USB cable.

Touch panel operating conditions are as described below.

Computer	PC/AT compatible computer with a USB 1.1 port.
OS	Windows 8 (32-bit or 64-bit version), Windows 7 (32-bit or 64-bit version), Windows Vista (32-bit or 64-bit version), Windows XP (32-bit or 64-bit version)

- Windows 7 or later is recommended for touch action.
- On Windows 7 and later, the touch panel operates with the standard Window driver. On Windows Vista/XP, you must install the touch panel driver to your PC from the supplied CD-ROM.

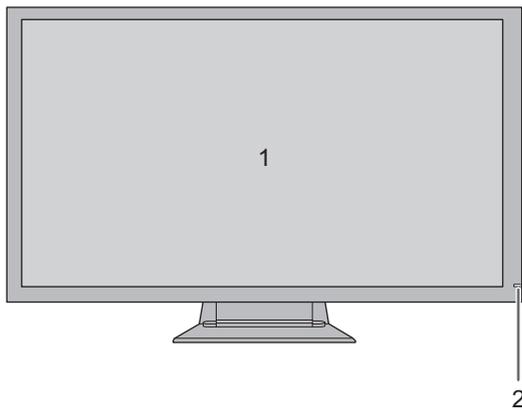
## ■ Pen Software

Operating conditions for the supplied Pen Software are as described below. To install Pen Software, refer to the Pen Software Operation Manual. Pen Software is for use with monitors installed in landscape orientation.

Computer	PC/AT compatible computer able to output a resolution of 3840 x 2160. (CD-ROM drive required for software installation.)
OS	Windows 8 (32-bit or 64-bit version), Windows 7 (32-bit or 64-bit version), Windows Vista (32-bit or 64-bit version), Windows XP (32-bit or 64-bit version)
CPU	Intel Celeron or AMD Sempron 1.6 GHz or faster Intel Core 2 Duo or AMD Athlon II X2 2.8 GHz or faster recommended
Memory	At least 2 GB (at least 1 GB for Windows XP)
Free space on hard drive	At least 100 MB (free space separately required for data storage)

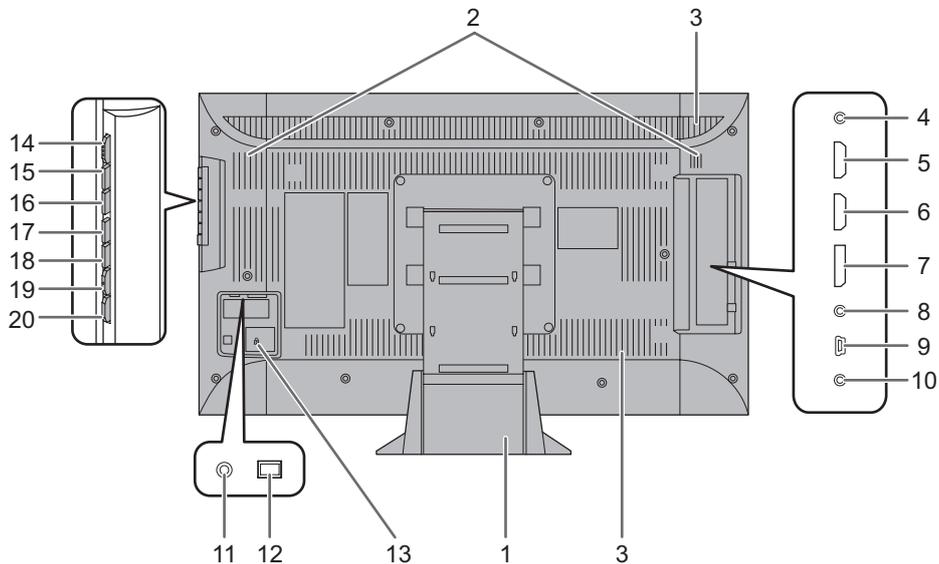
# Part Names

## ■ Front view



1. LCD panel
2. Power LED (See page 15.)

## ■ Rear view

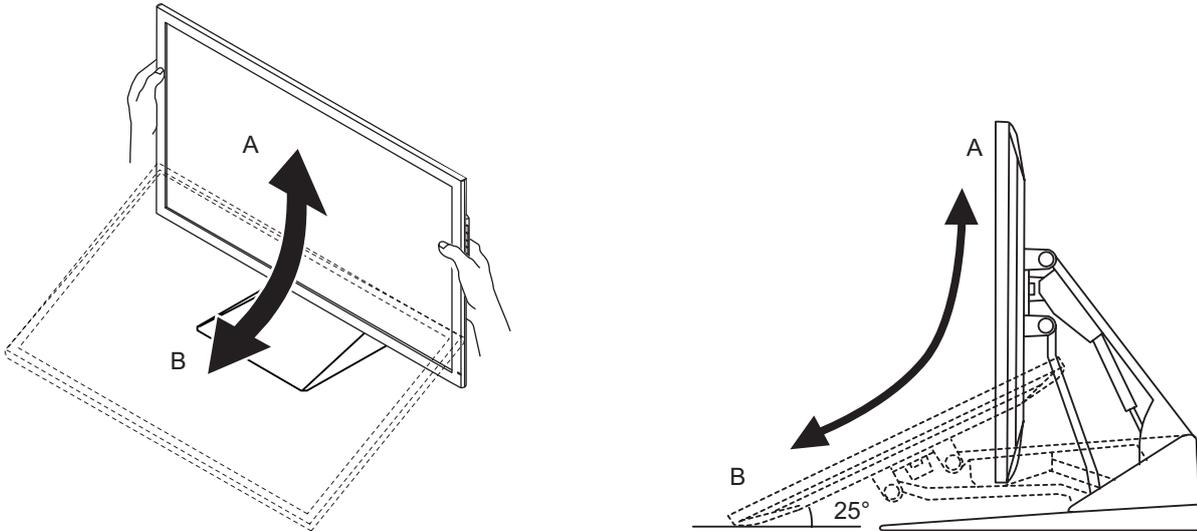


- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Stand</li> <li>2. Speakers</li> <li>3. Vents</li> <li>4. RS-232C input terminal (See page 12.)</li> <li>5. PC/AV HDMI 1 input terminal (See page 12.)</li> <li>6. PC/AV HDMI 2 input terminal (See page 12.)</li> <li>7. DisplayPort input terminal (See page 12.)</li> <li>8. Audio input terminal (See page 12.)</li> <li>9. USB (mini-B) port (See page 12.)</li> <li>10. Headphone terminal (See page 12.)</li> </ol> | <ol style="list-style-type: none"> <li>11. AC input terminal (See page 13.)</li> <li>12. Main power switch (See page 15.)</li> <li>13. Anti-theft hole (🔒)</li> <li>14. Power button (⏻) (See page 16.)</li> <li>15. Brightness adjustment button (▶) (See page 16.)</li> <li>16. Brightness adjustment button (◀) (See page 16.)</li> <li>17. [VOL+/△] button (See page 16.)</li> <li>18. [VOL-/▽] button (See page 16.)</li> <li>19. [MENU/ENTER] button (See page 16.)</li> <li>20. [INPUT/RETURN] button (See page 16.)</li> </ol> |
|---|--|

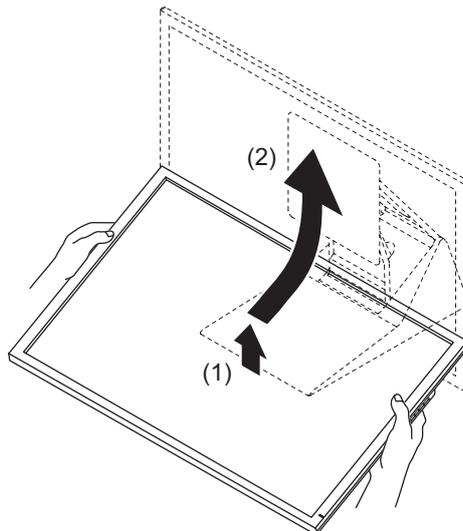
# Adjustment of monitor position

You can slide the monitor to adjust its position.

Use the monitor in the perpendicular position (about 90° from horizontal, Fig. A below) or slid to the bottommost position (about 25° from horizontal, Fig. B below). If used in any other position, the monitor may slide while in use.



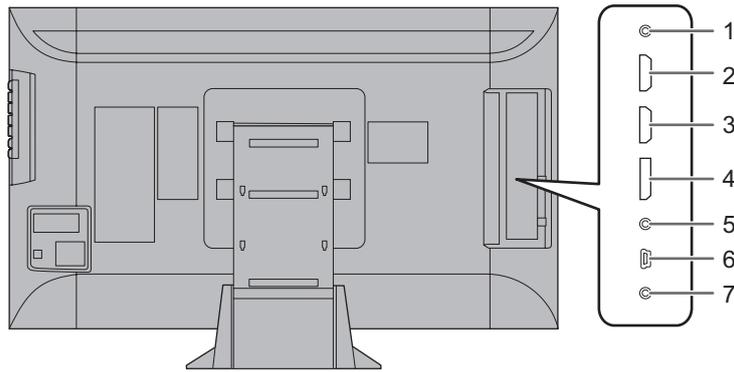
When moving the monitor from the position of Fig. B to the position of Fig. A above, slightly lift the monitor (1) and slide toward the back (2).



## ! Caution

- When sliding the monitor, be sure to grasp only the frame on the left and right sides.
  - Take care not to pinch your fingers.
  - Grasping and applying pressure to the LCD panel may damage it.
  - Take care not to press any buttons. This may cause the volume or other settings to change.

# Connecting Peripheral Equipment



## ! Caution

- Be sure to turn off the main power switch and disconnect the plug from the power outlet before connecting/disconnecting cables. Also, read the manual of the equipment to be connected.
- Be careful not to confuse the input terminal with the output terminal when connecting cables. Accidentally reversing cables connected to the input and output terminals may cause malfunctions and the other problems.
- Do not use any cable that has a damaged or deformed terminal. Using such a cable may cause malfunctions.
- Images may not be displayed properly depending on the computer (video cards), cables, or peripheral devices to be connected.

## TIPS

- The audio input terminals used in each input mode are factory-set as follows.

Input mode	Audio input terminal (Factory setting)
DisplayPort	DisplayPort input terminal
HDMI1 [PC], HDMI1 [AV] HDMI2 [PC], HDMI2 [AV]	PC/AV HDMI input terminal

## Connection with a PC or AV equipment

### 1. RS-232C input terminal

- The monitor can be connected to a PC using the RS-232C conversion cable (supplied) and a commercially available RS-232 straight cable to control the monitor from the PC.

### 2. PC/AV HDMI1 input terminal

### 3. PC/AV HDMI2 input terminal

- Use a commercially available HDMI cable (High Speed cable compliant).
- Set HDMI1, HDMI2, or HDMI DUAL in INPUT SELECT on the SETUP menu according to the device to be connected.
- Select the audio input terminal to be used in HDMI1 [AV], HDMI1 [PC], HDMI2 [AV], or HDMI2 [PC] of AUDIO SELECT on the SETUP menu.  
When HDMI1 or HDMI2 is selected, connection to the audio input terminal is unnecessary.

### 4. DisplayPort input terminal

- Use the supplied DisplayPort cable.
- Select the audio input terminal to be used in DisplayPort of AUDIO SELECT on the SETUP menu.  
When DisplayPort is selected, connection to the audio input terminal is unnecessary.  
\* Use the supplied cable.  
\* If you need to extend the cable, consult your dealer.

### 5. Audio input terminal

- Use a commercially available audio cable (mini stereo jack) without resistance.
- Set the audio input terminal used for each input mode in AUDIO SELECT on the SETUP menu.

### 6. USB (mini-B) port

- To use the touch panel, connect the touch panel to your computer with the provided USB cable.

### 7. Headphone terminal

- Use commercially available headphones (mini stereo jack).
- The output sound varies depending on the input mode.
- The volume can be adjusted using the volume adjustment.

