SAMSUNG

User Manual

S*H65*

The color and the appearance may differ depending on the product, and the specifications are subject to change without prior notice to improve the performance.

(For India Only)

This product is RoHS compliant.

For more information on safe disposal and recycling visit our website www.samsung.com/in or contact our Helpline numbers-1800 40 SAMSUNG(1800 40 7267864) (Toll-Free)

Table of contents

Table of contents

Before Using the Product

Securing the Installation Space

Ensure some space around the product for ventilation. An internal temperature rise may cause fire and damage the product. Be sure to allow the amount of space as shown below or greater when installing the product.

― The exterior may differ depending on the product.
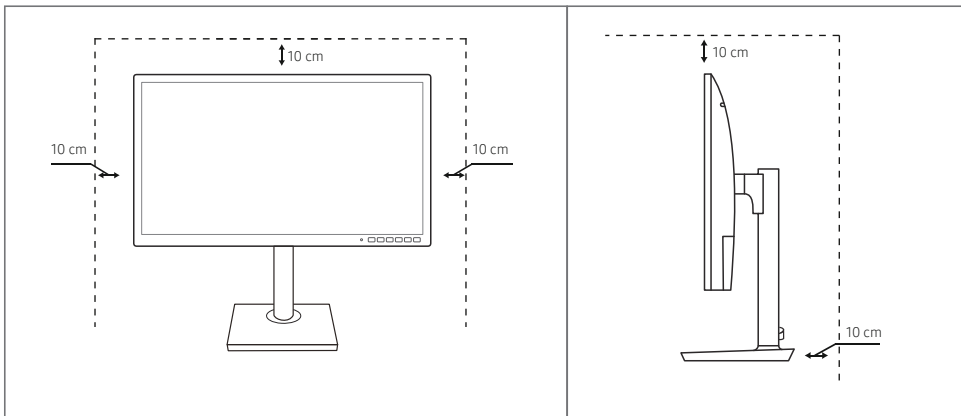
Precautions for storage

High-glossy models can develop white stains on the surface if an ultrasonic wave humidifier is used nearby.

― Contact your nearest Samsung Customer Service Center if you want to clean the inside of the product (Service fee will be charged.)

Do not press the monitor screen with hands or other objects. There is a risk of damaging the screen.

Safety Precautions

Caution	RISK OF ELECTRIC SHOCK DO NOT OPEN
	Caution : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. (OR BACK)
	THERE ARE NO USER SERVICEABLE PARTS INSIDE.
	REFER ALL SERVICING TO QUALIFIED PERSONNEL.

This symbol indicates that high voltage is present inside.

It is dangerous to make any kind of contact with any internal part of this product.

This symbol alerts you that important literature concerning operation and maintenance has been included with this product.

Symbols

Warning	A serious or fatal injury may result if instructions are not followed.
Caution	Personal injury or damage to properties may result if instructions are not followed.

Cleaning

⎺ Exercise care when cleaning as the panel and exterior of advanced LCDs are easily scratched.

⎺ Take the following steps when cleaning.

1 Power off the product and computer.

2 Disconnect the power cord from the product.

⎺ Hold the power cable by the plug and do not touch the cable with wet hands. Otherwise, an electric shock may result.

3 Wipe the monitor with a clean, soft and dry cloth.

 – Do not apply a cleaning agent that contains alcohol, solvent, or surfactant to the monitor.
 – Do not spray water or detergent directly on the product.

4 Wet a soft and dry cloth in water and wring thoroughly to clean the exterior of the product.

5 Connect the power cord to the product when cleaning is finished.

6 Power on the product and computer.

Electricity and Safety

Warning

• Do not use a damaged power cord or plug, or a loose power socket.

• Do not use multiple products with a single power socket.

• Do not touch the power plug with wet hands.

• Insert the power plug all the way in so it is not loose.

• Connect the power plug to a grounded power socket (type 1 insulated devices only).

• Do not bend or pull the power cord with force. Be careful not to leave the power cord under a heavy object.

• Do not place the power cord or product near heat sources.

• Clean any dust around the pins of the power plug or the power socket with a dry cloth.

Caution

• Do not disconnect the power cord while the product is being used.

• Only use the power cord provided with your product by Samsung. Do not use the power cord with other products.

• Keep the power socket where the power cord is connected unobstructed.

 – The power cord must be disconnected to cut off power to the product when an issue occurs.

• Hold the plug when disconnecting the power cord from the power socket.

Installation

Warning

- DO NOT PLACE CANDLES, INSECT REPELLANTS OR CIGARETTES ON TOP OF THE PRODUCT. DO NOT INSTALL THE PRODUCT NEAR HEAT SOURCES.

- Do not install the product in poorly ventilated spaces such as a bookcase or closet.

- Install the product at least 10 cm away from the wall to allow ventilation.

- Keep the plastic packaging out of the reach of children.
  – Children may suffocate.

- Do not install the product on an unstable or vibrating surface (insecure shelf, sloped surface, etc.)
  – The product may fall and become damaged and/or cause an injury.
  – Using the product in an area with excess vibration may damage the product or cause a fire.

- Do not install the product in a vehicle or a place exposed to dust, moisture (water drips, etc.), oil, or smoke.

- Do not expose the product to direct sunlight, heat, or a hot object such as a stove.
  – The product lifespan may be reduced or a fire may result.

- Do not install the product within the reach of young children.
  – The product may fall and injure children.

- Edible oil (such as soybean oil) may damage or distort the product. Keep the product away from oil pollution. And do not install or use the product in the kitchen or near the kitchen stove.

Caution

- Do not drop the product while moving.

- Do not set down the product on its front.

- When installing the product on a cabinet or shelf, make sure that the bottom edge of the front of the product is not protruding.
  – The product may fall and become damaged and/or cause an injury.
  – Install the product only on cabinets or shelves of the right size.

- Set down the product gently.
  – Product failure or personal injury may result.

- Installing the product in an unusual place (a place exposed to a lot of fine dust, chemical substances, extreme temperatures or a significant presence of moisture, or a place where the product will operate continuously for an extended period of time) may seriously affect its performance.
  – Be sure to consult Samsung Customer Service Center if you want to install the product at such a place.

Operation

Warning

- There is a high voltage inside the product. Never disassemble, repair or modify the product yourself.
  – Contact Samsung Customer Service Center for repairs.

- To move the product, first disconnect all the cables from it, including the power cable.

- If the product generates abnormal sounds, a burning smell or smoke, disconnect the power cord immediately and contact Samsung Customer Service Center.

- Do not let children hang from the product or climb on top of it.
  – Children may become injured or seriously harmed.

- If the product is dropped or the outer case is damaged, turn off the power and disconnect the power cord. Then contact Samsung Customer Service Center.
  – Continued use can result in a fire or electric shock.

- Do not leave heavy objects or items that children like (toys, sweets, etc.) on top of the product.
  – The product or heavy objects may fall as children try to reach for the toys or sweets resulting in a serious injury.

- During a lightning or thunderstorm, power off the product and remove the power cable.

- Do not drop objects on the product or apply impact.

- Do not move the product by pulling the power cord or any cable.

- If a gas leakage is found, do not touch the product or power plug. Also, ventilate the area immediately.

- Do not lift or move the product by pulling the power cord or any cable.

- Do not use or keep combustible spray or an inflammable substance near the product.

- Ensure the vents are not blocked by tablecloths or curtains.
  – An increased internal temperature may cause a fire.

- Do not insert metallic objects (chopsticks, coins, hairpins, etc) or objects that burn easily (paper, matches, etc) into the product (via the vent or input/output ports, etc).
  – Be sure to power off the product and disconnect the power cord when water or other foreign substances have entered the product. Then contact Samsung Customer Service Center.

- Do not place objects containing liquid (vases, pots, bottles, etc) or metallic objects on top of the product.
  – Be sure to power off the product and disconnect the power cord when water or other foreign substances have entered the product. Then contact Samsung Customer Service Center.

