SAMSUNG

User manual

U28E590D

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.

Table Of Contents

Table Of Contents

Table Of Contents

Table Of Contents

Table Of Contents

INDEX

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 center 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.
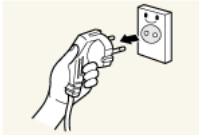
1. Power off the monitor and computer.

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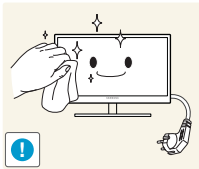
3. Wipe the monitor screen using a clean, soft and dry cloth.

    - 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.
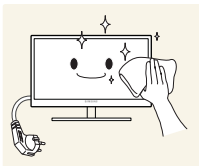
4. Wet a soft and dry cloth in water and wring thoroughly to clean the exterior of the monitor.
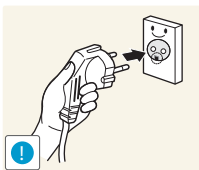
5. Connect the power cord to the product after cleaning the product.

6. Power on the monitor and computer.

Before Using the Product

Securing the Installation Space

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

> The exterior may differ depending on the product.

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)

3.93 inches(10 cm)
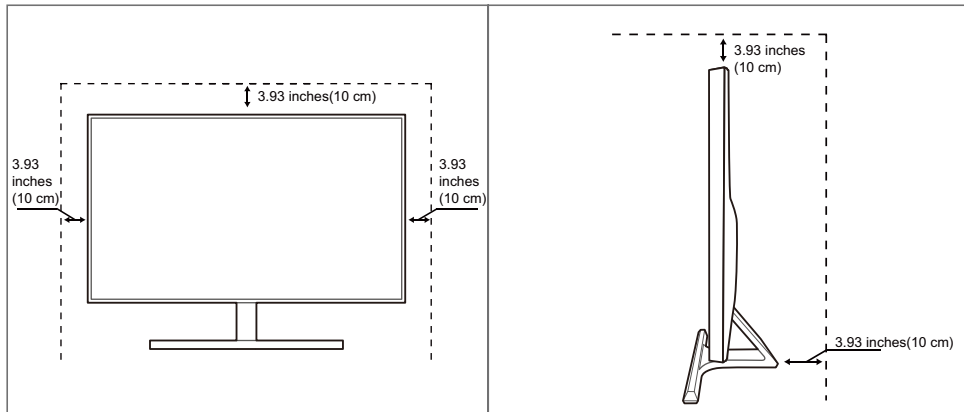
Precautions for storage

> Be sure to contact Samsung Customer Service Center (page 93) 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.
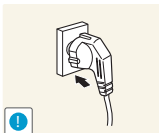
Insert the power plug all the way in so it is not loose.

- An unstable connection may cause a fire.
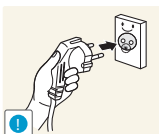
Ensure you connect the power plug to a grounded power socket. (type 1 insulated devices only).

- An electric shock or injury may result.
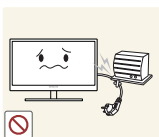
Do not bend or pull the power cord with force. Do not weigh the power cord down with a heavy object.

- A damaged power cord may cause an electric shock or fire.
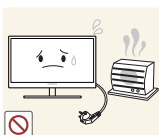
Do not place the power cord or product near heat sources.

- 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.
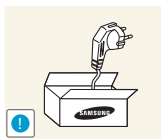
Do not use the power cord for products other than authorized products supplied by Samsung.

- An electric shock or fire may result.
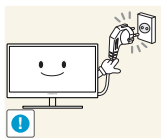
Keep the power socket where the power cord is connected unobstructed.

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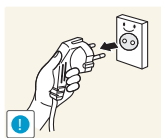
Hold the plug when disconnecting the power cord from the power socket.

- 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.
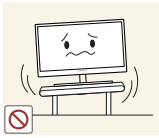
Do not install the product on an unstable or vibrating surface (insecure shelf, sloped surface, etc.).

