SHARP

OPERATION MANUAL

LCD MONITOR

MultiSync®

E224F

E244F

MODEL: DD-E224F/DD-E224FW, DD-E244F/DD-E244FW

The regulations for this monitor applied to one of model names listed above.

HDMI™

Please find your model name in the label on the rear side of the monitor.

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DEAR CUSTOMER

Thank you for purchasing this product. To ensure safety and many years of trouble-free operation of your product, please read the "Safety Precautions and Maintenance" carefully before using this product.

NOTE:

Product warranty does not cover damage caused by improper installation. Failure to follow these recommendations could result in voiding the warranty.

Important Information

To maintain compliance with EMC regulations, use shielded cables to connect to the following terminals: HDMI IN and DisplayPort IN. Use shielded signal cables with ferrite core to connect to the following terminals: VGA IN.

Supplier's Declaration of Conformity

SHARP LCD MONITOR, DD-E224F, DD-E224FW, DD-E244F, DD-E244FW

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

SHARP ELECTRONICS CORPORATION
100 Paragon Drive, Montvale, NJ 07645
TEL: 1-888-GO-SHARP/1-888-467-4277 www.sharpusa.com

U.S.A. ONLY

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 a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

U.S.A. ONLY

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

(For Customers in U.K.)

IMPORTANT

- The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW:	**"Earth"**
BLUE:	**"Neutral"**
BROWN:	**"Live"**

- As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:
  - The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter **E** or by the safety earth symbol ⏚ or coloured green or green-and-yellow.
  - The wire which is coloured BLUE must be connected to the terminal which is marked with the letter **N** or coloured black.
  - The wire which is coloured BROWN must be connected to the terminal which is marked with the letter **L** or coloured red.
- Ensure that your equipment is connected correctly. If you are in any doubt consult a qualified electrician.

"WARNING: THIS APPARATUS MUST BE EARTHED."



Information on the Disposal of this Equipment

IF YOU WISH TO DISPOSE OF THIS EQUIPMENT, DO NOT USE THE ORDINARY WASTE BIN, AND DO NOT PUT THEM INTO A FIREPLACE!
Used electrical and electronic equipment should always be collected and treated SEPARATELY in accordance with local law. Separate collection promotes an environment-friendly treatment, recycling of materials, and minimizing final disposal of waste. IMPROPER DISPOSAL can be harmful to human health and the environment due to certain substances! Take USED EQUIPMENT to a local, usually municipal, collection facility, where available.
If in doubt about disposal, contact your local authorities or dealer and ask for the correct method of disposal.
ONLY FOR USERS IN THE EUROPEAN UNION, AND SOME OTHER COUNTRIES; FOR INSTANCE NORWAY AND SWITZERLAND: Your participation in separate collection is requested by law.
The symbol shown above appears on electrical and electronic equipment (or the packaging) to remind the users of this.
Users from PRIVATE HOUSEHOLDS are requested to use existing return facilities for used equipment. Return is free of charge.
If the equipment has been used for BUSINESS PURPOSES, please contact your SHARP dealer who will inform you about take-back. You might be charged for the costs arising from take-back. Small equipment (and small quantities) might be taken back by your local collection facility. For Spain: Please contact the established collection system or your local authority for take-back of your used products.

TCO Certified

TCO Certified — a third-party sustainability certification for IT products

TCO Certified is a global sustainability certification for IT products, available for computers, mobile devices, display products and data center products. Criteria cover both social and environmental sustainability and enable circular solutions. Compliance with criteria is independently verified. TCO Certified is a third-party certification in accordance with ISO 14024.

To see a list of our TCO certified monitors and their TCO Certification (in English only), visit our website at:

https://www.sharp-nec-displays.com/global/about/legal_regulation/TCO_mn/index.html

NOTE: (1) This product can only be serviced in the country where it was purchased.
(2) The contents of this OPERATION MANUAL may not be reprinted in part or whole without permission.
(3) The contents of this OPERATION MANUAL are subject to change without notice.
(4) Great care has been taken in the preparation of this OPERATION MANUAL; however, should you notice any questionable points, errors or omissions, please contact us.
(5) The image shown in this OPERATION MANUAL is indicative only. If there is inconsistency between the image and the actual product, the actual product shall govern.
(6) Notwithstanding articles (4) and (5), we will not be responsible for any claims on loss of profit or other matters deemed to result from using this device.
(7) This manual is commonly provided to all regions so they may contain descriptions that are pertinent for other countries.
(8) Language of OSD menu used in this manual is English by way of example.

Safety Precautions and Maintenance

FOR OPTIMUM PERFORMANCE, PLEASE NOTE
THE FOLLOWING WHEN SETTING UP AND
USING THE LCD COLOR MONITOR:

About the Symbols

To ensure safe and proper use of the product, this manual uses a number of symbols to prevent injury to you and others as well as damage to property. The symbols and their meanings are described below. Be sure to understand them thoroughly before reading this manual.

WARNING	Failing to heed this symbol and handling the product incorrectly could result in accidents leading to major injury or death.
CAUTION	Failing to heed this symbol and handling the product incorrectly could result in personal injury or damage to surrounding property.

Examples of symbols

	This symbol indicates a warning or caution.
	This symbol indicates a prohibited action.
	This symbol indicates a mandatory action.

WARNING	
 UNPLUG THE POWER CORD	Unplug the power cord if the product malfunctions. Should the product emit smoke or strange odors or sounds, or if the product has been dropped or the cabinet broken, turn off the product's power, then unplug the power cord from the power outlet. Contact your dealer for repairs. Never try to repair the product on your own. Doing so is dangerous.
 DO NOT MODIFY	Do not open or remove the product's cabinet. Do not disassemble the product. There are high voltage areas in the product. Opening or removing product covers and modifying the product may expose you to electric shock, fire, or other risks. Refer all servicing to qualified service personnel.
 PROHIBITED	Do not use the product if it has structural damage or if its stand has cracked or peeled. If you notice any structural damage such as cracks or unnatural wobbling, please refer servicing to qualified service personnel. If the product is used in this condition, the product may fall or cause personal injury.

WARNING

Handling the power cord.



PROHIBITED

Do not scratch or modify the cord.

- Do not place heavy objects on the cord.
- Do not let the weight of the product rest on the cord.
- Do not cover the cord with a rug, etc.
- Do not bend, twist or pull the cord with excessive force.
- Do not apply heat to the cord.

Handle the power cord with care. Damaging the cord could lead to fire or electric shock. If the cord gets damaged (exposed core wires, broken wires, etc.), turn off the product's power, then unplug the power cord from the power outlet. Ask your dealer to replace it.



DO NOT TOUCH

Do not touch the power plug if you hear thunder.
Doing so could result in electric shock.



DO NOT TOUCH WITH WET HANDS

Do not connect or disconnect the power cord with wet hands.
It may cause an electric shock.



REQUIRED

Please use the power cord provided with this product in accordance with the power cord table.
Do not exceed the product's specified power supply voltage where it is installed. Doing so could result in a fire or electric shock. Please refer to the power supply voltage information in the Product Specifications.
If a power cord is not supplied with this product, please contact us. For all other cases, please use the power cord with the plug style that matches the power socket where the product is located. The compatible power cord corresponds to the AC voltage of the power outlet and has been approved by, and complies with, the safety standards in the country of purchase.



MUST BE EARTHED

This equipment is designed to be used in the condition of the power cord connected to the earth.
If the power cord is not connected to the earth, it may cause electric shock. Please make sure the power cord is connected to the wall outlet directly and earthed properly. Do not use a 2-pin plug converter adapter.



REQUIRED

Please install the product in accordance with the following information.
When transporting, moving, or installing the product, please use as many people as necessary to be able to lift the product without causing personal injury or damage to the product.
Please refer to the instructions included with the optional mounting equipment for detailed information about attaching or removing.
Do not cover the vents on the product. Improper installation of the product may result in damage to the product, an electric shock or fire.
Do not install the product in the locations below:

- Narrow spaces, and poorly ventilated spaces.
- Near a radiator, other heat sources, or in direct sunshine.
- Continual vibration areas.
- Humid, dusty, steamy, or oily areas.
- An environment where there are corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc.).
- Outdoors.
- High-temperature environment where humidity changes rapidly and condensation is likely to occur.

Do not mount the product in any configuration or position not described in the OPERATION MANUAL.
Please check the Product Specifications for the available Tilt range when installing the product.