Caution

- Leaving the screen fixed on a stationary image for an extended period of time may cause afterimage burn-in or defective pixels.
  - Activate power-saving mode or a moving-picture screen saver if you will not be using the product for an extended period of time.
- Disconnect the power cord from the power socket if you do not plan on using the product for an extended period of time (vacation, etc).
  - Dust accumulation combined with heat can cause a fire, electric shock or electric leakage.
- Use the product at the recommended resolution and frequency.
  - Your eyesight may deteriorate.
- Do not hold the product upside-down or move it by holding the stand.
  - The product may fall and become damaged or cause an injury.
- Looking at the screen too close for an extended period of time can deteriorate your eyesight.
- Do not use humidifiers or stoves around the product.
- Rest your eyes for more than 5 minutes or look at distance objects for every 1 hour of product use.
- Do not touch the screen when the product has been turned on for an extended period of time as it will become hot.
- Store small accessories out of the reach of children.
- Exercise caution when adjusting the product angle or stand height.
  - Your hand or finger may get stuck and injured.
  - Tilting the product at an excessive angle may cause the product to fall and an injury may result.
- Do not place heavy objects on the product.
  - Product failure or personal injury may result.
- When using headphones or earphones, do not turn the volume too high.
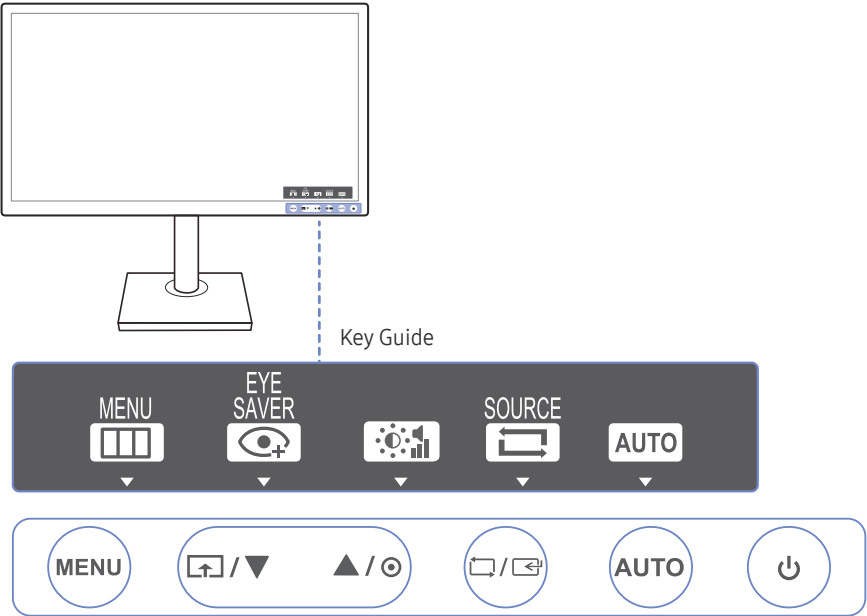 - Having the sound too loud may damage your hearing.

Parts

Frontal Buttons

‾ The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

Key Guide
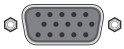
Icons	Description
MENU	Open or close the onscreen display (OSD) menu, or return to the parent menu. OSD control lock: Maintain the current settings, or lock the OSD control to prevent unintended changes to settings. Enable: To lock the OSD control, press the **MENU** button for 10 seconds. Disable: To unlock the locked OSD control, press the **MENU** button for more than 10 seconds. ‾ If the OSD control is locked, Brightness and Contrast can be adjusted. Eye Saver Mode is available. Information can be viewed. The Eye Saver Mode function can be used by pressing the ⬆ button. (The Eye Saver Mode is available even when the OSD control is locked.)
⬆	Press ⬆ to enable or disable Eye Saver Mode. The items below are not available if the Eye Saver Mode function is enable. • Picture → Brightness, Game Mode, ᴿᴬᴹᵁᴺᴳMAGICBright, Color • System → Smart ECO Saving
▲ / ▼	Move to the upper or lower menu or adjust the value for an option on the OSD menu.
⊙	Use this button to control the volume or the screen brightness or contrast.
⬜/⤶	Confirm a menu selection. Pressing the ⬜/⤶ button when the OSD menu is not displayed will change the input source (Analog / HDMI / DisplayPort). If you power on the product or change the input source by pressing the ⬜/⤶ button, a message that shows the changed input source will appear at the top left corner of the screen. ‾ This function is not available for products with an Analog interface only.

MENU   EYE SAVER   SOURCE   AUTO

MENU   ⬆ / ▼   ▲ / ⊙   ⬜/⤶   AUTO   ⏻

9

Icons	Description
AUTO	Press the **AUTO** button to automatically adjust the screen settings. — Changing the resolution in Display Properties will activate the **Auto Adjustment** function. — This function is only available in **Analog** mode.
⏻	Turn the screen on or off.
Key Guide	When a control button on the product is pressed, the Key Guide will be displayed before the onscreen menu opens. (The guide shows the function of the button pressed.) To access the onscreen menu when the guide is displayed, press the corresponding button again. The Key Guide may vary depending on the function or product model. Refer to the actual product.

Reverse Side

— The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

| Port	Description
POWER IN	Connect the power cord for your monitor to the **POWER IN** port on the back of the product.
1 2	Connect to a USB device.
(PC IN)	Connect the ⟵ (PC IN) port of the monitor and the USB port of the computer with the USB cable.
DP IN	Connects to a PC using a DP cable.
HDMI IN	Connects to a source device using an HDMI cable or HDMI-DVI cable.
RGB IN	Connect to a PC using the D-SUB cable.
🎧	Connect to an audio output device such as headphones.

Changing Brightness and Contrast settings

Adjust the Brightness and Contrast setting using the ⊙ buttons in the initial screen (where no OSD menu is displayed).

Volume		
Brightness	◀ ▬▬▬▬▬▬▬▮ ▶	100
⌄ Contrast		

⎺ The displayed image may differ depending on the model.

⎺ The default brightness can vary depending on the region.

Brightness

⎺ This menu is not available when ˢᴬᴹˢᵁᴺᴳ MAGIC Bright is set to Dynamic Contrast mode.

⎺ This menu is not available when Smart ECO Saving is enabled.

⎺ This menu is not available when Eye Saver Mode is enabled.

Contrast

⎺ This menu is not available when ˢᴬᴹˢᵁᴺᴳ MAGIC Bright is in Cinema or Dynamic Contrast mode.

⎺ This menu is not available when Game Mode is enabled.

Changing the Volume setting

Adjust the Volume by pressing the ⊙ button when the Key Guide is displayed.

Contrast		
🎧 Volume	◀ ▮▬▬▬▬▬▬ ▶	10
⌄ Brightness		
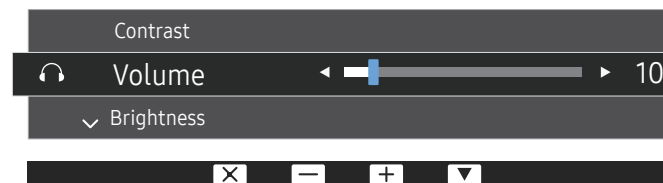
⎺ The displayed image may differ depending on the model.

⎺ The functions available on the monitor may vary depending on the model. Refer to the actual product.

Adjusting the Product Tilt and Height

― The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

S24H650GD*

-5.0° (±2.0°) ~ 24.0° (±2.0°)

-45.0° (±2.0°) ~ 45.0° (±2.0°)

0 ~ 135.0 mm (±5.0 mm)

S24H650FD*

-5.0° (±2.0°) ~ 24.0° (±2.0°)

-45.0° (±2.0°) ~ 45.0° (±2.0°)
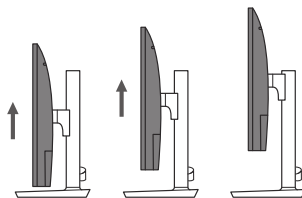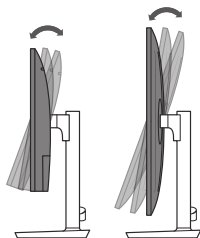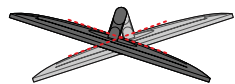
0 ~ 135.0 mm (±5.0 mm)

S27H650FD*

-5.0° (±2.0°) ~ 24.0° (±2.0°)

-45.0° (±2.0°) ~ 45.0° (±2.0°)

0 ~ 135.0 mm (±5.0 mm)
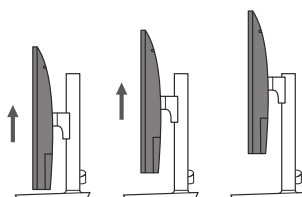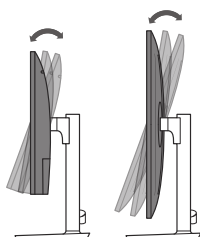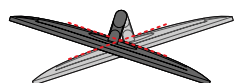
- The monitor tilt and height can be adjusted.
- Hold the top center of the product and adjust the height carefully.
- When adjusting the stand height, you may hear a noise. This noise is generated because the ball inside the stand slides when the stand height is adjusted. It is a normal noise and not a product malfunction.

Rotating the Monitor Screen

― You can rotate your monitor as shown below.