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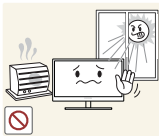
Do not expose the product to direct sunlight, heat, or a hot object such as a stove.

- 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
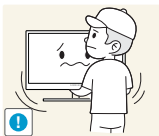
Take care not to drop the product when moving it.

- Otherwise, product failure or personal injury may result.
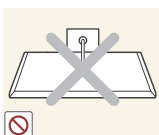
Do not set down the product on its front.

- 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.
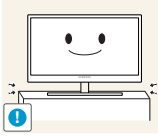
Put down the product carefully.

- 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 dust, chemical substances, extreme temperatures or a significant presence of moisture, or a place where the product will operate continuously for an extended period of time) may seriously affect its performance.

- Be sure to consult Samsung Customer Service Center (page 93) before installation if you want to install the product at such a place.

Operation and Safety

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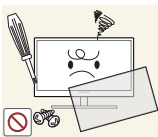
High voltage runs through the product. Do not attempt to disassemble, repair, or modify the product on your own.

- An electric shock or fire may result.
- Contact Samsung Customer Service Center (page 93) for repair.
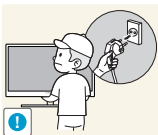
To move the product, first disconnect all the cables from it, including the power cable.

- Otherwise, the power cord may be damaged and a fire or electric shock may result.
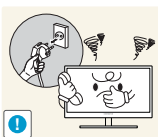
If the product generates a strange noise, a burning smell, or smoke, remove the power cord immediately and contact Samsung Customer Service Center (page 93).

- An electric shock or fire may result.
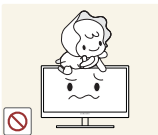
Do not let children hang from the product or climb on top of it.

- 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 93).

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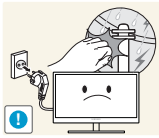
If there is a thunderstorm or lightning strike, turn off the power and disconnect the power cable.

- An electric shock or fire may result.

Do not drop objects on the product or apply impact.

- An electric shock or fire may result.
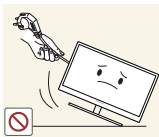
Do not move the product by pulling the power cord or any cable.

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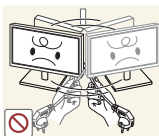
Do not lift or move the product by pulling the power cord or any cable.

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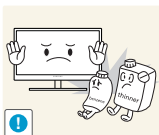
Do not use or keep combustible spray or an inflammable substance near the product.

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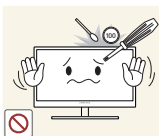
Do not insert a metallic object (a chopstick, coin, hair pin, etc.) or inflammable object (paper, match, etc.) into the vent or ports of the product.

- 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 93).
- 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 93).
- Product failure, an electric shock or fire may result.

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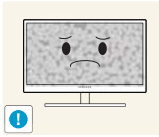
Leaving the screen fixed on a stationary image for an extended period of time may cause afterimage burn-in or defective pixels.

- 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.
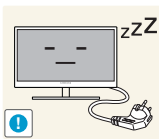
Disconnect the power cord from the power socket if you do not plan on using the product for an extended period of time (vacation, etc.).

- 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.
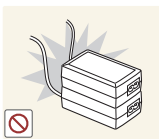
Do not put DC power adapters together.

- Otherwise, a fire may result.
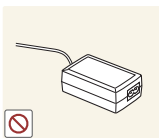
Remove the plastic bag from the DC power adapter before you use it.

- Otherwise, a fire may result.

Do not let water enter the DC power device or get the device wet.

- An electric shock or fire may result.
- Avoid using the product outdoors where it can be exposed to rain or snow.
- Be careful not to get the DC power adapter wet when you wash the floor.

Do not put the DC power adapter near to any heating apparatus.

