User Manual

S22C450F
S22C450DW
S24C450F

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.

SAMSUNG

BN46-00294H-01

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Before Using the Product

Copyright

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• An administration fee may be charged if either
    □ (a) an engineer is called out at your request and there is no defect in the product
       (i.e. where you have failed to read this user manual).
    □ (b) you bring the unit to a repair centre and there is no defect in the product
       (i.e. where you have failed to read this user manual).
• The amount of such administration charge will be advised to you before any work or home visit is carried out.

Icons used in this manual

	The following images are for reference only. Real-life situations may differ from what is shown in the images.

Cleaning

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

Take the following steps when cleaning.
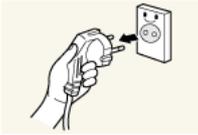
1. Power off the monitor and computer.

2. Disconnect the power cord from the monitor.

Hold the power cable by the plug and do not touch the cable with wet hands. Otherwise, an electric shock may result.
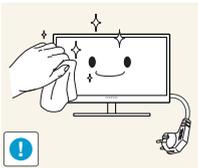
3. Wipe the monitor screen using a clean, soft and dry cloth.

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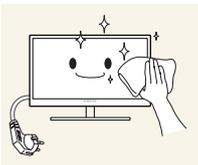
4. Wet a soft and dry cloth in water and wring thoroughly to clean the exterior of the monitor.

5. Connect the power cord to the product after cleaning the product.

6. Power on the monitor and computer.

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.

3.93 inches(10 cm)

3.93 inches (10 cm)

3.93 inches (10 cm)

3.93 inches(10 cm)

3.93 inches(10 cm)
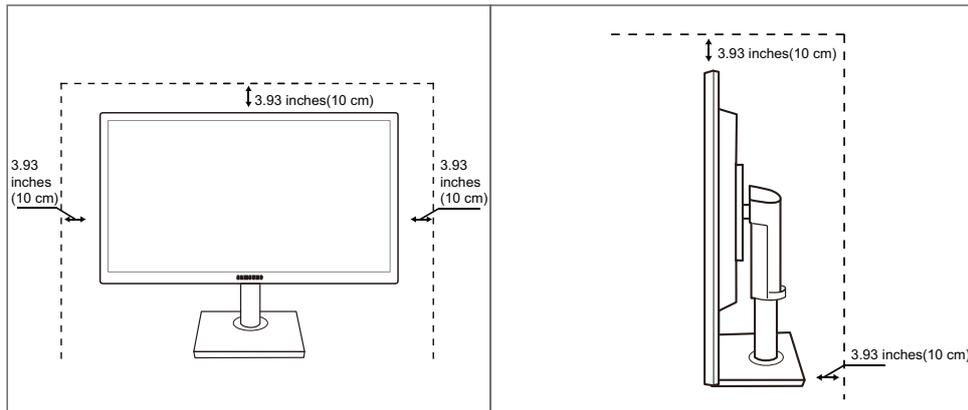
Precautions for storage

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

> Be sure to contact Samsung Customer Service Center (page 92) if the inside of the monitor needs cleaning. (A service fee will be charged.)

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.
🚫	Activities marked by this symbol are prohibited.
❗	Instructions marked by this symbol must be followed.

Electricity and Safety

 The following images are for reference only. Real-life situations may differ from what is shown in the images.

⚠ Warning

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

- An electric shock or fire may result.

Do not plug many products into the same power socket.

- Otherwise, the socket may overheat and cause a fire.

Do not touch the power plug with wet hands.

- Otherwise, an electric shock may result.
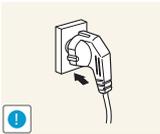
Insert the power plug all the way in so it is not loose.

- An unstable connection may cause a fire.

Ensure you connect the power plug to a grounded power socket. (type 1 insulated devices only).

- An electric shock or injury may result.

Do not bend or pull the power cord with force. Do not weigh the power cord down with a heavy object.

- A damaged power cord may cause an electric shock or fire.

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

- An electric shock or fire may result.

Remove foreign substances such as dust around the plug pins and power socket with a dry cloth.

- Otherwise, a fire may result.

Caution

Do not unplug the power cord when the product is in use.

- The product may become damaged by an electric shock.
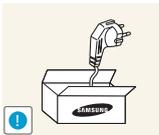
Do not use the power cord for products other than authorized products supplied by Samsung.

- An electric shock or fire may result.

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

- If any problem occurs in the product, unplug the power cable to completely cut the power to the product.

  Power to the product cannot be completely cut off with the power button.

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

- An electric shock or fire may result.

Installation and Safety

Warning

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

- Otherwise, a fire may result.

Avoid installing the product in a narrow space with bad ventilation, such as a bookshelf or wall closet.

- Otherwise, a fire may result due to an increased internal temperature.

Keep the plastic packaging bag for the product in a place that cannot be reached by 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 break or cause a personal 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.

- An electric shock or fire may result.

Do not expose the product to direct sunlight, heat, or a hot object such as a stove.

- Otherwise, 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, can damage or deform the product. Do not install the product in a kitchen or near a kitchen counter.

 Caution

Take care not to drop the product when moving it.

- Otherwise, product failure or personal injury may result.

Do not set down the product on its front.

- The screen may become damaged.

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 break or cause a personal injury.
- Install the product only on cabinets or shelves of the right size.
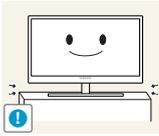
Put down the product carefully.

- The product may fall and break or cause a personal injury.

Installing the product in an unusual place (a place exposed to a lot of fine particles, chemical substances or extreme temperatures, or an airport or train station where the product should operate continuously for an extended period of time) may seriously affect its performance.

- Be sure to consult Samsung Customer Service Center (page 92) before installation if you want to install the product at such a place.

Operation and Safety

 Warning

High voltage runs through the product. Do not attempt to disassemble, repair, or modify the product on your own.

- An electric shock or fire may result.
- Contact Samsung Customer Service Center (page 92) for repair.

Before moving the product, turn off the power switch and disconnect the power cable and all other connected cables.

- Otherwise, the power cord may be damaged and a fire or electric shock may result.

If the product generates a strange noise, a burning smell, or smoke, remove the power cord immediately and contact Samsung Customer Service Center (page 92).

- An electric shock or fire may result.

Do not let children hang from the product or climb on top of it.

- The product may fall, and your child may become injured or seriously harmed.

If the product falls or the exterior is damaged, power off the product, remove the power cord, and contact Samsung Customer Service Center (page 92).

- Otherwise, an electric shock or fire may result.

Do not put a heavy object, toy, or sweets on top of the product.

- The product or heavy objects may fall as children try to reach for the toy or sweets resulting in a serious injury.

If there is a thunderstorm or lightning strike, turn off the power and disconnect the power cable.

- An electric shock or fire may result.

Do not drop objects on the product or apply impact.

- An electric shock or fire may result.

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

- Otherwise, the cable may be damaged and product failure, an electric shock or fire may result.

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

- Sparks can cause an explosion or fire.
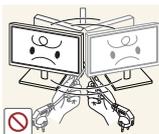
Do not lift or move the product by pulling the power cord or any cable.

- Otherwise, the cable may be damaged and product failure, an electric shock or fire may result.
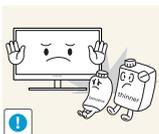
Do not use or keep combustible spray or an inflammable substance near the product.

- An explosion or fire may result.

Ensure the vents are not blocked by tablecloths or curtains.

- Otherwise, a fire may result from an increased internal temperature.

Do not insert a metallic object (a chopstick, coin, hair pin, etc.) or inflammable object (paper, match, etc.) into the vent or ports of the product.

- If water or any foreign substance enters the product, be sure to power off the product, remove the power cord, and contact Samsung Customer Service Center (page 92).
- Product failure, an electric shock or fire may result.

Do not place objects containing liquid (vases, pots, bottles, etc) or metallic objects on top of the product.

- If water or any foreign substance enters the product, be sure to power off the product, remove the power cord, and contact Samsung Customer Service Center (page 92).
- Product failure, an electric shock or fire may result.

 ⚠ Caution
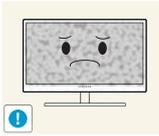
Leaving the screen fixed on a stationary image for an extended period of time may cause afterimage burn-in or defective pixels.

- If you are not going to use the product for an extended period of time, activate power-saving mode or a moving-picture screen saver.
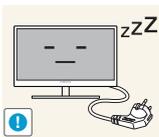
Disconnect the power cord from the power socket if you do not plan on using the product for an extended period of time (vacation, etc.).

- Otherwise, a fire may result from accumulated dust, overheating, an electric shock, or electric leakage.

Use the product at the recommended resolution and frequency.

- Otherwise,Your eyesight may deteriorate.
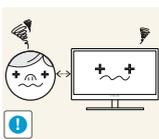
Looking at the screen too close for an extended period of time can deteriorate your eyesight.

Do not hold the monitor upside-down or move it by holding the stand.

- The product may fall and break or cause a personal injury.

Do not use humidifiers or stoves around the product.

- An electric shock or fire may result.
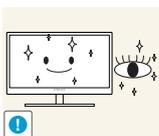
Rest your eyes for more than 5 minutes for every 1 hour of product use.

- Eye fatigue will be relieved.

Do not touch the screen when the product has been turned on for an extended period of time as it will become hot.

Store the small accessories used with the product out of reach of children.

Exercise caution when adjusting the product angle or stand height.

- Otherwise, children's fingers or hands may become stuck and injured.
- Tilting the product excessively may cause it to fall and result in personal injury.

Do not place heavy objects on the product.

- Product failure or personal injure may result.

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.

1 Preparations

1.1 Checking the Contents

1.1.1 Removing the Packaging

1 Open the packaging box. Be careful not to damage the product when you open the packaging with a sharp instrument.

2 Remove the styrofoam from the product.
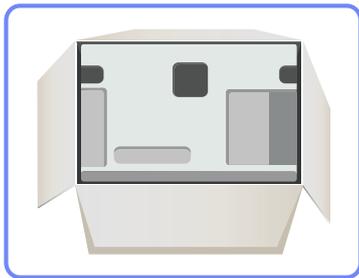
3 Check the components and remove the styrofoam and plastic bag.

> This image is for reference only.

4 Store the box in a dry area so that it can be used when moving the product in the future.

Preparations

1.1.2   Checking the Components

 📝 - Contact the dealer from whom you purchased the product if any item is missing.
     - The appearance of the components and items sold separately may differ from the image shown.

Components

Quick setup guide	Warranty card (Not available in some locations)	User manual
Power cable	D-SUB cable (optional)	DVI cable (optional)
DP cable (optional)	HDMI cable (optional)	USB cable (optional)
HDMI-DVI cable (optional)	Stand	Stand (Applicable to the stand models that have USB ports only.)
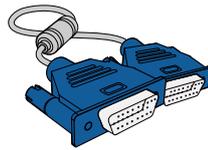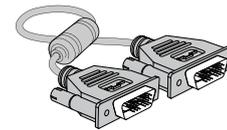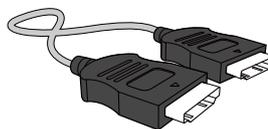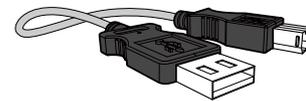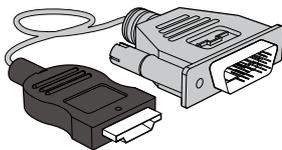
 📝 Components may vary depending on the country.

1.2 Parts

1.2.1 Frontal Buttons

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

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 and hold the [MENU] button for 10 seconds. Disable: To unlock the OSD control, press and hold the [MENU] button for more than 10 seconds. 📝 If the OSD control is locked, • Brightness and Contrast can be adjusted, and INFORMATION can be viewed. • The Customized Key function can be used by pressing the [⬆] button. (The Customized Key is available even when the OSD control is locked)

Preparations

Icons	Description
⬆	Configure **Customized Key** and press [⬆]. The following options will be enabled. **SAMSUNG MAGIC**Angle - **SAMSUNG MAGIC**Bright - Eco Saving -Image Size • To configure **Customized Key**, go to **SETUP & RESET** → Customized Key and select the mode you want.
▲/▼	Move to the upper or lower menu or adjust the value for an option on the OSD menu.
⊙	Use this button to control the brightness and contrast of the screen.
▱/↵	Confirm a menu selection. Pressing the [▱/↵] button when the OSD menu is not displayed will change the input source (**Analog**/**DVI**/**HDMI**)(S22C450F/S24C450F) (**Analog**/**DVI**/**DisplayPort**)(S22C450DW). 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.
AUTO	Press the [**AUTO**] button to automatically adjust the screen settings. • Changing the resolution in Display Properties will activate the **Auto Adjustment** function. • Available only 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.

1.2.2 Reverse Side

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

S22C450F/ S24C450F

| HDMI IN | DVI IN | RGB IN | | POWER IN |

S22C450DW

| DP IN | RGB IN | DVI IN | | POWER IN |

Port	About ports
	Connect the power cord for your monitor to the [POWER] port on the back of the product.
	Connect to a PC using the D-SUB cable.
	Connect to a PC via a DVI cable.
	Connect to a source device using an HDMI cable.
	Connect to a PC using a DP cable.
	Connect to a PC using a USB cable. This port can connect to a PC only.
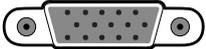
Preparations

1.2.3   Right Side View

> The color and shape of parts may differ from what is shown. Specifications are subject to change
> without notice to improve quality.
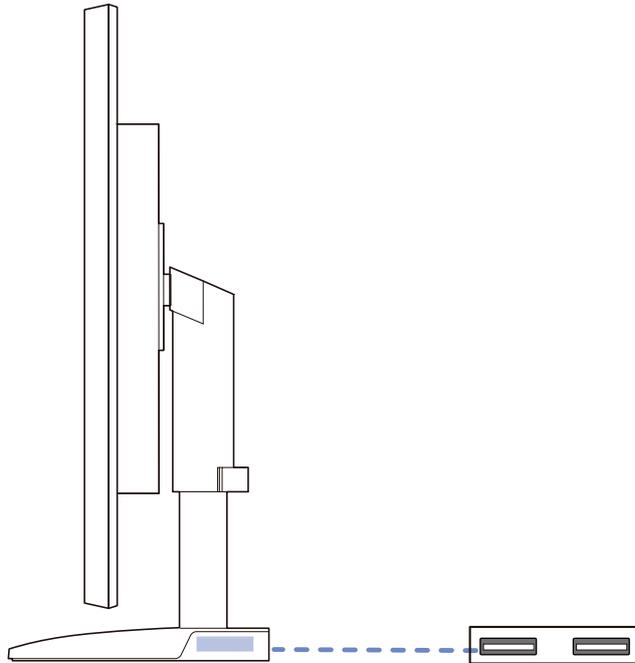
Port	About port
	Connect to a source device using a USB cable.

1

Preparations

1.3   Installation

1.3.1   Attaching the cradle
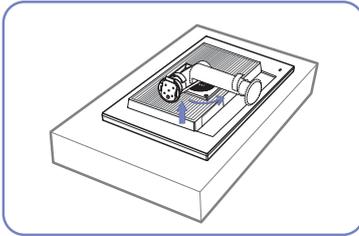
Place a protective cloth or cushion on a flat surface. Next, place the product with the face down on top of the cloth or cushion.
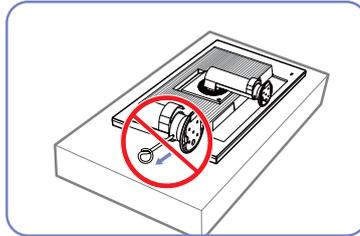
Do not remove the fixing pin until you are finished attaching the stand.
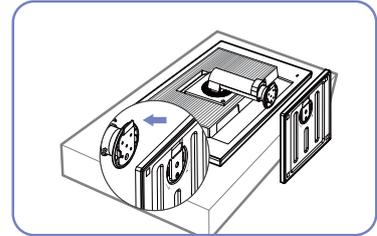
Insert the stand base into the stand in the direction of the arrow.
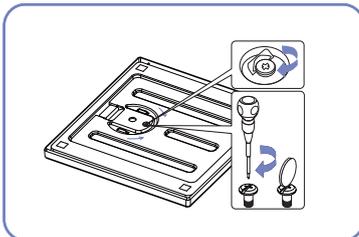
Fasten the screw tightly (using a screwdriver or coin) into the bottom of the stand base.
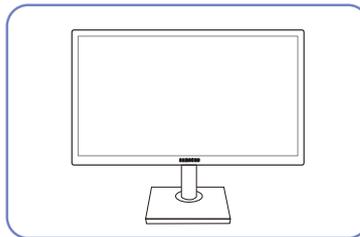
After installing the stand, place the product upright.
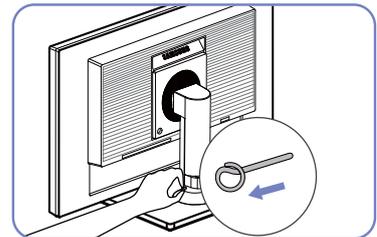
You can remove the fixing pin and adjust the stand now.