WARNING

 REQUIRED	Prevent tipping and falling for earthquakes or other shocks. To prevent personal injury or damage to the product caused by tipping over due to earthquakes or other shocks, make sure to install the product in a stable location and take measures to prevent falling. The measures to prevent falling and tipping are intended for reducing the risk of injury, but may not guarantee the effectiveness against all earthquakes. • The product must be mounted to an approved flexible arm (e.g. TUEV GS mark) or stand that supports the weight of the product to prevent damage and personal injury that could result from the product tipping over or falling. • Only use the screws that were removed from the product's stand or the specified screws to avoid damage to the product or the stand. • Please tighten all screws (Recommended Fasten Force: 98 - 137 N•cm) when installing the product to a flexible arm or stand. A loose screw may cause the product to fall, causing damage to the product or personal injury. • Attaching the flexible arm should be performed by two or more people if the product cannot be placed face-down on a flat surface for installation. Stability Hazard. The product may fall, causing serious personal injury or death. To prevent injury, this product must be securely attached to the floor/wall in accordance with the installation instructions. Many injuries, particularly to children, can be avoided by taking simple precautions such as: • ALWAYS use stands or installation methods recommended by the manufacturer of the product set. • ALWAYS use furniture that can safely support the product. • ALWAYS ensure the product is not overhanging the edge of the supporting furniture. • ALWAYS educate children about the dangers of climbing on furniture to reach the product or its controls. • ALWAYS route cords and cables connected to your product so they cannot be tripped over, pulled or grabbed. • NEVER place a product in an unstable location. • NEVER place the product on tall furniture (for example, cupboards or bookcases) without anchoring both the furniture and the product to a suitable support. • NEVER place the product on cloth or other materials that may be located between the product and supporting furniture. • NEVER place items that might tempt children to climb, such as toys and remote controls, on the top of the product or furniture on which the product is placed. • ALWAYS use wall mounting accessories when installing the product at a high location. NEVER place the product on a monitor stand when installing the product at a high location. If the existing product is going to be retained and relocated, the same considerations as above should be applied.
 PROHIBITED	Do not place this product on a sloping or unstable cart, stand or table. Doing so could lead to falling or tipping and cause personal injury.
 PROHIBITED	Do not insert objects of any kind into the cabinet slots. It may cause electric shock, fire, or product failure. Keep objects away from children and babies. If objects get into the cabinet slot, turn off the product's power, then unplug the power cord from the power outlet. Contact your dealer for repairs.
 DO NOT WET	Do not spill any liquids into the cabinet or use your product near water. Immediately turn off the power and unplug your product from the wall outlet, then refer servicing to qualified service personnel. It may cause an electric shock or start a fire. Do not install the product under equipment that discharges water, such as air conditioners.

WARNING	
PROHIBITED	Do not use flammable gas sprays to remove dust when cleaning the product. Doing so could lead to a fire.
PROHIBITED	Usage of the product 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.

CAUTION	
Handling the power cord.	
REQUIRED	The monitor should be installed close to an easily accessible power outlet.
REQUIRED	When connecting the power cord to the product's AC input terminal, make sure the connector is fully and firmly inserted. An incomplete connection of the power cord may cause overheating of the plug; it allows dust to get on the plug connection, which can lead to a fire. Touching the pins of a partially inserted plug may lead to an electric shock.
REQUIRED	Handling the power cord by following below to avoid fire or electric shock. • When connecting or disconnecting the power cord, pull the power cord out by holding onto its plug. • Unplug the power cord from the power outlet before cleaning the product or when not planning to use the product for an extended time. • When the power cord or plug is hot or damaged, unplug the power cord from the power outlet, and contact a qualified service person.
REQUIRED	Regularly dust off the power cord by using a soft dry cloth.
REQUIRED	Before moving the product, make sure the product power is off, then unplug the power cord from the power outlet and check that all cables connecting the product to other devices are disconnected.
PROHIBITED	Do not use the power cord with a power tap. Adding an extension cord may lead to fire as a result of overheating.
REQUIRED	Please confirm the distribution system in building installation shall provide the circuit breaker rated 120/240 V, 20 A (maximum).
PROHIBITED	Do not bind the power cord. It may trap heat and cause a fire.
PROHIBITED	Do not climb on the table where the product is installed. Do not install the product on a wheeled table if the wheels on the table have not been properly locked. The product may fall, causing damage to the product or personal injury.

CAUTION	
REQUIRED	Installation, removal, and adjustment of the stand. • Handle with care when pulling the stand as it might pinch your fingers. • In the case of a stand to be fixed with screws, please securely hold the monitor stand while removing the screws to prevent the monitor stand from falling. It may case personal injury. • Please hold the base securely when detaching it from the stand to prevent it from falling. It may cause personal injury. • Before rotating the screen, disconnect the power cord and all cables from the product. Otherwise, the power cord or cables might pull with excessive force and cause personal injury or damage to the product. • When rotating the screen, slide it to the highest level and set it to the maximum tilt. Otherwise, it could cause personal injury or knock the screen on the desk.
REQUIRED	Please check the Product Specifications for the available Tilt range when installing the product on a flexible arm. Do not tilt the monitor downward beyond 5 degrees. Doing so can cause the LCD panel to separate and potentially fall out causing damage to the product or personal injury.
PROHIBITED	Do not push or climb on the product. Do not grab or hang onto the product. Do not rub or tap the product with hard objects. The product may fall, causing damage to the product or personal injury.
PROHIBITED	Do not hit or strike the screen. Do not push against the screen with a pointed object. It can cause serious damage to the product or personal injury.
PROHIBITED	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.
REQUIRED	Suitable for entertainment purposes at controlled luminous environments, to avoid disturbing reflections from the screen.
PROHIBITED	Do not connect headphones to the product while you are wearing them. Depending on the volume level, it may damage your ears and cause loss of hearing.
PROHIBITED	Do not play with the plastic bag which covers the product. Do not use this bag for any other purpose. To avoid the danger of suffocation, do not place this bag over your head, nose or mouth. Do not place this bag over another person's head, nose or mouth. Keep this bag away from children and babies.
REQUIRED	We recommend wiping clean the ventilation opening a minimum of once a month. Failure to do so could lead to fire or electric shock or damage to the product.
REQUIRED	To ensure the product's reliability, please clean the ventilation holes at the rear side of the cabinet at least once a year to remove dirt and dust. Failure to do so could lead to fire or electric shock or damage to the product.
REQUIRED	Avoid locations with extreme temperatures and humidity. Failure to do so could lead to fire or electric shock or damage to the product. The usage environment for this product is as follows: • The operating temperature: 5 °C to 35 °C/41 °F to 95 °F/humidity: 20 to 80% (without condensation) • The storage temperature: -10 °C to 60 °C/14 °F to 140 °F/humidity: 10 to 85% (without condensation)

Image Persistence

Do not display a still picture for a long period, as this could cause a residual image.

- Do not display images with repeated tremors or flashing at high speeds.
- Do not display a single still image for an extended period of time.
- One of the methods to avoid Image Persistence is to frequently switch the displaying image using computer power management or screen savers.

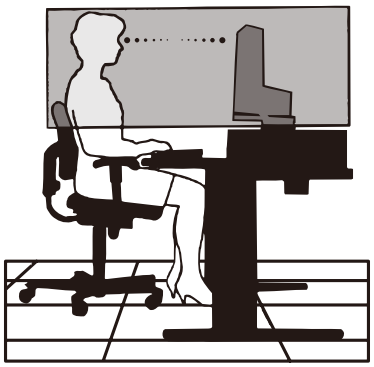
Recommended Use & Maintenance

■Recommended Use

Ergonomics

CORRECT PLACEMENT AND ADJUSTMENT OF THE MONITOR CAN REDUCE EYE, SHOULDER, AND NECK FATIGUE. CHECK THE FOLLOWING WHEN YOU POSITION THE MONITOR:

To realize the maximum ergonomics benefits, we recommend the following:



- For optimum performance of the monitor, allow 20 minutes for warming up. Do not display a still picture for a long period, as this could cause a residual image.
- Adjust the monitor height so that the top of the screen is at or slightly below eye level. Your eyes should look slightly downward when viewing the middle of the screen.
- Position your monitor no closer than 40 cm (15.75 inches) and no further away than 70 cm (27.56 inches) from your eyes. The optimal distance is 50 cm (19.69 inches).
- Rest your eyes periodically for 5 to 10 minutes for every 1 hour by focusing on an object at least 20 feet away.
- Position the monitor at a 90° angle to windows and other light sources to minimize glare and reflections. Adjust the monitor tilt so that ceiling lights do not reflect on your screen.
- If reflected light makes it hard for you to see your screen, use an anti-glare filter.
- Adjust the monitor's brightness and contrast controls to enhance readability.
- Use a document holder placed close to the screen.
- Position whatever you are looking at most of the time (the screen or reference material) directly in front of you to minimize turning your head while you are typing.
- Blink often. Eye exercise helps to reduce eye strain. Please contact your ophthalmologist. Get regular eye checkups.
- To avoid eye fatigue, adjust the brightness to a moderate setting. Place a sheet of white paper next to the LCD screen for luminance reference.
- Do not position the Contrast control to its maximum setting.
- Use the preset Size and Position controls with standard signals.
- Use the preset Color Setting.
- Use non-interlaced signals.
- Do not use primary color blue on a dark background, as it is difficult to see and may produce eye fatigue due to insufficient contrast.

For more detailed information on setting up a healthy work environment, write to the American National Standard for Human Factors Engineering of Computer Workstations - ANSI/HFES 100-2007 - The Human Factors Society, Inc. P.O. Box 1369, Santa Monica, California 90406.

■Maintenance

Cleaning the LCD Screen

- When the LCD Screen is dusty, please gently wipe with a soft cloth.
- Clean the LCD screen surface with a lint-free, non-abrasive cloth. Avoid using any cleaning solution or glass cleaner!
- Please do not rub the LCD Screen with hard or coarse material.
- Please do not apply pressure to the LCD Screen surface.
- Please do not use OA cleaner as it will cause deterioration or discoloration on the LCD Screen surface.

Cleaning the Cabinet

- Unplug the power supply.
- Gently wipe the cabinet with a soft cloth.
- To clean the cabinet, dampen the cloth with a neutral detergent and water, wipe the cabinet and follow with a dry cloth.

NOTE: DO NOT clean with benzene thinner, alkaline detergent, alcoholic system detergent, glass cleaner, wax, polish cleaner, soap powder, or insecticide. Rubber or vinyl should not be in contact with the cabinet for an extended period of time. These types of fluids and materials can cause the paint to deteriorate, crack or peel.