- Otherwise, a fire may result.
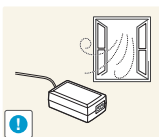
Keep the DC power adapter in a well-ventilated area.
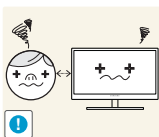
Looking at the screen too close for an extended period of time can deteriorate your eyesight.

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.
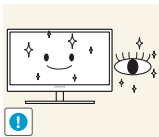
Rest your eyes for more than 5 minutes for every 1 hour of product use.

- Eye fatigue will be relieved.
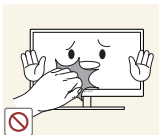
Do not touch the screen when the product has been turned on for an extended period of time as it will become hot.
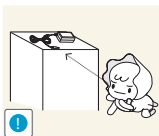
Store the small accessories used with the product out of reach of children.
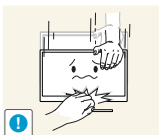
Exercise caution when adjusting the product angle or stand height.

- 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.
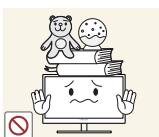
Do not place heavy objects on the product.

- Product failure or personal injure may result.
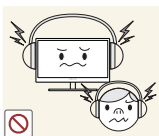
When using headphones or earphones, do not turn the volume too high.

- Having the sound too loud may damage your hearing.

Correct posture to use the product

Use the product in the correct posture as follows:

- Straighten your back.
- Allow a distance of 45 to 50 cm 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 Checking the Components

 • Contact the dealer from whom you purchased the product if any item is missing.
 • The appearance of the components may differ from the images shown.

Components
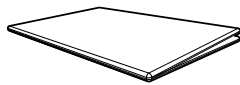
Quick Setup Guide	Warranty card (Not available in some locations)	User manual (optional)
Power cable (Only provided with the detachable DC power adapter.)	DC power adapter (Integrated) (optional)	DC power adapter (Detachable) (optional)
HDMI cable (optional)	DP cable (optional)	Stand base
Stand neck		
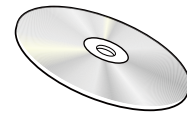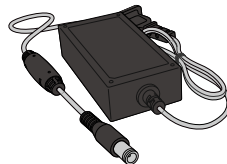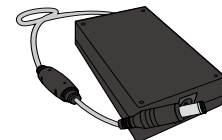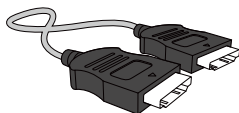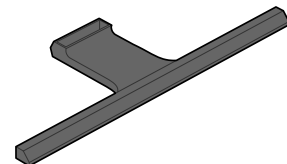
 • Components may vary depending on the country.
 • Recommend to use the HDMI cable and DP cable which is provided by the supplier.
 • The optimal resolution may not be available when using a non-high speed HDMI or HDMI-DVI cable.
 • To ensure that the screen displays properly and sound can be normal output, a DP cable that supports 3840 x 2160 at 60 Hz is recommended. An HDMI cable that supports 3840 x 2160 at 30 Hz will work when connect with **HDMI 1**. An HDMI cable that supports 3840 x 2160 at 60 Hz will work when connect with **HDMI 2**.

Preparations

1.2 Parts

1.2.1 Control Panel

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

JOG Button
UP

LEFT → RIGHT

PRESS(ENTER) DOWN

Function Key Guide

Return

Icons	Description
JOG Button	Multi directional button that helps navigate. > The JOG button is located on the rear left side of the product. The button can be used to move up, down, left or right, or as Enter.
Function Key Guide	Press the JOG button when the screen is turned on. The Function Key Guide will appear. To access the onscreen menu when the guide is displayed, press the corresponding direction button again. > Function Key Guide may vary depending on the function or product model. Please refer to the actual product.

1 **Preparations**

1.2.2 Direct Key guide

For guidance on shortcut keys, the below OSD (On Screen Display) will be displayed if you switch the source or turn on the monitor.