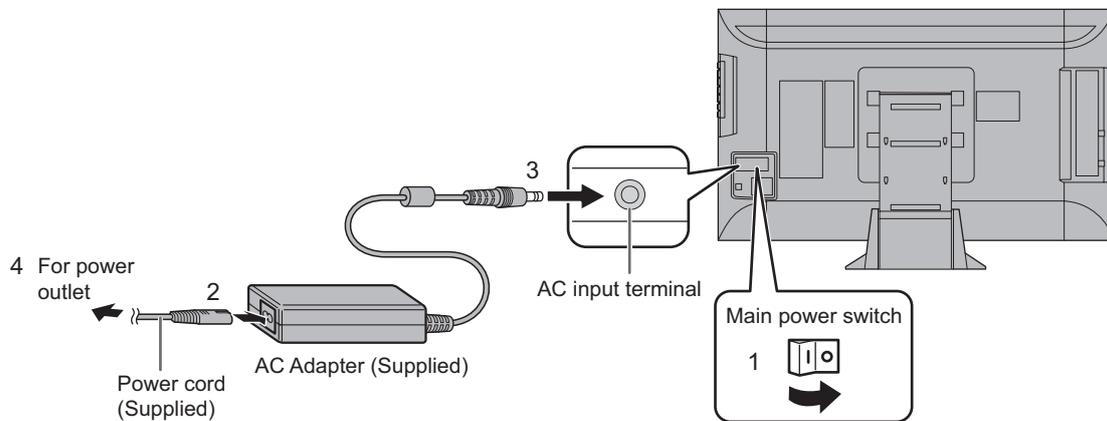
## TIPS

- The length of the signal cables or surrounding environment may affect the image quality.
- Video output is disabled in the following cases:  
When the power is turned off  
When the monitor is in input signal waiting mode

# Connecting the Power Cord

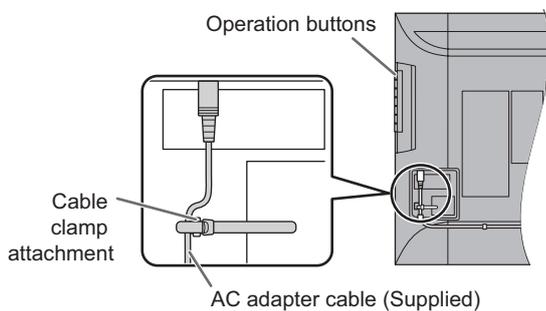
## ! Caution

- Use only the power cord and AC adapter supplied with the monitor.
1. Turn off the main power switch.
  2. Connect the AC adapter (supplied) to the power cord (supplied).
  3. Connect the AC adapter (supplied) to the AC input terminal.
  4. Plug of the power cord (supplied) into the AC power outlet.



## TIPS

- Be sure to clamp the AC adapter cable (supplied) onto the cable clamp attachment using the supplied cable clamp. When clamping the AC adapter cable, take care not to stress the terminal of the AC adapter cable. Do not bend the AC adapter cable excessively.



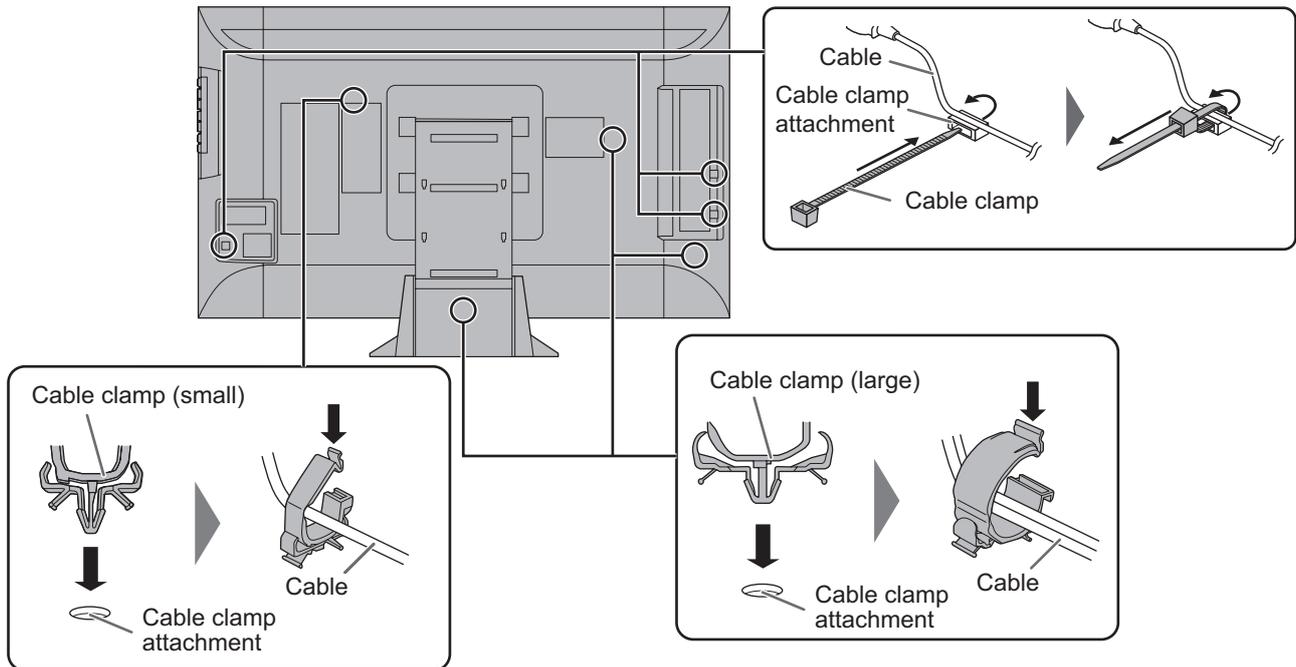
## ! Caution

- Do not fasten the supplied AC adapter to the monitor or other equipment.

# Binding Cables

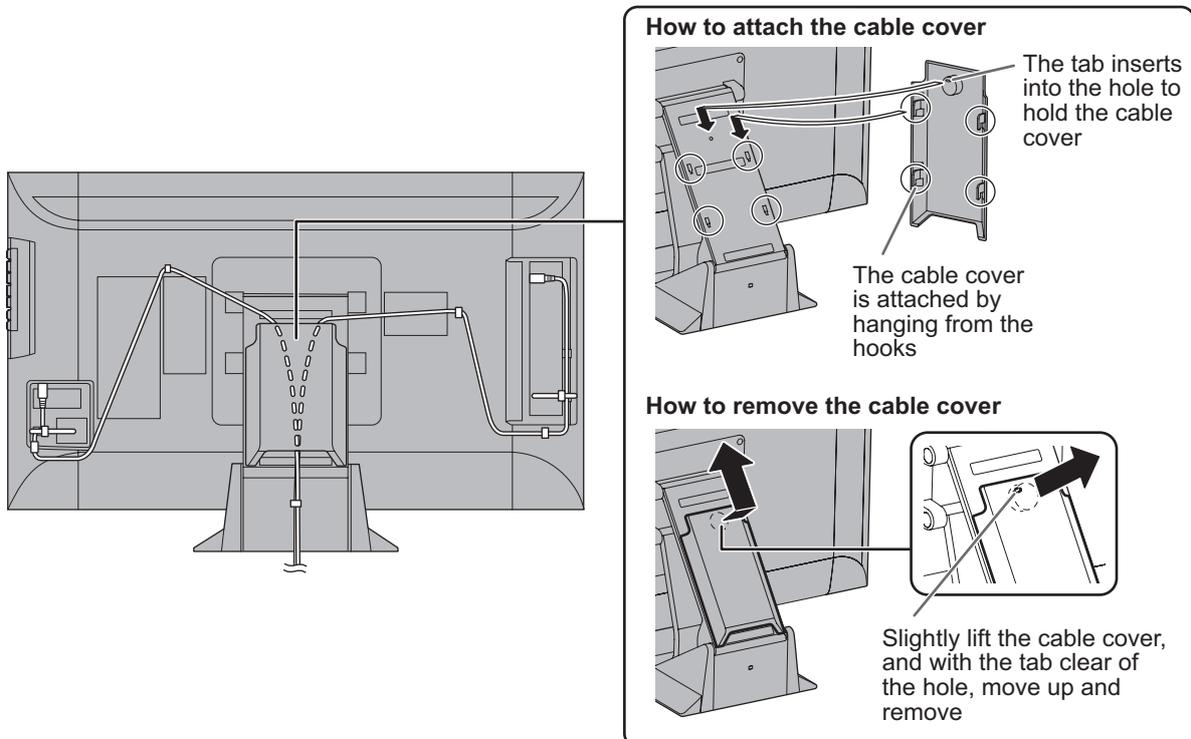
## ■Fastening the cables

The cables connected to the terminals on the rear of the monitor can be fastened with the cable clamp. Attach the cable clamps to the attachment parts on the back of the monitor and the stand, and bind the cables.



## ■Storing the cables

After you have secured the cables connected to the back of the monitor with the cable clamp, you can store the cables in the cable cover.



### ! Caution

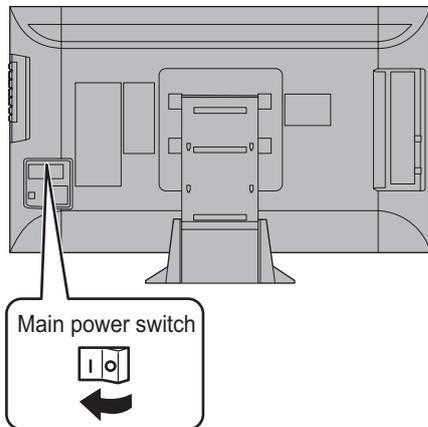
- Do not forcibly bend or apply force to the cables. Risk of wire breakage or other damage.
- When attaching the cable cover, do not pinch the cables.
- Arrange the cable to allow for use with the monitor slid to the bottommost position (about 25° from horizontal).

# Turning Power On/Off

## ! Caution

- Turn on the monitor first before turning on the PC or playback device.

## Turning on the main power

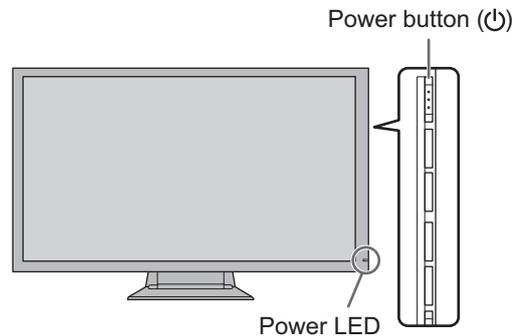


## ! Caution

- The main power must be turned on/off with the main power switch. Do not connect/disconnect the power cord or turn the breaker on/off while the main power switch is on.
- When switching the main power switch off and back on, always wait for at least 5 seconds.
- For a complete electrical disconnection, pull out the main plug.

## Turning power on/off

Press the power button (⏻) to turn the power ON/OFF. To turn off the power, press and hold down the power button (⏻) for about 2 seconds.



Power lamp status	Status of the monitor
Green lit	Power on
Off	Power off (Standby mode)
Orange lit	Input signal waiting mode

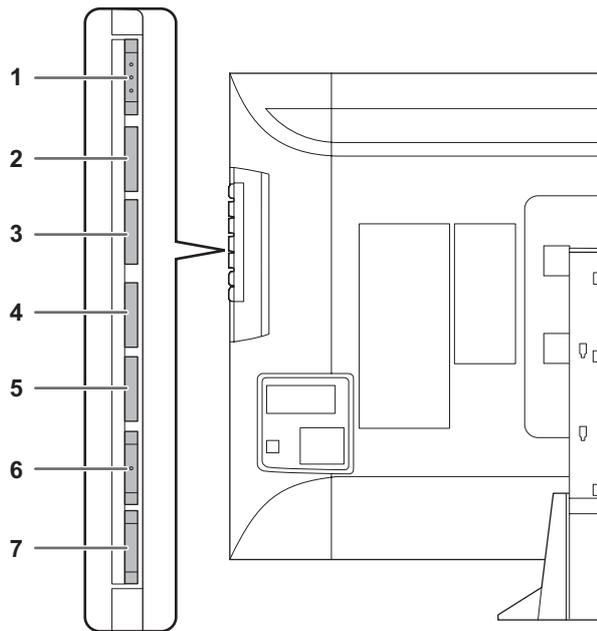
## ! Caution

- When switching the power button (⏻) off and back on, always wait for at least 5 seconds. A short interval may result in a malfunction.

## TIPS

- When the main power switch is off, the monitor cannot be turned on.
- If the monitor is in the input signal standby mode and you press the power button (⏻), the monitor enters standby mode.

# Basic Operation



## 1. Power button (⏻)

- The power can be turned on and off. To turn off the power, press and hold down the power button (⏻) for about 2 seconds.
  - The touch operation mode icon appears. When the power button (⏻) is pressed with the power on\*, the touch mode icon appears. For information on touch operation mode, see page 18.
- \* If the power button (⏻) is held down for about 2 seconds, the power will turn off.