Trademark and Software License

■Trademarks

DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries.

MultiSync® is a trademark or registered trademark of Sharp NEC Display Solutions, Ltd. in Japan and other countries.

The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI Trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

All other brands and product names are trademarks or registered trademarks of their respective owners.

Supplied Components

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

☐ Liquid Crystal Display Monitor: 1

☐ Cable holder: 1

☐ Power cord

☐ Base: 1

☐ Signal cable (DisplayPort cable): 1

☐ Setup Manual: 1

For U.S.A. ONLY

☐ Signal cable (D-Sub cable): 1

Installation

■Attaching the base

1. **Place the monitor face down on a non-abrasive surface (Figure 1).**
2. **Please rotate the stand 90 degrees as shown in Figure 1.**
3. **Attach the base to the stand, then tighten the screw at the base's bottom (Figure 2).**

TIP: Reverse this procedure if you need to re-pack the monitor.

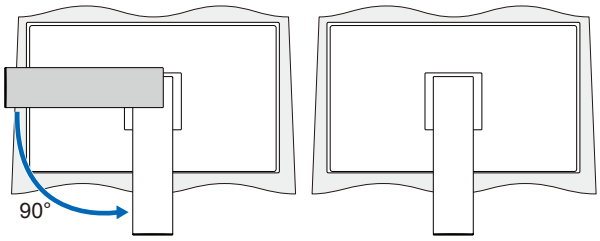


Figure 1

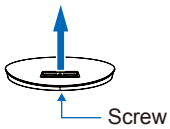
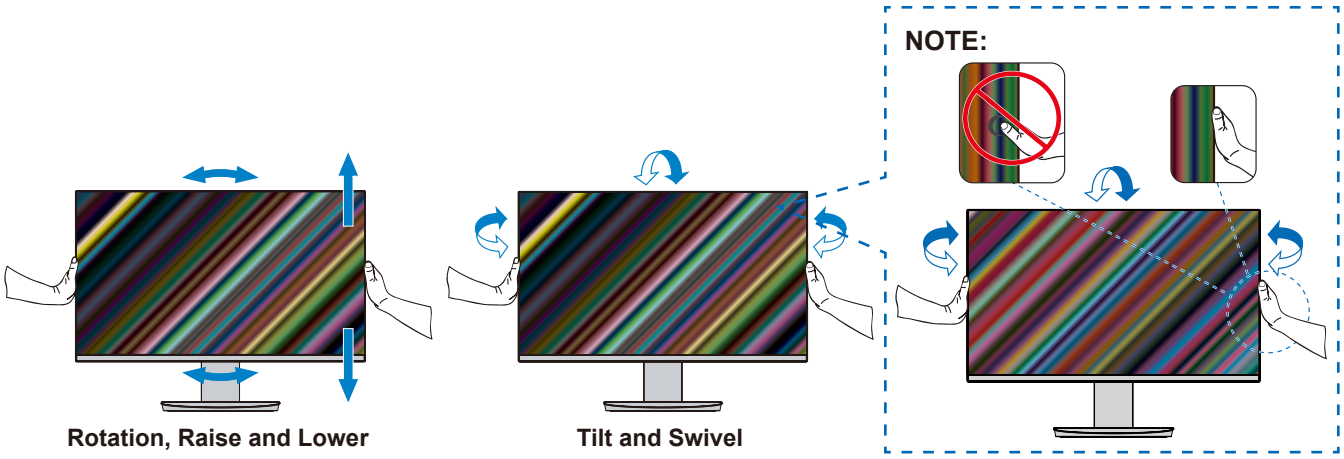


Figure 2

■Height and angle adjustment

Hold the monitor on each side and adjust the screen position as desired.

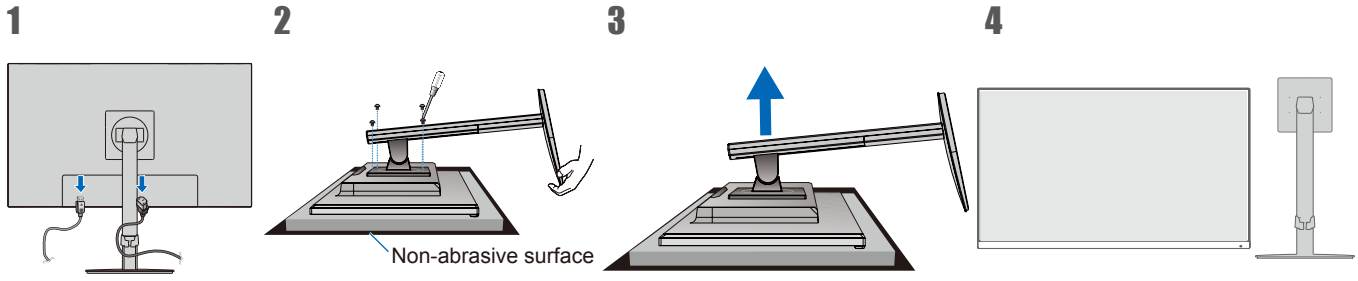
For screen rotation (pivot), hold the monitor on each side, lift to its maximum height and turn it from landscape to portrait.



Rotation, Raise and Lower **Tilt and Swivel**

■Removing the stand

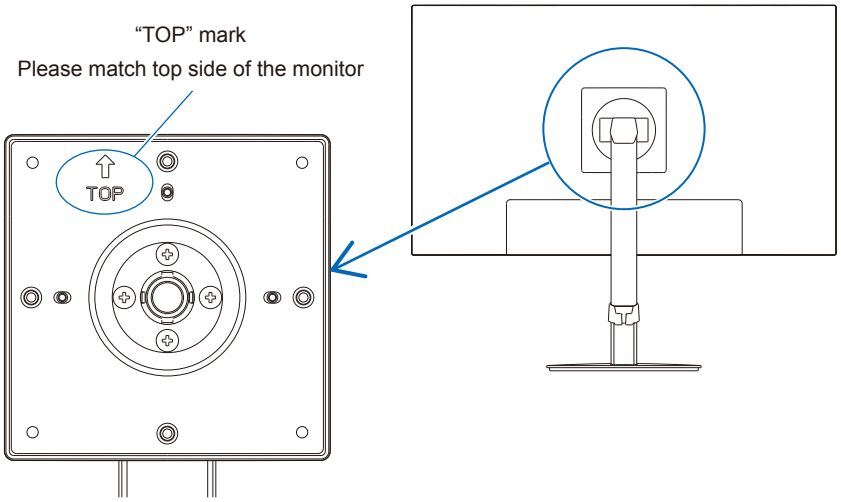
TIP: Handle with care when removing the monitor stand.



■Re-attaching the Original Stand

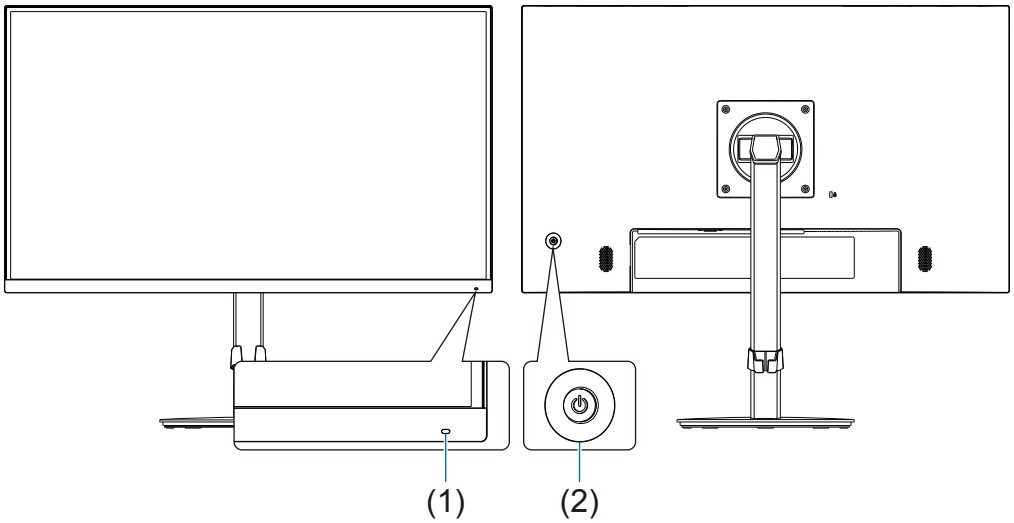
Reverse the process in the previous section to re-attach stand.

TIP: Match “TOP” mark on stand to top side of the monitor when re-attaching stand.