- Caution

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

 ●   Disassembly is the reverse order of assembly.
 ●   The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

1.3.2 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.

-3°(±2°) ~ 25°(±2°)

0(±5mm) ~
130mm(±5mm)
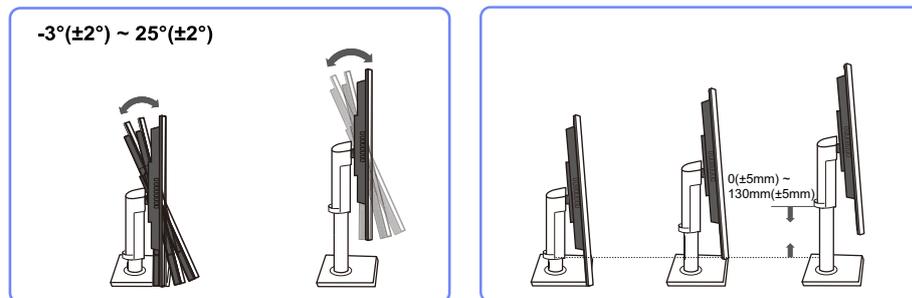
- To adjust the height, remove the fixing pin.
- The monitor tilt and height can be adjusted.
- Hold the top center of the product and adjust the height carefully.

1.3.3 Rotating the Monitor

You can rotate your monitor as shown below.
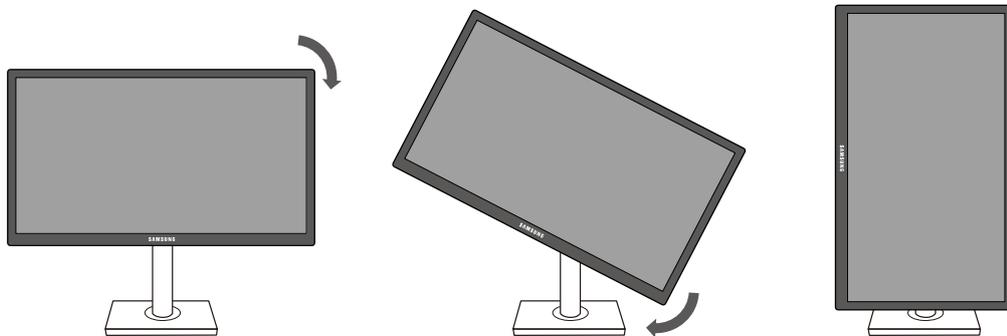
- Be sure to fully extend the stand before rotating the monitor.
- If you rotate the monitor without fully extending the stand, the corner of the monitor may hit the floor and get damaged.
- Do not rotate the monitor counterclockwise. The monitor may get damaged.

1 Preparations

Preparations

1.3.4 Installing a Wall-mount Kit or Desktop Stand

Before Installation

 Power the product off and remove the power cable from the power socket.
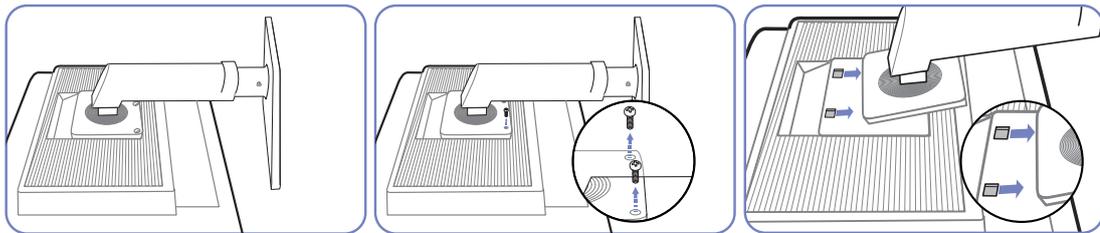
Place a protective cloth or cushion on a flat surface. Next, place the product with the face down on top of the cloth or cushion.

Unfasten the screw from the back of the product.

Lift and detach the stand.

Installing a Wall-mount Kit or Desktop Stand
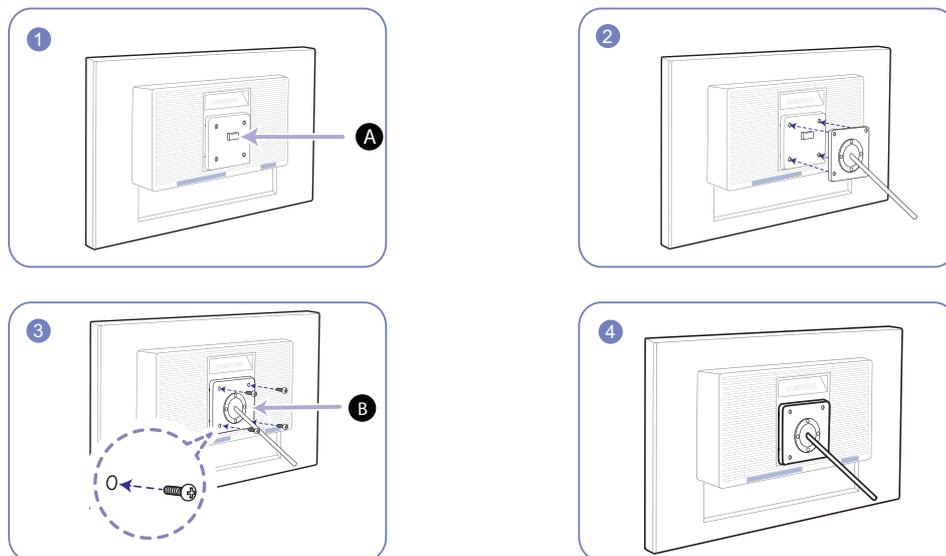
Ⓐ Attach the wall-mount kit or desktop stand here

Ⓑ 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.

Preparations

- 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 10cm 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.

1.3.5 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. The lock device is sold separately.
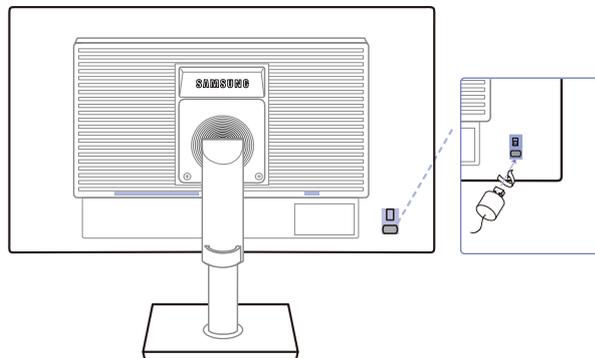
> The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

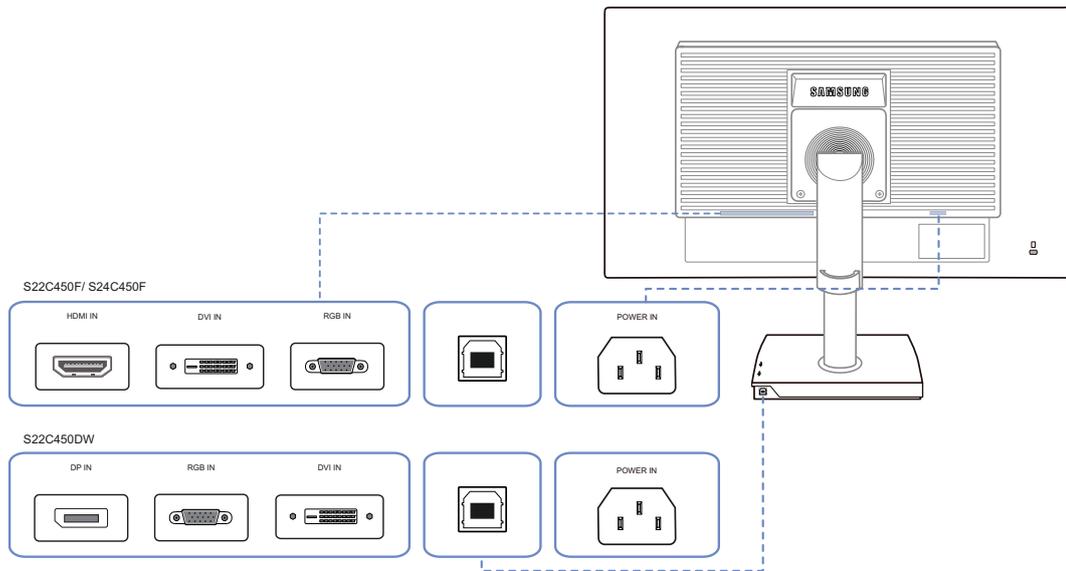**To lock an anti-theft locking device:**

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.

2 Connecting and Using a Source Device

2.1   Before Connecting
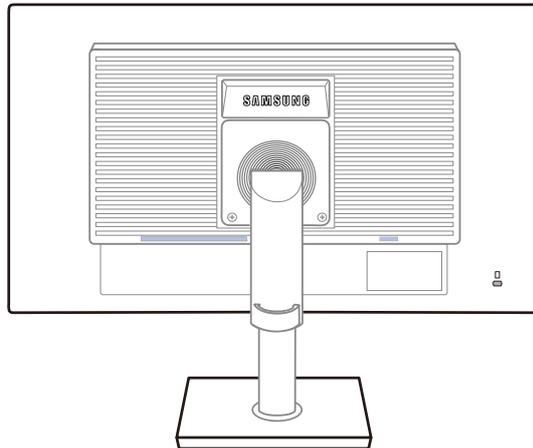
2.1.1   Pre-connection Checkpoints

- Before connecting a source device, read the user manual provided with it.
  The number and locations of ports on source devices may differ from device to device.
- Do not connect the power cable until all connections are completed.
  Connecting the power cable during connection may damage the product.
- Check the types of ports at the back of the product you want to connect.

2 **Connecting and Using a Source Device**

2.2 Connecting and Using a PC

2.2.1 Connecting to a PC

> Do not connect the power cable before connecting all other cables.
> Ensure you connect a source device first before connecting the power cable.

- Select a connection method suitable for your PC.

> Connecting parts may differ in different products.

Connection Using the D-SUB Cable (Analog Type)
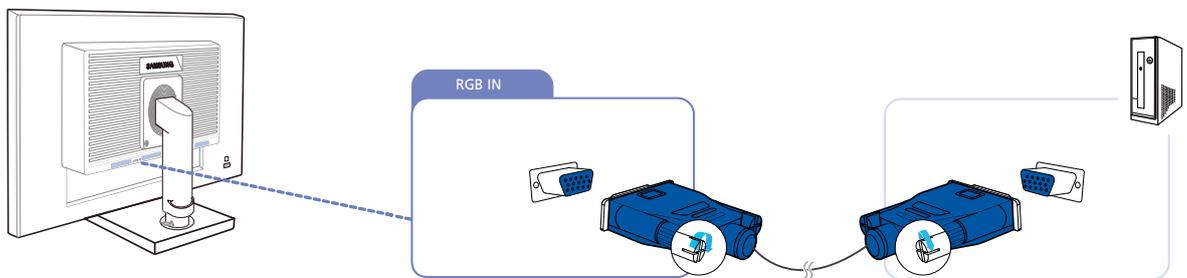
RGB IN

1 Connect the D-SUB cable to the [RGB IN] port on the back of the product and the RGB port on the PC.

2 Connect the power cable to the product and power outlet. Turn on the power switch on the PC.

3 Press [/] to change the input source to **Analog**.

Connection Using the DVI Cable
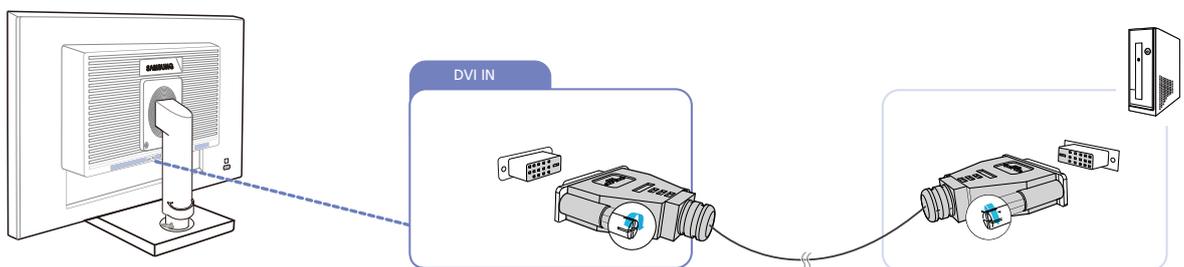
DVI IN

1 Connect the DVI cable to the [DVI IN] port on the back of the product and the DVI port on the PC.

2 Connect the power cable to the product and power outlet. Turn on the power switch on the PC.

3 Press [/] to change the input source to **DVI**.

Connecting and Using a Source Device

Connection Using the HDMI Cable (S22C450F/S24C450F)
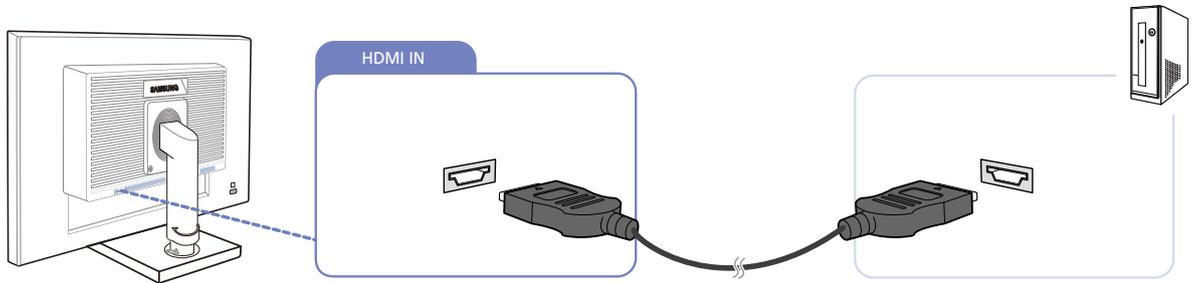
HDMI IN

1 Connect the HDMI cable to the [HDMI IN] port on the back of the product and the HDMI port on the PC.

2 Connect the power cable to the product and power outlet. Turn on the power switch on the PC.

3 Press [/] to change the input source to **HDMI**.

Connection Using the HDMI-DVI Cable (S22C450F/S24C450F)
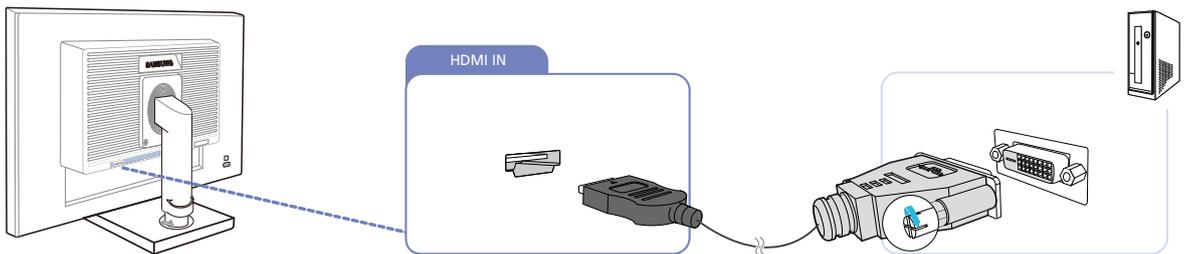
HDMI IN

1 Connect the HDMI-DVI cable to the [HDMI IN] port on the back of the product and the DVI port on the PC.

2 Connect the power cable to the product and power outlet. Turn on the power switch on the PC.

3 Press [/] to change the input source to **HDMI**.

Connection Using the DP Cable (S22C450DW)
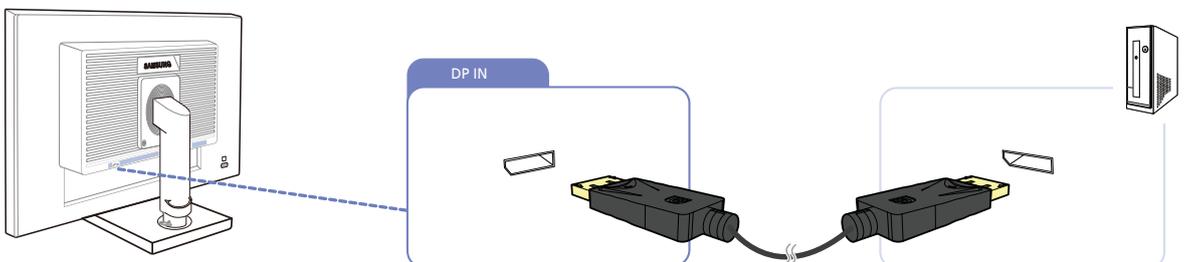
DP IN

1 Connect the DP cable to the [DP IN] port on the back of the product and the DP port on the PC.

2 Connect the power cable to the product and power outlet. Turn on the power switch on the PC.

3 Press [/] to change the input source to **DisplayPort**.

Connecting and Using a Source Device

Connecting USB

 - Applicable to the stand models that have USB ports only.
 - You can use a USB device such as a mouse, keyboard, Memory Stick, or external hard disk drive by connecting them to the [ ] port of the monitor without connecting them to the PC.