## 2,3. Brightness adjustment button (▶ / ◀)

The brightness menu appears.



Adjust the brightness with the brightness adjustment button (▶ / ◀).

- If you do not press any buttons for about 4 seconds, the BRIGHT menu automatically disappears.

Move the cursor left or right in the menu screen, and increase or decrease the setting.

- The cursor moves right when the brightness adjustment button (▶) is pressed, and left when the brightness adjustment button (◀) is pressed.

## 4,5. [VOL+/△]/[VOL-/▽] button

The volume menu appears.



Adjust the volume with the [VOL+/△]/[VOL-/▽] buttons.

- If you do not press any buttons for about 4 seconds, the VOLUME menu automatically disappears.

Move the cursor up or down in the menu screen, and increase or decrease the setting.

- The cursor moves up when the [VOL+/△] button is pressed, and down when the [VOL-/▽] button is pressed.

## 6. [MENU/ENTER] button

Displays and turns off the menu screen. (See page 21.)

Settings can be entered when the menu screen is displayed.

## 7. [INPUT/RETURN] button

The input selection menu is displayed.

Press the [VOL+/△]/[VOL-/▽] buttons to select the input mode, and press [INPUT/RETURN] button to enter.

Input mode	Video	Audio
DisplayPort	DisplayPort input terminal	*3
HDMI1 [PC]	PC/AV HDMI input terminal*1	
HDMI1 [AV]		
HDMI2 [PC]	PC/AV HDMI input terminal*2	
HDMI2 [AV]		

### When HDMI DUAL is set to ON

Input mode	Video	Audio
DisplayPort	DisplayPort input terminal	*3
HDMI DUAL [PC]*4	PC/AV HDMI input terminal*4	*5
HDMI DUAL [AV]*4		

\*1 Select the terminal to be used in HDMI1 of INPUT SELECT. (See page 23.)

\*2 Select the terminal to be used in HDMI2 of INPUT SELECT. (See page 23.)

\*3 Select the terminal for AUDIO SELECT which is used for audio input. (See page 23.)

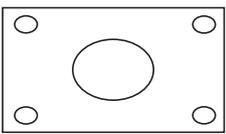
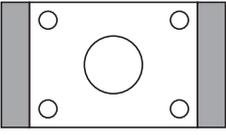
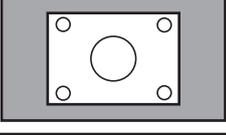
\*4 Same as the HDMI1 terminal setting.

\*5 Same as the AUDIO SELECT of HDMI1.

- When the [INPUT/RETURN] button is pressed in a menu screen, the cursor returns to the previous screen.
- If the [INPUT/RETURN] button is pressed when the touch mode icon appears, the touch mode icon will disappear.

## ■ Switching the screen size

Even when the screen size is changed, the display may remain the same depending on the input signal.

<b>WIDE</b>		PC input	Displays image so it fills the entire screen.
		AV input	An image with a 4:3 aspect ratio is stretched to fill the entire screen.
<b>NORMAL</b>		PC input	Displays image so it fills the screen without changing the aspect ratio of the input signals.
		AV input	Displays the entire image of the aspect ratio of 4:3 without changing the aspect ratio.
<b>Dot by Dot</b>		PC input	Displays the dots of the signals input from the connected PC as the corresponding dots on the screen.
		AV input	Displays at the number of panel pixels of the resolution of the input signal.

### TIPS

- Using this monitor's screen-size switching to compress or expand the screen for commercial or public viewing in establishments like cafes or hotels may infringe on the rights of the creators, as protected by Copyright Law, so please be careful.
- When PbyP mode is set to ON, the screen size cannot be changed.
- The appearance of the original video may change if you select a screen size with a different aspect ratio than the original image (e.g. TV broadcast or video input from external equipment).
- When a non-wide image (4:3) is viewed with the whole screen using the screen-size switching function of this monitor, the edge of the image may be lost or appear distorted. If you wish to respect the creator's intentions, set the screen size to "NORMAL".
- When playing commercial software, parts of the image (like subtitles) may be cropped. In this case select the optimal screen size using the screen-size switching function of this monitor. With some software, there may be noise or distortion at the edges of the screen. This is due to the characteristics of the software, and is not a malfunction.
- Depending on the original image size, black bands may remain at the edges of the screen.

# Touch Action

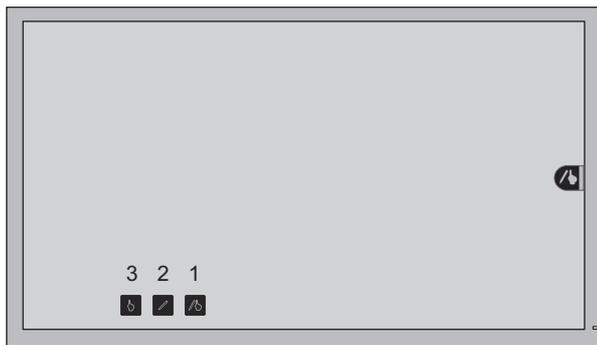
## Touch action modes

Touch operation modes are finger/pen mode, pen-only mode, and finger-only mode. The mode can be changed in the touch operation mode icon screen.

The monitor is set to finger/pen mode when shipped.

### 1. When the power button (⏻) is pressed\* with the power on, the touch mode icon will appear.

\* If the power button (⏻) is held down for about 2 seconds, the power will turn off.



### 2. Touch the icon.

A (✓) mark is displayed at the top of the icon for the selected mode.

The mode can be checked with the touch mark located at the right portion of the screen.

### 1 Finger/pen mode

In this mode, the screen can be touched with your finger or with the touch pen.

While the screen is being touched with the touch pen, touch pen operation is given priority and you cannot touch the screen with your finger.

Once the touch pen has been moved away from the screen for around 1 second, you can touch the screen with your finger.

The touch mark becomes the finger/pen mark .

### 2 Pen-only mode

This mode is for touch pen use only. You cannot touch the screen with your finger.

The touch mark becomes the pen mark .

### 3 Finger-only mode

This mode is for finger use only. You cannot touch the screen with the touch pen.

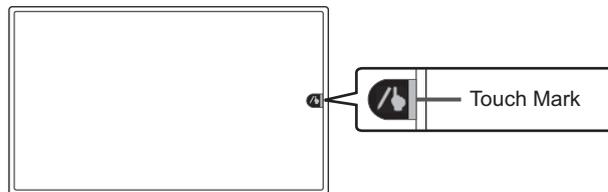
The touch mark becomes the finger-only mark .

#### TIPS

- If you take no action for about 1 minute while the touch operation mode icon appears, the icon will automatically disappear.

## Status display of touch operation mode

Monitor status is displayed at the right of the screen.



### Touch Mark

The touch mark displays the current touch action mode.

-  Finger/pen mode  
This mark is displayed during finger/pen mode.
-  Pen-only mode  
This mark is displayed during pen-only mode.
-  Finger-only mode  
This mark is displayed during finger-only mode.

The touch mark is displayed for about 5 seconds. The setting can be changed so that the touch mark always appears. (See page 23.)

The display position of the touch mark can be changed. (See page 23.)

## Touch action

Touch actions that can be used with this monitor differ according to operating system and application. The functions of touch actions are also different. For details, check Windows Help and the application's support documentation.

Touch action \ OS	Windows 8	Windows 7	Windows Vista* Windows XP*
	Single-tap	Yes	Yes
Double-tap	Yes	Yes	Yes
Swipe	Yes	Yes	Yes
Swipe from edge of screen	Yes	No	No
Drag-and-drop	Yes	Yes	Yes
Slide to pan	Yes	Yes	No
Flicks	Yes	Yes	No
Press-and-hold	Yes	Yes	Yes
Zoom	Yes	Yes	No
Press-and-tap	No	Yes	No
Rotate	Yes	Yes	No

\* You must install the touch panel driver to your PC from the supplied CD-ROM.  
Installation is not necessary in Windows 8 and Windows 7.

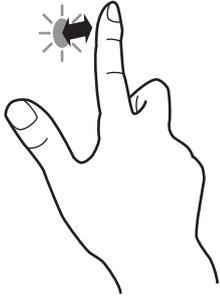
#### TIPS

- In Windows 7, if the checkmark has been removed from "Enable multi-touch gestures and inking" in "Pen and touch" in Control Panel, select the checkbox.

■ Common finger and touch pen actions

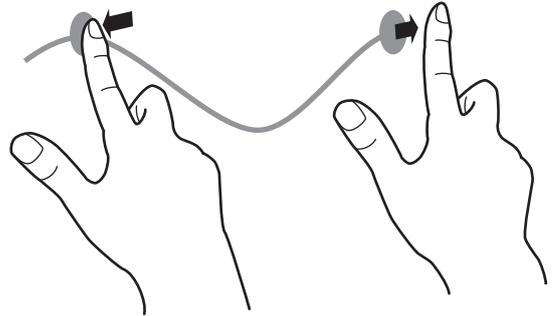
**Single-tap**

Touch the screen with your finger/touch pen.



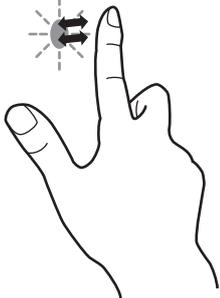
**Drag-and-drop**

Touch the screen with your finger/pen and move without lifting. When you have finished the movement, lift your finger/touch pen.



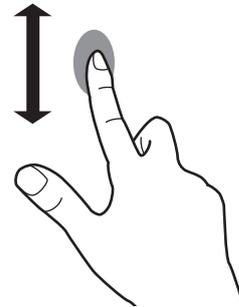
**Double-tap**

Quickly touch the screen twice with your finger/touch pen.



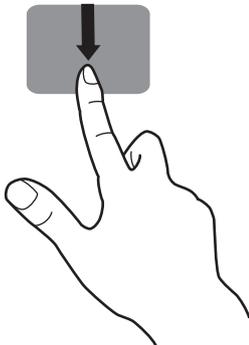
**Slide to pan**

With your finger/touch pen touching the screen, move it up and down to scroll the screen.



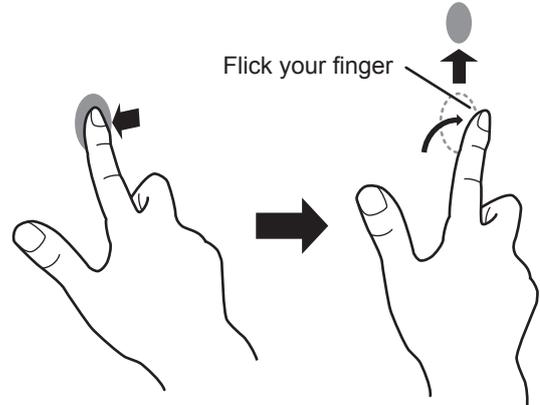
**Swipe**

Touch the screen with your finger/touch pen, move without lifting, and then stop.



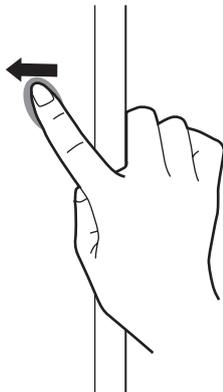
**Flicks**

Move your finger/touch pen in a flicking motion.



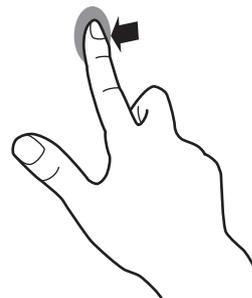
**Swipe from edge of screen**

After touching the edge of the monitor with your finger/touch pen, move horizontally without releasing your finger/touch pen and then stop.



**Press-and-hold**

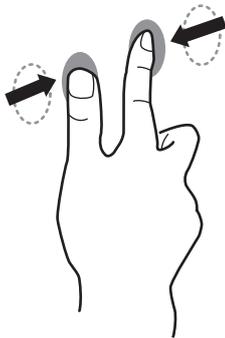
Press briefly with your finger/touch pen, and then lift your finger/touch pen from the screen.



## ■Finger actions

### Zoom

While touching the screen with two fingers, move them closer together and farther apart.