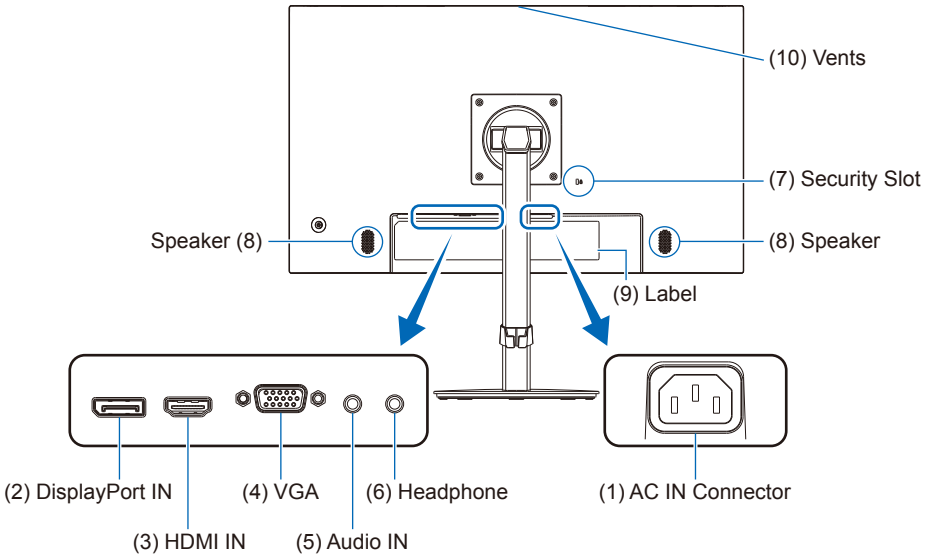
Parts name and Connecting Peripheral Equipment

■Front/Rear View



Item		Function
(1) LED		LED Indicates that the power is on or off.
(2) 5-Direction-Key Up Right Left Down	**CENTER/ POWER (⏻)**	Short press: Turns the monitor on. Long press (three or more seconds): Turns the monitor off.
	LEFT/RIGHT	Opens the OSD menu. RIGHT: Enters sub-menus or adjustment settings in the OSD menu when the OSD menu is open. LEFT: Exits the OSD sub-menus, adjustment settings, and closes the main menu.
	DOWN/UP	Opens the OSD menu. UP: When the OSD menu is open, it navigates to the right or raises settings adjustments. DOWN: When the OSD menu is open, it navigates to the left or lowers settings adjustments.

Parts name and Connecting Peripheral Equipment



(1) AC IN Connector

Connects with the supplied power cord.

(2) DisplayPort IN

Digital DisplayPort signals input.

(3) HDMI IN

Digital HDMI signals input.

(4) VGA IN (mini D-Sub 15-pin)

Analog RGB signals input.

(5) Audio IN

Audio signal input from external equipment such as a computer or player.

(6) Headphone Jack

Connects with headphones.

The audio out signal is always routed to the headphone jack when headphones are connected to the monitor; there is no sound from the monitor speakers.

(7) Security Slot

Security and theft protection lock slot compatible with Kensington security cables/equipment.

For products visit Kensington's website.

(8) Speaker

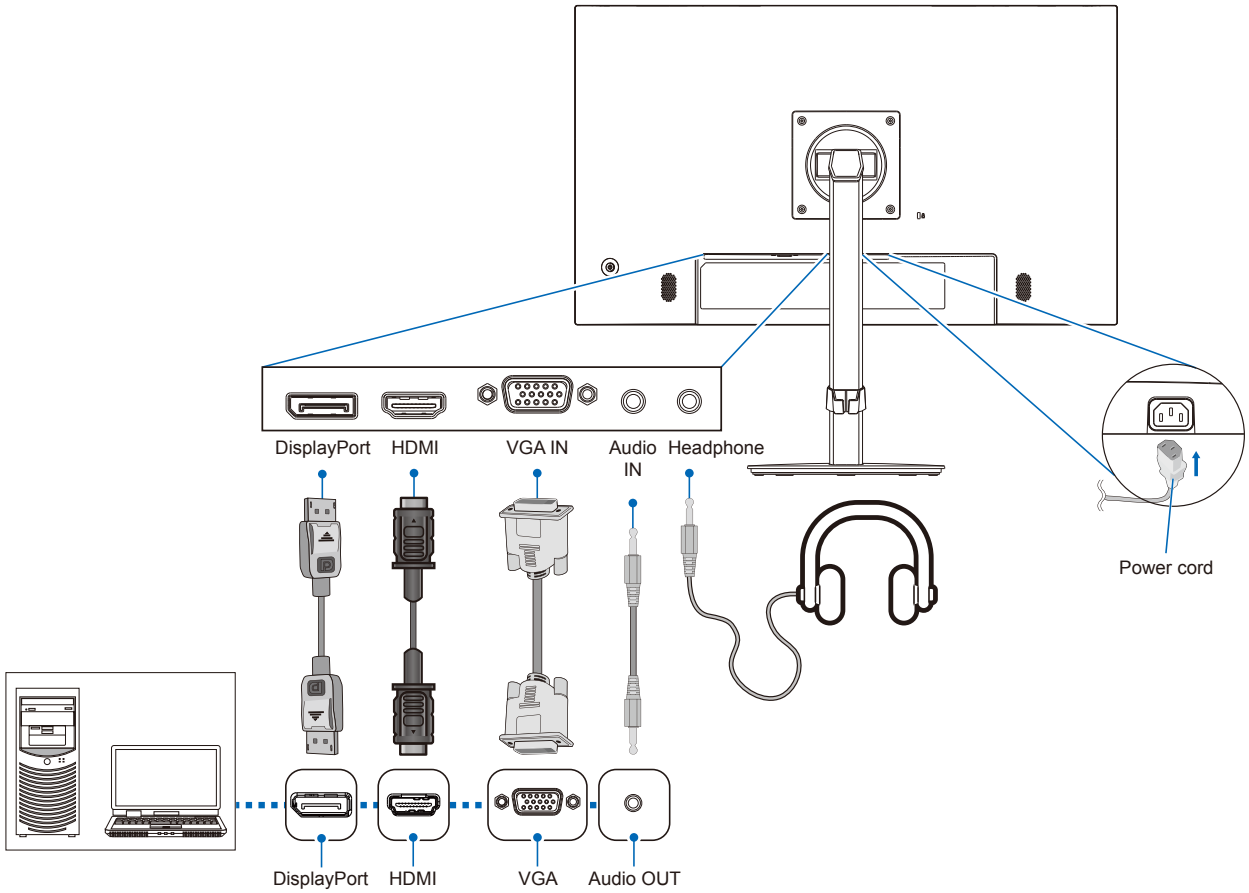
(9) Label

(10) Vents

Connect devices to the monitor.

Turn off the power to your computer before making connections.

TIP: Place your hands on each side of the monitor to tilt the panel to a maximum tilt angle (Up 35° Down 5°) and lift up to the highest position. This provides easier access to the ports for connecting cables.



To maintain compliance with EMC regulations, use shielded cables to connect to the following terminals: HDMI IN and DisplayPort IN. Use shielded signal cables with ferrite core to connect to the following terminals: VGA IN.

NOTE:
- Adjustment of the volume control to other settings than the center position may increase the ear-/headphones output voltage and therefore the sound pressure level.
- Incorrect cable connections may result in irregular operation, damage display quality/components of the LCD module and/or shorten the module's life.
- Make sure the signal cable is fully connected to the monitor and the computer.
- There can only be one audio source for the speakers. The audio source is via the video input when using the DisplayPort or HDMI inputs. Sound from devices connected to the Audio IN terminal cannot be output to the speakers in those circumstances.

Please adjust the screen position by referring to "Height and angle adjustment".

Parts name and Connecting Peripheral Equipment

■Digital input

- HDMI – High-definition digital video and audio signal connection to a computer, streaming media player, Blu-ray player, game console, etc.
- DisplayPort – High-definition digital video and audio signal connection to a computer.

Depending on the computer, you may need to manually set the computer's audio to output through the DisplayPort or HDMI connection. Please refer to the computer's user manual. The type of video connections that can be used to connect to a computer depends on the computer's display adapter.

For HDCP Content

HDCP is a system for preventing illegal copying of video data sent over a digital signal. If you are unable to view material via the digital inputs, this does not necessarily mean that the monitor is not functioning properly. With the implementation of HDCP, there may be cases in which certain content is protected by HDCP and might not be displayed due to the decision/ intention of the HDCP community (Digital Content Protection, LLC). HDCP video content is generally commercially produced Blu-rays and DVDs, television broadcast, and streaming media services.

■Connecting to a Computer with HDMI

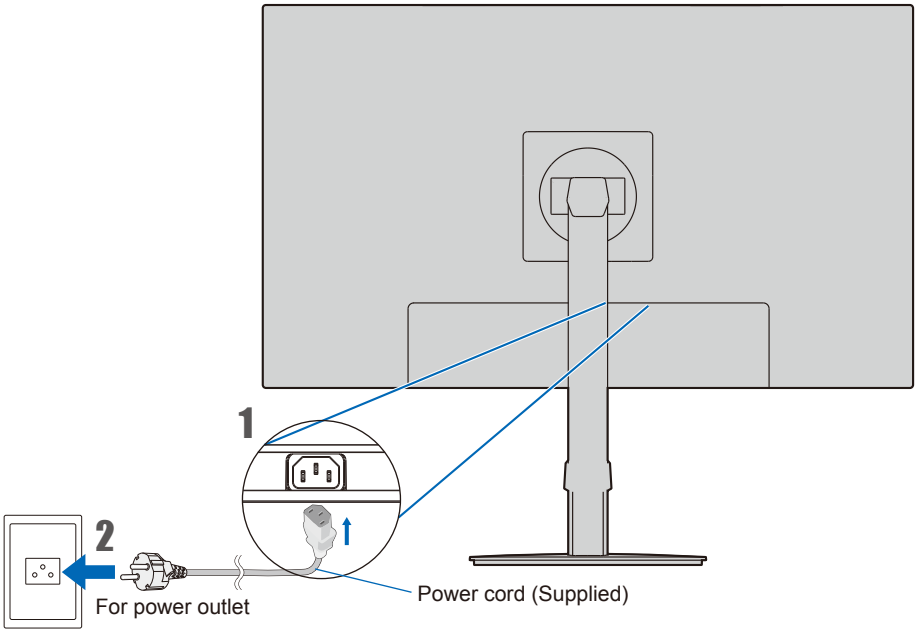
- Please use a HighSpeed HDMI cable with the HDMI logo.
- It may take a moment for the signal to appear after turning on the computer.
- Some display cards or drivers may not display an image correctly.
- If the monitor's power is turned on after a connected computer is turned on, sometimes an image is not displayed. In this case, please turn off the computer then turn it on again.