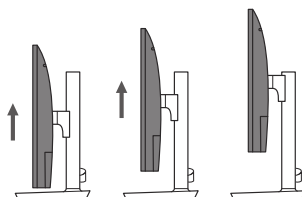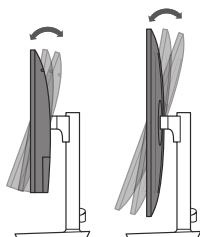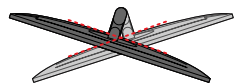― The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.
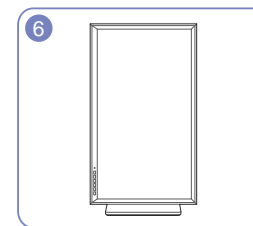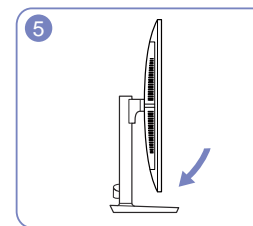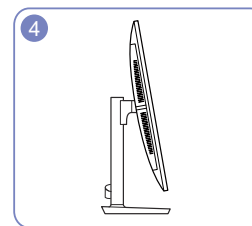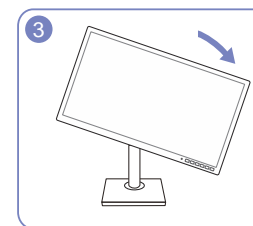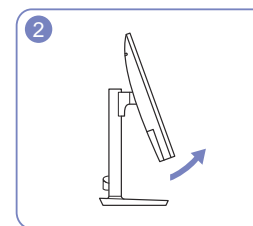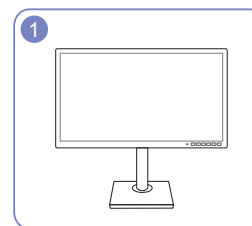
- Be sure to fully extend the stand before rotating the monitor.
- If you rotate the monitor without fully extending the stand, the corner of the monitor may hit the floor and get damaged.
- Do not rotate the monitor counterclockwise. The product may get damaged.

Anti-theft Lock

⎯ An anti-theft lock allows you to use the product securely even in public places.

⎯ The locking device shape and locking method depend on the manufacturer. Refer to the user guide provided with your anti-theft locking device for details.

To lock an anti-theft locking device:
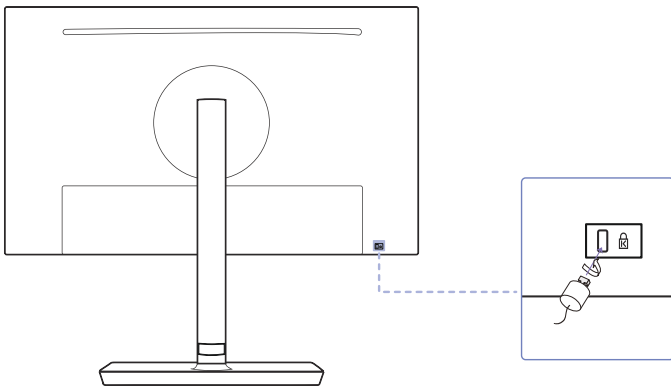
1 Fix the cable of your anti-theft locking device to a heavy object such as a desk.

2 Put one end of the cable through the loop on the other end.

3 Insert the locking device into the anti-theft lock slot at the back of the product.

4 Lock the locking device.

‒ An anti-theft locking device can be purchased separately.

‒ Refer to the user guide provided with your anti-theft locking device for details.

‒ Anti-theft locking devices can be purchased at electronics retailers or online.

Precautions for moving the monitor
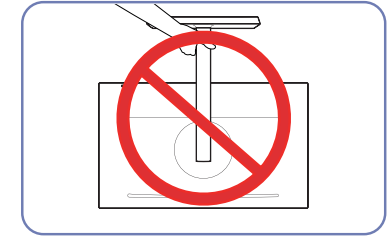
- Do not directly apply pressure on the screen.
- Do not hold the screen when moving the monitor.

- Do not hold the product upside down only by the stand.
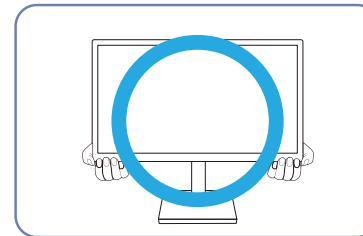
- Hold the lower corners or edges of the monitor when moving it.

13

Installing a Wall-mount Kit or Desktop Stand (S24H650GD* / S27H650FD*)
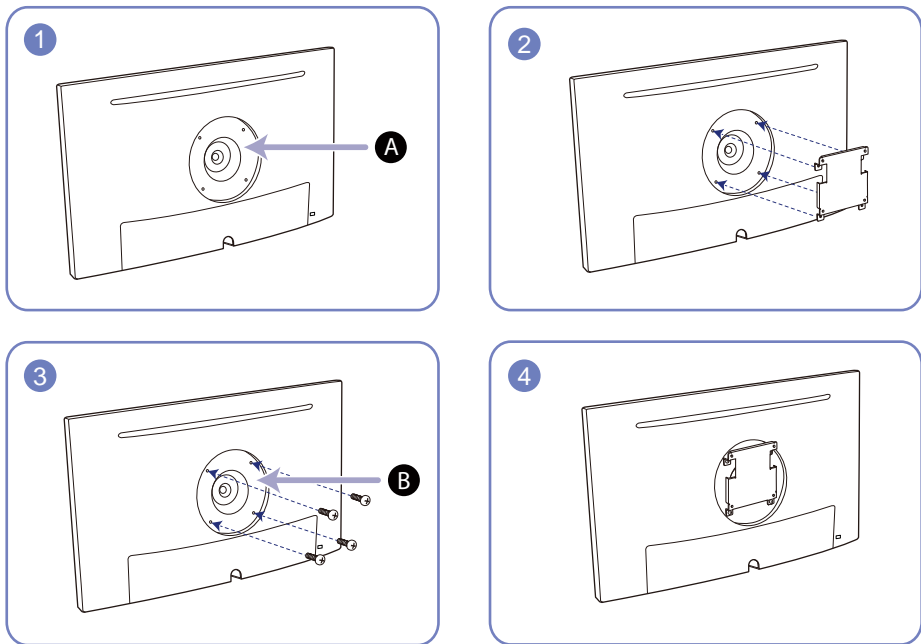
(A) Attach the wall-mount kit or desktop stand here

(B) Bracket (sold separately)

Align the grooves and tightly fasten the screws on the bracket on the product with the corresponding parts on the wall-mount kit or desktop stand you want to attach.

- Notes
  - Using a screw longer than the standard length can damage the internal components of the product.
  - The length of screws required for a wall mount that does not comply with the VESA standards may vary depending on the specifications.
  - Do not use screws that do not comply with the VESA standards. Do not attach the wall-mount kit or desktop stand using excessive force. The product may get damaged or fall and cause personal injury. Samsung shall not be held liable for any damage or injury caused by using improper screws or attaching the wall-mount kit or desktop stand using excessive force.
  - Samsung shall not be held liable for any product damage or personal injury caused by using a wall-mount kit other than the one specified or from an attempt to install the wall-mount kit on your own.
  - To mount the product on a wall, ensure you purchase a wall-mount kit that can be installed 10 cm or farther away from the wall.
  - Be sure to use a wall-mount kit that complies with the standards.
  - To install the monitor using a wall mount, disconnect the stand base from the monitor.

Unit: mm

Model name	VESA screw hole specs (A * B) in millimeters	Standard Screw	Quantity
S24H650GD* / S27H650FD*	100.0 x 100.0	4.0 mm Φ, 0.7 pitch * 10.0 mm long	4 EA

― Do not install your Wall Mount Kit while your product is turned on. It may result in personal injury due to electric shock.

Installing a Wall-mount Kit or Desktop Stand (S24H650FD*)

Ⓐ Attach the wall-mount kit or desktop stand here

Ⓑ Bracket (sold separately)

Align the grooves and tightly fasten the screws on the bracket on the product with the corresponding parts on the wall-mount kit or desktop stand you want to attach.

- Notes
  - Using a screw longer than the standard length can damage the internal components of the product.
  - The length of screws required for a wall mount that does not comply with the VESA standards may vary depending on the specifications.
  - Do not use screws that do not comply with the VESA standards. Do not attach the wall-mount kit or desktop stand using excessive force. The product may get damaged or fall and cause personal injury. Samsung shall not be held liable for any damage or injury caused by using improper screws or attaching the wall-mount kit or desktop stand using excessive force.
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― Do not install your Wall Mount Kit while your product is turned on. It may result in personal injury due to electric shock.

Installation

Attaching the Stand (S24H650GD* / S27H650FD*)

⎯ Before assembling the product, place the product down on a flat and stable surface so that the screen is facing downwards.