Pinch

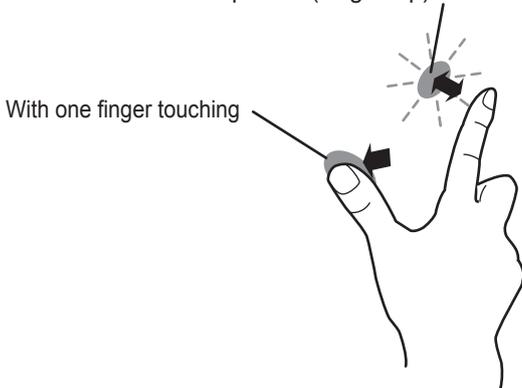


Stretch

### Press-and-tap

With one finger touching the screen, tap once (single tap) with another finger.

Tap once (single tap) with another finger



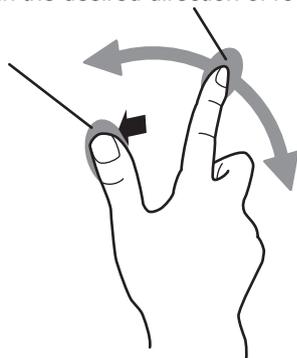
With one finger touching

### Rotate

While touching the monitor with one finger, move the other finger in the direction you wish to rotate in.

Move another finger in the desired direction of rotation

With one finger touching



## Other functions

In Windows 8, input panel functions can be used.

In Windows 7, touch pointer and input panel functions can be used.

For information about the touch pointer and input panel functions, see Windows Help.

### Touch pointer :

A translucent image of a mouse appears near the point touched. The left/right buttons of the image can be clicked to perform the same actions as left/right clicking a mouse.

### Input panel :

A software keyboard and an input panel with handwriting recognition appear on the screen.

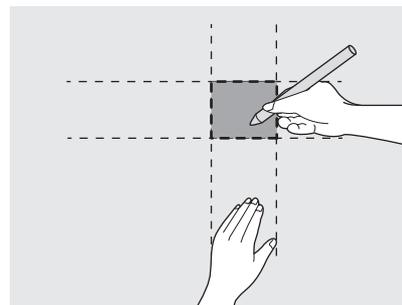
Windows 8 and Windows 7 (excluding Starter), the ink function of Microsoft Office can be used.

Handwritten comments can be written, and handwriting can be recognized.

For details, see Microsoft Office Help.

## Cautionary points

- When performing touch actions, use the ball of your finger.
- When performing pen actions, use the supplied touch pen.
- Do not use the touch pen for any purpose other than touch panel operation.
- Do not press hard on the tip of the touch pen.
- If there is dirt or foreign matter on the tip of the touch pen, remove it. Failure to do so may damage the screen.
- Even when in pen-only mode, the monitor may respond to objects other than the supplied touch pen.
- Touch operation is not possible when screen motion is enabled or when PbyP mode is set to ON.
- When performing pen actions with the supplied touch pen, avoid touching the screen with your other hand as this may affect touch screen response. If your other hand touches the screen, pen operation will not be possible where the hand areas overlap, as shown below. Pen operation will be possible when you remove your other hand from the screen.



- The touch coordinates may shift depending on the video output settings on the computer.

# Menu Items

## Displaying the menu screen

Video adjustment and settings of various functions are enabled. This section describes how to use the menu items. See pages 22 to 24 for details of each menu items.

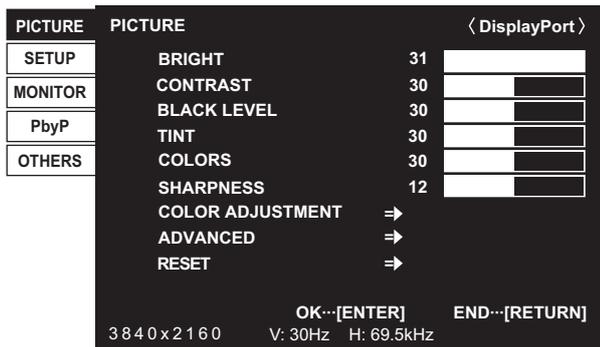
### Caution

- Do not turn the main power switch off while the menu items are being displayed. Doing so may initialize the settings.

## Example of operation

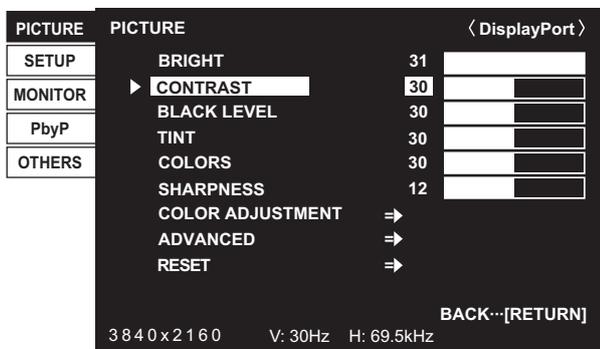
(Adjusting CONTRAST in the PICTURE menu)

- Press [MENU/ENTER] button to display the menu screen.

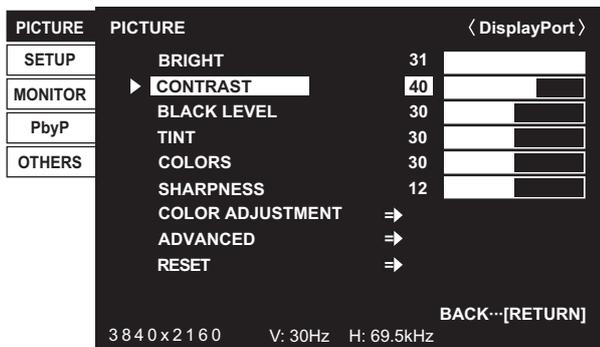


- Press [VOL+/△]/[VOL-/▽] button to select PICTURE, and press [MENU/ENTER] button.

- Press [VOL+/△]/[VOL-/▽] button to select CONTRAST.



- Press brightness adjustment button (▷/◁) to adjust the setting.



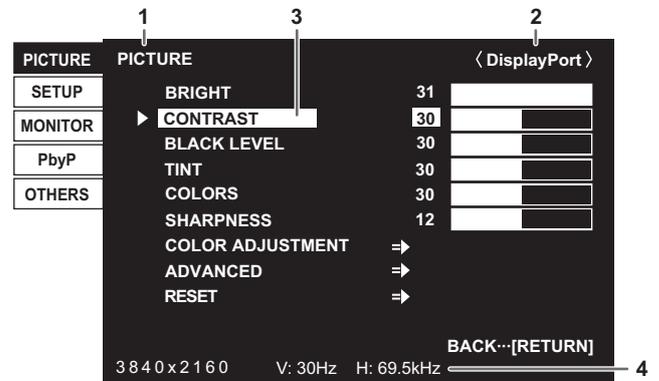
For items that have ⇒, press [MENU/ENTER] button and then configure the settings.

- Press [INPUT/RETURN] button to close the menu screen.

### TIPS

- The menu will differ depending on the input mode.
- The menu screen will close automatically if no operation is performed for about 15 seconds.

## Menu screen display



- Name of the menu
- Input mode
- An item being selected (highlighted)
- Screen resolution of input signal, and other data.

### TIPS

- Items that cannot be selected appear in gray. (e.g. Function not supported by the current input signal)
- The menu screen is on the left side of the screen in the landscape orientation, and at the bottom of the screen in the portrait orientation.

### Menu item details

The menu will differ depending on the input mode.

#### ■ PICTURE

##### **BRIGHT**

Adjusts the backlight brightness.

##### **CONTRAST**

Adjusts the difference between the bright and dark portions of the image.

##### **BLACK LEVEL**

Adjusts the entire brightness of the video signals.

##### **TINT**

Adjusts the hue. Selecting + changes the color towards green, and selecting - changes it towards magenta.

##### **COLORS**

Adjusts the color intensity.

##### **SHARPNESS**

Adjusts the sharpness of the image. Some settings and images may cause vertical lines to appear in the center of the screen.

##### **COLOR ADJUSTMENT**

##### **COLOR MODE**

The color mode changes in the following order:

STD (Standard) → VIVID → sRGB → STD...

\* sRGB applies to PC input only.

sRGB is international standard of color representation specified by IEC (International Electrotechnical Commission). Color conversion is made in taking account of liquid crystal's characteristics and represents color tone close to its original image.

##### **WHITE BALANCE**

THRU ..... Displays the input signal level as is. (for PC input only)

PRESET ..... Selects the color temperature using PRESET.

USER ..... Used for adjusting R-/G-/B-CONTRAST and R-/G-/B-OFFSET respectively.

##### **PRESET**

Selects the color temperature when the WHITE BALANCE is set to PRESET.

The setting values are shown for reference. The color temperature of the screen varies over time.

This function is not intended to keep the color temperature constant.

##### **USER**

Adjusts each item when the WHITE BALANCE is set to USER.

R-CONTRAST..... Adjusts bright-toned red component.

G-CONTRAST .... Adjusts bright-toned green component.

B-CONTRAST ..... Adjusts bright-toned blue component.

R-OFFSET ..... Adjusts dark-toned red component.

G-OFFSET ..... Adjusts dark-toned green component.

B-OFFSET ..... Adjusts dark-toned blue component.

##### **COPY TO USER**

Copies the value of white set for PRESET to the USER setting.

Select "ON" and then press [MENU/ENTER] button.

(In the case other than white, color tone may differ from the PRESET.)

##### **GAMMA**

Selects the gamma.

##### **C.M.S.-HUE (AV input)**

Adjusts color tone with 6 colors of R (red), Y (yellow), G (green), C (cyan), B (blue), and M (magenta).

##### **C.M.S.-SATURATION (AV input)**

Adjusts color vividness with 6 colors of R (red), Y (yellow), G (green), C (cyan), B (blue), and M (magenta).

##### **C.M.S.-VALUE (AV input)**

Adjusts color brightness with 6 colors of R (red), Y (yellow), G (green), C (cyan), B (blue), and M (magenta).

#### **ADVANCED**

##### **RGB INPUT RANGE**

Sets the RGB input signal range. To set automatically, select AUTO. Use AUTO normally.

If the RGB input signal range cannot be set appropriately even when using AUTO, set according to the image. When the setting is different, images will be displayed with washed out blacks and compressed gradients.

##### **RESET**

Resets the values of the PICTURE menu items to the factory preset values.

Select "ON" and then press [MENU/ENTER] button.

**■SETUP****LANGUAGE**

Sets the display language for the menu screen.

**INPUT SELECT****HDMI1/HDMI2**

Select the input modes to be used for the PC/AV HDMI1 and HDMI2 input terminals.

**HDMI DUAL**

To use HDMI DUAL, select ON.

**AUDIO SELECT**

Selects the terminal used to input audio signals in each input mode.  
When HDMI DUAL is used, the HDMI1 settings are applied.

**AUDIO INPUT LEVEL**

Selects the maximum audio input level of the audio input terminal.

**TOUCH OUTPUT SETTING**

Select the input terminal for which the touch operation mode will be enabled. (ALWAYS/DisplayPort/HDMI1/HDMI2/HDMI DUAL)

**BAUD RATE**

Selects the communication speed used for RS-232C communication.

**DisplayPort STREAM**

When using a screen resolution of 3840 x 2160 (50Hz/60Hz) in the DisplayPort input terminal, select MST (Multi-stream).  
Images may not be displayed properly with some video card combinations.

**■MONITOR****MONITOR**

Select the installation direction of the monitor.

LANDSCAPE .....Landscape orientation

PORTRAIT .....Portrait orientation

If the monitor is in a portrait orientation and a Windows PC is connected, set "Orientation" to "Portrait (Flipped)" in the "Screen Resolution" settings.

If you are using a different operating system, refer to the manual for your operating system.

**STANDBY MODE**

When STANDARD is selected, startup time from standby mode is reduced. Note, however that, more power will be consumed in standby mode.

When LOW POWER is selected, current consumption is reduced while the monitor is in standby mode. Note, however, that the startup time from standby mode becomes longer.

If set to LOW POWER, certain RS-232C commands cannot be used in standby mode. (See page 29.)

**OFF IF NO OPERATION**

Determines whether or not to set the monitor go into standby mode when no monitor button or RS-232C command operations are performed for over 4 hours.

**TOUCH MODE AT STARTUP**

Set the touch operation mode that will be in effect at startup.

RESET....."Finger/pen mode" at startup

NO RESET .....Mode that was in effect when the power was last turned off.