⇕	Eye Saver Mode
◄ ►	Volume
↵	Features
👁	Eye Saver Mode Off
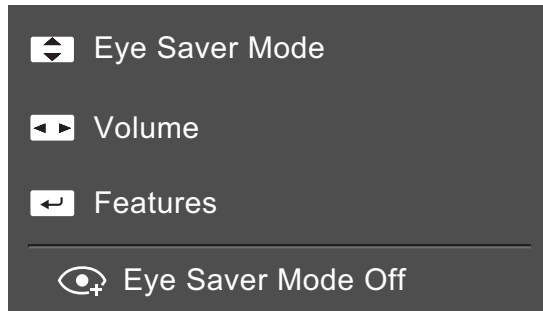
- UP/DOWN: Adjust **Brightness** / **Contrast** / **Eye Saver Mode**
- LEFT/RIGHT: Adjust **Volume**.
- PRESS(ENTER): Display Function Key Guide.

1.2.3 Function Key Guide

To enter the main menu or to use other items, press the JOG button to display the Function Key Guide. You can exit by pressing the JOG button again.

Return
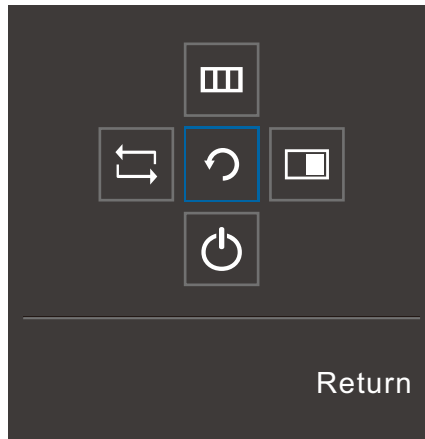
- UP/DOWN/LEFT/RIGHT: Move to the item you want. The description for each item will appear when the focus changes.
- PRESS(ENTER): The selected item will be applied.

Icons	Description
	Selects [ ] to change the input signal by moving the JOG button in the Function Key Guide screen. A message will appear on the top left corner of the screen if the input signal has been changed.
	Selects [ ] by moving the JOG button in the function key guide screen. The OSD (On Screen Display) of your Monitor's feature appears. OSD control lock: Maintain the current settings, or lock the OSD control to prevent unintended changes to settings. Enable/Disable: To lock/unlock the OSD control, press the LEFT button for 10 seconds when the main menu displayed. If the OSD control is locked, **Brightness** and **Contrast** can be adjusted. **PIP/PBP** is available. **Eye Saver Mode** is available. **Information** can be viewed.
	Selects [ ] by moving the JOG button in the function key guide screen. Press the button when configuring settings for the **PIP/PBP** function is required.
	Selects [ ] to turn the Monitor off by moving the JOG button in the function key guide screen.

Actual models because of functional variation, Function key guide options will be different.

Please run the corresponding function based on the actual icon and description.

When the monitor displays nothing (i.e. Power saving mode or Non-signal mode), 2 direct keys for control source and power could be used as below.

Preparations

JOG Button	Power saving/Non-signal mode
UP	Source Change
Down	
PRESS(ENTER) for 2 seconds	Power Off

  When the monitor displays the Main menu the JOG Button could be used as below.

JOG Button	Action
UP/DOWN	- Move the option
LEFT	- Exit the Main menu. - Close Sublist without saving value. - Value decreases in the slider.
RIGHT	- Move to next depth. - Value increases in the slider.
PRESS(ENTER)	- Move to next depth. - Save the value and close Sublist.

Preparations

1.2.4 Reverse Side

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

Port	About ports
HDMI IN 1 HDMI IN 2	Connect to a source device using an HDMI cable. HDMI 1 support 3840 x 2160 30 Hz HDMI 2 support 3840 x 2160 60 Hz
DP IN	Connects to a PC using a DP cable.
	Connect to an audio output device such as headphones. The sound could only be heard when using the HDMI to HDMI cable or DP cable.
DC 14V	Connects to the DC power adapter.