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)

1 Connect the [ ] 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 [ ] port and your computer's USB port.
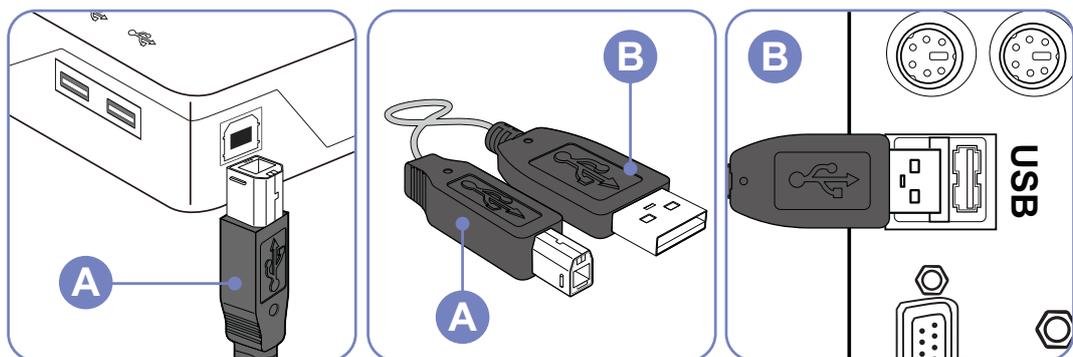
2 Connect the [ ] port of the USB monitor and a USB device with the USB cable.

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.

2.3   Connecting the Power

- 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 and Using a Source Device
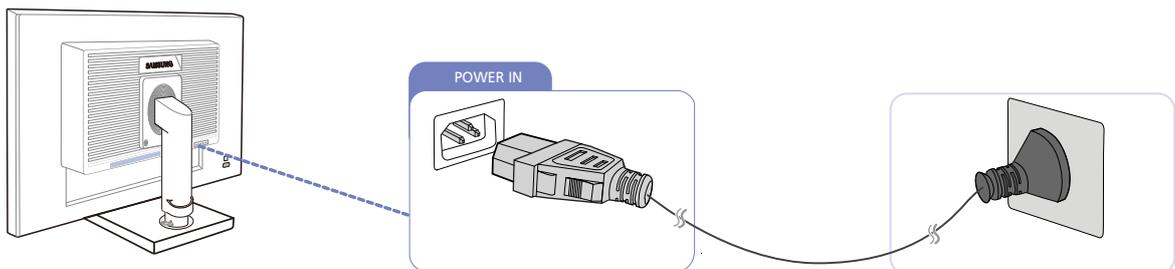
2.3.1   Driver Installation

- You can set the optimum resolution and frequency for this product by installing the corresponding drivers.
  - An installation driver is contained on the CD supplied with the product.
  - If the file provided is faulty, visit the Samsung homepage (http://www.samsung.com/) and download the file.

1 Insert the user manual CD provided with the product into the CD-ROM drive.

2 Click "Windows Driver".

3 Complete the remaining software installation steps according to the instructions displayed on the screen.

4 Select your product model from the list of models.
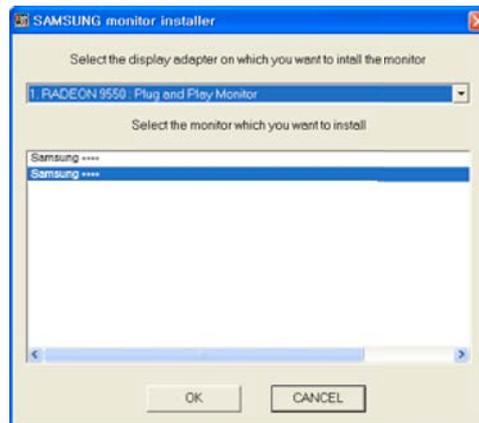
5 Go to Display Properties and check that the resolution and refresh rate are appropriate.

Refer to your Windows OS manual for further details.

Connecting and Using a Source Device

2.3.2 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.

The optimal resolution for this monitor is as follows:

**** x **** **Hz
Use the above settings to set the resolution on your PC.

English

EXIT   AUTO
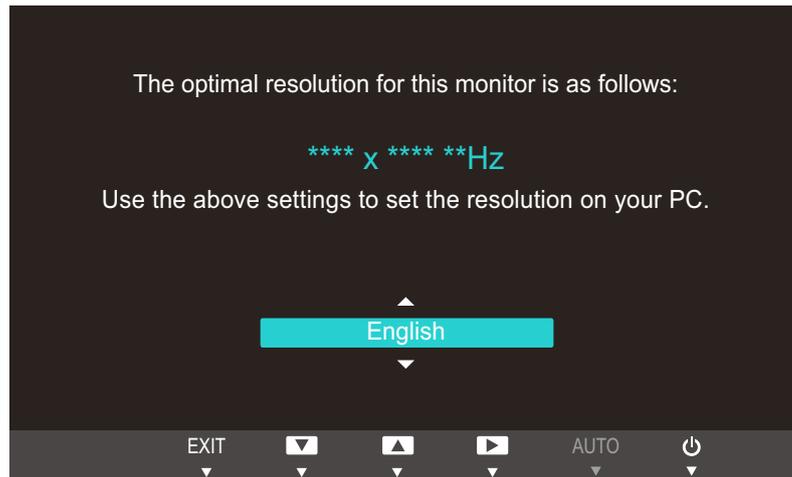
1 Press [/] to move to the language you want and press [/].
2 To hide the information message, press [MENU].

  - 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.

Connecting and Using a Source Device

2.3.3 Changing the Resolution Using a PC

 - Adjust the resolution and refresh rate in Control Panel on your PC to obtain optimum picture quality.
 - The picture quality of TFT-LCDs may degrade if the optimum resolution is not selected.

Changing the Resolution on Windows XP

Go to **Control Panel** → **Display** → **Settings** and change the resolution.

Connecting and Using a Source Device
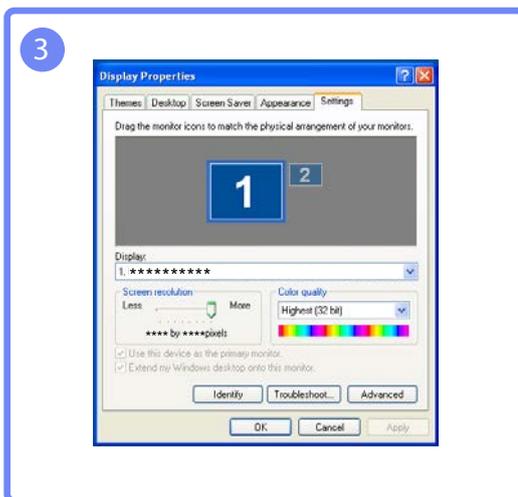
Changing the Resolution on Windows Vista

Go to **Control Panel** → **Personalization** → **Display Settings** and change the resolution.

Connecting and Using a Source Device
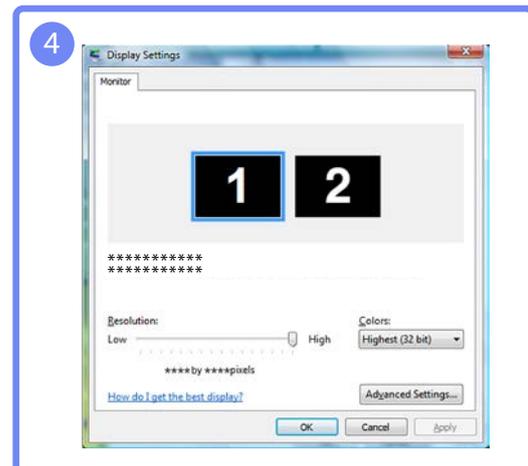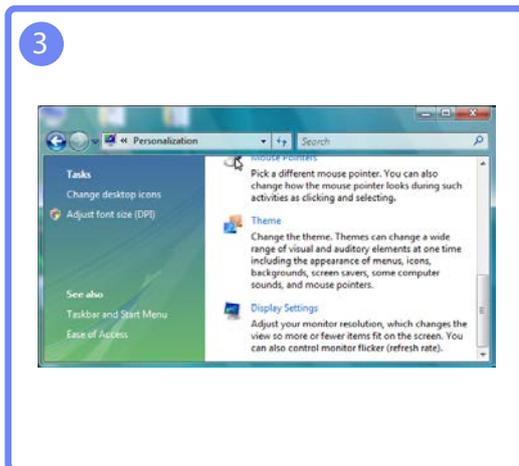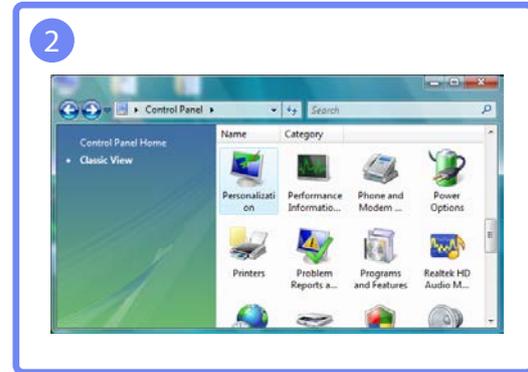
Changing the Resolution on Windows 7

Go to **Control Panel** → **Display** → **Screen Resolution** and change the resolution.

Connecting and Using a Source Device
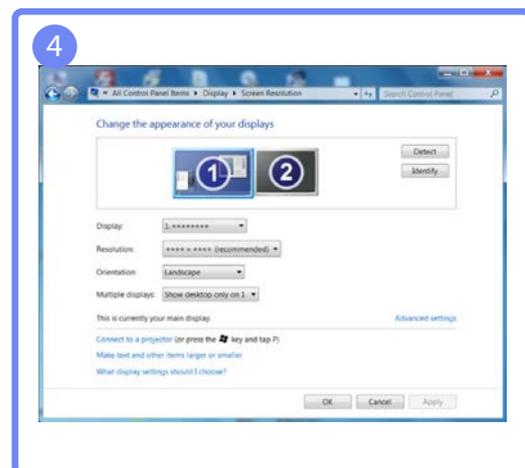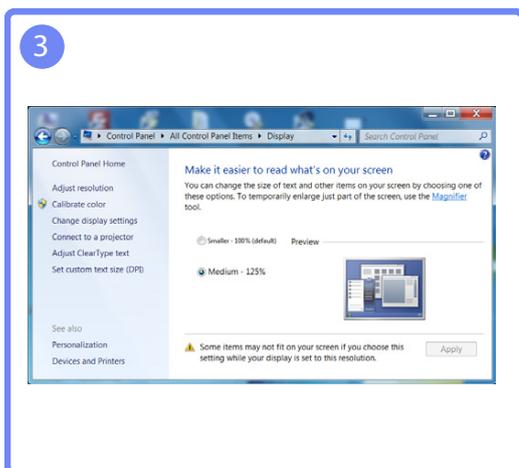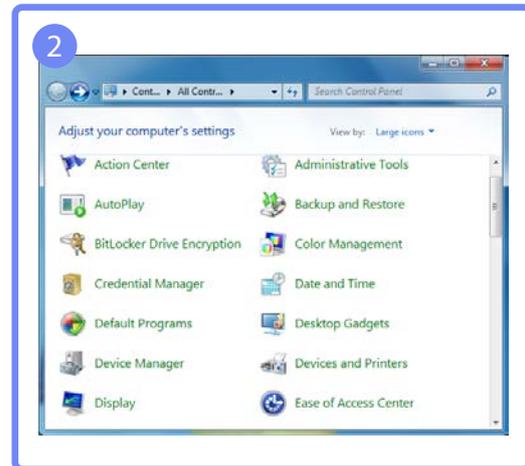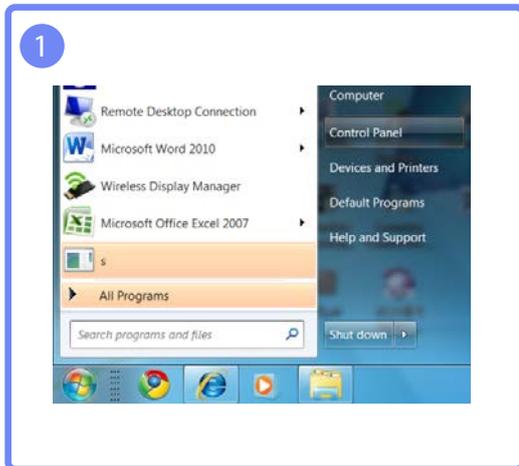
Changing the Resolution on Windows 8

Go to **Settings** → **Control Panel** → **Display** → **Screen Resolution** and change the resolution.
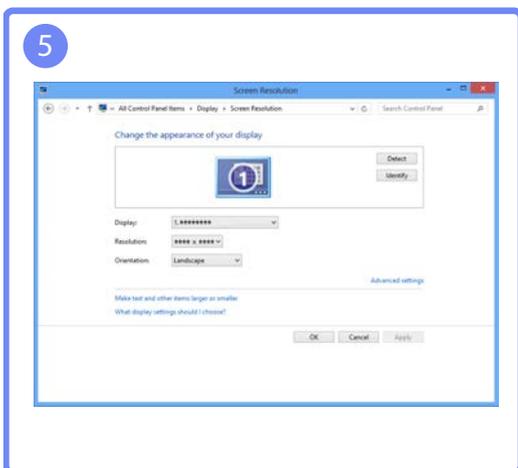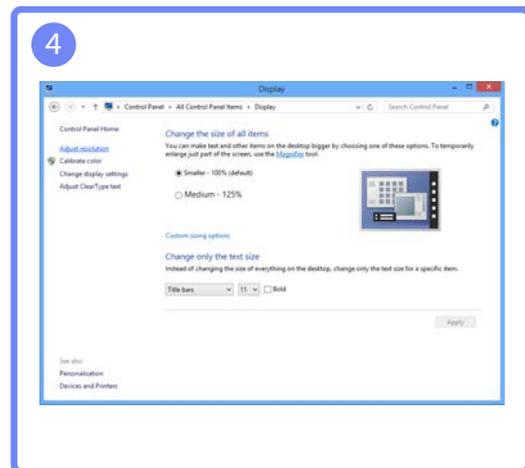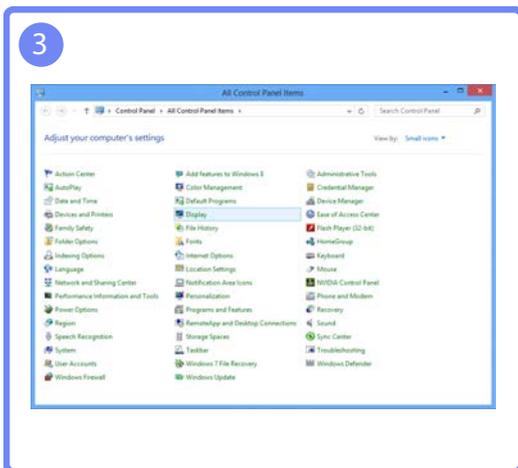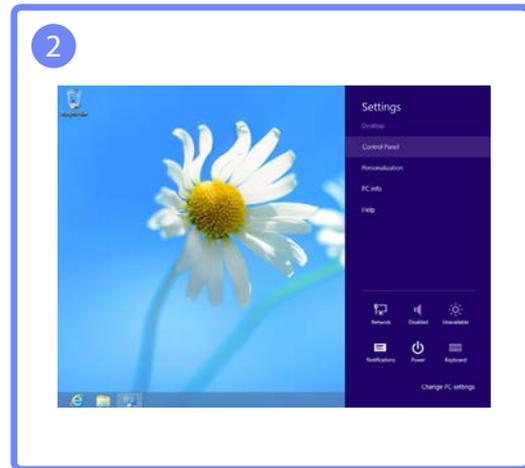
Screen Setup

Configure the screen settings such as brightness.