⎯ The exterior may differ depending on the product.
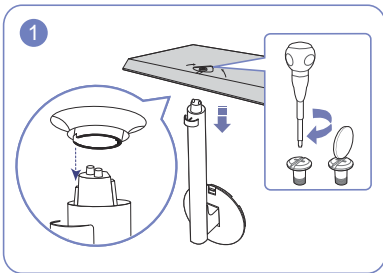
Insert the stand neck into the stand base in the direction shown in the figure. Tightly fasten the connecting screw at the bottom of the stand base.
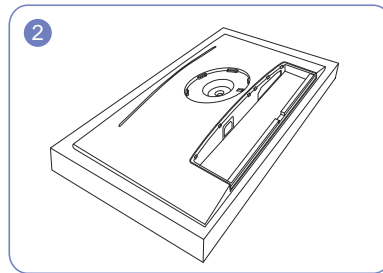
Place the protective Styrofoam (cushion) included in the package on the floor and place the product facing down on the Styrofoam, as shown in the image.

If Styrofoam is unavailable, use a thick sitting mat.
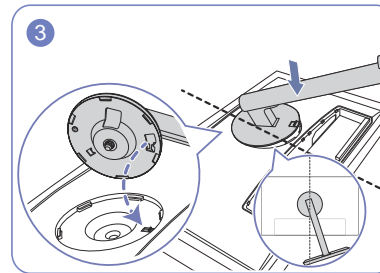
Place the stand neck on the display, as shown in the figure. When you place the stand neck, ensure that the raised button on the display can be inserted into the groove of the stand neck.
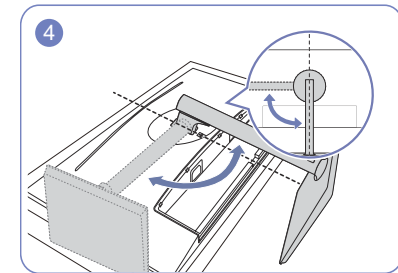
Turn the stand neck of the display clockwise for 90° to ensure that the stand neck of the display is put into place.
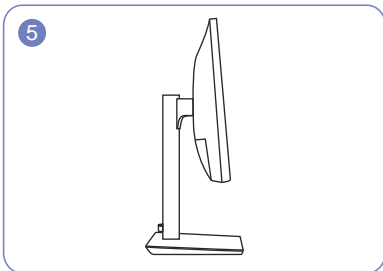
Stand assembly is complete.
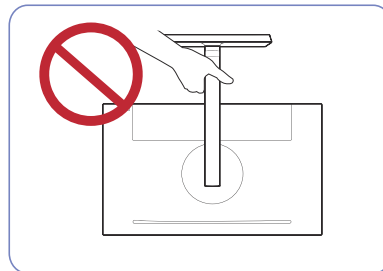
- Caution

Do not hold the product upside down only by the stand.

Attaching the Stand (S24H650FD*)

― Before assembling the product, place the product down on a flat and stable surface so that the screen is facing downwards.

― The exterior may differ depending on the product.

1 Insert the stand neck into the stand base in the direction shown in the figure. Tightly fasten the connecting screw at the bottom of the stand base.

2 Place the protective Styrofoam (cushion) included in the package on the floor and place the product facing down on the Styrofoam, as shown in the image.

If Styrofoam is unavailable, use a thick sitting mat.

3 Place the stand neck on the display, as shown in the figure. When you place the stand neck, ensure that the raised button on the display can be inserted into the groove of the stand neck.

4 Turn the stand neck of the display clockwise for 90° to ensure that the stand neck of the display is put into place.

5 Stand assembly is complete.

- Caution

Do not hold the product upside down only by the stand.

Removing the Stand (S24H650GD* / S27H650FD*)

― Before removing the stand from the monitor, place the monitor on a flat and stable surface with the screen facing down.

― The exterior may differ depending on the product.

Place the product on a clean and flat floor as shown in the figure. Push the key upward and hold. Turn the stand neck of the display counterclockwise for 10°.

Lift the stand neck in the arrow direction to detach it from the display.

Unfasten the connecting screw at the bottom of the stand base, and then remove the stand neck from the stand base by pulling it in the arrow direction, as shown in the figure.

- Caution

Do not press down on the monitor. There is a risk of damaging the monitor.

- Caution

Do not hold the product upside down only by the stand.

18

Removing the Stand (S24H650FD*)

― Before removing the stand from the monitor, place the monitor on a flat and stable surface with the screen facing down.

― The exterior may differ depending on the product.

Place the product on a clean and flat floor as shown in the figure. Push the key upward and hold. Turn the stand neck of the display counterclockwise for 10°.

Lift the stand neck in the arrow direction to detach it from the display.

Unfasten the connecting screw at the bottom of the stand base, and then remove the stand neck from the stand base by pulling it in the arrow direction, as shown in the figure.

- Caution

Do not press down on the monitor. There is a risk of damaging the monitor.

- Caution

Do not hold the product upside down only by the stand.

Read below before installing the monitor.

1 Check the shapes of both ends of the cables that came with the monitor, and check the shapes and positions of the matching ports on the monitor and external devices.

2 Before connecting signal cables, disconnect the power cables for the monitor and external devices from the power outlet to prevent device damage from a short circuit or overcurrent.

3 After connecting all signal cables, connect the power cables for the monitor and external devices to the power outlet.

4 Read the user manual to familiarize yourself with the monitor functions, precautions, and proper use, before using the installed monitor.

Connecting and Using a PC

Select a connection method suitable for your PC.

― Connecting parts may differ in different products.

― Provided ports may vary depending on the product.

Connection Using the D-SUB Cable (Analog Type)

⚠ Check to make sure that the power cables for the monitor and external devices, such as computers and set-top boxes, are not connected to the power outlet.

RGB IN
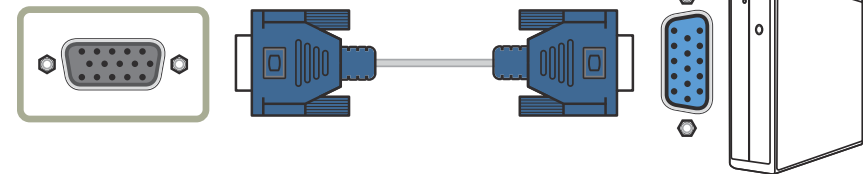
Connection Using the HDMI Cable

⚠ Check to make sure that the power cables for the monitor and external devices, such as computers and set-top boxes, are not connected to the power outlet.
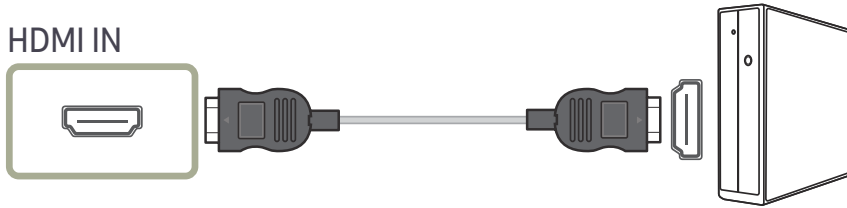
HDMI IN

Connection Using an HDMI-DVI Cable

⚠ Check to make sure that the power cables for the monitor and external devices, such as computers and set-top boxes, are not connected to the power outlet.

HDMI IN
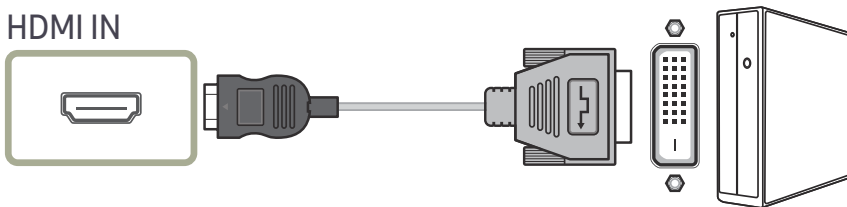
Connection Using the DP Cable

⚠ Check to make sure that the power cables for the monitor and external devices, such as computers and set-top boxes, are not connected to the power outlet.

DP IN
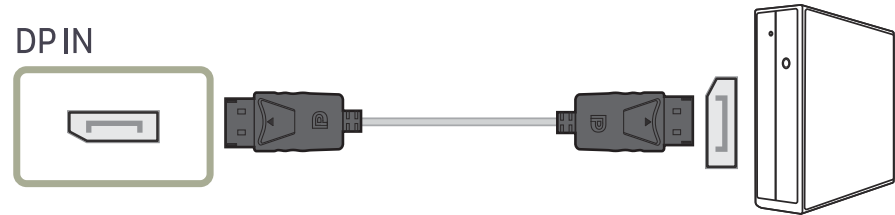
― A DP cable shorter under 1.5 m in length is recommended. Using a cable longer than 1.5 m can affect the picture quality.