Preparations

1.3   Installation

1.3.1   Attaching the Stand

> Before assembling the product, place the product down on a flat and stable surface so that the screen is facing downwards.
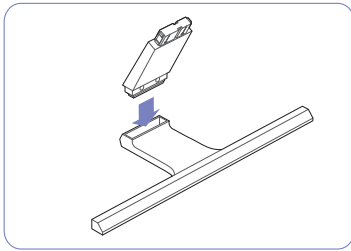
Insert the stand neck into the stand base in the direction shown in the figure.
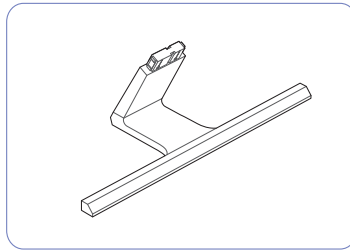
Check that the stand neck is firmly connected.
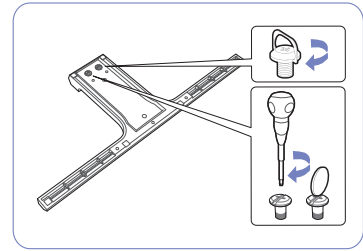
Tightly fasten the connecting screw at the bottom of the stand base.
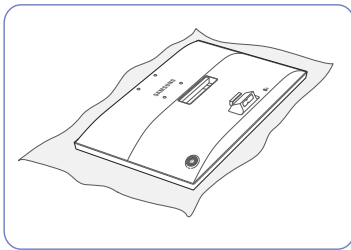
Place a soft cloth over the table to protect the product and place the product onto the cloth so that the front of the product is facing downwards.
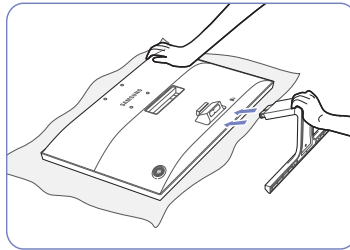
Hold the main body of the product with your hand as shown by the figure.

Push the assembled stand into the main body in the direction of the arrow as shown in the figure.
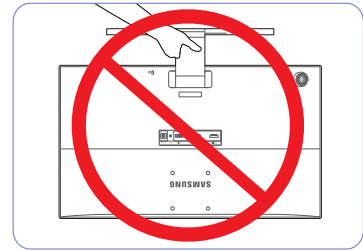
- Caution

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

Preparations

1.3.2 Removing the Stand
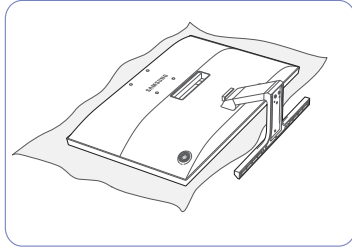
Place a soft cloth over the table to protect the product and place the product onto the cloth so that the front of the product faces downwards.
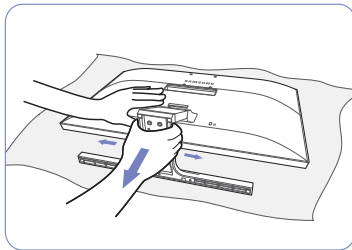
To disassemble the stand from the monitor, make sure to press the lower part of the monitor with one hand, and pull and sway sideways the stand with the other hand, as shown in the picture.
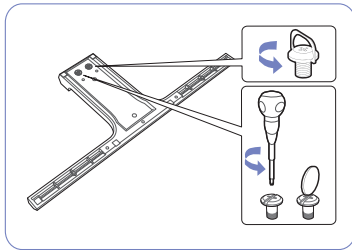
Turn the connecting screw at the bottom of the stand base to separate it.
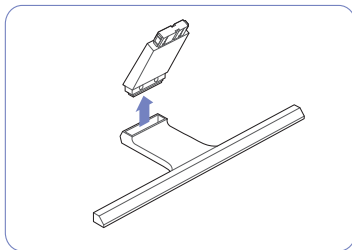
Remove the stand neck from the stand base by pulling it in the direction of the arrow as shown in the figure.