3.1　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 ᴹᴬᴳⁱᶜBright is set to **Dynamic Contrast** mode.
> - This menu is not available when Eco Saving is enabled.

3.1.1　Configuring Brightness

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲ / ▼] to move to **PICTURE** and press [/] on the product.

3 Press [▲ / ▼] to move to **Brightness** and press [/] on the product.

The following screen will appear.

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
ᴹᴬᴳⁱᶜ Bright	: Custom	
ᴹᴬᴳⁱᶜ Angle	: Off	
ᴹᴬᴳⁱᶜ Upscale	: Off	
Image Size	: Wide	
▼		
◄ ━ ╋ ↵ AUTO ⏻		

(S22C450F/S24C450F)

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
ᴹᴬᴳⁱᶜ Bright	: Custom	
ᴹᴬᴳⁱᶜ Angle	: Off	
Image Size	: Wide	
H-Position	:	50
▼		
◄ ━ ╋ ↵ AUTO ⏻		
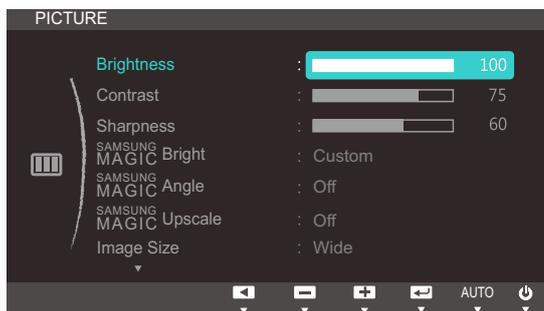
(S22C450DW)

4 Adjust the **Brightness** using the [▲ / ▼] buttons.

Screen Setup

3.2 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 MAGICBright is in **Cinema** or **Dynamic Contrast** mode.

3.2.1 Configuring Contrast

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲ / ▼] to move to **PICTURE** and press [/   ] on the product.

3 Press [▲ / ▼] to move to **Contrast** and press [/   ] on the product.

The following screen will appear.

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
SAMSUNG MAGIC Bright	:	Custom
SAMSUNG MAGIC Angle	:	Off
SAMSUNG MAGIC Upscale	:	Off
Image Size	:	Wide

(S22C450F/S24C450F)

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
SAMSUNG MAGIC Bright	:	Custom
SAMSUNG MAGIC Angle	:	Off
Image Size	:	Wide
H-Position	:	50
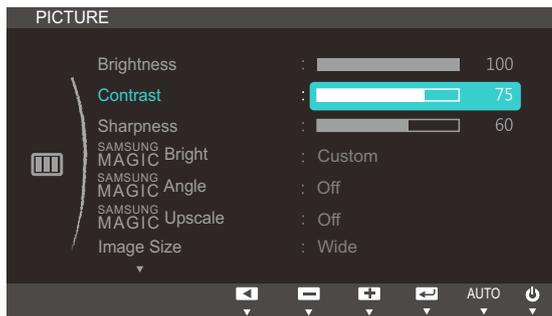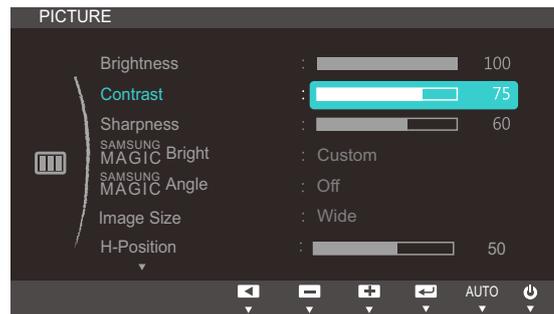
(S22C450DW)

4 Adjust the **Contrast** using the [▲ / ▼] buttons.

Screen Setup

3.3 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 option is not available when SAMSUNG MAGIC Upscale is in **Mode1** or **Mode2**.

3.3.1 Configuring Sharpness

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **PICTURE** and press [/] on the product.

3 Press [▲/▼] to move to **Sharpness** and press [/] on the product.
The following screen will appear.

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
SAMSUNG MAGIC Bright	:	Custom
SAMSUNG MAGIC Angle	:	Off
SAMSUNG MAGIC Upscale	:	Off
Image Size	:	Wide
		AUTO

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
SAMSUNG MAGIC Bright	:	Custom
SAMSUNG MAGIC Angle	:	Off
Image Size	:	Wide
H-Position	:	50
		AUTO
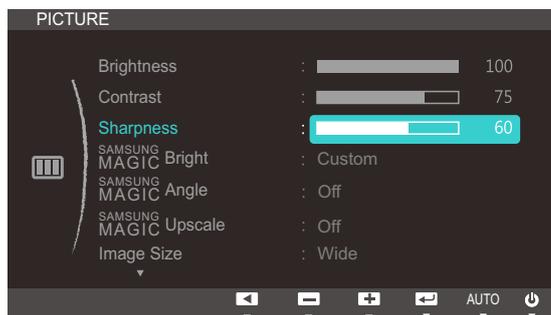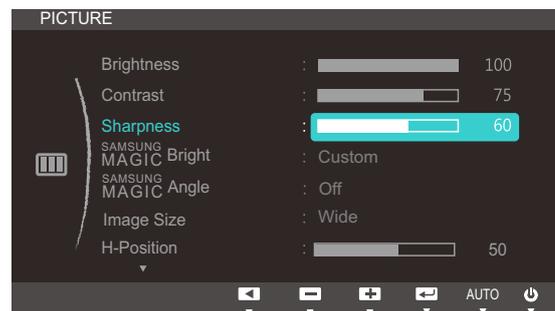
(S22C450F/S24C450F)   (S22C450DW)

4 Adjust the **Sharpness** using the [▲/▼] buttons.

Screen Setup

3.4   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 <u>Eco Saving</u> is enabled.
- This menu is not available when ^{SAMSUNG}_{MAGIC}Angle is enabled.

You can customize the brightness to suit your preferences.

3.4.1   Configuring SAMSUNG MAGIC Bright

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **PICTURE** and press [/   ] on the product.

3 Press [▲/▼] to move to ^{SAMSUNG}_{MAGIC}Bright and press [/   ] on the product.
    The following screen will appear.

PICTURE			PICTURE		
Brightness	:	100	Brightness	:	100
Contrast	:	75	Contrast	:	75
Sharpness	:	60	Sharpness	:	60
SAMSUNG MAGIC Bright	: Custom / Standard / Game / Cinema / Dynamic Contrast		SAMSUNG MAGIC Bright	: Custom / Standard / Game / Cinema / Dynamic Contrast	
SAMSUNG MAGIC Angle			SAMSUNG MAGIC Angle		
SAMSUNG MAGIC Upscale			Image Size		
Image Size	: Wide		H-Position	:	50
		AUTO			AUTO
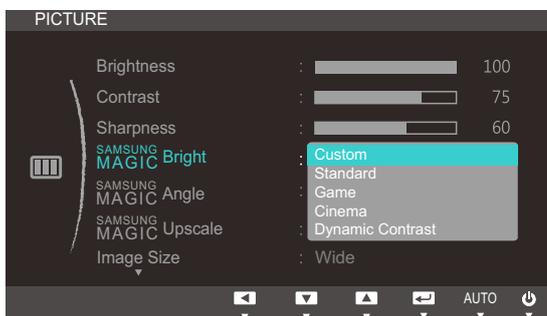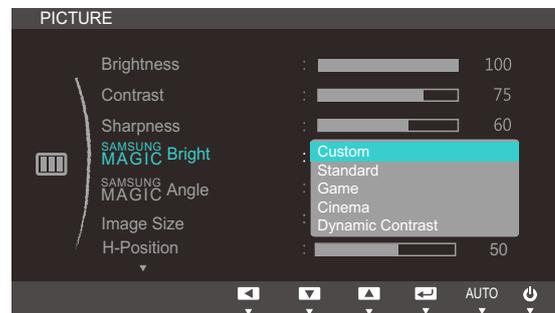
(S22C450F/S24C450F)   (S22C450DW)

- **Custom**: Customize the contrast and brightness as required.
- **Standard**: Obtain a picture quality suitable for editing documents or using Internet.
- **Game**: Obtain a picture quality suitable for playing games that involve many graphic effects and dynamic movements.
- **Cinema**: Obtain the brightness and sharpness of TVs suitable for enjoying video and DVD content.
- **Dynamic Contrast**: Obtain balanced brightness through automatic contrast adjustment.

3 Screen Setup

(S22C450F/S24C450F)

When the external input is connected through HDMI or DVI(S22C450F/S24C450F) and
PC/AV Mode is set to **AV**, ᴹᴬᴳᴵᶜBright 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.

4 Press [▲ / ▼] to move to the option you want and press [🔲/🔁].

5 The selected option will be applied.

Screen Setup

3.5   SAMSUNG MAGIC Angle

SAMSUNG MAGIC Angle allows you to configure the settings to obtain the optimum picture quality according to your viewing angle.

> This menu is not available when **SAMSUNG MAGIC Bright** is in **Cinema** or **Dynamic Contrast** mode.

You can customize the angle to suit your preferences.

3.5.1   Configuring SAMSUNG MAGIC Angle

1   Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2   Press [▲/▼] to move to **PICTURE** and press [/] on the product.

3   Press [▲/▼] to move to **SAMSUNG MAGIC Angle** and press [/] on the product. The following screen will appear.

PICTURE	
Brightness	: ▬▬▬▬▬▬ 100
Contrast	: ▬▬▬▬ 75
Sharpness	: ▬▬▬▬ 60
SAMSUNG MAGIC Bright	Off
SAMSUNG MAGIC Angle	Lean Back Mode 1
SAMSUNG MAGIC Upscale	Lean Back Mode 2
Image Size	Standing Mode
	Side Mode
	Group View
	Custom
	◀ ▼ ▲ ↵ AUTO ⏻

(S22C450F/S24C450F)

PICTURE	
Brightness	: ▬▬▬▬▬▬ 100
Contrast	: ▬▬▬▬ 75
Sharpness	: ▬▬▬▬ 60
SAMSUNG MAGIC Bright	Off
SAMSUNG MAGIC Angle	Lean Back Mode 1
Image Size	Lean Back Mode 2
H-Position	Standing Mode
	Side Mode
	Group View
	Custom
	◀ ▼ ▲ ↵ AUTO ⏻
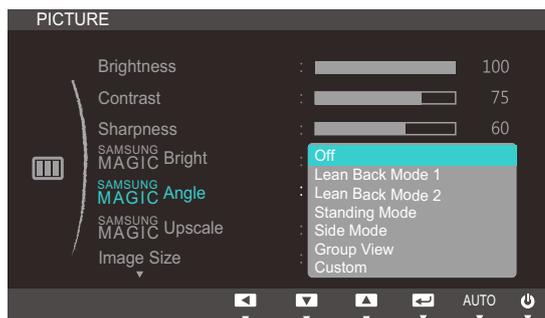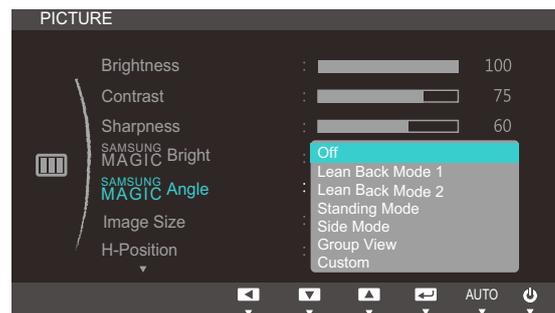
(S22C450DW)

- **Off** ①: Select this option to view directly in front of the product.
- **Lean Back Mode 1** ②: Select this option to view from a place slightly lower than the product.
- **Lean Back Mode 2** ③: Select this option to view from a place lower than Lean Back Mode 1.
- **Standing Mode** ④: Select this option to view from a place higher than the product.
- **Side Mode** ⑤: Select this option to view from either side of the product.
- **Group View**: Select this option for more than one viewer to view from places ①, ④, and ⑤.
- **Custom**: **Lean Back Mode 1** will be applied by default if **Custom** is selected.

4   Press [▲/▼] to move to the option you want and press [/].

5   The selected option will be applied.

Screen Setup

3.6   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 in **Cinema** or **Dynamic Contrast** mode.

3.6.1   Configuring SAMSUNG MAGIC Upscale

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **PICTURE** and press [/] on the product.

3 Press [▲/▼] to move to **SAMSUNG MAGIC** Upscale and press [/] on the product. The following screen will appear.

```
PICTURE

        Brightness       :            100
        Contrast         :             75
        Sharpness        :             60
        SAMSUNG Bright    :  Custom
        MAGIC
        SAMSUNG Angle     :  Off
        MAGIC
        SAMSUNG Upscale   :  Off
        MAGIC                Mode1
        Image Size           Mode2

                                     AUTO
```
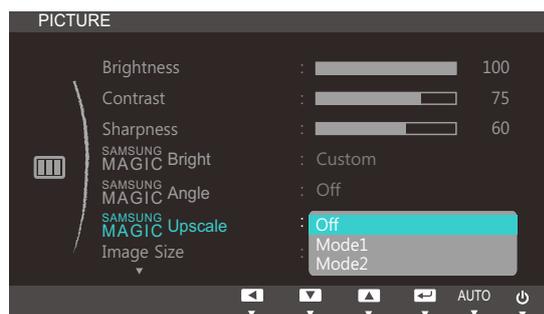
(S22C450F/S24C450F)

Comparing with **Mode1**, **Mode2** has a stronger effect.

4 Press [▲/▼] to move to the option you want and press [/].

5 The selected option will be applied.

Screen Setup

3.7 Image Size

Change the picture size.

3.7.1 Changing the Image Size

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [/] to move to **PICTURE** and press [/] on the product.