■Connecting to a Computer with DisplayPort

- Please use a certified DisplayPort cable.
- It may take a moment for the signal to appear after turning on the computer.
- When connecting a DisplayPort cable to a component with a signal conversion adapter, an image may not appear.
- Some DisplayPort cables feature a locking function. When removing this cable, hold down the top button to release the lock.
- If the monitor's power is turned on after a connected computer is turned on, sometimes an image is not displayed. In this case, please turn off the computer then turn it on again.

Connecting the Power Cord

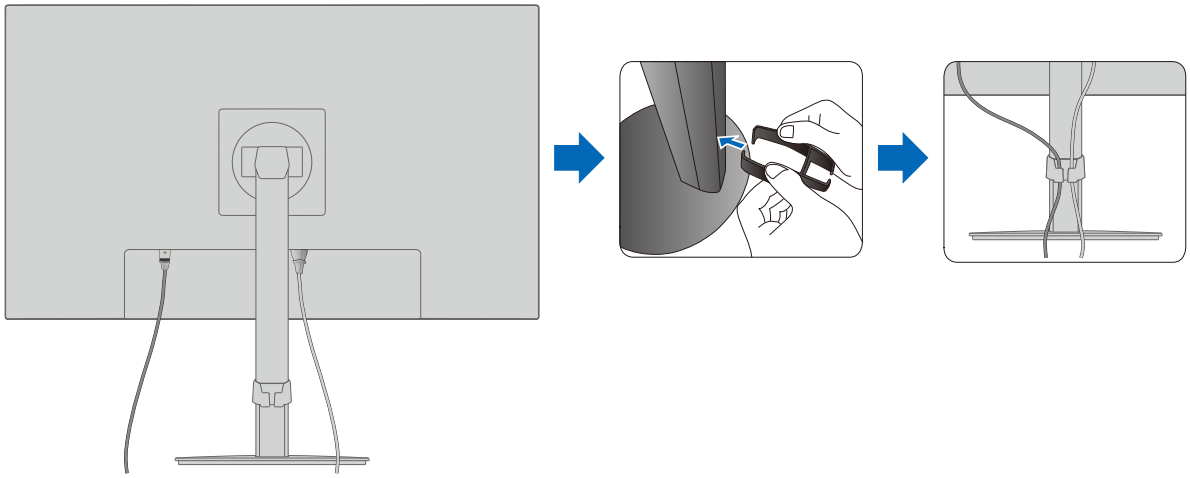
1. **Plug the power cord into the AC input terminal.**
2. **Plug the power cord into a power outlet.**



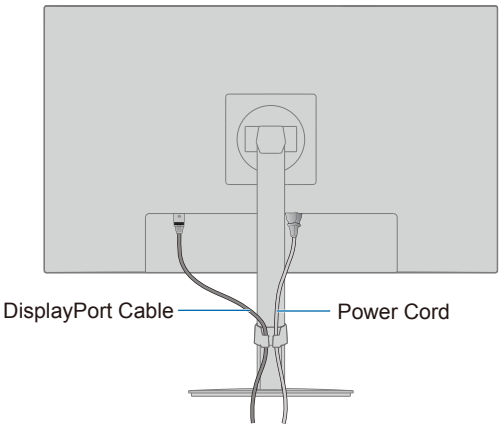
NOTE: Please make sure that enough power is supplied to the monitor. Please refer to power supply in the "Product Specifications" on page 28.

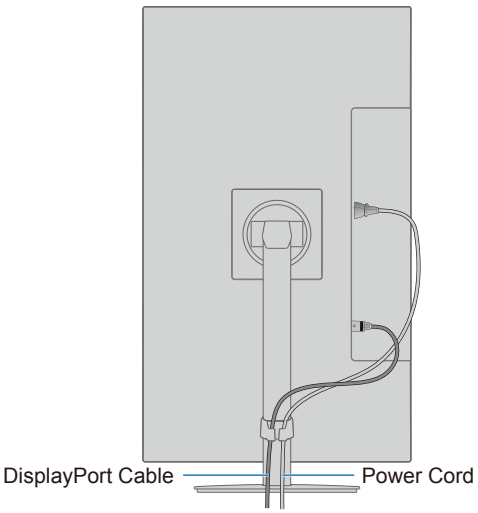
Using the cable holder

1. **Place the cable holder onto the stand.**
2. **Place the cables in the cable holder firmly and evenly.**



NOTE: Please check that you can still rotate, raise and lower the monitor screen after you have installed the cables.



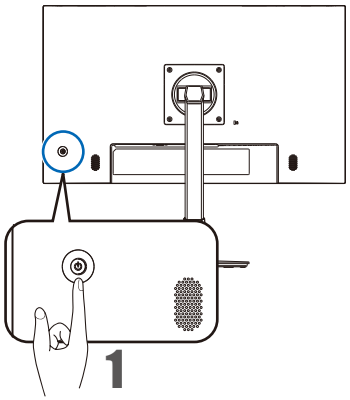


Turning Power On/Off

Turning power on/off

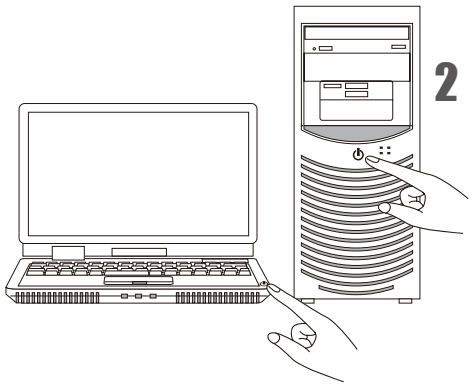
1. **Turn on the monitor by pressing the POWER key.**

   NOTE: If you have any problems please refer to the Troubleshooting section of this OPERATION MANUAL (see page 25).



2. **Turn on the computer.**

   The power LED of this monitor lights up.



■Status of the monitor and patterns of the Power LED

The power management function is an energy saving feature that automatically reduces the power consumption of the monitor when the keyboard or the mouse has not been used for a fixed period.

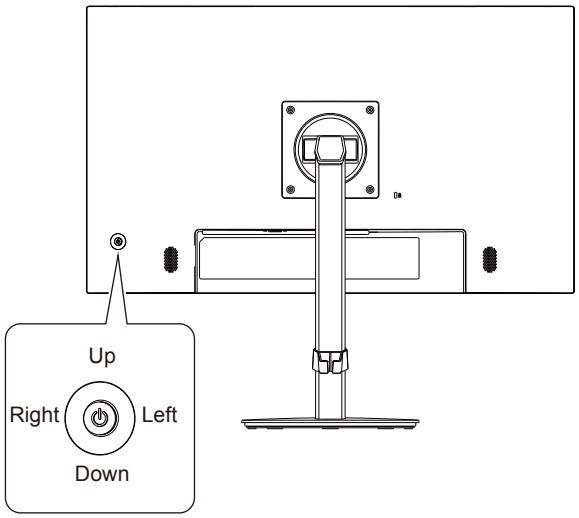
Power LED	Status	Power consumption	Condition
Blue	Maximum operation	Approx. 22 W (E224F) Approx. 26 W (E244F)	All functions work.
Blue	Normal operation	Approx. 14 W (E224F) Approx. 17 W (E244F)	Default setting.
Amber	Standby mode	0.22 W*1	The monitor has passed a certain amount of time with no video signal input.
Off	Off mode	0.18 W*1	Turn off the monitor by the POWER key.

*1: Power consumption depends on the setting of OSD or which devices are connected to the monitor.

TIP: This function works with computers that support VESA approved DPM (Display Power Management).

Menu Items

Displaying the menu screen

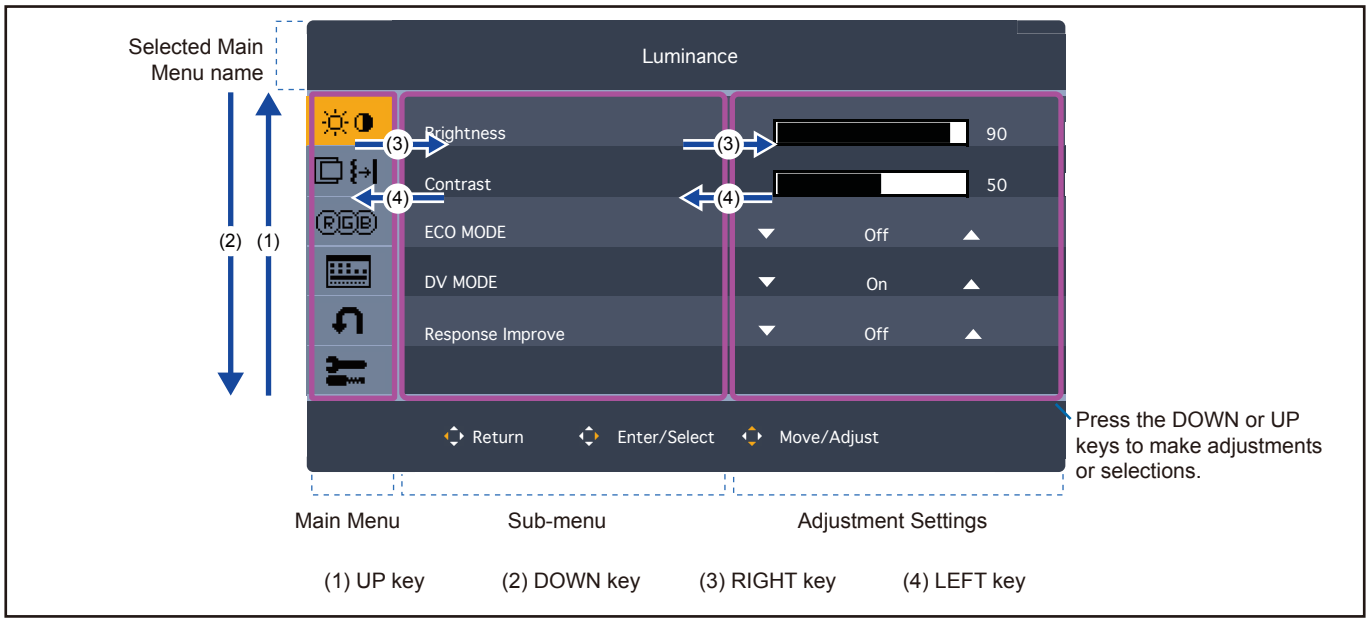


LEFT/RIGHT Opens the OSD menu.
RIGHT: Enters sub-menus or adjustment settings in the OSD menu when the OSD menu is open.
LEFT: Exits the OSD sub-menus, adjustment settings, and closes the main menu.