1.3.3   Adjusting the Product Tilt

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

-2° (±2.0°) – 20° (±2.0°)
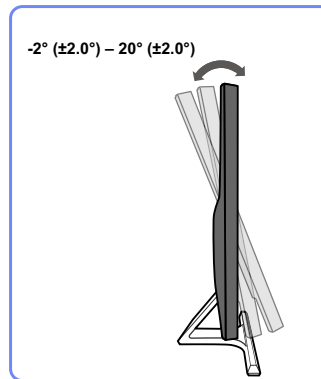
- You can adjust the tilt of your monitor.
- Hold the lower part of the product and adjust the tilt carefully.

1.3.4   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.
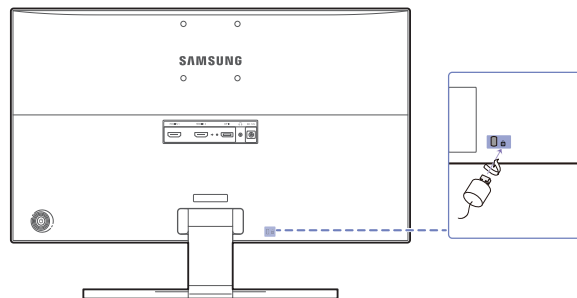
> The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

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.

2.2 Connecting and Using a PC

Select a connection method suitable for your PC.

> - Connecting parts may differ in different products.
> - If you don't use the cable that came with the components of the monitor, the monitor may not support the best resolution.

2.2.1 Connection Using the HDMI Cable

> Do not connect the power cable before connecting all other cables.
> Ensure you connect a source device first before connecting the power cable.
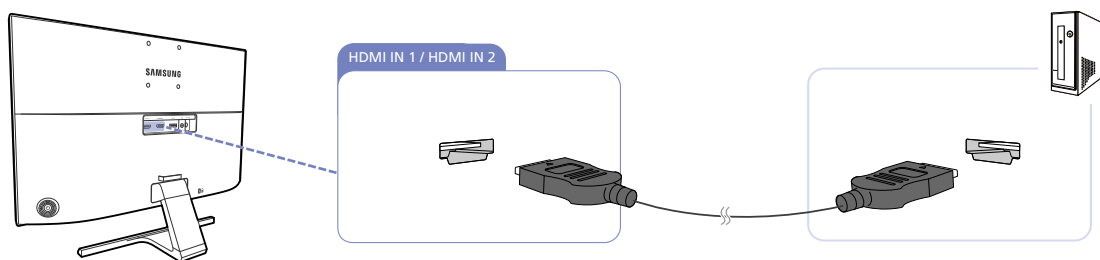
HDMI IN 1 / HDMI IN 2

1 Connect the [HDMI IN 1] or [HDMI IN 2] port on the back of the product to the HDMI port on the PC using an HDMI cable.

2 Connect the DC power adapter to the product and a power socket.
Next, turn on the power switch on the PC. (For details, refer to "2.2.5   Connecting the Power".)

3 Change the input source to **HDMI 1** or **HDMI 2** controlling the JOG button UP/DOWN, when input source is not set.

> - Provided ports may vary depending on the product.

- To display 3840 x 2160 at 30 Hz, use an HDMI cable that supports 3840 x 2160 at 30 Hz to connect **HDMI 1**.

  Make sure that the graphics card of the HDMI source supports 3840 x 2160 at 30 Hz.

- To display 3840 x 2160 at 60 Hz, use an HDMI cable that supports 3840 x 2160 at 60 Hz to connect **HDMI 2**.

  Make sure that the graphics card of the HDMI source supports 3840 x 2160 at 60 Hz.

- When connecting an HDMI cable, use the cable that came with the components of the monitor.