3 Press [/] to move to **Image Size** and press [/] on the product. The following screen will appear.

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
SAMSUNG MAGIC Bright	:	Custom
SAMSUNG MAGIC Angle	:	Off
SAMSUNG MAGIC Upscale	:	Off
Image Size	:	Auto / Wide
		AUTO

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
SAMSUNG MAGIC Bright	:	Custom
SAMSUNG MAGIC Angle	:	Off
Image Size	:	Auto / Wide
H-Position	:	
		AUTO
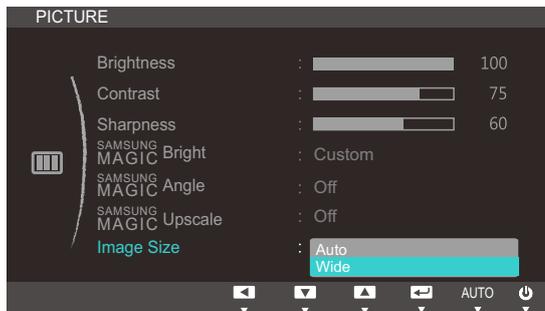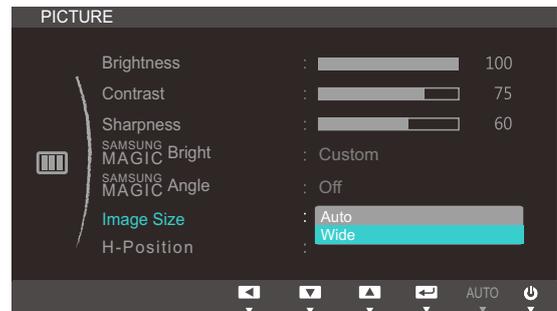
(S22C450F/S24C450F)   (S22C450DW)

- **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.

PICTURE		
Brightness	:	100
Contrast	:	75
Sharpness	:	60
SAMSUNG MAGIC Bright	:	Custom
SAMSUNG MAGIC Angle	:	Off
SAMSUNG MAGIC Upscale	:	
Image Size	:	4 : 3 / 16 : 9 / Screen Fit
		AUTO

(S22C450F/S24C450F)

- **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. Suitable for videos and standard broadcasts.
- **Screen Fit**: Display the picture with the original aspect ratio without cutting off.

Screen Setup

(S22C450DW)

- **4:3** : This mode is suitable to view the 4:3 aspect ratio picture of video content or standard broadcasts.
- **Wide**: Display the picture in full screen regardless of the aspect ratio of the input source.
- **Screen Fit**: Display the picture with the original aspect ratio without cutting off.

> Changing the screen size is available when the following conditions are satisfied.
>
> - A digital output device is connected using the DVI/DP/HDMI 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 DVI/DP/HDMI and PC/AV Mode is set to AV.

4 Press [▲/▼] to move to the option you want and press [/].

5 The selected option will be applied.

3.8   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.
 ● Only applicable to models that support **HDMI**.

3.8.1   Configuring the HDMI Black Level Settings

1 Press any button on the front of the product to display the Key Guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲ / ▼] to move to **PICTURE** and press [/] on the product.

3 Press [▲ / ▼] to move to **HDMI Black Level** and press [/] on the product. The following screen will appear.

```
PICTURE

    HDMI Black Level        :   Normal
    H-Position                  Low
    V-Position
    Coarse
    Fine

                              AUTO
```

(S22C450F/S24C450F)

 ● **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.

4 Press [▲ / ▼] to move to the option you want and press [/].

5 The selected option will be applied.

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

Screen Setup

3.9   H-Position & V-Position

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

V-Position: Move the screen up or down.

> - This menu is available in **Analog** mode only.
> - This menu is only available when **Image 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.

3.9.1   Configuring H-Position & V-Position

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **PICTURE** and press [/] on the product.

3 Press [▲/▼] to move to **H-Position** or **V-Position**, and press [/].

The following screen will appear.

PICTURE	
▲	
HDMI Black Level	
H-Position	: 50
V-Position	: 50
Coarse	: 1936
Fine	: 0
	◄ ━ ＋ ↵ AUTO ⏻

PICTURE	
▲	
HDMI Black Level	
H-Position	: 50
V-Position	: 50
Coarse	: 1936
Fine	: 0
	◄ ━ ＋ ↵ AUTO ⏻

(S22C450F/S24C450F)

PICTURE	
Brightness	: 100
Contrast	: 75
Sharpness	: 60
SAMSUNG MAGIC Bright	: Custom
SAMSUNG MAGIC Angle	: Off
Image Size	: Wide
H-Position	: 50
▼	
	◄ ━ ＋ ↵ AUTO ⏻

PICTURE	
▲	
V-Position	: 50
Coarse	: 1936
Fine	: 0
	◄ ━ ＋ ↵ AUTO ⏻
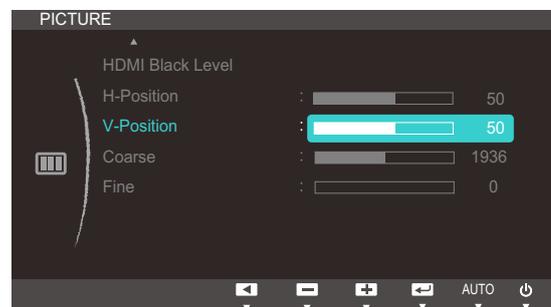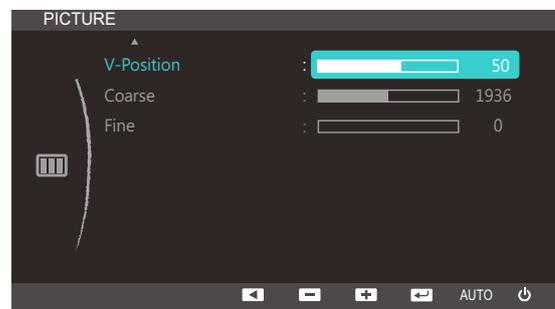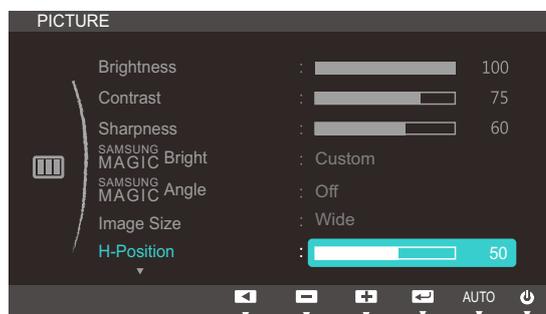
(S22C450DW)

4 Press [▲/▼] to configure **H-Position** or **V-Position**.

Screen Setup

3.10 Coarse

Adjust the screen frequency.

> 📝 This menu is available in **Analog** mode only.

3.10.1 Adjusting Coarse

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [/] to move to **PICTURE** and press [/] on the product.

3 Press [/] to move to **Coarse** and press [/] on the product.

The following screen will appear.

PICTURE		
HDMI Black Level		
H-Position	:	50
V-Position	:	50
Coarse	:	1936
Fine	:	0
	AUTO	

(S22C450F/S24C450F)

PICTURE		
V-Position	:	50
Coarse	:	1936
Fine	:	0
	AUTO	
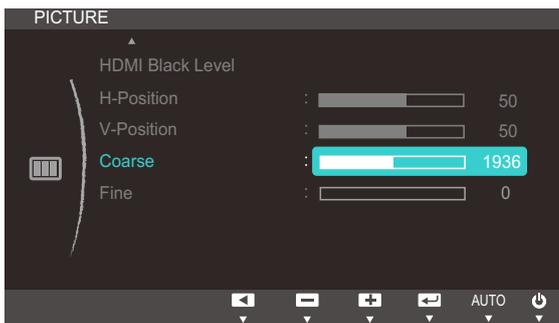
(S22C450DW)

4 Adjust the **Coarse** using the [/] buttons.

3.11   Fine

Fine-adjust the screen to obtain a vivid picture.

 This menu is available in **Analog** mode only.
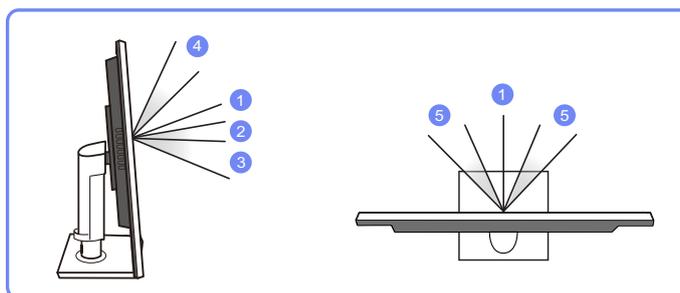
3.11.1   Adjusting Fine

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [/] to move to **PICTURE** and press [/] on the product.

3 Press [/] to move to **Fine** and press [/] on the product.

The following screen will appear.

PICTURE		
HDMI Black Level		
H-Position	:	50
V-Position	:	50
Coarse	:	1936
Fine	:	0

PICTURE		
V-Position	:	50
Coarse	:	1936
Fine	:	0

AUTO
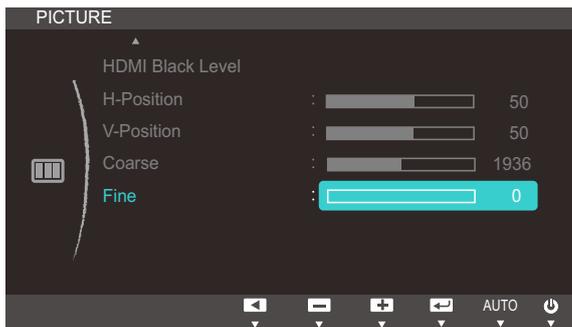
(S22C450F/S24C450F)   (S22C450DW)

4 Adjust the **Fine** using the [/] buttons.

Configuring Tint

Adjust the tint of the screen. This menu is not available when ^{SAMSUNG}_{MAGIC}**Bright** is set to **Cinema** or **Dynamic Contrast** mode.

4.1 Red

Adjust the value of the color red in the picture. (Range: 0~100)

A higher value will increase the intensity of the color.

4.1.1 Configuring Red

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **COLOR** and press [▭/↩] on the product.

3 Press [▲/▼] to move to **Red** and press [▭/↩] on the product.

The following screen will appear.

COLOR		
Red	:	50
Green	:	50
Blue	:	50
Color Tone	: Normal	
Gamma	: Mode1	
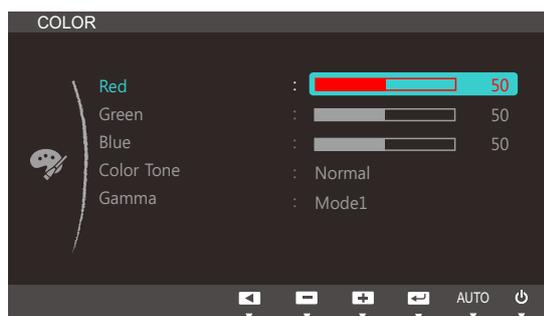
4 Adjust the **Red** using the [▲/▼] buttons.

4.2   Green

Adjust the value of the color green in the picture. (Range: 0~100)

A higher value will increase the intensity of the color.

4.2.1   Configuring Green

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [/] to move to **COLOR** and press [/] on the product.

3 Press [/] to move to **Green** and press [/] on the product.

The following screen will appear.

COLOR		
Red	:	50
Green	:	50
Blue	:	50
Color Tone	:	Normal
Gamma	:	Mode1
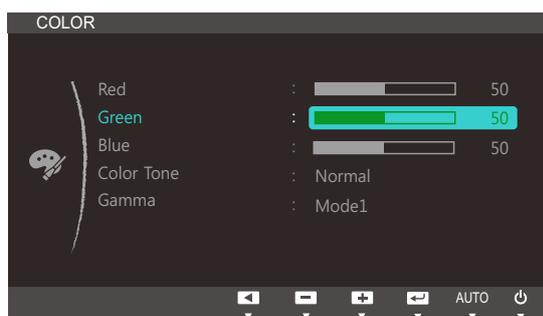
4 Adjust the **Green** using the [/] buttons.

4.3   Blue

Adjust the value of the color blue in the picture. (Range: 0~100)

A higher value will increase the intensity of the color.

4.3.1   Configuring Blue

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [/] to move to **COLOR** and press [/] on the product.

3 Press [/] to move to **Blue** and press [/] on the product.

The following screen will appear.

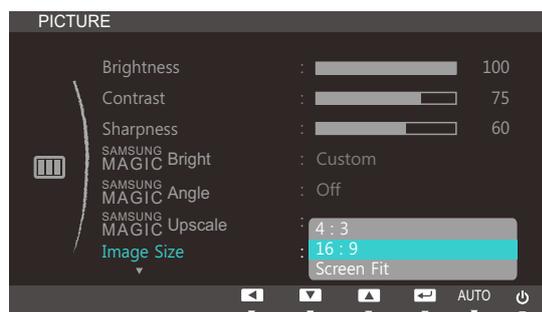| COLOR			
Red	:		50
Green	:		50
Blue	:		50
Color Tone	:	Normal	
Gamma	:	Mode1	
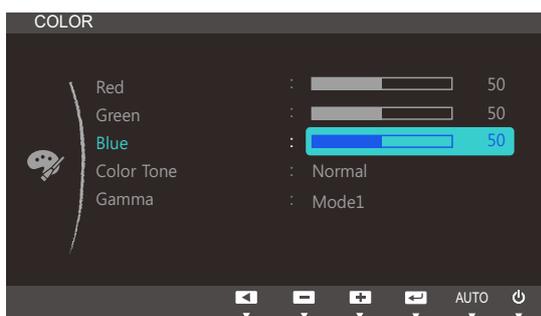
4 Adjust the **Blue** using the [/] buttons.

Configuring Tint

4.4 Color Tone

Adjust the general color tone of the picture.

 This menu is not available when ^{SAMSUNG}**MAGIC**Angle is enabled.

4.4.1 Configuring the Color Tone Settings

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [/] to move to **COLOR** and press [/] on the product.

3 Press [/] to move to **Color Tone** and press [/] on the product.

The following screen will appear.

 ● **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 or DVI (S22C450F/S24C450F) and **PC/AV Mode** is set to **AV**,**Color Tone** has four color temperature settings (**Cool**, **Normal**, **Warm** and **Custom**).

4 Press [/] to move to the option you want and press [/].

5 The selected option will be applied.

Configuring Tint

4.5　Gamma

Adjust the mid-range brightness (Gamma) of the picture.

> ✍　This menu is not available when $^{SAMSUNG}_{MAGIC}$Angle is enabled.

4.5.1　Configuring Gamma

1　Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2　Press [/] to move to **COLOR** and press [/] on the product.

3　Press [/] to move to **Gamma** and press [/] on the product.
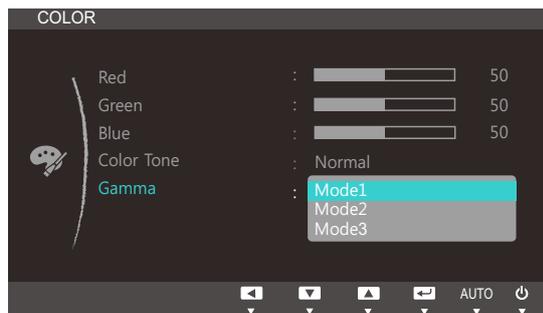
The following screen will appear.

COLOR		
Red	:	▭▭▭ 50
Green	:	▭▭▭ 50
Blue	:	▭▭▭ 50
Color Tone	:	Normal
Gamma	:	Mode1
		Mode2
		Mode3

4　Press [/] to move to the option you want and press [/].

5　The selected option will be applied.

Resizing or Relocating the Screen

5.1   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.

5.1.1   Configuring Language

1   Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2   Press [▲ / ▼] to move to **MENU SETTINGS** and press [/   ].

3   Press [▲ / ▼] to move to **Language** and press [/   ] on the product.
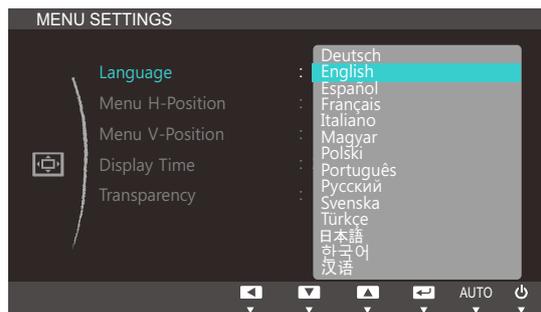
The following screen will appear.

```
MENU SETTINGS                                Deutsch
                                             English
            Language          :              Español
                                             Français
            Menu H-Position   :              Italiano
                                             Magyar
            Menu V-Position   :              Polski
                                             Português
            Display Time      :              Русский
                                             Svenska
            Transparency      :              Türkçe
                                             日本語
                                             한국어
                                             汉语
                              ◄   ▼   ▲   ↵  AUTO   
```

4   Press [▲ / ▼] to move to the language you want and press [/   ].

5   The selected option will be applied.

Resizing or Relocating the Screen

5.2 Menu H-Position & Menu V-Position

Menu H-Position: Move the menu position to the left or right.