**MARK DISPLAY****TOUCH MARK DISPLAY**

Set the display time of the touch mark. (5 S, ALWAYS) \*

\* When touch operation is disabled, the mark does not appear regardless of the setting.

**CHANGE DISPLAY POSITION**

Set the display position of the touch mark. (RIGHT, BOTTOM, LEFT, TOP)

## Menu Items

### ■PbyP

#### PbyP MODE

Sets the display method.

OFF .....Displays one screen.

ON .....Displays a main screen and a sub screen in a line.

\* When using PbyP mode, set HDMI DUAL to OFF and DisplayPort STREAM to SST (Single Stream).

#### PbyP SOURCE

Select the input signal of the sub-screen in PbyP mode.

When the input mode is DisplayPort ..... HDMI1 or HDMI2

When the input mode is HDMI1..... DisplayPort or HDMI2

When the input mode is HDMI2..... DisplayPort or HDMI1

### ■OTHERS

#### SCREEN MOTION

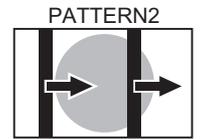
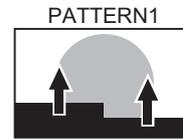
##### PATTERN

Residual images are reduced by moving the screen.

OFF .....SCREEN MOTION function is disabled.

PATTERN1 .....A black screen spreads from the bottom of the screen and then shrinks to the bottom of the screen. If the monitor is installed in the portrait orientation, a black screen spreads from the left end of the screen and then shrinks to the left end of the screen.

PATTERN2 .....A black bar moves from the left end to the right end of the screen. If the monitor is installed in the portrait orientation, a black bar moves from the top to the bottom of the screen.



##### MOTION TIME 1

Specify a time period (operating interval) until SCREEN MOTION starts.

##### MOTION TIME 2

Specify a time period during which SCREEN MOTION operates (time period during which the screen will move).

#### POWER MANAGEMENT

POWER MANAGEMENT determines whether or not to switch modes from no signal to the input signal standby mode.

#### SIZE

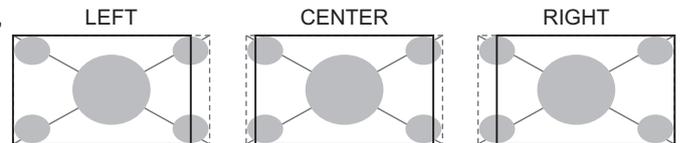
Changes the screen size. (See page 17.)

#### 4096 DISPLAY POSITION

Sets the position where the image is displayed (LEFT, CENTER, or RIGHT) when a signal with 4096 horizontal dots is input.

When RIGHT or LEFT is set, a black band may appear in the middle of the screen with some images.

This setting is only valid when the input is HDMI and the screen size is Dot by Dot.



#### MUTE AUDIO

Temporarily mutes the sound. The sound is restored when OFF is selected.

\* If using the monitor buttons, hold both [MENU/ENTER] button and [VOL-/▽] button at the same time.

#### INFORMATION

Shows information about the monitor.

When HDMI DUAL is set to ON, the signal information of each terminal appears in HDMI1 and HDMI2 fields.

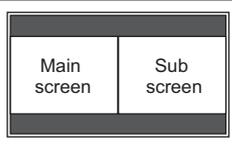
When a button other than [VOL+/△]/[VOL-/▽] button, brightness adjustment button (▷/◁) is pressed, or if no action is taken for 15 seconds, the display disappears.

#### TIPS

- When WHITE BALANCE is set to THRU, BLACK LEVEL, CONTRAST, TINT, COLORS, RGB INPUT RANGE, GAMMA, PRESET, USER and COPY TO USER cannot be set.
- If COLOR MODE is set to sRGB, the following items cannot be set. WHITE BALANCE, PRESET, USER, COPY TO USER, and GAMMA
- When the COLOR MODE is set to VIVID, GAMMA can not be adjusted.

## ■Dual screen display

Two screens can be displayed by selecting PbyP mode.  
Set this function with “PbyP MODE” in the PbyP menu.

<b>PbyP</b>	 <p>The diagram shows a rectangular frame divided into two equal horizontal sections. The left section is labeled 'Main screen' and the right section is labeled 'Sub screen'.</p>	A main screen and a sub screen are displayed in a line.
-------------	---	---

- \* The currently selected input signal is displayed on the main screen.
- \* The following combinations are available for display: (Only when HDMI DUAL is set to OFF.)  
DisplayPort - HDMI1 or HDMI2  
HDMI1 - HDMI2

### TIPS

- You might infringe on a copyright of the author which is protected by copyright law when you display the images of the computer screen and television/VCR simultaneously for profit-making or to show the image to the public.
- The screen size for dual-screen display is the same as the screen size for single-screen display. The Dot by Dot screen is displayed in NORMAL size.
- When dual-screen display is selected, the SCREEN MOTION function is disabled.
- When dual-screen display is selected, the INPUT SELECT options cannot be set.

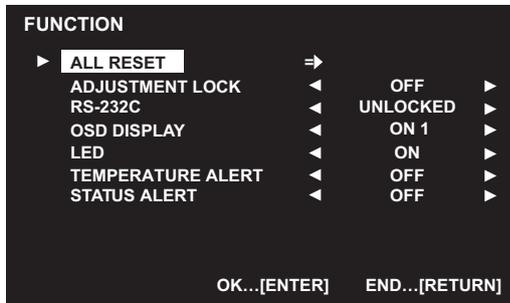
## ■HDMI DUAL

- The HDMI1 and HDMI2 input screens can be displayed as a single screen. The HDMI1 input image will appear on the left and the HDMI2 input image will appear on the right.
- The two HDMI1 and HDMI2 video signals must be output from the same device.
- The screen size can be set.
- The audio setting is the same as the AUDIO SELECT of HDMI1.

# Initialization (Reset)/Functional Restriction Setting (FUNCTION)

You can return the settings to their factory-preset values and restrict operations.

1. Hold down the [MENU/ENTER] button and [INPUT/RETURN] button at the same time until "F" appears in the screen, and then press the [MENU/ENTER] button and [VOL-/▽] button at the same time while "F" appears.



2. Select and set the items.

## ALL RESET

Resets the settings to the factory default settings. Select ALL RESET, and then press [MENU/ENTER] button.

After initialization, turn the main power switch off and then back on.

ALL RESET .....Resets all the settings to the factory default settings.

CANCEL .....Go back without resetting.

## ADJUSTMENT LOCK

You can disable operations on the monitor buttons.

OFF ...Enables operation.

ON 1 ..Disables all operations other than turning power on/off and FUNCTION.

ON 2 ..Only the FUNCTION operation is enabled. Disables all operations other than FUNCTION (not even power on/off).

## RS-232C

Specifies whether to allow control via RS-232C. (See page 27.)

## OSD DISPLAY

Shows/hides the menu, modes and messages.

The FUNCTION screen cannot be hidden.

ON 1 ..... Shows all menus, modes and messages.

ON 2 ..... Hides messages automatically displayed by the display. Shows messages during operation.

OFF ..... Hides all menus, modes and messages.

## LED

Specifies whether to light the power LED.

## TEMPERATURE ALERT

Selects the notification method for an abnormal temperature.

OFF ..... Do not notify about an abnormal temperature.

OSD & LED .. When an abnormal temperature is detected, the power LED flashes in red and green alternately and the screen displays a message: TEMPERATURE.

LED..... When an abnormal temperature is detected, the power LED flashes in red and green alternately.

## STATUS ALERT

Selects the notification method for a hardware error.

OFF ..... Do not notify about the error.

OSD & LED .. When a hardware error is detected, the power LED flashes in red and the screen displays a message: STATUS [xxxx].

LED..... When a hardware error is detected, the power LED flashes in red.

3. Press [INPUT/RETURN] button to return to the normal screen.

## TIPS

- When both abnormal temperature and hardware error are detected, the hardware error notification overrides.
- If TEMPERATURE ALERT or STATUS ALERT is set to OSD & LED, alert messages will appear even if the OSD DISPLAY is set to ON 2 or OFF.
- If TEMPERATURE ALERT or STATUS ALERT is set to LED or OSD & LED, the LED lights even if the LED function is set to OFF.

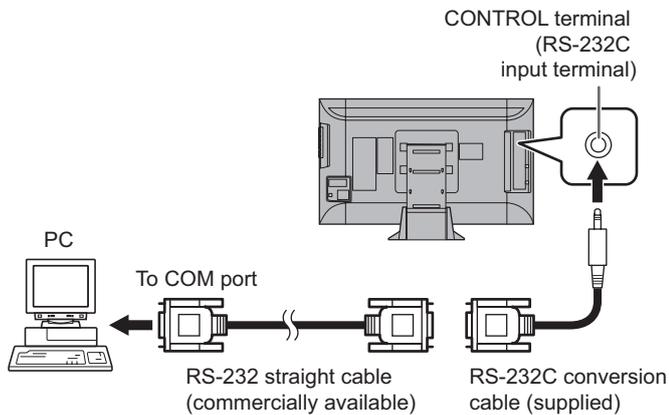
# Controlling the Monitor with a PC (RS-232C)

You can control this monitor from a PC via RS-232C (COM port) on the PC.

## PC connection

Connect the COM port on the PC (RS-232C connector) to the CONTROL terminal (RS-232C input terminal) on the monitor using the RS-232C conversion cable (supplied) and an RS-232 straight cable (commercially available).

Bind the RS-232C conversion cable with the cable clamp.



## Communication conditions

Set the RS-232C communication settings on the PC to match the monitor's communication settings as follows:

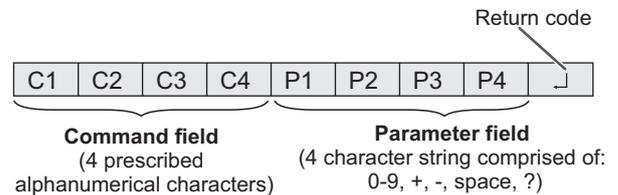
Baud rate	*	Stop bit	1 bit
Data length	8 bits	Flow control	None
Parity bit	None		

\* Set to the same baud rate as the BAUD RATE setting of SETUP menu. (Initial setting: 38400 bps)

## Communication procedure

### Command format

When a command is sent from the PC to the monitor, the monitor operates according to the received command and sends a response message to the PC.



Example: VOLM0030  
VOLM   30

- \* Be sure to input 4 characters for the parameter. Pad with spaces ("") if necessary. ("") is a return code (0DH, 0AH or 0DH)
- Wrong : VOLM30
- Right : VOLM   30

When inputting a negative value, specify a numerical value in three digits.

Example: OFSR-127

If a command has "R" listed for "Direction" in the "RS-232C command table" on page 29, the current value can be returned by using "?" as the parameter.

Example:

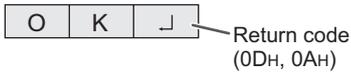
VOLM ? ? ? ? ← From PC to monitor (How much is current volume setting?).

30 ← From monitor to PC (Current volume setting: 30).

## Controlling the Monitor with a PC (RS-232C)

### ■Response code format

When a command has been executed correctly



A response is returned after a command is executed.

When a command has not been executed



#### TIPS

- “ERR” is returned when there is no relevant command or when the command cannot be used in the current state of the monitor.
- If communication has not been established for reasons such as a bad connection between the PC and monitor, nothing is returned (not even ERR).
- “ERR” may be returned when a command cannot be received correctly due to interference from the surrounding environment.  
Please ensure that the system or software retries the command if this occurs.

If execution of the command is taking some time



When the following commands are used, “WAIT” is returned. In this case, a value will be returned if you wait a while. Do not send any command during this period.

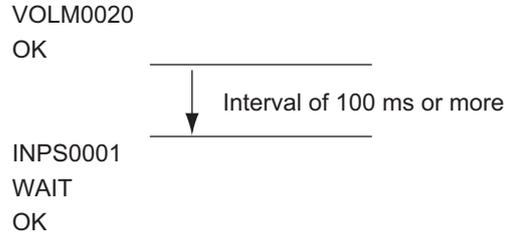
- Commands which return WAIT:  
When one of the following commands is used:  
RSET, INPS, WIDE, POWR, MWIN, MWIP, DPST

When control via RS-232C is locked (to prevent use) using the operation lock function (See page 26.)



### ■Communication interval

- After OK or ERR is returned, you must send the following commands.  
To set a timeout for the command response, specify 10 seconds or longer.
- Provide an interval of 100 ms or more between the command response and the transmission of the next command.