Connecting to Headphones
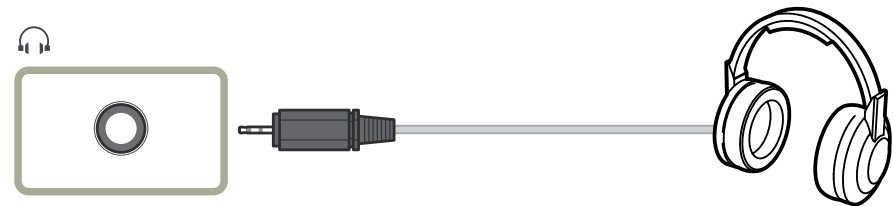
Connecting the Power
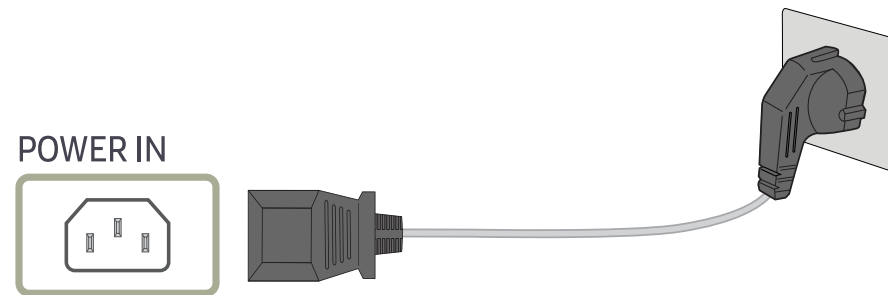
POWER IN

To use the product, connect the power cable to a power outlet and the **POWER IN** port on the product.

— The input voltage is switched automatically.

Connecting a USB device

⎯ You can use a USB device such as a mouse, keyboard, memory stick or external hard disk drive (HDD) by connecting it directly to the ⚬⚬ port on the monitor. You do not need to connect it to the computer.
For an external mass-storage HDD requiring external power supply, be sure to connect it to a power source.

The ⚬⚬ USB port of the monitor supports High-Speed Certified USB 2.0.

	High speed	Full speed	Low speed
Data Rate	480 Mbps	12 Mbps	1.5 Mbps
Power Consumption	2.5 W (Max., each port)	2.5 W (Max., each port)	2.5 W (Max., each port)

⚬⚬ (PC IN)

⚬⚬ 1
⚬⚬ 2
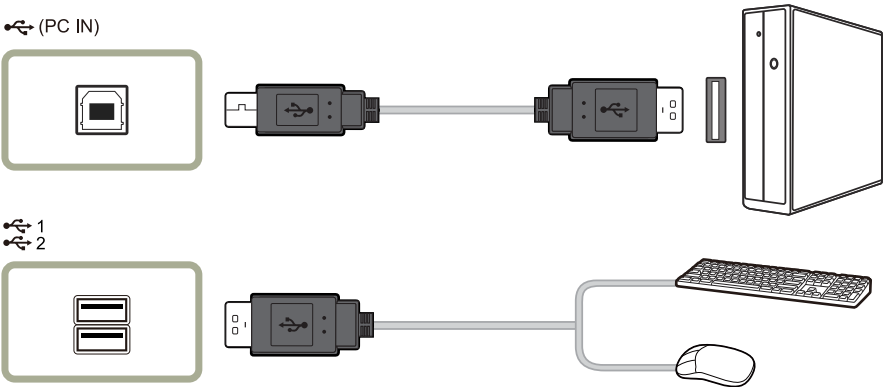
1 Connect the ⚬⚬ (PC IN) port of the monitor and the USB port of the computer with the USB cable.

⎯ To use ⚬⚬ port, you have to connect the UP (Upstream Cable) to the PC.

⎯ Make sure to use the USB cable supplied with this monitor to connect the monitor's ⚬⚬ (PC IN) port and your computer's USB port.

2 Use the USB cable to connect a USB device to the ⚬⚬ port on the monitor.

3 The use procedures are as the same as those for using an external device connecting to the PC.

• You can connect and use a keyboard and mouse.

• You can play a file from a media device. (Examples of media devices: MP3, digital camera, etc.)

• You can run, move, copy or delete the files on the storage device. (Examples of storage devices: external memory, memory card, memory reader, HDD-type MP3 player, etc.)

• You can use other USB devices that can be connected to a computer.

⎯ When connecting a device to the ⚬⚬ port of the monitor, connect the device using a cable appropriate to the device.

⎯ For the purchase of the cable and external devices, ask the service center of the corresponding product.

⎯ The company is not liable for problems or damages to an external device caused by using an unauthorized cable for the connection.

⎯ Some products do not follow the USB standard, and it may cause a malfunction of the device.

⎯ If the device malfunctions even if it is connected to the computer, contact the service center of the device/ computer.

⎯ With the launch of various USB devices on the market, we cannot guarantee that our products are matched with all USB devices.

Tidying Up the Connected Cables (S24H650GD* / S27H650FD*)
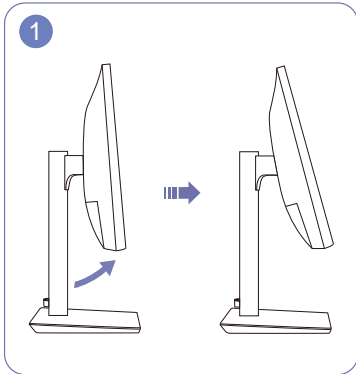
Tilt the display, as shown in the figure.
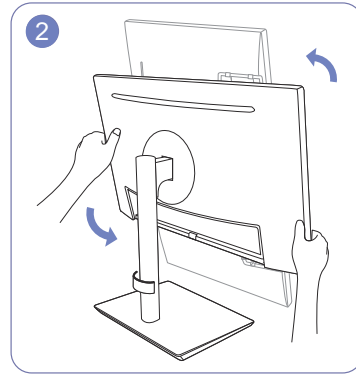
Rotate the machine to the highest vertical position.
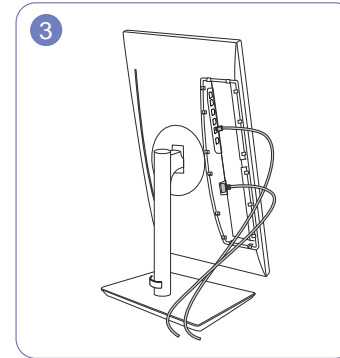
Connect the corresponding cables.
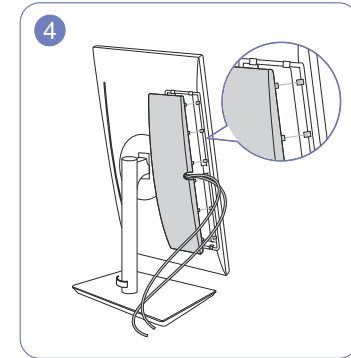
Arrange the cables through the groove on the COVER-REAR, and then attach the COVER-REAR SUB. When you attach the COVER-REAR SUB, please aim six ribs of the COVER-REAR SUB to the bottom holes of the COVER-REAR at first.
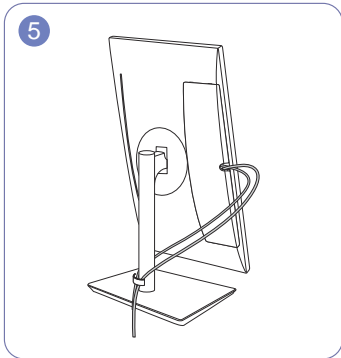
Arrange each of the two cables through either side of the COVER-STAND CABLE, as shown in the figure.
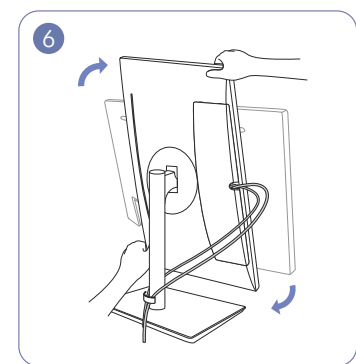
Rotate the machine to the horizontal position.
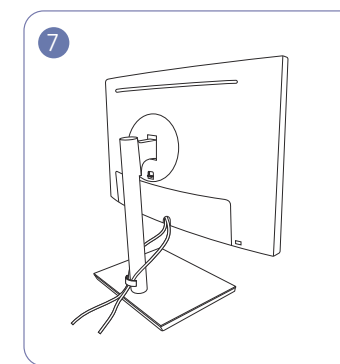
Assembly is complete.