Menu V-Position: Move the menu position up or down.

5.2.1 Configuring Menu H-Position & Menu V-Position

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **MENU SETTINGS** and press [/].

3 Press [▲/▼] to move to **Menu H-Position** or **Menu V-Position**, and press [/]. The following screen will appear.

MENU SETTINGS			MENU SETTINGS		
Language	: English		Language	: English	
Menu H-Position	:	50	Menu H-Position	:	50
Menu V-Position	:	10	Menu V-Position	:	10
Display Time	: 20 sec		Display Time	: 20 sec	
Transparency	: On		Transparency	: On	
		AUTO			AUTO
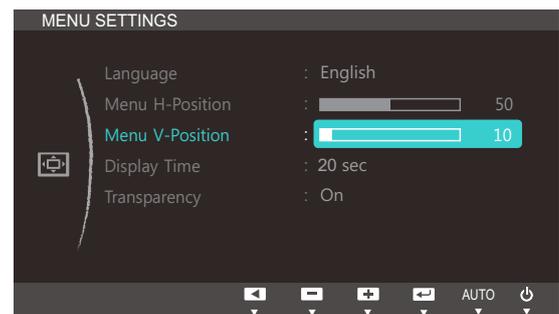
4 Press [▲/▼] to configure **Menu H-Position** or **Menu V-Position**.

Resizing or Relocating the Screen

5.3   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.

5.3.1   Configuring Display Time

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **MENU SETTINGS** and press [/].

3 Press [▲/▼] to move to **Display Time** and press [/] on the product.
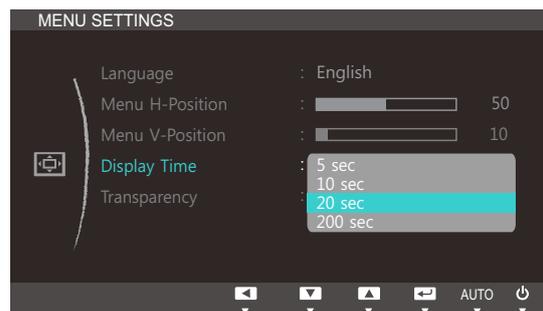
The following screen will appear.

MENU SETTINGS		
Language	:	English
Menu H-Position	:	50
Menu V-Position	:	10
Display Time	:	5 sec
Transparency	:	10 sec
		20 sec
		200 sec

◄   ▼   ▲   ↵   AUTO   ⏻

4 Press [▲/▼] to move to the language you want and press [/].

5 The selected option will be applied.

Resizing or Relocating the Screen

5.4   Transparency

Set the transparency for the menu windows:

5.4.1   Changing Transparency

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **MENU SETTINGS** and press [/].

3 Press [▲/▼] to move to **Transparency** and press [/] on the product.
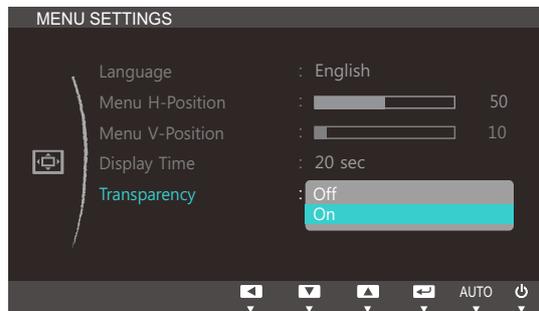
The following screen will appear.

```
MENU SETTINGS

     Language           :  English
     Menu H-Position    :  ▮▬▬▬▬▬▬▬      50
     Menu V-Position    :  ▮▬▬▬▬▬▬▬      10
     Display Time       :  20 sec
     Transparency       :  Off
                           On

                              AUTO
```

4 Press [▲/▼] to move to the language you want and press [/].

5 The selected option will be applied.

6   Setup and Reset

6.1   Reset

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

6.1.1   Initializing Settings (Reset)

1   Press any button on the front of the product to display the Key guide. Next, press [MENU] to display the corresponding menu screen.

2   Press [▲ / ▼] to move to **SETUP&RESET** and press [/] on the product.

3   Press [▲ / ▼] to move to Reset and press [/] on the product.
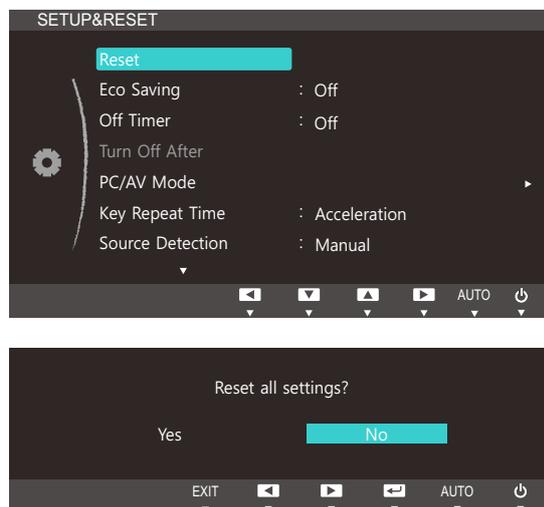
The following screen will appear.

```
SETUP&RESET

       Reset
       Eco Saving          :  Off
       Off Timer           :  Off
       Turn Off After
       PC/AV Mode                            ▶
       Key Repeat Time     :  Acceleration
       Source Detection    :  Manual
       ▼
               ◄     ▼     ▲     ▶     AUTO    ⏻
```

```
            Reset all settings?

     Yes                    No

         EXIT    ◄     ▶     ↵     AUTO    ⏻
```

4   Press [▲ / ▼] to move to the option you want and press [/].

5   The selected option will be applied.

6 Setup and Reset

6.2 Eco Saving

The **Eco Saving** function reduces power consumption by controlling the electric current used by the monitor panel.

> ✎ This menu is not available when ^{SAMSUNG}**MAGIC**Bright is in **Dynamic Contrast** mode.

6.2.1 Configuring Eco Saving

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **SETUP&RESET** and press [/] on the product.

3 Press [▲/▼] to move to **Eco Saving** and press [/] on the product.
The following screen will appear.
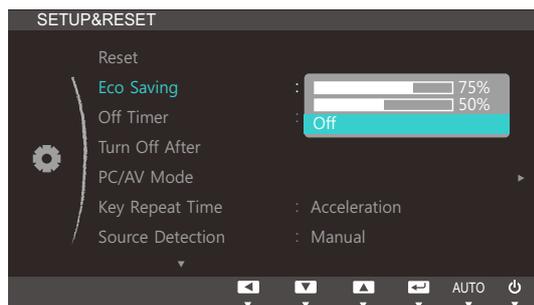
- ● **75%** : Change the monitor power consumption to 75% of the default level.
- ● **50%** : Change the monitor power consumption to 50% of the default level.
- ● **Off**: Deactivate the **Eco Saving** function.

4 Press [▲/▼] to move to the option you want and press [/].

5 The selected option will be applied.

6.3   Off Timer

You can set the product to automatically turn off.

6.3.1   Configuring Off Timer

1   Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2   Press [▲ / ▼] to move to **SETUP&RESET** and press [/] on the product.

3   Press [▲ / ▼] to move to **Off Timer** and press [/] on the product. The following screen will appear.

```
SETUP&RESET

     Reset
     Eco Saving          :  Off
     Off Timer           :  Off
     Turn Off After         On
     PC/AV Mode                                    ▸
     Key Repeat Time     :  Acceleration
     Source Detection    :  Manual
        ▾
                  ◂▮   ▾▮   ▴▮   ↵   AUTO   ⏻
                   ▾    ▾    ▾    ▾    ▾    ▾
```
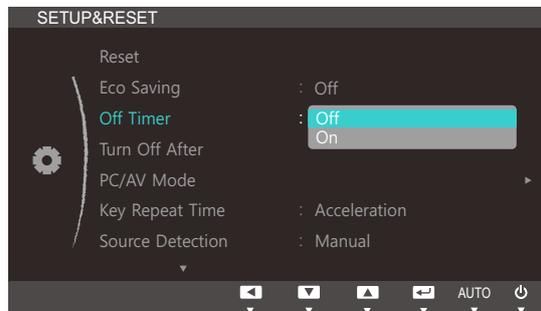
● **Off**: Deactivate the off timer so that the product does not power off automatically.

● **On**: Activate the off timer so that the product powers off automatically.

4   Press [▲ / ▼] to move to the option you want and press [/].

5   The selected option will be applied.

6.4   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**.

6.4.1   Configuring Turn Off After

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **SETUP&RESET** and press [/] on the product.

3 Press [▲/▼] to move to **Turn Off After** and press [/] on the product.
The following screen will appear.

```
SETUP&RESET

     Reset
     Eco Saving          :  Off
     Off Timer           :  On
     Turn Off After      :  [          ]     4h
     PC/AV Mode                                   ▶
     Key Repeat Time     :  Acceleration
     Source Detection    :  Manual
     ▼
              ◀     ━     ╋     ↵   AUTO    ⏻
              ▼     ▼     ▼     ▼     ▼      ▼
```
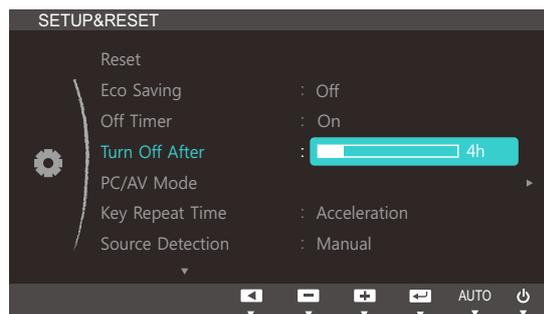
4 Press [▲/▼] to configure **Turn Off After**.

> For products for the market in Europe, 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** → **SETUP&RESET** and set **Off Timer** to **Off**.

Setup and Reset

6.5   PC/AV Mode

Set **PC/AV Mode** to **AV**. The picture size will be enlarged. This option is useful when you view a movie.

> - This function does not support Analog mode.
> - Supplied for the wide models only such as 16:9 or 16:10.
> - If the monitor (when set to DVI) 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**.

6.5.1   Configuring PC/AV Mode

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲ / ▼] to move to **SETUP&RESET** and press [/] on the product.

3 Press [▲ / ▼] to move to **PC/AV Mode** and press [/] on the product.

The following screen will appear.

```
SETUP&RESET

       Reset
       Eco Saving           :  Off
       Off Timer            :  On
       Turn Off After       :  [        ]4h
       PC/AV Mode                            ▶
       Key Repeat Time      :  Acceleration
       Source Detection     :  Manual
       ▼
                    ◄   ▼   ▲   ►   AUTO   ⏻
```

```
PC/AV Mode

DVI              : PC
HDMI               AV
                 :

            ◄   ▼   ▲   ↵   AUTO   ⏻
```

```
PC/AV Mode

DVI              : PC
DisplayPort        AV
                 :

            ◄   ▼   ▲   ↵   AUTO   ⏻
```
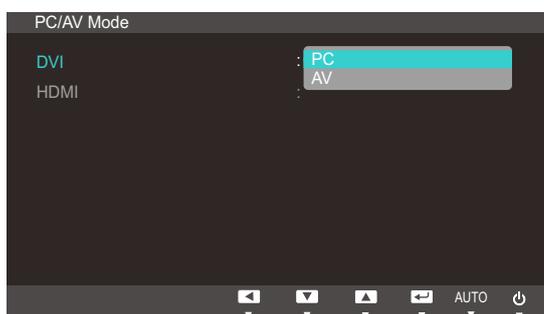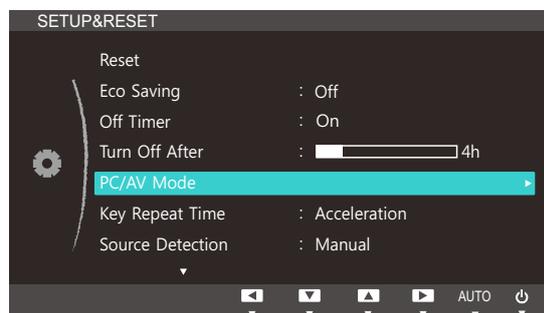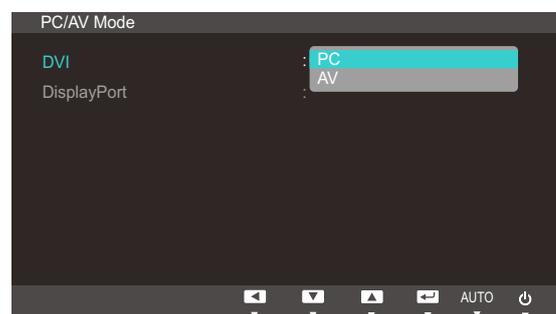
(S22C450F/S24C450F)   (S22C450DW)

4 Press [▲ / ▼] to move to the option you want and press [/].

5 The selected option will be applied.

Setup and Reset

6.6 Key Repeat Time

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

6.6.1 Configuring Key Repeat Time

1 Press any button on the front of the product to display the Key guide. Next, press [MENU] to display the corresponding menu screen.

2 Press [▲ / ▼] to move to **SETUP&RESET** and press [/] on the product.

3 Press [▲ / ▼] to move to **Key Repeat Time** and press [/] on the product.

The following screen will appear.

```
SETUP&RESET

        Reset
        Eco Saving          :  Off
        Off Timer           :  On
        Turn Off After      :  ▭▭▭▭      4h
        PC/AV Mode                       ▸
        Key Repeat Time     :  Acceleration
                               1 sec
        Source Detection    :  2 sec
              ▼                No Repeat

            ◄◻   ▼    ▲    ↵   AUTO   ⏻
             ▼    ▼    ▼    ▼    ▼    ▼
```
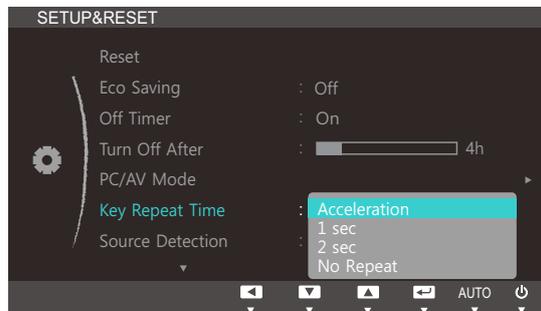
- **Acceleration**, **1 sec**, or **2 sec** can be selected. If **No Repeat** is selected, a command responds only once when a button is pressed.

4 Press [▲ / ▼] to move to the option you want and press [/].

5 The selected option will be applied.

Setup and Reset

6.7   Source Detection

You can activate **Source Detection**.

6.7.1   Configuring Source Detection

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲ / ▼] to move to **SETUP&RESET** and press [/] on the product.

3 Press [▲ / ▼] to move to **Source Detection** and press [/].

The following screen will appear.

SETUP&RESET

Reset	
Eco Saving	: Off
Off Timer	: On
Turn Off After	: 4h
PC/AV Mode	▶
Key Repeat Time	: Acceleration
Source Detection	: Auto
	Manual
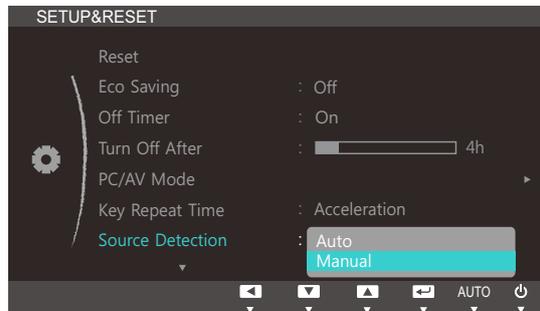
◄ ▼ ▲ ↵ AUTO ⏻

- **Auto**: The input source is automatically recognized.
- **Manual**: Manually select an input source.