#### TIPS

- When executing ALL RESET, set the timeout period to 30 seconds or longer.

## RS-232C command table

### How to read the command table

- Command: Command field (See page 27.)
- Direction: W When the "Parameter" is set in the parameter field (See page 27.), the command functions as described under "Control/Response Contents".  
 R The returned value indicated under "Reply" can be obtained by setting "?????" or "▯▯▯?" in the parameter field. (See page 27.)
- Parameter: Parameter field (See page 27.)
- Reply: Response (Returned value)
- \*: "●" indicates a command which can be used in power standby mode regardless of the STANDBY MODE setting.  
 "○" indicates a command which cannot be used in power standby mode when STANDBY MODE is set to LOW POWER.  
 "—" indicates a command which cannot be used in power standby mode regardless of the STANDBY MODE setting.

### Power control/Input mode selection

Function	Command	Direction	Parameter	Reply	Control/Response contents	*
POWER CONTROL	POWR	W	0		Switches to standby mode.	
			1		Returns from standby mode.	
		R		0	Standby mode	●
				1	Normal mode	
		2	Input signal waiting mode			
INPUT MODE SELECTION	INPS	W	0		Toggle change for input mode. Terminals not selected in INPUT SELECT cannot be selected.	
			9		HDMI1 [AV] "ERR" when PC is selected for HDMI1 of INPUT SELECT.	
			10		HDMI1 [PC] "ERR" when AV is selected for HDMI1 of INPUT SELECT.	
			12		HDMI2 [AV] "ERR" when PC is selected for HDMI2 of INPUT SELECT.	●
			13		HDMI2 [PC] "ERR" when AV is selected for HDMI2 of INPUT SELECT.	
			14		DisplayPort	
			15		HDMI DUAL	
		R		9	HDMI1 [AV]	
				10	HDMI1 [PC]	
				12	HDMI2 [AV]	
				13	HDMI2 [PC]	●
				14	DisplayPort	
		15	HDMI DUAL			
TOUCH ACTION MODES	TCMD	WR	0-2	0-2	0: Finger/pen mode, 1: Pen-only mode, 2: Finger-only mode	—

# Controlling the Monitor with a PC (RS-232C)

## PICTURE menu

Function		Command	Direction	Parameter	Reply	Control/Response contents	*			
BRIGHT		VLMP	WR	0-31	0-31					
CONTRAST		CONT	WR	0-60	0-60					
BLACK LEVEL		BLVL	WR	0-60	0-60					
TINT		TINT	WR	0-60	0-60					
COLORS		COLR	WR	0-60	0-60					
SHARPNESS		SHRP	WR	0-24	0-24					
COLOR ADJUSTMENT	COLOR MODE		BMOD	WR	0	0	STD			
					2	2	VIVID			
					3	3	sRGB (When the input mode is PC)			
	WHITE BALANCE	THRU	CTMP	WR	0	0	When the input mode is PC HDMI or DisplayPort.			
		PRESET			1-18	1-18	From 1: approximately 3,000K to 15: approximately 10,000K(500K steps) 16: approximately 5,600K, 17: approximately 9,300K, 18: approximately 3,200K			
		USER			99	99				
		R-CONTRAST			CRTR	WR	0-256	0-256	"ERR" when CTMP is not set to 99.	
		G-CONTRAST			CRTG	WR	0-256	0-256		
		B-CONTRAST			CRTB	WR	0-256	0-256		
		R-OFFSET			OFSR	WR	-127-127	-127-127		
		G-OFFSET			OFSG	WR	-127-127	-127-127		
	B-OFFSET	OFSB	WR	-127-127	-127-127					
	COPY TO USER		CPTU	W	0		Copies a preset value to the user setting.	-		
	GAMMA		GAMM	WR	0-2	0-2	0: 1.8, 1: 2.2, 2: 2.4 (during PC input) 0: LIGHT 2, 2: DARK (during AV input)			
					5-6	5-6	5: 2.0, 6: STD (during PC input) 5: LIGHT 1, 6: STD (during AV input)			
	C.M.S.-HUE (during AV input)		CMHR	WR	-10-10	-10-10	R			
							CMHY	Y		
		CMHG					G			
		CMHC					C			
		CMHB					B			
		CMHM					M			
		CRST	W	1		Resets the hue.				
C.M.S.-SATURATION (during AV input)		CMSR	WR	-10-10	-10-10	R				
						CMSY	Y			
						CMSG	G			
						CMSC	C			
						CMSB	B			
						CMSM	M			
		CRST	W	2		Resets the saturation.				
C.M.S.-VALUE (during AV input)		CMVR	WR	-10-10	-10-10	R				
						CMVY	Y			
						CMVG	G			
						CMVC	C			
						CMVB	B			
						CMVM	M			
		CRST	W	3		Resets the brightness.				
ADVANCED	AV HDMI1 RGB INPUT RANGE	AHDR	WR	0-2	0-2	0: AUTO, 1: FULL, 2: LIMITED				
	PC HDMI1 RGB INPUT RANGE	PHDR	WR	0-2	0-2	0: AUTO, 1: FULL, 2: LIMITED				
	AV HDMI2 RGB INPUT RANGE	AH2R	WR	0-2	0-2	0: AUTO, 1: FULL, 2: LIMITED				
	PC HDMI2 RGB INPUT RANGE	PH2R	WR	0-2	0-2	0: AUTO, 1: FULL, 2: LIMITED				
	DisplayPort RGB INPUT RANGE	PDPR	WR	0-2	0-2	0: AUTO, 1: FULL, 2: LIMITED				
RESET		ARST	W	2			-			

## Controlling the Monitor with a PC (RS-232C)

### SETUP menu

Function		Command	Direction	Parameter	Reply	Control/Response contents	*
LANGUAGE		LANG	WR	14	14	ENGLISH	○
				1	1	DEUTSCH	
				2	2	FRANÇAIS	
				3	3	ITALIANO	
				4	4	ESPAÑOL	
				5	5	РУССКИЙ	
				6	6	日本語	
INPUT SELECT	HDMI1	HDSL	WR	0-1	0-1	0: PC HDMI, 1: AV HDMI	○
	HDMI2	H2SL	WR	0-1	0-1	0: PC HDMI, 1: AV HDMI	
	HDMI DUAL	HDDU	WR	0-1	0-1	0: OFF, 1: ON	
AUDIO SELECT	HDMI1 [PC]	ASHP	WR	0-1	0-1	0: HDMI, 1: STEREO MINI	○
	HDMI1 [AV]	ASHA	WR	0-1	0-1	0: HDMI, 1: STEREO MINI	
	HDMI2 [PC]	AH2P	WR	0-1	0-1	0: HDMI, 1: STEREO MINI	
	HDMI2 [AV]	AH2A	WR	0-1	0-1	0: HDMI, 1: STEREO MINI	
	DisplayPort	ASDI	WR	1-2	1-2	1: DisplayPort, 2: STEREO MINI	
TOUCH OUTPUT SETTING		USBC	WR	0-4	0-4	0: ALWAYS, 1: DisplayPort, 2: HDMI1, 3: HDMI2, 4: HDMI DUAL	-
AUDIO INPUT LEVEL		AIVP	WR	0-1	0-1	0: 1.0Vrms, 1: 0.5Vrms	○
BAUD RATE		BAUD	WR	0-2	0-2	0: 9600bps, 1: 19200bps, 2: 38400bps	○
DisplayPort STREAM		DPST	WR	0-1	0-1	0: SST, 1: MST	-

### MONITOR menu

Function		Command	Direction	Parameter	Reply	Control/Response contents	*
MONITOR		STDR	WR	0-1	0-1	0: LANDSCAPE, 1: PORTRAIT	○
STANDBY MODE		STBM	WR	0-1	0-1	0: STANDARD, 1: LOW POWER	○
OFF IF NO OPERATION		ATOF	WR	0-1	0-1	0: OFF, 1: ON	○
TOUCH MODE AT STARTUP		POTM	WR	0-1	0-1	0: RESET, 1: NO RESET	-
MARK DISPLAY	TOUCH MARK DISPLAY	TMDT	WR	0-1	0-1	0: ALWAYS, 1: 5 S	-
	CHANGE DISPLAY POSITION	TPOS	WR	0-3	0-3	0: RIGHT, 1: BOTTOM, 2: LEFT, 3: TOP	-

### PbyP menu

Function		Command	Direction	Parameter	Reply	Control/Response contents	*
PbyP MODE		MWIN	WR	0,2	0,2	0: OFF, 2: ON *ERR* when HDMI DUAL is ON.	○
PbyP SOURCE		MWIP	WR	9	9	HDMI1 [AV]	○
				10	10	HDMI1 [PC]	
				12	12	HDMI2 [AV]	
				13	13	HDMI2 [PC]	
				14	14	DisplayPort	

### OTHERS menu

Function		Command	Direction	Parameter	Reply	Control/Response contents	*
SCREEN MOTION	PATTERN	SCSV	WR	0,2,3	0,2,3	0: OFF, 2: PATTERN1, 3: PATTERN2	○
	MOTION TIME 1	MTIM	WR	0-20	0-20		
	MOTION TIME 2	MINT	WR	5-20	5-20	Per second	
POWER MANAGEMENT (PC)		PMNG	WR	0-1	0-1	0: OFF, 1: ON	○
POWER MANAGEMENT (AV)		PMAV	WR	0-1	0-1	0: OFF, 1: ON	○
SIZE (PC)		WIDE	WR	1-3	1-3	1: WIDE, 2: NORMAL, 3: Dot by Dot	○
SIZE (AV)		WIDE	WR	1, 4-5	1, 4-5	1: WIDE, 4: NORMAL, 5: Dot by Dot	○
4096 DISPLAY POSITION		4KDP	WR	0-2	0-2	0: LEFT, 1: CENTER, 2: RIGHT	○
MUTE AUDIO		MUTE	WR	0-1	0-1	0: OFF, 1: ON	-
INFORMATION	MODEL	INF1	R		Value		●
	SERIAL NO	SRNO	R		Value		

## Controlling the Monitor with a PC (RS-232C)

### Initialization/Functional Restriction Setting (FUNCTION) menu

Function	Command	Direction	Parameter	Reply	Control/Response contents	*
ALL RESET	RSET	W	0			-
ADJUSTMENT LOCK	ALCK	WR	0-2	0-2	0: OFF, 1:ON 1, 2:ON 2	○
OSD DISPLAY	LOSD	WR	0-2	0-2	0: ON 1, 1: OFF, 2: ON 2	○
LED	OFLD	WR	0-1	0-1	0: ON, 1: OFF	○
TEMPERATURE ALERT	TALT	WR	0-2	0-2	0: OFF, 1: OSD & LED, 2: LED	○
STATUS ALERT	SALT	WR	0-2	0-2	0: OFF, 1: OSD & LED, 2: LED	○

### Others

Function	Command	Direction	Parameter	Reply	Control/Response contents	*
VOLUME	VOLM	WR	0-31	0-31		○
BRIGHT	VLMP	WR	0-31	0-31		○
TEMPERATURE SENSOR	DSTA	R		0	Internal temperature normal	●
				1	Internal temperature abnormal has occurred and the monitor is in standby mode	
				2	Internal temperature abnormal occurred (To delete the information of temperature abnormal, turn off the main power.)	
				3	Internal temperature abnormal has occurred and backlight brightness is dimmed	
				4	Temperature sensor abnormal	
TEMPERATURE ACQUISITION	ERRT	R		Value	Returns the temperature of the temperature sensor. Indicates a temperature sensor abnormality when "126" is returned.	○
CAUSE OF LAST STANDBY MODE	STCA	W	0		Initialization	●
		R		0	No detectable error has occurred	
			1	Standby mode by POWER button		
			2	Main power off by the main power switch		
			3	Standby mode by RS-232C		
			4	Input signal waiting mode by No Signal		
			6	Standby mode by abnormal temperature		
	20	Standby mode by OFF IF NO OPERATION setting				

# Troubleshooting

If you are experiencing any problem with your display, before calling for service, please review the following troubleshooting tips.

## **There is no picture or sound.**

- Are the AC adapter and power cord properly connected? (See page 13.)
- Is the main power switch off? (See page 15.)
- Is the monitor in standby mode (power lamp is off)? (See page 15.)
- Make sure correct input mode is selected. (See page 16.)
- If any external equipment is connected, make sure the equipment is operating (playing back).