DOWN/UP Opens the OSD menu.
UP: When the OSD menu is open, it navigates to the right or raises settings adjustments.
DOWN: When the OSD menu is open, it navigates to the left or lowers settings adjustments.

■The OSD (On-Screen Display) control button on the monitor functions as follows:

- To open the OSD menu, move the 5-direction key in any direction (LEFT/RIGHT/UP/DOWN).



Menu item details

Below is a brief summary of where controls are under each menu item.

Luminance: Brightness and Eco Mode settings.
Image Setup: Screen adjustment settings.
Color Setup: Color settings.
OSD Setup: OSD menu settings.
System Setup: Factory reset, etc.
Extra: Input and audio settings.

Menu Items

■Luminance

Luminance Menu	
Brightness	Adjusts the overall image and background screen brightness.
Contrast	Adjusts the image brightness in relation to the background.
ECO MODE	Decreases the amount of power consumption by reducing the brightness level. **TIP:** This function is disabled when [DV MODE] is set to [On]. This function is disabled when [Preset] is set to [Low Blue Light].
Off	Sets the brightness variable range from 0% to 100%.
1	Sets the brightness variable range from 0% to 70%.
2	Sets the brightness variable range from 0% to 30%.
DV MODE (Dynamic Visual Mode)	Adjusts the brightness by detecting the screen's black areas and optimizes it. **TIP:** [Off] is used for TCO Certificate compliance. When [Low Blue Light] is selected in [Preset], [DV MODE] is disabled.
Response Imporve	This function may reduce blurring that occurs in some moving images. Select [On].

■Image Setup

Image Setup Menu	
Left/Right (Analog input only)	Controls the horizontal position of the image within the display area of the LCD.
Down/Up (Analog input only)	Controls the vertical position of the image within the display area of the LCD.
H.Size (Analog input only)	Expands the width of the image on the right of the screen. Narrows the width of the image on the left of the screen.
Fine (Analog input only)	Adjusts the visual "noise" in the image.
Expansion	Sets the Zoom method.
Full	The image is expanded to full screen regardless of the resolution.
4:3	The image is expanded without changing the aspect ratio.

■Color Setup

Color Setup Menu	
Preset	Pre-configured color settings suitable for various situations. **TIP:** The individual [Red], [Green], and [Blue] values can only be adjusted for the [USER] preset.
sRGB	sRGB dramatically improves the color fidelity in the desktop environment by a single standard RGB color space. This item cannot be adjusted.
5000K, 9300K	Adjusts the color temperature of the entire screen. A low color temperature will result in a reddish screen. A high color temperature will make the screen bluish. This item cannot be adjusted. The options are: [5000K] or [9300K].
Low Blue Light	Reduces blue light emitted from the monitor. This item cannot be adjusted. **TIP:** When [Low Blue Light] is selected in [Preset], [DV MODE] and [ECO MODE] are disabled.
USER	Allows for individual adjustment of the [Red], [Green], and [Blue] colors depending upon which is selected. The color change immediately affects the on-screen colors, and the bars will show the direction of the increase or decrease.

■OSD Setup

OSD Setup Menu	
Language	Selects the language used by the OSD.
OSD Turn Off	The OSD menu will stay open as long as it is in use. You can select how long the monitor waits after the last touch to close the OSD menu. The preset choices are 5 - 120 seconds by 5-second increments.

■System Setup

System Setup Menu	
Auto Adjust (Analog input only)	[Left/Right], [Down/Up], [H.Size] and [Fine] are adjusted automatically when new timing is detected.
Auto Contrast (Analog input only)	Adjusts the image displayed for non-standard video inputs.
FACTORY PRESET	Resets all OSD control settings back to the default settings except [Language].

■Extra

Extra Menu	
Input Select	Selects the input signal source. Auto, D-SUB, HDMI, DisplayPort.
Audio Mute	Mutes the speaker or headphone output.
Audio Volume	Controls the volume of the speakers or headphones.
DDC/CI	Turns the [DDC/CI] function [On] or [Off].

■OSD Warning

NO SIGNAL: This function gives a warning when there is no horizontal or vertical sync. After power is turned on or when there is a change of input signal, the **“NO SIGNAL”** window will appear. The message will close automatically.

OUT OF RANGE: This function gives a recommendation of the optimized resolution and refresh rate. After the power is turned on, or there is a change of input signal, or if the video signal doesn’t have proper timing, the **“OUT OF RANGE”** message will appear. To close the message, please disconnect signal cables.

This operation might increase power consumption. Do you want to continue?: This function notifies of the increase in power consumption. The message appears when adjusting [DV MODE], [Brightness], or [ECO MODE] settings.
To change the setting, select [Yes] in the message window and press the **Right** key.
To return without changing, select [No] in the message window and press the **Left** key.

Troubleshooting

■Screen Image and Video Signal Issues

No picture

- Make sure the signal cable is fully connected to the monitor and the computer.
- Make sure the computer's display card is fully seated in its slot.
- Make sure there is no DisplayPort converter adapter connected. The monitor does not support DisplayPort converter adapter.
- Make sure both the computer and monitor are powered on.
- The monitor may be in power saving mode. The monitor automatically goes into standby at the preset time period after the video signal is lost.
- Make sure that a supported resolution has been selected on the display card or system being used. If in doubt, please refer to the OPERATION MANUAL of the display controller or system to change the resolution.
- Check the monitor and your display card with respect to compatibility and recommended signal timings.
- Check the signal cable connector for bent or pushed-in pins.
- Make sure the connected device outputs a signal to the monitor.

Image Persistence

- Do not display a still picture for a long period, as this could cause a residual image (see page 10).

Selected resolution is not displayed properly

- If the resolution you set is over or under a range, "OUT OF RANGE" window will appear then warn you. Please set supported resolution at the connected computer.

The image is unstable, unfocused or swimming is apparent

- Make sure the signal cable is fully connected to the monitor and the computer.
- Check the monitor and your display card with respect to compatibility and recommended signal timings.

Picture is not bright

- If the brightness fluctuates, make sure [DV MODE] is set to [Off].
- Make sure [ECO MODE] is turned off.
- Make sure the signal cable is fully connected to the monitor and the computer.
- LCD brightness degradation occurs due to long-term usage or extreme cold conditions.

Brightness variations over time

- Change [DV MODE] to [Off] and then adjust the [Brightness]. Please refer to "OSD Warning" on page 24.

TIP: When [DV MODE] is set to [On], the monitor automatically adjusts brightness based on the video signal.

■Hardware Issues

POWER Key does not respond

- Unplug the power cord of the monitor from the AC outlet to turn off and reset the monitor.

LED on monitor is not lit (no blue or amber color can be seen)

- Make sure the power cord is properly connected to the monitor and the wall, and make sure the monitor's power switch is on.

No Video

- If no video is present on the screen, turn the POWER key off and on again.
- Make sure the computer is not in a power-saving mode by touching the connected keyboard or the connected mouse.
- When using DisplayPort, some display cards do not output video signal under low resolution modes when the monitor is turned OFF/ON or disconnected/connected from the AC power cord.

No Sound

- Check to see if [Audio Mute] is activated.
- Check to see if [Audio Volume] is set to a minimum.
- Check to see if the computer supports an audio signal through DisplayPort or HDMI.
- Check to see if the headphones cable is properly connected when using headphones.
- Check to see if headphones are not connected if not using headphones.
- Check the input signal. It outputs the audio signal associated with the input signal. When the input signal is DisplayPort or HDMI, this monitor cannot output Analog audio signal.

Specifications

■Compatible signal timing

The following table shows the typical factory preset signal timing for each connection type. Some display cards may not be able to support the required resolution for proper image reproduction with the selected connection. The monitor will show the proper image by automatically adjusting the factory preset timing signal.

<Major supported timings>

Resolution			Vertical Frequency	Notes
H		V		
640	x	480	60 Hz	
720	x	480	60 Hz	
720	x	576	50 Hz	
800	x	600	56/60 Hz	SVGA
1024	x	768	60 Hz	XGA
1280	x	720	50/60 Hz	720p
1280	x	960	60 Hz	
1280	x	1024	60 Hz	SXGA
1440	x	900	60 Hz	
1680	x	1050	60 Hz	
1920	x	1080	50/60 Hz	1080p, Recommended (60 Hz)

Interlace signal is not supported.