4 Press [▲ / ▼] to move to the option you want and press [/].

5 The selected option will be applied.

Setup and Reset

6.8   Customized Key

You can customize **Customized Key** as follows.

6.8.1   Configuring Customized Key

1   Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display
    the corresponding menu screen.

2   Press [▲ / ▼] to move to **SETUP&RESET** and press [/] on the product.

3   Press [▲ / ▼] to move to **Customized Key** and press [/] on the product.
    The following screen will appear.

    SETUP&RESET

    Customized Key   : SAMSUNG
                             MAGIC Angle
                             SAMSUNG
                             MAGIC Bright
                             Eco Saving
                             Image Size

                                                    AUTO
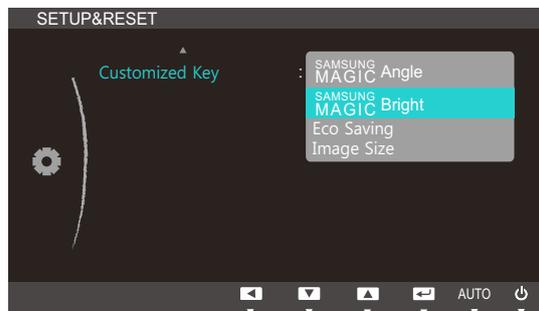
- SAMSUNGMAGIC**Angle** - SAMSUNGMAGIC**Bright** - **Eco Saving** - **Image Size**

4   Press [▲ / ▼] to move to the option you want and press [/].

5   The selected option will be applied.

7 INFORMATION Menu and Others

7.1   INFORMATION

View the current input source, frequency and resolution.

7.1.1   Displaying INFORMATION

1 Press any button on the front of the product to display the Key guide. Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **INFORMATION**. The current input source, frequency and resolution will appear.

 The displayed menu items may vary depending on the model.

7 INFORMATION Menu and Others

7.2   Configuring Brightness and Contrast in the Initial Screen

Adjust the Brightness, Contrast using the [$\odot$] buttons when the initial screen (that displays no menu screen) is displayed.

1   Press any button on the front of the product (when no menu screen is displayed) to display the Key guide. Next, press [$\odot$]. The following screen will appear.
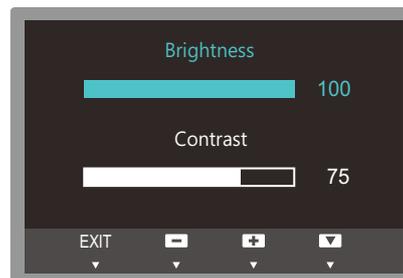
2   Press the [/] button to alternate between the Brightness and Contrast settings.

3   Adjust the Brightness, Contrast using the [/] buttons.

Installing the Software

8.1 MagicTune

8.1.1 What is "MagicTune"?

"MagicTune" is a software program that helps with monitor adjustments by providing comprehensive descriptions of monitor functions and easy-to-understand guidelines.

You can adjust the product with the mouse and the keyboard without using the operating buttons of the product.

8.1.2 Installing the Software

1 Insert the installation CD into the CD-ROM drive.

2 Select the "MagicTune" setup program.

> If the pop-up screen for the software installation does not appear on the main screen, find and double-click the "MagicTune" setup file on the CD-ROM.

3 Select the installation language and click "Next".

4 Complete the remaining software installation steps according to the instructions displayed on the screen.

> - The software may not work properly if you do not restart the computer after the installation.
> - The "MagicTune" 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 ("MagicTune™")

The installation of "MagicTune™" may be affected by the Graphics Card, Motherboard and the Networking Environment.

System Requirements

OS

- Windows XP, Windows Vista, Windows 7, Windows 8

Installing the Software

8.1.3   Removing the Software

You can only remove "MagicTune™" through **Add or Remove Programs** in Windows.

To remove "MagicTune™", complete the following steps.

1   Click **Start** select **Settings**, and select **Control Panel** from the menu.
For Windows XP, click **Start**, and select **Control Panel** from the menu.

2   Double-click the **Add or Remove Programs** icon in the Control Panel.

3   In the **Add/Remove** window, find and select "MagicTune™" so that it is highlighted.

4   Click **Change or Remove Programs** to remove the software.

5   Select **Yes** to start removing "MagicTune™".

6   Wait until a message box appears informing you that the software has been removed completely.

> For technical support, the FAQ (frequently asked questions) or information about the software
> upgrade for "MagicTune™", please visit our website (http://www.samsung.com/us/consumer/
> learningresources/monitor/magetune/pop_intro.html).

8 Installing the Software

8.2   MultiScreen

MultiScreen

"MultiScreen" enables users to use the monitor by partitioning multiple sections.

8.2.1   Installing the Software

1 Insert the installation CD into the CD-ROM drive.

2 Select the "MultiScreen" setup program.

> If the pop-up screen for the software installation does not appear on the main screen, find and
> double-click the "MultiScreen" setup file on the CD-ROM.

3 When the Installation Wizard appears, click "Next".

4 Complete the remaining software installation steps according to the instructions displayed on the
screen.

> ● The software may not work properly if you do not restart the computer after the installation.
> ● The "MultiScreen" 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 ("MultiScreen")

The "MultiScreen" installation may be affected by the Graphics Card, Motherboard and the Networking
Environment.

System Requirements

OS

● Windows™ 2000
● Windows XP Home Edition
● Windows XP Professional
● Windows Vista 32Bit
● Windows 7 32Bit
● Windows 8 32bit

> For "MultiScreen", the operating systems Windows 2000 or later is recommended.

Installing the Software

Hardware

- At least 32MB of memory

- At least 60MB of free space on the hard disk drive

8.2.2 Removing the Software

Click **Start**, select **Settings/Control Panel**, and then double-click **Add or Remove Programs**.

Select "MultiScreen" from the program list and click the **Add/Delete** button.

Installing the Software

8.3   MagicRotation

The "MagicRotation" Software from Samsung Electronics, Inc. provides the user with a rotation feature (0, 90, 180, 270 orientation) that facilitates the optimum utilization of computer display screen, better viewing and improved user productivity.

8.3.1   Installing the Software

1 Insert the installation CD into the CD-ROM drive.

2 Select the "MagicRotation" setup program.

>   If the pop-up screen for the software installation does not appear on the main screen, find and double-click the "MagicRotation" setup file on the CD-ROM.

3 Select the installation language and click "Next".

4 Complete the remaining software installation steps according to the instructions displayed on the screen.

>   ● The software may not work properly if you do not restart the computer after the installation.
>
>   ● The "MagicRotation" 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 (MagicRotation)

1 The installation of "MagicRotation" may be affected by the Graphics Card, Motherboard and the Networking Environment.

2 When you want to use both "MagicRotation" and "MagicTune", please install "MagicTune" at first.

Limitation

1 The Display Driver should be properly loaded for the "MagicRotation" to work properly. The installed Display Driver should be the latest driver supplied by the vendor.

2 If some applications like Windows Media Player, Real Player, etc. are not displaying movie files properly in 90, 180 and 270 orientations then do the following :

   ● Close the application.

   ● Select the Orientation (90, 180, 270) you want to view the application.

   ● Relaunch the application.

   In most cases this should fix the problem.

Installing the Software

3 User Applications using OpenGL and DirectDraw (3D drawing) will not function as per the orientation mode selected (90, 180, 270).

   (E.g. 3D games)

4 DOS based applications in Full Screen Mode will not function as per the orientation mode selected (90, 180, 270).

5 Dual is not supported in Windows™ 98, ME, NT 4.0.

6 "MagicRotation" does not provide support for 24 bits per pixel (Bit depth/Color Quality).

7 If you are changing your Graphic Card it is recommended that you uninstall the "MagicRotation" Software before doing so.

System Requirements

OS

- Windows™ 98 SE
- Windows™ Me
- Windows™ NT 4.0
- Windows™ 2000
- Windows XP
- Windows Vista 32Bit
- Windows 7 32Bit
- Windows 8 32Bit

> For "MagicRotation", Windows 2000 or later is recommended.

Hardware

- At least 128MB of memory(recommended)
- At least 25MB of free space on the hard disk drive

Service Packs

- It is recommended that your System has the latest Service Pack installed.
- For Windows™ NT 4.0, it is recommended to install Internet Explorer 5.0 and above with Active Desktop component.

> - For more information, refer to the website (http://www.samsung.com/sec/consumer/learningresources/monitor/magicrotation/download.html).
> - Windows™ is registered trademark of Microsoft Corporation,Inc.

Installing the Software

8.3.2 Removing the Software

You can only remove "MagicRotation" through **Add or Remove Programs** in Windows.

To remove "MagicRotation", complete the following steps.

1 Click **Start** select **Settings**, and select **Control Panel** from the menu.
For Windows XP, click **Start**, and select **Control Panel** from the menu.

2 Double-click the **Add or Remove Programs** icon in the **Control Panel**.

3 In the **Add**/**Remove** window, find and select "MagicRotation" so that it is highlighted.

4 Click **Change or Remove Programs** to remove the software.

5 Select **Yes** to start removing "MagicRotation".

6 Wait until a message box appears informing you that the software has been removed completely.

 For technical support, the FAQ (frequently asked questions) or information about the software upgrade for "MagicRotation", please visit our website (http://www.samsung.com/sec/consumer/learningresources/monitor/magicrotation/download.html).

9   Troubleshooting Guide

9.1   Requirements Before Contacting Samsung Customer Service Center

9.1.1   Testing the Product

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

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.

9.1.2   Checking the Resolution and Frequency

For a mode that exceeds the supported resolution (refer to "10.3 Standard Signal Mode Table"), the message **Not Optimum Mode** will appear for a short time.

9.1.3   Check the following.

Installation issue (PC mode)

Issues	Solutions
The screen keeps switching on and off.	Check the cable connection between the product and PC, and ensure the connectors are locked. (Refer to "2.2 Connecting and Using a PC")

Troubleshooting Guide

Screen issue

Issues	Solutions
The power LED is off. The screen will not switch on.	Check that the power cable is connected properly. (Refer to "2.2 Connecting and Using a PC")
The message **Check Signal Cable** appears.	Check that the cable is properly connected to the product. (Refer to "2.2 Connecting and Using a PC")
	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 (page 89).
The images on the screen look distorted.	Check the cable connection to the product (Refer to "2.2 Connecting and Using a PC")
The screen is not clear. The screen is blurry.	Adjust **Coarse** (page 51) and **Fine** (page 52).
	Remove any accessories (video extension cable, etc.) and try again.
	Set the resolution and frequency to the recommended level. (Refer to "10.1 General")
The screen appears unstable and shaky.	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 (page 89) in this manual and the **INFORMATION** menu on the product.
There are shadows or ghost images left on the screen.	
The screen is too bright. The screen is too dark.	Adjust **Brightness** (page 40) and **Contrast** (page 41).
Screen color is inconsistent.	Change the **COLOR** settings. (Refer to " Configuring Tint")
The colors on the screen have a shadow and are distorted.	Change the **COLOR** settings. (Refer to " Configuring Tint")
White does not really look white.	Change the **COLOR** settings. (Refer to " Configuring Tint")

Troubleshooting Guide

Issues	Solutions
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.

Source device issue

Issues	Solutions
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.

9.2   Q & A

Question	Answer
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: Go to **Settings** → **Control Panel** → **Appearance and Personalization** → **Display** → **Screen Resolution** → **Advanced settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.

Troubleshooting Guide

Question	Answer
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: Go to **Settings** → **Control Panel** → **Appearance and Personalization** → **Display** → **Adjust Resolution**, 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** or BIOS SETUP on the PC. • Windows ME/2000: Set power-saving mode in **Control Panel** → **Display** → **Screen Saver Settings** or BIOS SETUP on the PC. • Windows Vista: Set power-saving mode in **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** or BIOS SETUP on the PC. • Windows 7: Set power-saving mode in **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** or BIOS SETUP on the PC. • Windows 8: Set power-saving mode in **Settings** → **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** or BIOS SETUP on the PC.

 Refer to the user manual for your PC or graphics card for further instructions on adjustment.

10 Specifications

Specifications

10.1   General

Model Name		S22C450F	S24C450F
Panel	Size	21.5 Inches (54 cm)	24 Inches (61 cm)
	Display area	476.64 mm (H) x 268.11 mm (V) 18.77 Inches (H) x 10.56 Inches (V)	531.36 mm (H) x 298.89 mm (V) 20.92 Inches (H) x 11.77 Inches (V)
	Pixel Pitch	0.24825 mm (H) x 0.24825 mm (V) 0.0098 Inches (H) x 0.0098 Inches (V)	0.27675 mm (H) x 0.27675 mm (V) 0.010896 Inches (H) x 0.010896 Inches (V)
Synchronization	Horizontal Frequency	30 ~ 81 kHz	
	Vertical Frequency	56 ~ 75 Hz	
Display Color		16.7M	
Resolution	Optimum Resolution	1920 x 1080 @ 60Hz	
	Maximum Resolution	1920 x 1080 @ 60Hz	
Input Signal, Terminated		RGB Analog, DVI (Digital Visual Interface) Compliant Digital RGB, HDMI 0.7 Vp-p ± 5% separate H/V sync, Composite, SOG TTL level (V high ≥ 2.0V, V low ≤ 0.8V)	
Maximum Pixel Clock		148 MHz (Analog,Digital)	
Power Supply		This product uses 100 to 240V. Refer to the label at the back of the product as the standard voltage can vary in different countries.	
Signal connectors		D-sub connector DVI-D connector HDMI connector	

Specifications

Model Name		S22C450F	S24C450F
Dimensions (W x H x D) / Weight	Without Stand	504.3 x 301.9 x 55.45 mm 19.9 x 11.9 x 2.2 Inches	565.4 x 333.2 x 56.7 mm 22.3 x 13.1 x 2.2 Inches
	With Stand	Minimum: 504.3 x 360.35 x 210 mm / 4.84 kg 19.9 x 14.2 x 8.3 Inches / 10.7 lbs Maximum: 504.3 x 490.35 x 210 mm / 4.84 kg 19.9 x 19.3 x 8.3 Inches / 10.7 lbs	Minimum: 565.4 x 361.75 x 224.0 mm / 5.04 kg 22.3 x 14.2 x 8.8 Inches / 11.1 lbs Maximum: 565.4 x 491.75 x 224.0 mm / 5.04 kg 22.3 x 19.4 x 8.8 Inches / 11.1 lbs
VESA Mounting Interface		100 mm x 100 mm 3.9 Inches x 3.9 Inches (For use with Specialty(Arm) Mounting hardware.)	
Environmental considerations	Operating	Temperature : 50°F – 104°F (10°C – 40°C) Humidity : 10 % – 80 %, non-condensing	
	Storage	Temperature : -4°F – 113°F (-20°C – 45°C) 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.	

Specifications

Model Name		S22C450DW
Panel	Size	22 Inches (55 cm)
	Display area	473.76 mm (H) x 296.1 mm (V) 18.65 Inches (H) x 11.66 Inches (V)
	Pixel Pitch	0.282 mm (H) x 0.282 mm (V) 0.0111 Inches (H) x 0.0111 Inches (V)
Synchronization	Horizontal Frequency	30 ~ 81 kHz
	Vertical Frequency	56 ~ 75 Hz
Display Color		16.7M
Resolution	Optimum Resolution	1680 x 1050 @ 60Hz
	Maximum Resolution	1680 x 1050 @ 60Hz
Input Signal, Terminated		RGB Analog, DVI (Digital Visual Interface) Compliant Digital RGB, DP 0.7 Vp-p ± 5% separate H/V sync, Composite, SOG TTL level (V high ≥ 2.0V, V low ≤ 0.8V)
Maximum Pixel Clock		146 MHz (Analog,Digital)
Power Supply		This product uses 100 to 240V. Refer to the label at the back of the product as the standard voltage can vary in different countries.
Signal connectors		D-sub connector DVI-D connector DP connector
Dimensions (W x H x D) / Weight	Without Stand	502.4 x 329.8 x 55.5 mm 19.8 x 13.0 x 2.2 Inches
	With Stand	Minimum: 502.4 x 387.9 x 210 mm / 5.0 kg 19.8 x 15.3 x 8.3 Inches / 11.0 lbs Maximum: 502.4 x 517.9 x 210 mm / 5.0 kg 19.8 x 20.4 x 8.3 Inches / 11.0 lbs
VESA Mounting Interface		100 mm x 100 mm 3.9 Inches x 3.9 Inches (For use with Specialty(Arm) Mounting hardware.)