## **Sound from left and right speakers is reversed.**

### **Sound is heard from only one side.**

- Are audio cables connected properly? (See page 12.)

### **There is a picture but no sound.**

- Is the sound muted?
- Make sure the volume is not set to minimum.
- Are audio cables connected properly?
- Is the setting of AUDIO SELECT on the SETUP menu correct? (See page 23.)
- Is the headphone (etc.) cable connected to the headphone terminal?

### **The sound crackles.**

- Turn down the volume.  
With some input devices, the sound may crackle at high volume.

### **Unstable video.**

- The signal may be incompatible.

### **The video from the PC/AV HDMI input terminal does not appear properly.**

- Is the HDMI or HDMI DUAL setting correct in INPUT SELECT on the SETUP menu? (See page 23.)
- Is the HDMI cable HDMI standard compliant? The monitor will not work with cables that are not standard compliant.
- Is the input signal compatible with this monitor? (See pages 37 to 38.)

### **The video from DisplayPort input terminal does not appear properly.**

- Is the cable a certified DisplayPort cable? Use the supplied cable. The monitor will not work unless a standards-compliant cable is used.
- Is the input signal compatible with this monitor? (See page 37.)

### **The video does not appear properly even after the DisplayPort STREAM setting is changed.**

- Try restarting the monitor and computer.
- Is the video card MST (Multi Stream) compatible? If not, set to SST (Single Stream).

### **The touch panel does not respond.**

- Is the USB cable connected properly? (See page 12.)
- The touch panel may not work properly if the contact area is too large. (e.g. if the screen is touched with the palm of your hand.) Try to only contact the touch screen with the supplied pen or your fingertip.
- Is the monitor in pen-only mode? Touch action is disabled in pen-only mode. (See page 18.)
- Is the monitor in finger-only mode? You cannot touch the screen with the touch pen when in finger-only mode. (See page 18.)
- When there is no signal input to the LCD monitor, actions on the touch panel are not possible. Please operate the PC using the mouse and keyboard.
- If you are using Windows XP or Windows Vista, did you install the touch panel driver? (Touch Panel Driver Operation Manual)
- Is TOUCH OUTPUT SETTING set correctly in the SETUP menu? (See page 23.)
- Touch operation is not possible when screen motion is enabled or when PbyP mode is set to ON. Set each function to OFF.
- When the computer is in sleep mode, wake-up by touch operation may not be possible.  
To enable wake-up by touch operation, settings must be configured on the computer. For information on configuring the settings, consult your dealer.

### **The response of the touch screen is slow.**

#### **Some parts of the screen do not respond.**

- When starting your computer or connecting the USB cable, do not touch the touch panel.
- When starting the LCD monitor, do not touch the screen. If the screen is touched, the monitor may not function correctly. In this situation, turn off the LCD monitor power, wait 5 seconds or longer, and then turn the power on again.
- While the touch mode icon is displayed, only touch actions for the icon can be performed. To perform other actions, first close the icon display.
- There may be no response if the supplied touch pen is gripped in such a way that the tip is located near your palm. In this situation, grip the pen so the tip is further extended from the base of your hand.

### **Control buttons do not work.**

#### **There is no picture.**

- Load noises from outside may be interfering with normal operation. Turn off the power and turn it on after waiting at least 5 seconds, and then check the operation.
- When you display the screen or clear the screen, the left and right screen display timing may be slightly off; however, this is not a problem.

### **Power LED flashes red.**

#### **“STATUS [xxxx]” appears in the corner of the screen.**

- Hardware has a problem. Turn off the monitor and request repair from your SHARP dealer.  
(When STATUS ALERT is set to OSD & LED. This varies depending on the setting.)

## Troubleshooting

### When "AUTO DIMMING" is displayed.

- When the internal temperature of the monitor rises excessively, the brightness of the backlight automatically decreases in order to prevent a further temperature rise.  
If you attempt to use brightness adjustment button (▷ / ◁) to adjust the brightness while the monitor is in this state, "AUTO DIMMING" is displayed and you cannot change the brightness.
- Remove the cause of the excessive temperature rise.

### The monitor makes a cracking sound.

- You may occasionally hear a cracking sound from the monitor. This happens when the cabinet slightly expands and contracts according to change in temperature. This does not affect the monitor's performance.

### The Power LED is flashing in red and green alternately.

#### When "TEMPERATURE" is displayed in the corner of the screen.

- When the internal temperature of the monitor rises excessively, the brightness of the backlight decreases automatically in order to prevent high-temperature-related problems. When this occurs, "TEMPERATURE" is displayed on the screen and the Power LED flashes red and green alternately. (When TEMPERATURE ALERT is set to OSD & LED. This varies depending on the setting.)
- If the internal temperature rises further, the monitor automatically enters standby mode. (The Power LED continues flashing red and green alternately.)
- Remove the cause of the excessive temperature rise.
  - If the monitor enters standby mode due to a rise in temperature, to return to normal display, turn the power switch off and then back on again. The monitor, however, will enter standby mode again if the cause of the temperature rise is not eliminated. (See page 15.)
  - Check whether the monitor is placed at a location where a quick rise in temperature is likely. Internal temperature rises quickly if the vents on the monitor are blocked.
  - Internal temperature rises quickly if dust accumulates inside the monitor or around the vents. Remove dust if possible. Ask SHARP dealer about removing internal dust.

### A residual image has occurred.

#### After the image has changed, the previous image is faintly visible.

- Displaying the same image for an extended time may cause a residual image.
- To improve a residual image, keep the power off. With the power off state, the residual image will gradually disappear as time passes. If there is no improvement, display a full white screen or an animated image.

# Specifications

## ■Product Specifications

Model	PN-K322B	
LCD component	32" Class [31-35/64 inch (80.1cm) diagonal] TFT LCD	
Max. resolution	(pixels)	3840 x 2160
Max. colors	Approx. 1.07 billion colors	
Pixel pitch	0.182 mm (H) × 0.182 mm (V)	
Viewing angle	176° right/left/up/down (contrast ratio ≥ 10)	
Screen active area	inch (mm)	27-31/64 x 15-15/32 (697.9 x 392.6)
Response speed	8 ms (Gray to Gray, avg.)	
Plug and play	VESA DDC2B	
Power management	VESA DisplayPort	
Input terminals	PC/AV	HDMI x 2
	PC	DisplayPort x 1
	Audio	3.5 mm mini stereo jack x 1
	Serial (RS-232C)	3.5 mm mini jack x 1
Output terminals	Audio	3.5 mm mini stereo jack x 1
Speaker output	2 W + 2 W	
Touch Panel	Touch screen system	Capacitive
	USB (for touch panel communication)	x1, USB (mini-B)
	Maximum touch points	10 points
Power requirement	AC 100 V - 240 V, 50/60 Hz (when using the supplied AC adapter)	
Operating temperature	41°F to 95°F (5°C to 35°C)	
Operating humidity	20% to 80% (no condensation)	
Power consumption (input signal waiting mode *1 / standby mode)	97 W *2 (7.2 W / 7.2 W) (when using the supplied AC adapter)	
Dimensions (excluding protrusions)	inch (mm)	Monitor only Approx. 29-17/32(W) x 1-27/64(D) x 17-3/8(H) (750 x 36 x 441) Monitor on supplied stand <ul style="list-style-type: none"> <li>• Monitor screen angle 90° (from horizontal)                Approx. 29-17/32(W) x 15-23/64(D) x 19-27/64(H) (750 x 390 x 493)</li> <li>• Monitor screen angle 25° (from horizontal)                Approx. 29-17/32(W) x 22-41/64(D) x 8-5/32(H) (750 x 575 x 207)</li> </ul>
Weight	lbs. (kg)	Approx. 19.9 (9.0) (monitor only) Approx. 35.3 (16.0) (monitor on supplied stand)

\*1 When STANDBY MODE is set to STANDARD. When STANDBY MODE is set to LOW POWER: 1.3 W

\*2 When using the monitor in DC19.5 V : 91 W

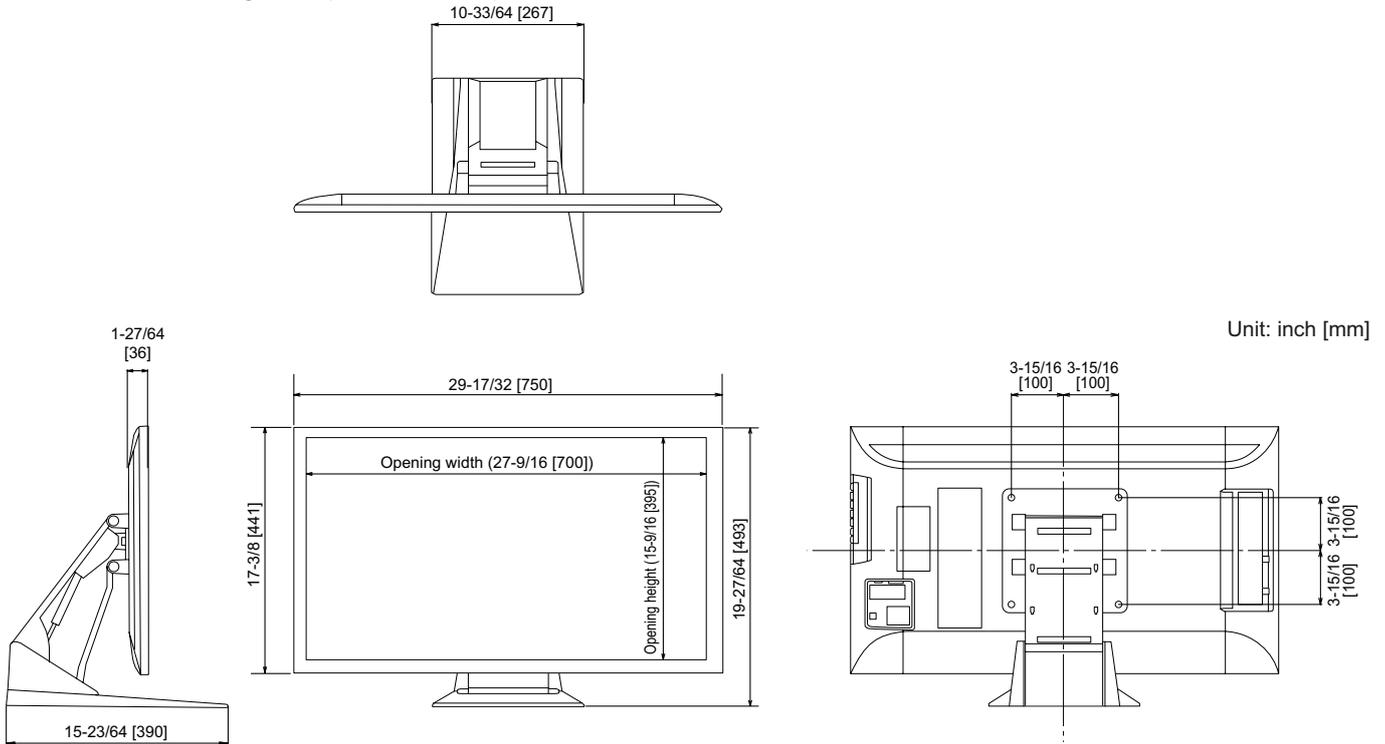
As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

# Specifications

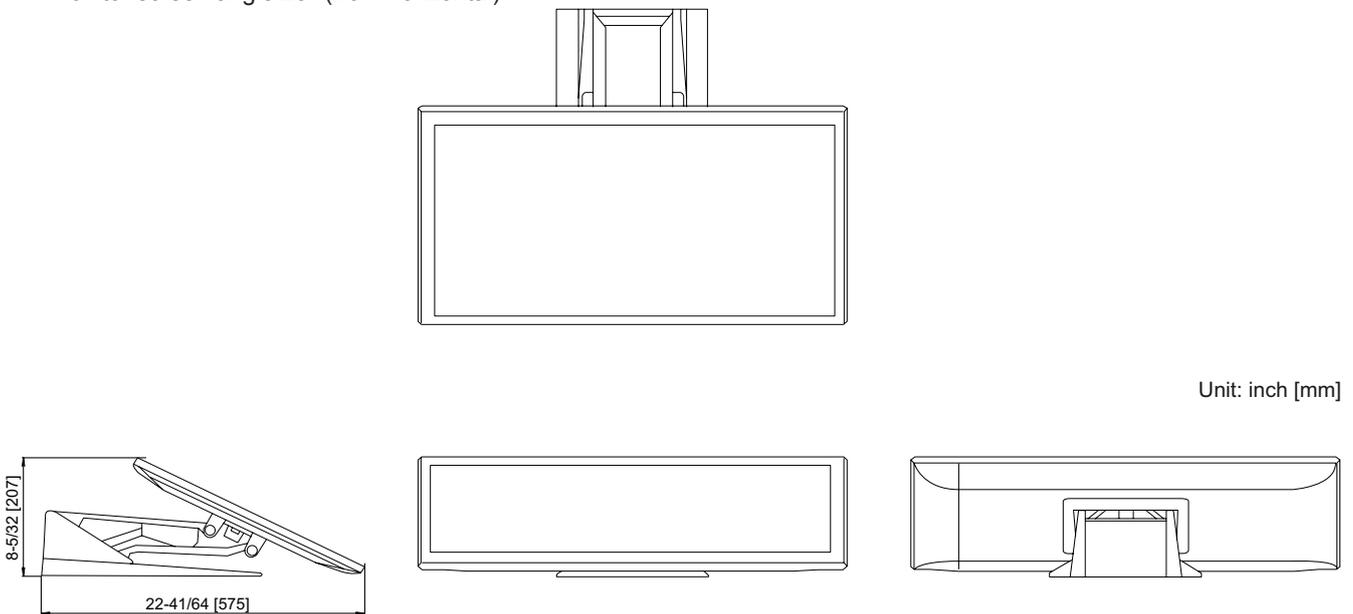
## ■ Dimensional Drawings

Note that the values shown are approximate values.