TIP: When the selected monitor resolution is not a native panel resolution, the text contents appearance in the monitor screen is expanded in a horizontal or vertical direction to show the non-native resolution to full screen. This expansion is done by interpolated resolution technologies, which are normal and widely used in flat panel devices.

■Product Specifications

Model		**E224F**	**E244F**
Product		LCD MONITOR	
LCD component		21.45 class (Diagonal 54.48 cm / 21-7/16 inch) Active matrix: thin film transistor (TFT) liquid crystal display (LCD)	23.8 class (Diagonal 60.47 cm / 23-13/16 inch) Active matrix: thin film transistor (TFT) liquid crystal display (LCD)
Max. resolution (pixels)		1920 x 1080	1920 x 1080
Max. colors		Approx. 16.7 million colors	Approx. 16.7 million colors
Pixel pitch		0.249 mm (H) x 0.241 mm (V)	0.275 mm (H) x 0.275 mm (V)
Brightness (typical)*1		250 cd/m^2	250 cd/m^2
Contrast ratio (typical)*1		3000:1 (30000:1, DV MODE [On])	1000:1 (17000:1, DV MODE [On])
Viewing angle		178° right/left, 178° up/down (contrast ratio ≥ 10)	178° right/left, 178° up/down (contrast ratio ≥ 10)
Response Time (typical)		6.5 ms (Gray to Gray) RESPONSE IMPROVE [OFF] 6 ms (Gray to Gray) RESPONSE IMPROVE [ON]	14 ms (Gray to Gray) RESPONSE IMPROVE [OFF] 6 ms (Gray to Gray) RESPONSE IMPROVE [ON]
Screen active area		478.7 mm (W) x 260.3 mm (H) 18-7/8 inch (W) x 10-1/4 inch (H)	527.0 mm (W) x 296.5 mm (H) 20-3/4 inch (W) x 11-11/16 inch (H)
Ratio of effective pixel*3		≥ 99.9997%	≥ 99.9997%
Input terminals	HDMI	HDMI x 1 (HDCP 1.4) Video: Digital RGB, Digital YCbCr (4:4:4/4:2:2) Audio: PCM 32, 44.1, 48 KHz (16/20/24bit), 2ch	
	Display Port	DisplayPort Ver.1.2 x 1 (HDCP 1.3) Video: Digital RGB Audio: PCM 32, 44.1, 48 KHz (16/20/24bit), 2ch	
	VGA	Mini D-Sub 15pin x 1 Video: Analog RGB (0.7 Vp-p / 75 ohm) Sync: Separate sync. TTL Level Positive/Negative Composite sync. TTL Level Positive/Negative Sync on Green (Video 0.7 Vp-p and Sync Negative 0.3 Vp-p)	
	Audio IN	φ3.5 mm stereo mini-jack x1 Analog Audio: Stereo L/R 500mV rms 20Kohm	
Output terminals	Headphone	Audio Analog output, φ3.5 mm stereo mini-jack	
Speaker		1 W + 1 W	
Power Supply		AC 100 - 240 V, 0.40 - 0.25 A, 50/60 Hz	AC 100 - 240 V, 0.45 - 0.30 A, 50/60 Hz
Operating	Temperature	5 ~ 35 °C/41 ~ 95 °F	
	Humidity	20 ~ 80% (no condensation)	
	Altitude	≤ 5000 m	
Storage	Temperature	-10 ~ 60 °C/14 ~ 140 °F	
	Humidity	10% ~ 85% (no condensation)	
Power Consumption (Normal operation*5/ Standby mode*6/ Off mode)		22 W 14 W/0.22 W/0.18 W	26 W 17 W/0.22 W/0.18 W
Dimensions*2	With stand	Approx. 493.2 mm (W) x 233.2 mm (D) x 363.4 mm - 483.4 mm (H) 19-7/16 inch (W) x 9-3/16 inch (D) x 14-5/16 inch - 19-1/16 inch (H)	Approx. 540.5 mm (W) x 233.2 mm (D) x 381.0 mm - 501.0 mm (H) 21-1/4 inch (W) x 9-3/16 inch (D) x 15 inch - 19-3/4 inch (H)
	Without stand	Approx. 493.2 mm (W) x 58.0 mm (D) x 285.3 mm (H) 19-7/16 inch (W) x 2-5/16 inch (D) x 11-1/4 inch (H)	Approx. 540.5 mm (W) x 58.0 mm (D) x 320.5 mm (H) 21-1/4 inch (W) x 2-5/16 inch (D) x 12-5/8 inch (H)
Stand adjustment	Height	120 mm (Landscape), 80.4 mm (Portrait) 4-3/4 inch (Landscape), 3-3/16 inch (Portrait)	120 mm (Landscape), 56.8 mm (Portrait) 4-3/4 inch (Landscape), 2-1/4 inch (Portrait)
	Tilt*4/Pivot/Swivel	Up 25° Down 5°/±90°/±170°	
Weight		Approx. 3.1 kg (6.8 lbs) (monitor only) Approx. 5.2 kg (11.5 lbs) (with the stand attached)	Approx. 3.5 kg (7.7 lbs) (monitor only) Approx. 5.6 kg (12.3 lbs) (with the stand attached)

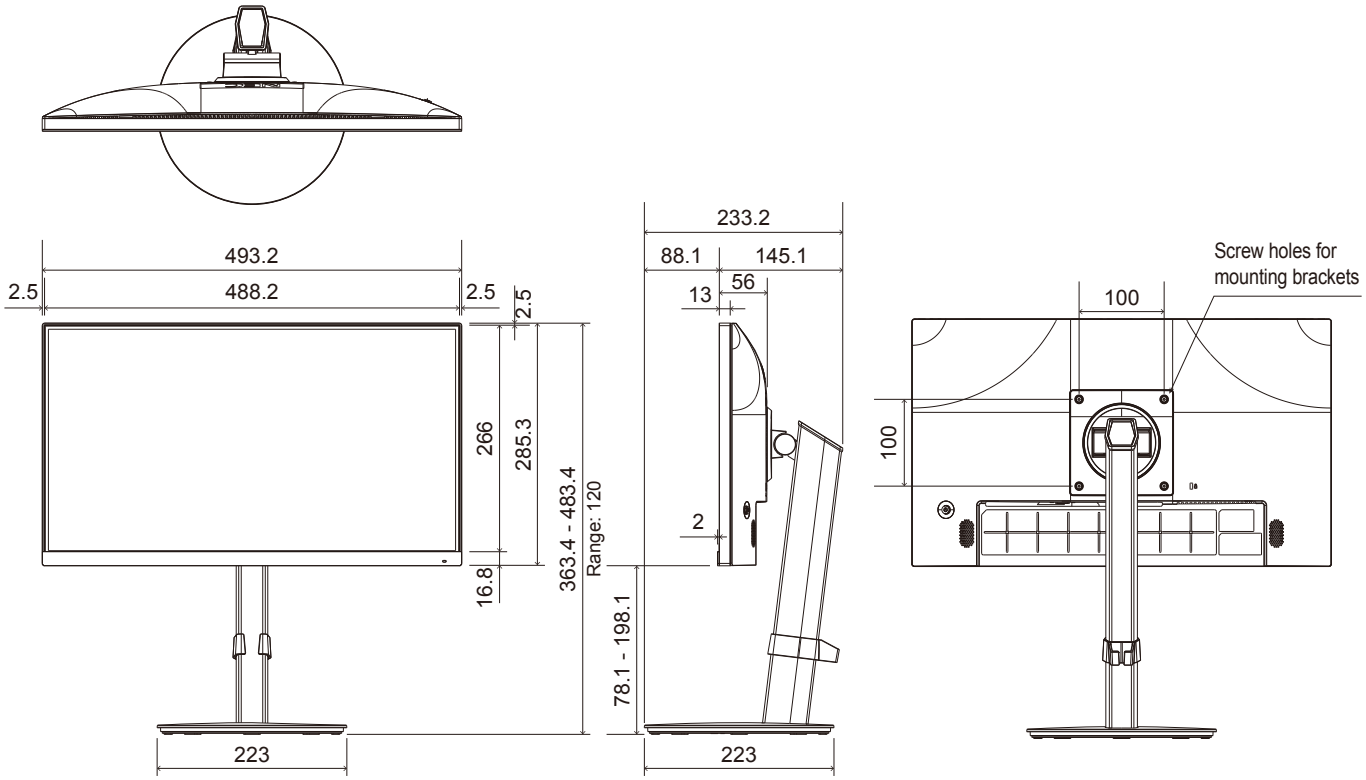
TIP: Technical specifications are subject to change without notice.

*1: Brightness and contrast ratio will depend on input mode and other picture settings. Brightness level will decrease over time. Due to the nature of the equipment, it is not possible to precisely maintain a constant level of brightness.
*2: Excluding protrusions.
*3: Even though the LCD panel of this product is manufactured with high precision, there may be ineffective pixels such as ones which never lights up or always lighting up. “Ratio of effective pixel” means the ratio of the number of effective pixel (subtracting the number of ineffective pixels from the whole number of pixels) against the whole number of pixels on the LCD panel. Please note that presence of ineffective pixels does not mean failure of LCD panel.
*4: Including when the monitor is installed on a flexible arm.
*5: Factory setting.
*6: When no signal inputs. Time for power management function: Less than 1 min.