10 Specifications

Model Name	S22C450DW
Environmental considerations	**Operating** — Temperature : 50°F – 104°F (10°C – 40°C) Humidity : 10 % – 80 %, non-condensing
	Storage — Temperature : -4°F – 113°F (-20°C – 45°C) 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.

(USA only)

Dispose unwanted electronics through an approved recycler.

To find the nearest recycling location, go to our website:

www.samsung.com/recyclingdirect or call, (877) 278 - 0799

Specifications

10.2 PowerSaver

The power-saving function of this product reduces power consumption by switching off the screen and changing the color of the power LED if the product is not used for a specified period of time. The power is not turned off in power-saving mode. To switch the screen back on, press any key on the keyboard or move the mouse. Power-saving mode functions only when the product is connected to a PC that has a power-saving function.

PowerSaver	Energy Star Power Consumption	Power saving mode	Power off (Power button)
Power Indicator	On	Blinking	Off
Power Consumption (S22C450F)	21 watts	Typical: Less than 0.1 watts	Typical: Less than 0.1 watts
Power Consumption (S22C450DW)	19 watts	Typical 0.3 watts	Typical 0.3 watts
Power Consumption (S24C450F)	23 watts	Typical: Less than 0.1 watts	Typical: Less than 0.1 watts

- The power consumption level can vary in different operating conditions or when settings are changed. (S**C450F* Model Power saving mode / Power off (Power button) :
  Typical: Less than 0.1 watts (Analog Input Condition), Max 0.25 watts, S**C450D* Model Power saving mode / Power off (Power button) : Max 0.45 watts)

- ENERGY STAR® is a US registered mark of the United States Environmental Protection Agency. Energy Star power is measured with the test method in the current Energy Star® Standard.

- To reduce the power consumption to 0 watts, turn off the power switch on the back of the product or disconnect the power cable. Be sure to disconnect the power cable when you will not be using the product for an extended period of time. To reduce the power consumption to 0 watts when the power switch is not available, disconnect the power cable.

Specifications

10.3 Standard Signal Mode Table

📝 • 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. Therefore, 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 the screen size of your product.

• Check the frequency when you exchange a CDT monitor (connected to a PC) for an LCD monitor. If the LCD monitor does not support 85Hz, change the vertical frequency to 60Hz using the CDT monitor before you exchange it with the LCD monitor.

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.

S22C450F / S24C450F

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 720 x 400	31.469	70.087	28.322	-/+
VESA, 640 x 480	31.469	59.940	25.175	-/-
MAC, 640 x 480	35.000	66.667	30.240	-/-
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	+/+
MAC, 832 x 624	49.726	74.551	57.284	-/-
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	+/+
MAC, 1152 x 870	68.681	75.062	100.000	+/+
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	+/+

Specifications

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
VESA, 1280 x 1024	79.976	75.025	135.000	+/+
VESA, 1440 x 900	55.935	59.887	106.500	-/+
VESA, 1600 x 900RB	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	+/+

S22C450DW

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 720 x 400	31.469	70.087	28.322	-/+
VESA, 640 x 480	31.469	59.940	25.175	-/-
MAC, 640 x 480	35.000	66.667	30.240	-/-
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	+/+
MAC, 832 x 624	49.726	74.551	57.284	-/-
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	+/+
MAC, 1152 x 870	68.681	75.062	100.000	-/-
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 900RB	60.000	60.000	108.000	+/+
VESA, 1680 x 1050	65.290	59.954	146.250	-/+

- 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.

Appendix

Contact SAMSUNG WORLD WIDE

If you have any questions or comments relating to Samsung products, please contact the SAMSUNG customer care center.

NORTH AMERICA		
U.S.A	1-800-SAMSUNG (726-7864)	http://www.samsung.com/us
CANADA	1-800-SAMSUNG (726-7864)	http://www.samsung.com/ca (English) http://www.samsung.com/ca_fr (French)

LATIN AMERICA		
ARGENTINE	0800 333 3733	http://www.samsung.com.ar
BOLIVIA	800-10-7260	http://www.samsung.com
BRAZIL	0800-124-421(Demais cidades e regiões) 4004-0000 (Capitais e grandes centros)	http://www.samsung.com.br
CHILE	800-SAMSUNG (726-7864)	http://www.samsung.com/cl
COLOMBIA	01 8000 112 112 Bogotá 600 12 72	http://www.samsung.com/co
COSTA RICA	0-800-507-7267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
DOMINICA	1-800-751-2676	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
ECUADOR	1-800-10-7267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
EL SALVADOR	800-6225	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)

LATIN AMERICA		
GUATEMALA	1-800-299-0013	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
HONDURAS	800-27919267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
JAMAICA	1-800-234-7267	http://www.samsung.com
NICARAGUA	001-800-5077267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
MEXICO	01-800-SAMSUNG (726-7864)	http://www.samsung.com
PANAMA	800-7267	http://www.samsung.com/latin (Spanish) http://www.samsung.com/latin_en (English)
PARAGUAY	009 800 542 0001	http://www.samsung.com.py
PERU	0-800-777-08	http://www.samsung.com/pe
PUERTO RICO	1-800-682-3180	http://www.samsung.com
TRINIDAD & TOBAGO	1-800-SAMSUNG (726-7864)	http://www.samsung.com
URUGUAY	000 405 437 33	http://www.samsung.com
VENEZUELA	0-800-100-5303	http://www.samsung.com/ve

EUROPE		
AUSTRIA	0810 - SAMSUNG (7267864, € 0.07/min)	http://www.samsung.com
BELGIUM	02-201-24-18	http://www.samsung.com/be (Dutch) http://www.samsung.com/be_fr (French)
BOSNIA	051 331 999	http://www.samsung.com
BULGARIA	07001 33 11 , share cost tariff	http://www.samsung.com/bg
CROATIA	062 SAMSUNG (062 726 786)	http://www.samsung.com/hr
CYPRUS	8009 4000 only from landline	http://www.samsung.com/gr

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EUROPE		
CZECH	800 - SAMSUNG (800-726786)	http://www.samsung.com
	Samsung Electronics Czech and Slovak, s.r.o. V Parku 2343/24, 148 00 - Praha 4	
DENMARK	70 70 19 70	http://www.samsung.com
EIRE	0818 717100	http://www.samsung.com
ESTONIA	800-7267	http://www.samsung.com/ee
FINLAND	030-6227 515	http://www.samsung.com
FRANCE	01 48 63 00 00	http://www.samsung.com/fr
GERMANY	0180 6 SAMSUNG bzw.	http://www.samsung.com
	0180 6 7267864* (*0,20 €/Anruf aus dem dt. Festnetz, aus dem Mobilfunk max. 0,60 €/Anruf)	
GREECE	80111-SAMSUNG (80111 726 7864) only from land line (+30) 210 6897691 from mobile and land line	http://www.samsung.com/gr
HUNGARY	06-80-SAMSUNG (726-7864)	http://www.samsung.com/hu
ITALIA	800-SAMSUNG (726-7864)	http://www.samsung.com
LATVIA	8000-7267	http://www.samsung.com/lv
LITHUANIA	8-800-77777	http://www.samsung.com/lt
LUXEMBURG	261 03 710	http://www.samsung.com
MONTENEGRO	020 405 888	http://www.samsung.com
NETHERLANDS	0900 - SAMSUNG (0900-7267864) (€ 0,10/Min)	http://www.samsung.com
NORWAY	815 56480	http://www.samsung.com
POLAND	0 801-172-678* lub +48 22 607-93-33 ** *(całkowity koszt połączenia jak za1 impuls według taryfy operatora) ** (koszt połączenia według taryfy operatora)	http://www.samsung.com/pl
PORTUGAL	808 20 - SAMSUNG (808 20 7267)	http://www.samsung.com
ROMANIA	08008 SAMSUNG (08008 726 7864) TOLL FREE No.	http://www.samsung.com/ro
SERBIA	011 321 6899	http://www.samsung.com/rs

EUROPE		
SLOVAKIA	0800 - SAMSUNG (0800-726 786)	http://www.samsung.com
SPAIN	902172678	http://www.samsung.com
SWEDEN	0771 726 7864 (SAMSUNG)	http://www.samsung.com
SWITZERLAND	0848-SAMSUNG (7267864, CHF 0.08/min)	http://www.samsung.com/ch (German) http://www.samsung.com/ch_fr (French)
U.K	0330 SAMSUNG (7267864)	http://www.samsung.com

CIS		
ARMENIA	0-800-05-555	http://www.samsung.com
AZERBAIJAN	088-55-55-555	http://www.samsung.com
BELARUS	810-800-500-55-500	http://www.samsung.com
GEORGIA	0-800-555-555	http://www.samsung.com
KAZAKHSTAN	8-10-800-500-55-500 (GSM: 7799)	http://www.samsung.com
KYRGYZSTAN	00-800-500-55-500	http://www.samsung.com
MOLDOVA	0-800-614-40	http://www.samsung.com
MONGOLIA	+7-800-555-55-55	http://www.samsung.com
RUSSIA	8-800-555-55-55	http://www.samsung.com
TADJIKISTAN	8-10-800-500-55-500	http://www.samsung.com
UKRAINE	0-800-502-000	http://www.samsung.com/ua (Ukrainian) http://www.samsung.com/ua_ru (Russian)
UZBEKISTAN	8-10-800-500-55-500	http://www.samsung.com

ASIA PACIFIC		
AUSTRALIA	1300 362 603	http://www.samsung.com/au
CHINA	400-810-5858	http://www.samsung.com
HONG KONG	(852) 3698 4698	http://www.samsung.com/hk (Chinese) http://www.samsung.com/hk_en (English)

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ASIA PACIFIC		
INDIA	1800 3000 8282 1800 266 8282	http://www.samsung.com/in
INDONESIA	0800-112-8888 (Toll Free) (021) 56997777	http://www.samsung.com/id
JAPAN	0120-327-527	http://www.samsung.com
MALAYSIA	1800-88-9999	http://www.samsung.com/my
NEW ZEALAND	0800 SAMSUNG (0800 726 786)	http://www.samsung.com/nz
PHILIPPINES	1-800-10-7267864 [PLDT] 1-800-8-7267864 [Globe landline and Mobile] 02-4222111 [Other landline]	http://www.samsung.com/ph
SINGAPORE	1800-SAMSUNG (726-7864)	http://www.samsung.com/sg
TAIWAN	0800-32-9999	http://www.samsung.com/tw
THAILAND	0-2689-3232, 1800-29-3232	http://www.samsung.com/th
VIETNAM	1800 588 889	http://www.samsung.com

MENA		
ALGERIA	0800 100 100	http://www.samsung.com/n_africa
BAHRAIN	8000-4726	http://www.samsung.com/ae (English) http://www.samsung.com/ae_ar (Arabic)
EGYPT	08000-726786	http://www.samsung.com
IRAN	021-8255	http://www.samsung.com
JORDAN	0800-22273 06 5777444	http://www.samsung.com/Levant (English)
KUWAIT	183-2255 (183-CALL)	http://www.samsung.com/ae (English) http://www.samsung.com/ae_ar (Arabic)
MOROCCO	080 100 2255	http://www.samsung.com
OMAN	800-SAMSUNG (726-7864)	http://www.samsung.com/ae (English) http://www.samsung.com/ae_ar (Arabic)

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MENA		
PAKISTAN	0800-Samsung (72678)	http://www.samsung.com/pk/
QATAR	800-2255 (800-CALL)	http://www.samsung.com/ae (English) http://www.samsung.com/ae_ar (Arabic)
SAUDI ARABIA	920021230	http://www.samsung.com/sa
SYRIA	18252273	http://www.samsung.com/Levant (English)
TUNISIA	80-1000-12	http://www.samsung.com/n_africa
TURKEY	444 77 11	http://www.samsung.com
U.A.E	800-SAMSUNG (726-7864)	http://www.samsung.com

AFRICA		
BOTSWANA	8007260000	http://www.samsung.com
BURUNDI	200	http://www.samsung.com
CAMEROON	7095-0077	http://www.samsung.com/africa_fr
COTE D' IVOIRE	8000 0077	http://www.samsung.com/africa_fr
DRC	499999	http://www.samsung.com
GHANA	0800-10077 0302-200077	http://www.samsung.com/africa_en
KENYA	0800 545 545	http://www.samsung.com
NAMIBIA	08 197 267 864	http://www.samsung.com
NIGERIA	0800-726-7864	http://www.samsung.com/africa_en
MOZAMBIQUE	847267864 / 827267864	http://www.samsung.com
RWANDA	9999	http://www.samsung.com
SENEGAL	800-00-0077	http://www.samsung.com/africa_fr
SOUTH AFRICA	0860 SAMSUNG (726 7864)	http://www.samsung.com
SUDAN	1969	http://www.samsung.com
TANZANIA	0685 88 99 00	http://www.samsung.com
UGANDA	0800 300 300	http://www.samsung.com
ZAMBIA	0211 350370	http://www.samsung.com

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-authorised 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.

Appendix

Correct Disposal

Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Terminology

OSD (On Screen Display)

On screen display (OSD) allows you to customize on-screen settings to optimize the picture quality as required. You can change the screen brightness, tint, size and many other settings using menus displayed on the screen.

Gamma

The Gamma menu adjusts the grey scale that represents middle tones on the screen. Adjusting the brightness brightens the whole screen, but adjusting Gamma only brightens the medium brightness.

Grey scale

Scale refers to levels of color intensity that show variations of color change from darker areas to brighter areas on the screen. Changes to the screen brightness are expressed with black and white variation, and grey scale refers to the medium area between black and white. Changing the grey scale through Gamma adjustment will change the medium brightness on the screen.

Scanning rate

Scanning rate, or refresh rate, refers to the frequency of screen refreshes. Screen data is transmitted as it refreshes to display an image, although the refreshing is invisible to the naked eye. The number of screen refreshes is called scanning rate and is measured in Hz. A scanning rate of 60Hz means that the screen refreshes 60 times per second. The screen scanning rate depends on the performance of the graphics cards in your PC and monitor.

Horizontal Frequency

Characters or images displayed on the monitor screen consist of numerous dots (pixels). Pixels are transmitted in horizontal lines, which are then arranged vertically to create an image. The horizontal frequency is measured in kHz and represents how many times horizontal lines per second are transmitted and displayed on the monitor screen. A horizontal frequency of 85 means that the horizontal lines that make up an image are transmitted 85000 times per second. The horizontal frequency is indicated in 85kHz.

Vertical Frequency

One image is made of numerous horizontal lines. The vertical frequency is measured in Hz and represents how many images can be created per second by those horizontal lines. A vertical frequency of 60 means that an image is transmitted 60 times per second. The vertical frequency is also called "refresh rate" and affects screen flicker.

Appendix

Resolution

Resolution is the number of horizontal pixels and vertical pixels that form a screen. It represents the level of display detail.

A higher resolution displays a greater amount of information on the screen and is suitable for performing multiple tasks at the same time.

E.g. A resolution of 1920 x 1080 consists of 1920 horizontal pixels (horizontal resolution) and 1080 vertical lines (vertical resolution).

E.g. A resolution of 1920 x 1200 consists of 1920 horizontal pixels (horizontal resolution) and 1,200 vertical lines (vertical resolution).

Plug & Play

The Plug & Play feature allows the automatic exchange of information between a monitor and PC to produce an optimum display environment.

The monitor uses VESA DDC (international standard) to execute Plug & Play.

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