  If you use an HDMI cable other than provided by Samsung, the image quality may be degraded.

2.2.2   Connection Using an DP Cable

 Do not connect the power cable before connecting all other cables.
 Ensure you connect a source device first before connecting the power cable.
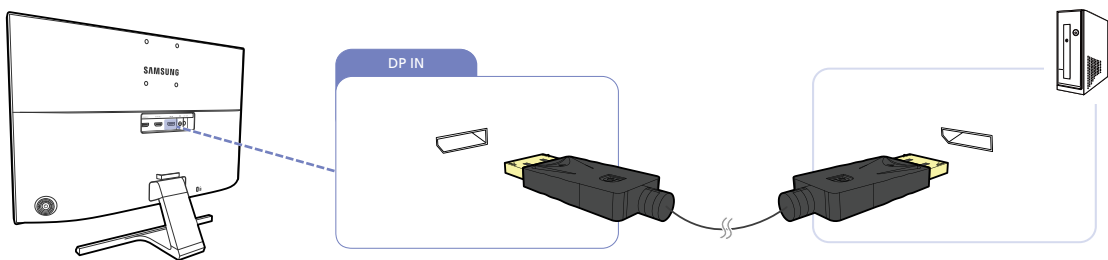
1 Connect the DP cable to the [DP IN] port on the back of the product and the DP port on the PC.

2 Connect the DC power adapter to the product and a power socket. Next, turn on the power switch on the PC. (For details, refer to "2.2.5   Connecting the Power".)

3 Change the input source to **DisplayPort** controlling the JOG button UP/DOWN, when input source is not set.

 - Provided ports may vary depending on the product.
 - To display 3840 x 2160 at 60 Hz, use a DP cable that supports 3840 x 2160 at 60 Hz.
   Make sure that the graphics card of the DP source supports 3840 x 2160 at 60 Hz.

Connecting and Using a Source Device

2.2.3 Connecting to Headphones

 Do not connect the power cable before connecting all other cables.
 Ensure you connect a source device first before connecting the power cable.
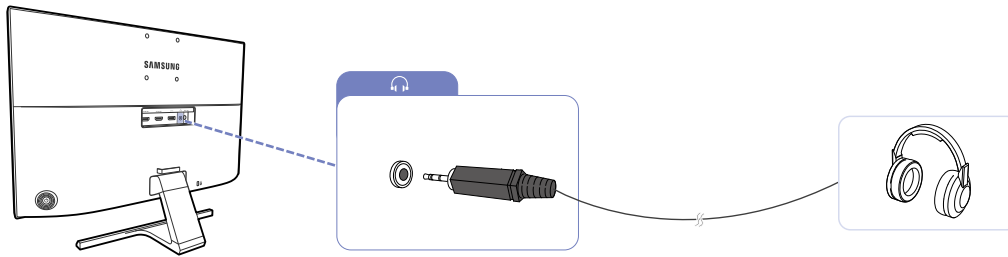
1 Connect an audio output device such as headphones to [ ] port on the product.

 The sound could only be heard when using the HDMI to HDMI cable or DP cable.

2.2.4 Tidying Up the Connected Cables

2 **Connecting and Using a Source Device**
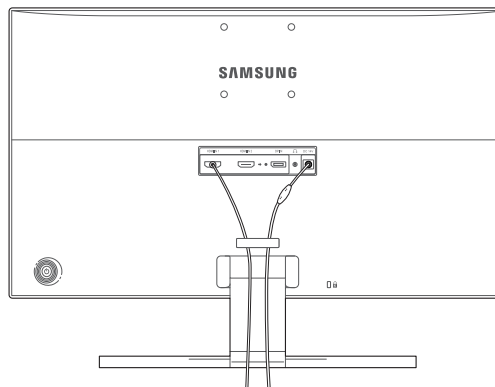
2.2.5   Connecting the Power