Tidying Up the Connected Cables (S24H650FD*)
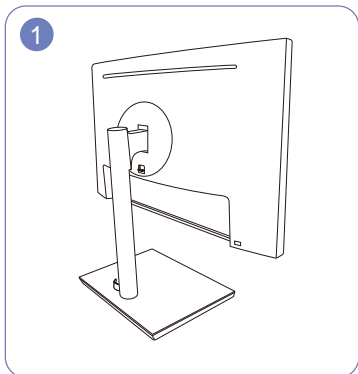
Stand assembly is complete.
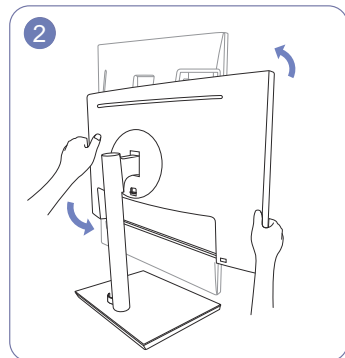
Rotate the machine to the highest vertical position.
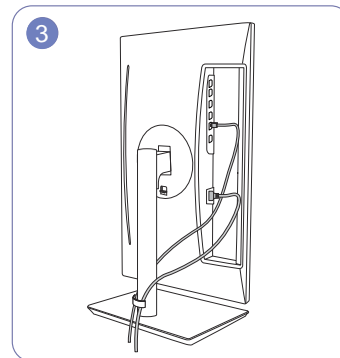
Connect the cables to their correct ports, and then arrange each of the two cables through either side of the COVER-STAND CABLE, as shown in the figure.
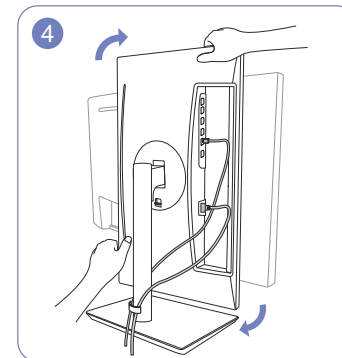
Rotate the machine to the horizontal position.
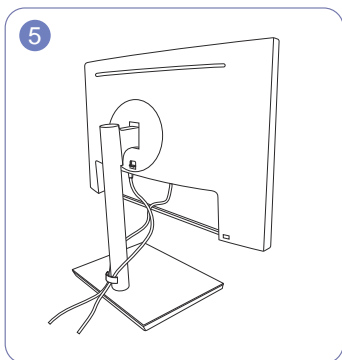
Assembly is complete.

Correct posture to use the product

Use the product in the correct posture as follows:

- Straighten your back.

- Allow a distance of 45 to 50cm between your eye and the screen, and look slightly downward at the screen.

- Keep your eyes directly in front of the screen.

- Adjust the angle so light does not reflect on the screen.

- Keep your forearms perpendicular to your upper arms and level with the back of your hands.

- Keep your elbows at about a right angle.

- Adjust the height of the product so you can keep your knees bent at 90 degrees or more, your heels attached to the floor, and your arms lower than your heart.

- Do the Eye excercises or blink frequently,then eye fatigue will be relieved.

Driver Installation

― You can set the optimum resolution and frequency for this product by installing the corresponding drivers.

― To install the latest version of the product driver, download it from the Samsung Electronics website at http://www.samsung.com.

Setting Optimum Resolution

An information message about setting optimum resolution will appear if you power on the product for the first time after purchase.

Select a language on the product and change the resolution on your PC to the optimum setting.

― If the optimum resolution is not selected, the message will appear up to three times for a specified time even when the product is turned off and on again.

― The optimum resolution can also be selected in **Control Panel** on your PC.

Chapter 04
Screen Setup

Configure the screen settings such as brightness.
A detailed description of each function is provided. Refer to your product for details.

⎯ The functions available may vary depending on the product model. The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

SAMSUNG MAGIC Bright

This menu provides an optimum picture quality suitable for the environment where the product will be used.
⎯ This menu is not available when Smart ECO Saving is enabled.
⎯ This menu is not available when Game Mode is enabled.
⎯ This menu is not available when Eye Saver Mode is enabled.

You can customize the brightness to suit your preferences.

In PC mode

- **Custom**: Customize the contrast and brightness as required.

- **Standard**: Obtain a picture quality suitable for editing documents or using Internet.

- **Cinema**: Obtain the brightness and sharpness of TVs suitable for enjoying video and DVD content.

- **Dynamic Contrast**: Obtain balanced brightness through automatic contrast adjustment.

In AV mode

When the external input is connected through HDMI/DP and PC/AV Mode is set to AV, SAMSUNG MAGIC Bright has four automatic picture settings (Dynamic, Standard, Movie and Custom) that are preset at the factory. You can activate either Dynamic, Standard, Movie or Custom. You can select Custom which automatically recalls your personalized picture settings.

- **Dynamic**: Select this mode to view a sharper image than in Standard mode.

- **Standard**: Select this mode when the surroundings are bright. This also provides a sharp image.

- **Movie**: Select this mode when the surroundings are dark. This will save power and reduce eye fatigue.

- **Custom**: Select this mode when you want to adjust the image according to your preferences.

Brightness

You can adjust the general brightness of the picture. (Range: 0~100)

A higher value will make the picture appear brighter.

― This menu is not available when SAMSUNG MAGIC Bright is set to Dynamic Contrast mode.

― This menu is not available when Smart ECO Saving is enabled.

― This menu is not available when Eye Saver Mode is enabled.

Contrast

Adjust the contrast between the objects and background. (Range: 0~100)

A higher value will increase the contrast to make the object appear clearer.

― This option is not available when SAMSUNG MAGIC Bright is in Cinema or Dynamic Contrast mode.

― This menu is not available when Game Mode is enabled.

Sharpness

Make the outline of objects more clear or blurry. (Range: 0~100)

A higher value will make the outline of objects clearer.

― This option is not available when SAMSUNG MAGIC Bright is in Cinema or Dynamic Contrast mode.

― This menu is not available when SAMSUNG MAGIC Upscale is in Mode1 or Mode2 mode.

― This menu is not available when Game Mode is enabled.

Color

Adjust the tint of the screen.

― This menu is not available when SAMSUNG MAGIC Bright is set to Cinema or Dynamic Contrast mode.

― This menu is not available when Game Mode is enabled.

― This menu is not available when Eye Saver Mode is enabled.

- Red: Adjust the red saturation level. Values closer to 100 mean greater intensity for the color.

- Green: Adjust the green saturation level. Values closer to 100 mean greater intensity for the color.

- Blue: Adjust the blue saturation level. Values closer to 100 mean greater intensity for the color.

- Color Tone: Select a color tone that best suits your viewing needs.
  – Cool 2: Set the color temperature to be cooler than Cool 1.
  – Cool 1: Set the color temperature to be cooler than Normal mode.
  – Normal: Display the standard color tone.
  – Warm 1: Set the color temperature to be warmer than Normal mode.
  – Warm 2: Set the color temperature to be warmer than Warm 1.
  – Custom: Customize the color tone.

  ― When the external input is connected through HDMI/DP and PC/AV Mode is set to AV, Color Tone has four color temperature settings (Cool, Normal, Warm and Custom).

- Gamma: Adjust the middle level of luminance.
  – Mode1 / Mode2 / Mode3

SAMSUNG MAGIC Upscale

^{SAMSUNG}_{MAGIC}Upscale function can enhance the layers of the picture details and the vividness of the picture.

The function has more obvious effects on low-resolution pictures.

― This menu is not available when ^{SAMSUNG}_{MAGIC}Bright is set to Cinema or Dynamic Contrast mode.

― This menu is not available when Game Mode is enabled.

• Off / Mode1 / Mode2

  ― Comparing with Mode1, Mode2 has a stronger effect.

HDMI Black Level

If a DVD player or set-top box is connected to the product via HDMI, image quality degradation (contrast/ color degradation, black level, etc.) may occur, depending on the connected source device. In such case, HDMI Black Level can be used to adjust the image quality.

If this is the case, correct the degraded picture quality using HDMI Black Level.

― This function is only available in HDMI mode.

• Normal: Select this mode when there is no contrast ratio degradation.

• Low: Select this mode to reduce the black level and increase the white level when there is a contrast ratio degradation.

― HDMI Black Level may not be compatible with some source devices.

― The HDMI Black Level feature is only activated at a certain AV resolution, such as 720P and 1080P.

Eye Saver Mode

Set to an optimum picture quality suitable for eye relaxation.

TÜV Rheinland "Low Blue Light Content" is a certification for products which meet requirements for lower blue light levels. When Eye Saver Mode is 'On', the blue light that wavelength is around 400nm will decrease, and it will provide an optimum picture quality suitable for eye relaxation. At the same time, the blue light level is lower than in the default settings, and it was tested by TÜV Rheinland and certified as it met the requirements of TÜV Rheinland "Low Blue Light Content" standards.

Game Mode

Configure the product screen settings for game mode.

Use this feature when playing games on a PC or when a game console such as PlayStation™ or Xbox™ is connected.

― This menu is not available when Eye Saver Mode is enabled.

― This menu is not available when Smart ECO Saving is enabled.

― When the monitor turns off, enters power-saving mode or changes input sources, Game Mode turns Off even if it is set to On.

― If you want to keep Game Mode enabled all the time, select Always On.

Response Time

Accelerate the panel response rate to make video appear more vivid and natural.

― Use Standard mode when not playing a video or game.

Picture Size

Change the picture size.

In PC mode

- **Auto**: Display the picture according to the aspect ratio of the input source.

- **Wide**: Display the picture in full screen regardless of the aspect ratio of the input source.