- Monitor screen angle 90° (from horizontal)



- Monitor screen angle 25° (from horizontal)



When mounting the monitor, be sure to use a wall-mount bracket that complies with the VESA-compatible mounting method. SHARP recommends using M6 screws and tighten the screws. Note that screw hole depth of the monitor is 3/8 inch (10 mm). Loose mounting may cause the product to fall, resulting in serious personal injuries as well as damage to the product. The screw and hole should come together with over 5/16 inch (8 mm) length of thread. Use a bracket which has been approved for UL1678 standard, and which can endure at least 4 times or more the weight of the monitor.

■Compatible signal timing (PC)

Screen resolution		Vsync	DisplayPort	HDMI1 or HDMI2	HDMI DUAL <sup>*1</sup>
VESA	640×480	60Hz	Yes	Yes	-
		72Hz	Yes	Yes	-
		75Hz	Yes	Yes	-
	800×600	56Hz	Yes	Yes	-
		60Hz	Yes	Yes	-
		72Hz	Yes	Yes	-
		75Hz	Yes	Yes	-
	848×480	60Hz	Yes	Yes	-
	1024×768	60Hz	Yes	Yes	-
		70Hz	Yes	Yes	-
		75Hz	Yes	Yes	-
	1152×864	75Hz	Yes	Yes	-
	1280×768	60Hz	Yes	Yes	-
		75Hz	Yes	Yes	-
	1280×800	60Hz	Yes	Yes	-
	1280×960	60Hz	Yes	Yes	-
	1280×1024	60Hz	Yes	Yes	-
		75Hz	Yes	Yes	-
	1360×768	60Hz	Yes	Yes	-
	1400×1050	60Hz	Yes	Yes	-
	1600×1200	60Hz	Yes	Yes	-
	1680×1050	60Hz	Yes	Yes	-
	1920×1200	60Hz	Yes	-	-
3840×2160	24Hz	Yes	Yes	Yes <sup>*4</sup>	
	25Hz	Yes	Yes	-	
	30Hz	Yes	Yes	Yes <sup>*4</sup>	
	50Hz	Yes <sup>*3*6</sup>	-	Yes <sup>*4</sup>	
	60Hz	Yes <sup>*3*6</sup>	-	Yes <sup>*4</sup>	
4096×2160 <sup>*2</sup>	24Hz	-	Yes	Yes <sup>*5</sup>	
Wide	1280×720	60Hz	Yes	Yes	-
	1920×1080	60Hz	Yes	Yes	-
US TEXT	720×400	70Hz	Yes	Yes	-

\*1 A single screen is created from simultaneous input of two systems using HDMI1 and HDMI2.

\*2 Displays a reduced image, except in Dot by Dot. In Dot by Dot, the image will be cut down to panel size then displayed.

\*3 Displays using multi-streaming.

\*4 The two HDMI input terminals both have 1920 x 2160 signals.

\*5 The two HDMI input terminals both have 2048 x 2160 signals.

\*6 The signals for the left and right screens are both 1920 x 2160 signals.

\* All are compliant only with non-interlaced.

\* Depending on the connected PC, images may not be displayed properly even if the compatible signal described above is input.

## Specifications

### ■Compatible signal timing (AV)

Screen resolution	Frequency	HDMI
1920 × 1080p	24Hz	Yes
	50Hz	Yes
	59.94Hz	Yes
	60Hz	Yes
1920 × 1080i	50Hz	Yes
	59.94Hz	Yes
	60Hz	Yes
1280 × 720p	50Hz	Yes
	59.94Hz	Yes
	60Hz	Yes
720 × 576p	50Hz	Yes
720 × 480p	59.94Hz	Yes
	60Hz	Yes
640 × 480p(VGA)	59.94Hz	Yes
	60Hz	Yes
720(1440) × 576i	50Hz	Yes
720(1440) × 480i	59.94Hz	Yes
	60Hz	Yes

### ■Power management

This monitor conforms to VESA DisplayPort power management.

### ■DDC (plug and play)

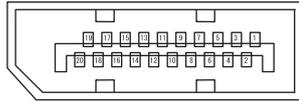
The monitor supports the VESA DDC (Display Data Channel) standard.

DDC is a signal standard for plug and play between monitors and computers. Information about resolution and other parameters is exchanged between the two. This function can be used if the computer supports DDC and it has been configured to detect plug-and-play monitors.

There are several types of DDC, depending on the communication method used. This monitor supports DDC2B.

■DisplayPort input terminal pins

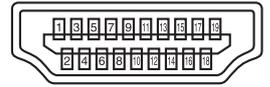
(DisplayPort 20 pin)



No.	Function	No.	Function
1	MainLane 3-	11	Gnd
2	Gnd	12	MainLane 0+
3	MainLane 3+	13	Gnd
4	MainLane 2-	14	Gnd
5	Gnd	15	Aux+
6	MainLane 2+	16	Gnd
7	MainLane 1-	17	Aux-
8	Gnd	18	Hot-plug detection
9	MainLane 1+	19	Gnd
10	MainLane 0-	20	3.3V

■PC/AV HDMI input terminal pins

(HDMI™ Connector)



No.	Function	No.	Function
1	TMDS data 2+	11	TMDS clock shield
2	TMDS data 2 shield	12	TMDS clock-
3	TMDS data 2-	13	CEC
4	TMDS data 1+	14	N.C.
5	TMDS data 1 shield	15	SCL
6	TMDS data 1-	16	SDA
7	TMDS data 0+	17	DDC/CEC GND
8	TMDS data 0 shield	18	+5V
9	TMDS data 0-	19	Hot-plug detection
10	TMDS clock+		

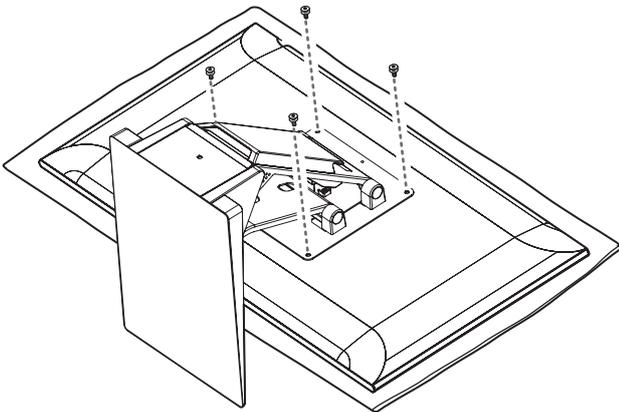
# Mounting Precautions (For SHARP dealers and service engineers)

- When installing, removing or moving the monitor, ensure that this is carried out by at least 2 people.
- Be sure to use a wall-mount bracket designed or designated for mounting the monitor.
- This monitor is designed to be installed on a concrete wall or pillar. Reinforced work might be necessary for some materials such as plaster / thin plastic board / wood before starting installation.  
This monitor and bracket must be installed on a wall which can endure at least 4 times or more the weight of the monitor. Install by the most suitable method for the material and the structure.
- To attach a VESA-compliant mounting bracket, use M6 screws that are 5/16 inch (8 mm) to 3/8 inch (10 mm) longer than the thickness of the mounting bracket.
- Do not use an impact driver.
- When moving the monitor, be sure to hold it with the unit bottom and the side of unit. Do not hold the LCD panel or corners. This may cause product damage, failure, or injury.
- Do not use any screw holes other than VESA holes for installation.

## ■ Removing the stand

### ! Caution

- The stand is only for use with the monitor.
  - Do not use with any other devices.
  - The stand is heavy. Take care not to let it fall.
1. Spread a thick, soft cloth (blanket, etc.) that will prevent damage to the LCD panel on a stable flat surface where the entire monitor can be placed, and place the monitor with the LCD panel face down on the cloth.
  2. Remove the screws(x4) that fasten the stand, and remove the stand.



## ■ Toppling prevention

### ! Caution

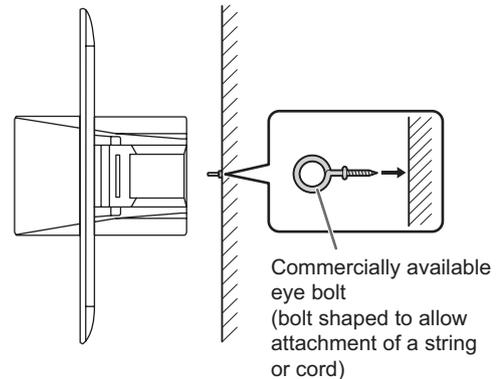
- To reduce the risk of injury and damage caused by the product toppling or falling in an earthquake or similar situation, take measures to prevent toppling and falling.
- If the wall or platform on which the monitor is installed is not sufficiently strong, the effectiveness of the toppling/falling prevention measures will be severely compromised. Reinforce the wall or platform as needed.  
The toppling/falling prevention measures are intended to reduce the risk of injury and damage in an earthquake, however, the effectiveness of the measures is not guaranteed in all earthquakes.
- Before implementing the toppling prevention measures, complete all connections.

## Secure to wall or post

1. Attach a commercially available eye bolt (a bolt shaped to allow attachment of a string or cord) to the wall or post.

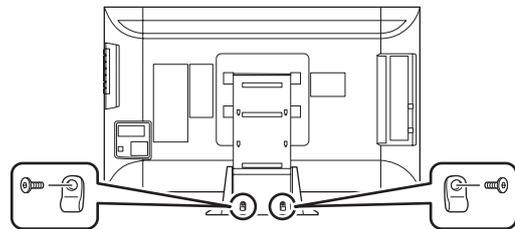
Verify that the eye bolt is attached firmly and does not come out.

- Top of monitor



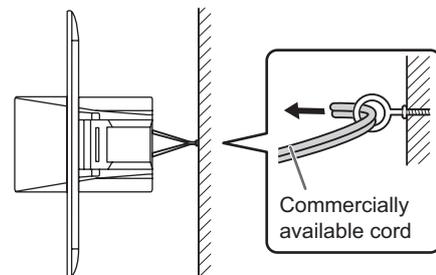
2. Attach the supplied anti-toppling clamps (x2) to the stand pedestal with the screws (M4 x 10) (x2).

- Back of monitor

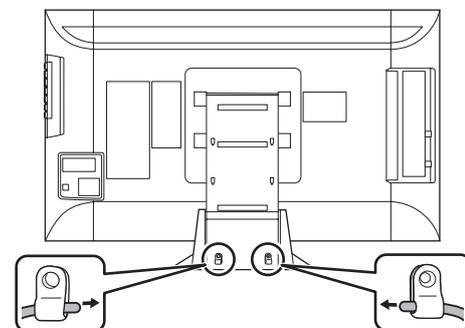


3. Run a commercially available cord of sufficient strength through the anti-toppling clamps and the eye of an eye bolt attached to the wall or a post to secure the monitor.

- Top of monitor



- Back of monitor



**SHARP**<sup>®</sup>  
SHARP CORPORATION