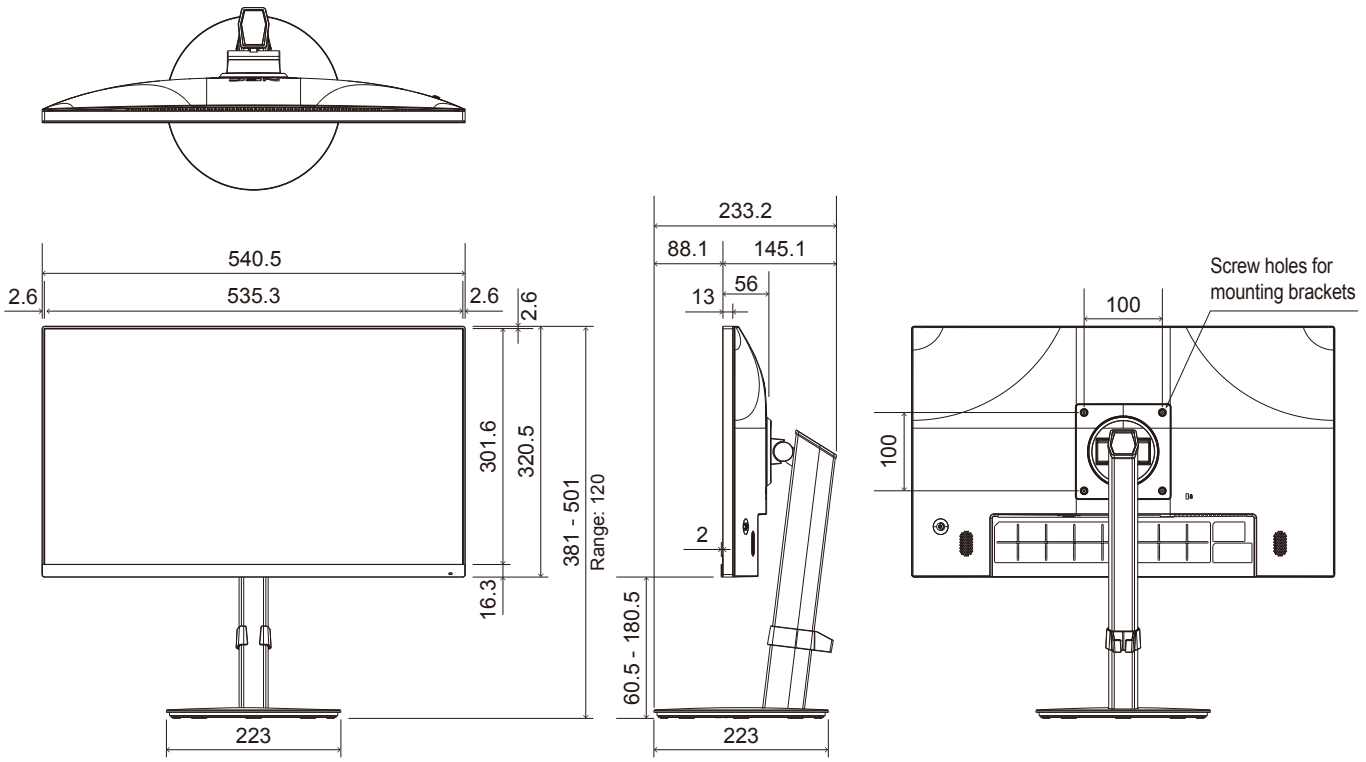
■Dimensional Drawings

Note that the values shown are approximate values.

[E224F] (Unit: mm)

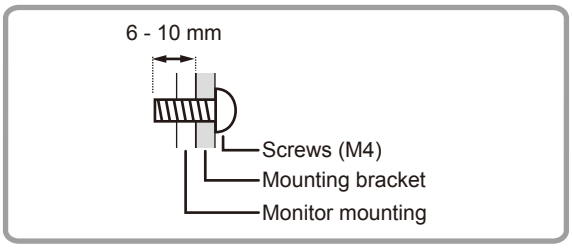


[E244F] **(**Unit: mm)

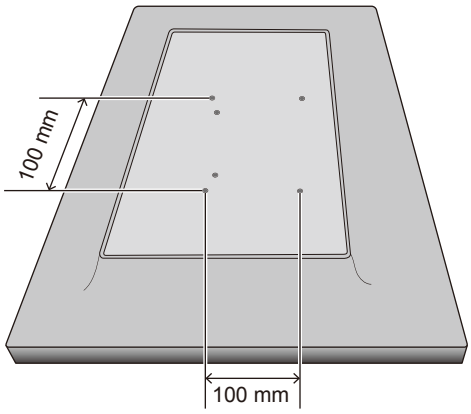


Mounting Precautions

- When moving the monitor, be sure to hold its sides or bottom. Do not hold the LCD panel or buttons. This may cause product damage, failure, or injury.
- To attach a VESA-compliant mounting bracket, use M4 screws that are 6 mm to 10 mm longer than the thickness of the mounting bracket.

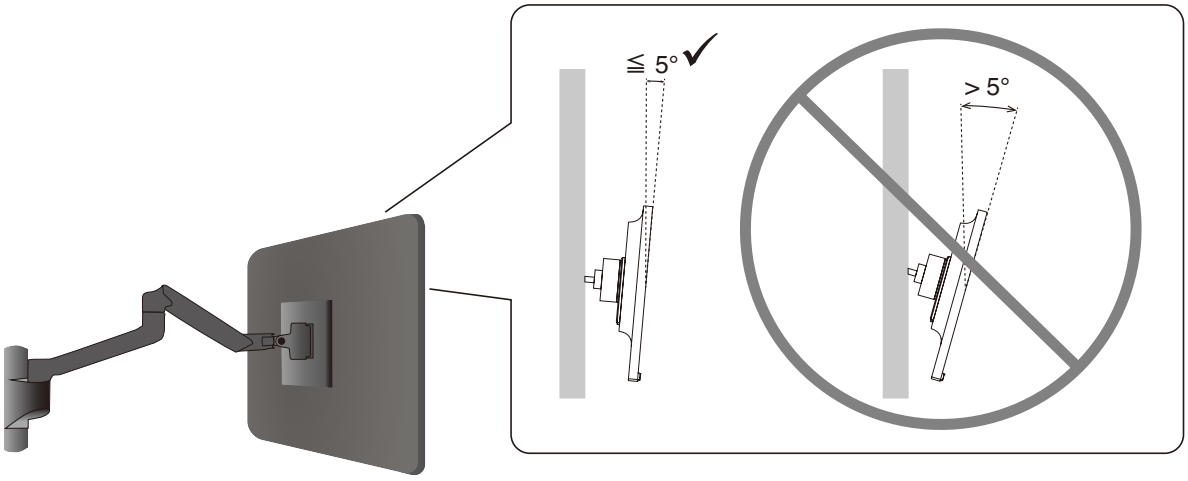


- Be sure to use a wall-mount bracket designed or designated for mounting the monitor.
- This monitor and bracket must be installed on a wall which can endure at least 4 times or more the weight of the monitor. Install by the most suitable method for the material and the structure.
- Do not use an impact driver.
- Do not use any screw holes other than those for mounting brackets, located on the rear of the monitor, for installation.



Screw holes for mounting brackets

- When installing, check the tilt angle in the Product Specifications (page 28).



- After mounting, please carefully ensure the monitor is secure, and not able to come loose from the wall or mount.

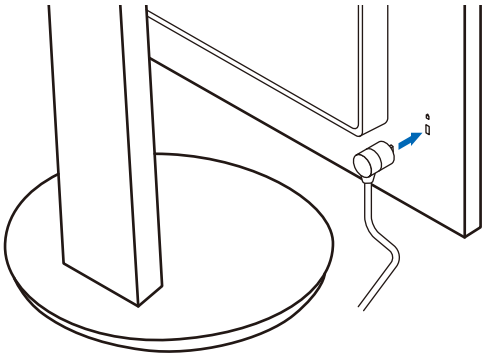
■Installing a security cable and prevent tipping

As a security measure, you can secure the monitor to a fixed object with an optional security cable.

Please follow the security cable supplier’s recommended instructions to install.

A security cable (purchased separately) is designed as a deterrent, it is not guaranteed to prevent the device from being mishandled or stolen.

When using the monitor, fasten the monitor to a wall using a cord that can support the weight of the monitor in order to prevent the monitor from falling. Installing must be done by a qualified technician, and please contact your supplier for more information.



Manufacturer's Recycling and Energy Information

We are strongly committed to environmental protection and sees recycling as one of the company's top priorities in trying to minimize the burden placed on the environment. We are engaged in developing environmentally friendly products, and always strive to help define and comply with the latest independent standards from agencies such as ISO (International Organization for Standardization) and TCO (Swedish Trades Union).

Energy Saving

This monitor features an advanced energy saving capability. When a Display Power Management signal is sent to the monitor, the Energy Saving mode is activated. The monitor enters a single Energy Saving mode.

For additional information visit:

https://www.sharpusa.com/ (in USA)

https://www.sharpnecdisplays.eu (in Europe)

https://www.sharp-nec-displays.com/global/index.html (Global)

Addition explanation to EcoDesign Regulation

The following setting conforms to the "Normal Configuration" as defined in the "EcoDesign Regulation (2019/2021)" and is the recommended setting.

- [DV MODE] is set to [On]

If you change this setting the power consumption can be higher than using the recommended setting.

Due to the various possibilities to save energy, the different power modes named as "standby mode".
The monitor enter into "standby mode" if you use the recommended setting.

SHARP

SHARP CORPORATION

Rev. 1