In AV mode

- **4:3**: Display the picture with an aspect ratio of 4:3. Suitable for videos and standard broadcasts.

- **16:9**: Display the picture with an aspect ratio of 16:9. (S24H650FD*/S27H650FD*)

- **Wide**: Display the picture in full screen regardless of the aspect ratio of the input source. (S24H650GD*)

- **Screen Fit**: Display the picture with the original aspect ratio without cutting off.

― The function may not be supported depending on the ports provided with the product.

― Changing the screen size is available when the following conditions are satisfied.

　― A digital output device is connected using the HDMI/DP cable.

　― The input signal is 480p, 576p, 720p, or 1080p and monitor can display normally (Not every model can support all of these signals.).

　― This can only be set when the external input is connected through HDMI/DP and **PC/AV Mode** is set to **AV**.

Screen Adjustment

― This menu is only available when **Picture Size** is set to **Screen Fit** in **AV** Mode.
When a 480P or 576P or 720P or 1080P signal is input in **AV** mode and the monitor can display normally, select **Screen Fit** to adjust horizontal position in 0-6 levels.

Configuring H-Position & V-Position

H-Position: Move the screen to the left or right.

V-Position: Move the screen up or down.

Configuring Coarse

Adjust the screen frequency.

― This menu is available in **Analog** mode only.

Configuring Fine

Fine-adjust the screen to obtain a vivid picture.

― This menu is available in **Analog** mode only.

Adjusting OSD (On Screen Display) settings

A detailed description of each function is provided. Refer to your product for details.

― The functions available may vary depending on the product model. The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

Transparency

Set the transparency for the menu windows.

Position

Adjust the menu position.

Language

Set the menu language.

― A change to the language setting will only be applied to the onscreen menu display.

― It will not be applied to other functions on your PC.

Display Time

Set the on-screen display (OSD) menu to automatically disappear if the menu is not used for a specified period of time.

Display Time can be used to specify the time after which you want the OSD menu to disappear.

Chapter 06
Setup and Reset

A detailed description of each function is provided. Refer to your product for details.

― The functions available may vary depending on the product model. The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

Smart ECO Saving

The Smart ECO Saving function reduces power consumption by controlling the electric current used by the monitor panel.

― This menu is not available when Eye Saver Mode is enabled.
― Game Mode will automatically turn off when Smart ECO Saving is enabled.

• Off: Deactivate the Smart ECO Saving function.

• On: The power consumption will automatically be reduced by about 10% over the current setting. (The reduction of power consumption depends on the customer screen brightness condition.)

Off Timer Plus

Configuring Off Timer

Off Timer: Turn on Off Timer mode.

Turn Off After: The off timer can be set within a range of 1 to 23 hours. The product will automatically power off after the specified number of hours.

― This option is only available when Off Timer is set to On.

― For products for the market in some regions, the Off Timer is set to automatically activate 4 hours after the product powers on. This is done in accordance with power supply regulations. If you do not want the timer to activate, go to MENU → System → Off Timer Plus and set Off Timer to Off.

Configuring Eco Timer

Eco Timer: Turn on Eco Timer mode.

Eco Off After: The Eco Timer can be set between 10 and 180 minutes. The product will automatically power off after the specified time has elapsed.

― This option is only available when Eco Timer is set to On.

PC/AV Mode

Set PC/AV Mode to AV. The picture size will be enlarged.

This option is useful when you view a movie.

• Set to PC when connected to a PC.

• Set to AV when connected to an AV device.

― Supplied for the wide models only such as 16:9 or 16:10.

― If the monitor (when set to HDMI/DisplayPort) is in power saving mode or is displaying the message Check Signal Cable, press the MENU button to display the On Screen Display (OSD). You can select PC or AV.

Source Detection

Select either Auto or Manual as the method to recognize input signal.

Key Repeat Time

Control the response rate of a button when the button is pressed.

Acceleration, 1 sec, or 2 sec can be selected. If No Repeat is selected, a command responds only once when a button is pressed.

Reset All

Return all the settings for the product to the default factory settings.

Information

View the current input source, frequency and resolution.

Installing the Software

Easy Setting Box

Easy Setting Box

Easy Setting Box enables users to use the monitor by partitioning multiple sections.

To install the latest version of **Easy Setting Box**, download it from the Samsung Electronics website at http://www.samsung.com.

― The software may not work properly if you do not restart the computer after the installation.

― The **Easy Setting Box** icon may not appear depending on the computer system and the product specifications.

― If the shortcut icon does not appear, press the F5 key.

Restrictions and Problems with the Installation

The **Easy Setting Box** installation may be affected by the Graphics Card, Motherboard and the Networking Environment.

System Requirements

OS	Hardware
• Windows XP 32Bit/64Bit	• At least 32MB of memory
• Windows Vista 32Bit/64Bit	• At least 60MB of free space on the hard disk drive
• Windows 7 32Bit/64Bit	
• Windows 8 32Bit/64Bit	
• Windows 8.1 32Bit/64Bit	
• Windows 10 32Bit/64Bit	

Requirements Before Contacting Samsung Customer Service Center

─ Before calling Samsung Customer Service Center, test your product as follows. If the problem persists, contact Samsung Customer Service Center.

Testing the Product

Check if your product is operating normally by using the product test function.

If the screen is turned off and the power indicator blinks even though the product is properly connected to a PC, perform a self-diagnosis test.

1 Power off both the PC and product.

2 Disconnect the cables from the product.

3 Power on the product.

4 If the message Check Signal Cable appears, the product is working normally.

─ If the screen remains blank, check the PC system, video controller and cable.

Checking the Resolution and Frequency

For a mode that exceeds the supported resolution(refer to Standard Signal Mode Table), the message Not Optimum Mode will appear for a short time.

─ The displayed resolution may vary, depending on the computer system settings and cables.

Check the following.

Installation issue (PC mode)

The screen keeps switching on and off.

Check the cable connection between the product and PC, and ensure the connectors are locked.

Blank spaces are found on all four sides of the screen when an HDMI or HDMI-DVI cable is connected to the product and PC.

The blank spaces found on the screen have nothing to do with the product.

Blank spaces on the screen are caused by the PC or graphics card. To resolve the problem, adjust the screen size in the HDMI or DVI settings for the graphics card.

If the graphics card settings menu does not have an option to adjust the screen size, update the graphics card driver to the latest version.

(Please contact the graphics card or computer manufacturer for further details about how to adjust the screen settings.)

Screen issue

The power LED is off. The screen will not switch on.

Check that the power cable is connected properly.

The message Check Signal Cable appears.

Check that the cable is properly connected to the product.

Check that the device connected to the product is powered on.

Not Optimum Mode **is displayed.**

This message appears when the signal from the graphics card exceeds the maximum resolution or frequency for the product.

Change the maximum resolution and frequency to suit the product performance, referring to Standard Signal Mode Table (P.40).

The images on the screen look distorted.

Check the cable connection to the product.

The screen is not clear. The screen is blurry.

Adjust Coarse and Fine.

Remove any accessories (video extension cable, etc.) and try again.

Set the resolution and frequency to the recommended level.

The screen appears unstable and shaky. There are shadows or ghost images left on the screen.

Check that the resolution and frequency for the PC are within the range of resolution and frequency compatible with the product. Next, if required, change the settings, referring to Standard Signal Mode Table (P.40) in this manual and the Information menu on the product.

The screen is too bright. The screen is too dark.

Adjust Brightness and Contrast.

Screen color is inconsistent.

Change the Color settings.

The colors on the screen have a shadow and are distorted.

Change the Color settings.

White does not really look white.

Change the Color settings.

There is no image on the screen and the power LED blinks every 0.5 to 1 second.

The product is operating in power-saving mode.

Press any key on the keyboard or move the mouse to return to normal operating mode.

Text is blurry.

If using a Windows OS (e.g. Windows 7, Windows 8, Windows 8.1 or Windows 10): Go to **Control Panel** → **Fonts** → **Adjust ClearType text** and change **Turn on ClearType**.

Video playback is choppy.

Playback of high-definition large video files can be choppy. This may be because the video player is not optimized for the computer resource.

Try playing the file on another video player.

Sound issue

There is no sound.

Check the connection of the audio cable or adjust the volume.

Check the volume.

The volume is too low.

Adjust the volume.

If the volume is still low after turning it up to the maximum level, adjust the volume on your PC sound card or software program.

Video is available but there is no sound.

Sound cannot be heard if a HDMI-DVI cable is used to connect the input device.

Connect the device using an HDMI cable or a DP cable.

Source device issue

A beeping sound is heard when my PC is booting.

If a beeping sound is heard when your PC is booting, have your PC serviced.

― The LED lights on the frame of the product may be seen depending on the user's viewing angle. The light is harmless to people and has no bearing on product features and performance. The product is safe to use.

Q & A

How can I change the frequency?

Set the frequency on your graphics card.

- Windows XP: Go to **Control Panel** → **Appearance and Themes** → **Display** → **Settings** → **Advanced** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.

- Windows ME/2000: Go to **Control Panel** → **Display** → **Settings** → **Advanced** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.

- Windows Vista: Go to **Control Panel** → **Appearance and Personalization** → **Personalization** → **Display Settings** → **Advanced Settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.

- Windows 7: Go to **Control Panel** → **Appearance and Personalization** → **Display** → **Screen Resolution** → **Advanced settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.

- Windows 8(Windows 8.1): Go to **Settings** → **Control Panel** → **Appearance and Personalization** → **Display** → **Screen Resolution** → **Advanced settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.

- Windows 10: Go to **Settings** → **System** → **Display** → **Advanced display settings** → **Display adapter properties** → **Monitor**, and adjust **Screen refresh rate** under **Monitor settings**.

How can I change the resolution?

- Windows XP: Go to **Control Panel** → **Appearance and Themes** → **Display** → **Settings**, and adjust the resolution.

- Windows ME/2000: Go to **Control Panel** → **Display** → **Settings**, and adjust the resolution.

- Windows Vista: Go to **Control Panel** → **Appearance and Personalization** → **Personalize** → **Display Settings**, and adjust the resolution.

- Windows 7: Go to **Control Panel** → **Appearance and Personalization** → **Display** → **Adjust Resolution**, and adjust the resolution.

- Windows 8(Windows 8.1): Go to **Settings** → **Control Panel** → **Appearance and Personalization** → **Display** → **Adjust Resolution**, and adjust the resolution.

- Windows 10: Go to **Settings** → **System** → **Display** → **Advanced display settings**, and adjust the resolution.

How do I set power-saving mode?

- Windows XP: Set power-saving mode in **Control Panel** → **Appearance and Themes** → **Display** → **Screen Saver Settings** → **Power options** or BIOS SETUP on the PC.

- Windows ME/2000: Set power-saving mode in **Control Panel** → **Display** → **Screen Saver Settings** → **Power options** or BIOS SETUP on the PC.

- Windows Vista: Set power-saving mode in **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** → **Power options** or BIOS SETUP on the PC.

- Windows 7: Set power-saving mode in **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** → **Power options** or BIOS SETUP on the PC.

- Windows 8(Windows 8.1): Set power-saving mode in **Settings** → **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** → **Power options** or BIOS SETUP on the PC.

- Windows 10: Set power-saving mode in **Settings** → **Personalization** → **Lock screen** → **Screen timeout settings** → **Power & sleep** or BIOS SETUP on the PC.

General

Model Name	S24H650GD*	S24H650FD*	S27H650FD*
Size	61.1 cm	60.4 cm	68.6 cm
Display area	518.4 mm (H) x 324 mm (V)	527.04 mm (H) x 296.46 mm (V)	597.888 mm (H) x 336.312 mm (V)
Pixel Pitch	0.27 mm (H) x 0.27 mm (V)	0.2745 mm (H) x 0.2745 mm (V)	0.3114 mm (H) x 0.3114 mm (V)
Maximum Pixel Clock	154 MHz	148.5 MHz	148.5 MHz
Power Supply	AC 100 - 240 V - (+/- 10 %), 50/60 Hz ± 3 Hz		
	Refer to the label at the back of the product as the standard voltage can vary in different countries.		
Signal connectors	D-SUB, HDMI, DP		
Environmental conditions	**Operating**		
	Temperature: 10 °C – 40 °C (50 °F – 104 °F)		
	Humidity: 10 % – 80 %, non-condensing		
	Storage		
	Temperature: -20 °C – 45 °C (-4 °F – 113 °F)		
	Humidity: 5 % – 95 %, non-condensing		

― Plug-and-Play

This monitor can be installed and used with any Plug-and-Play compatible systems. Two-way data exchange between the monitor and PC system optimizes the monitor settings. Monitor installation takes place automatically. However, you can customize the installation settings if desired.

― Panel Dots (Pixels)

Due to the nature of the manufacturing of this product, approximately 1 pixel per million (1ppm) may be brighter or darker on the LCD panel. This does not affect product performance.

― The above specifications are subject to change without notice to improve quality.

― This device is a Class B digital apparatus.

― For detailed device specifications, visit the Samsung Electronics website.

Standard Signal Mode Table

Model Name		S24H650GD*	S24H650FD*/S27H650FD*
Synchronization	Horizontal Frequency	30 – 81 kHz	30 – 81 kHz
	Vertical Frequency	50 – 65 Hz	50 – 75 Hz
Resolution	Optimum Resolution	1920 x 1200 @ 60 Hz	1920 x 1080 @ 60 Hz
	Maximum Resolution	1920 x 1200 @ 60 Hz	1920 x 1080 @ 60 Hz

If a signal that belongs to the following standard signal modes is transmitted from your PC, the screen will automatically be adjusted. If the signal transmitted from the PC does not belong to the standard signal modes, the screen may be blank even though the power LED turns on. In such a case, change the settings according to the following table by referring to the graphics card user manual.

S24H650GD*

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
VESA, 640 x 480	31.469	59.940	25.175	-/-
VESA, 800 x 600	35.156	56.250	36.000	+/+
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1280 x 720	45.000	60.000	74.250	+/+
VESA, 1280 x 800	49.702	59.810	83.500	-/+
VESA, 1280 x 1024	63.981	60.020	108.000	+/+
VESA, 1440 x 900	55.935	59.887	106.500	-/+
VESA, 1600 x 900	60.000	60.000	108.000	+/+
VESA, 1680 x 1050	65.290	59.954	146.250	-/+
VESA, 1920 x 1080	67.500	60.000	148.500	+/+
VESA, 1920 x 1200	74.038	59.950	154.000	+/-

S24H650FD*/S27H650FD*

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 720 x 400	31.469	70.087	28.322	-/+
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC, 1152 x 870	68.681	75.062	100.000	-/-
VESA, 640 x 480	31.469	59.940	25.175	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	+/+
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.000	+/+
VESA, 1280 x 720	45.000	60.000	74.250	+/+
VESA, 1280 x 800	49.702	59.810	83.500	-/+
VESA, 1280 x 1024	63.981	60.020	108.000	+/+
VESA, 1280 x 1024	79.976	75.025	135.000	+/+
VESA, 1440 x 900	55.935	59.887	106.500	-/+
VESA, 1600 x 900	60.000	60.000	108.000	+/+

S24H650FD*/S27H650FD*

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
VESA, 1680 x 1050	65.290	59.954	146.250	-/+
VESA, 1920 x 1080	67.500	60.000	148.500	+/+

― Horizontal Frequency

The time required to scan a single line from the left to the right side of the screen is called a horizontal cycle. The reciprocal number of a horizontal cycle is called horizontal frequency. Horizontal frequency is measured in kHz.

― Vertical Frequency

Repeating the same picture dozens of times per second allows you to view natural pictures. The repeat frequency is called "vertical frequency" or "refresh rate" and is indicated in Hz.

― This product can be set to only one resolution for each screen size to obtain the optimum picture quality due to the nature of the panel. Using a resolution other than the specified resolution may degrade the picture quality. To avoid this, it is recommended that you select the optimum resolution specified for your product.

Responsibility for the Pay Service (Cost to Customers)

― When the service is requested, in spite of in warranty, we may charge you for a visit from a service technician in the following cases.

Not a product defect

Cleaning of the product, Adjustment, Explanation, Re-installation and etc.

- If a service technician gives instructions on how to use product or simply adjusts options without disassembling product.
- If a defect is caused by external environmental factors (Internet, Antenna, Wired Signal, etc.)
- If a product is reinstalled or devices are connected additionally after installing the purchased product for the first time.
- If a product is reinstalled to move to a different spot or to move to a different house.
- If customer requests instructions on how to use because of another company's product.
- If customer requests instructions on how to use the network or another company's Program.
- If customer requests software installation and setup for the product.
- If a service technician removes/cleans dusts or foreign materials inside of the product.
- If customer requests an installation additionally after purchasing a product through home-shopping or online.

A Product damage caused by customer's fault

Product damage caused by customer's mishandling or wrong repair

If a product damage is caused by;

- External impact or drop.
- Use of supplies or separately sold product unspecified by Samsung.
- Repair from a person besides an engineer of outsourcing service company or partner of Samsung Electronics Co., Ltd.
- Remodeling or repairing the product by customer.
- Using it with incorrect voltage or non-authorized electrical connections.
- Not following the "cautions" in User Manual.

Others

- If product fails by natural disaster. (lightning, fire, earthquake, flood damage, etc)
- If consumable components are all used up. (Battery, Toner, Fluorescent lights, Head, Vibrator, Lamp, Filter, Ribbon, etc.)

― If customer requests a service in case the product has no defect, service fee may be charged. So please read User Manual first.