Power connection using integrated DC power adapter

- Connect the power adapter to [DC 14V] jack on the rear of the product.
  Plug in the power cable to the power socket.
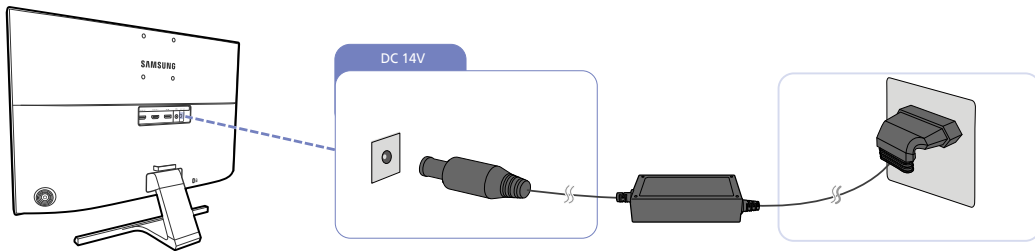
DC 14V

 The input voltage is switched automatically.

Power connection using detachable DC power adapter

- Connect the power cable to the DC power adapter.
  Then, connect the DC power adapter to the [DC 14V] port on the back of the product.
  Next, connect the power cable to the power outlet.

DC 14V

 The input voltage is switched automatically.

Connecting and Using a Source Device
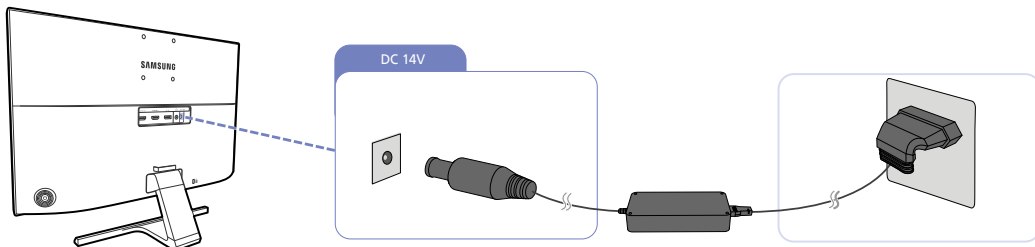
Changing the sound settings on Windows

Control Panel → Audio → Speaker → Speaker Setup
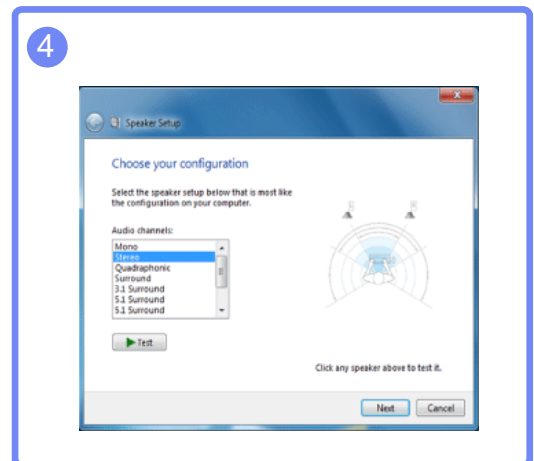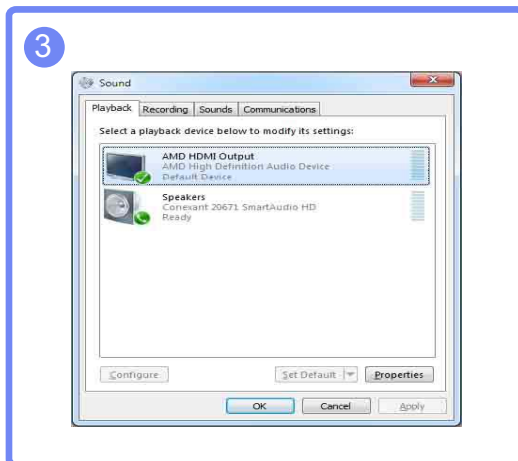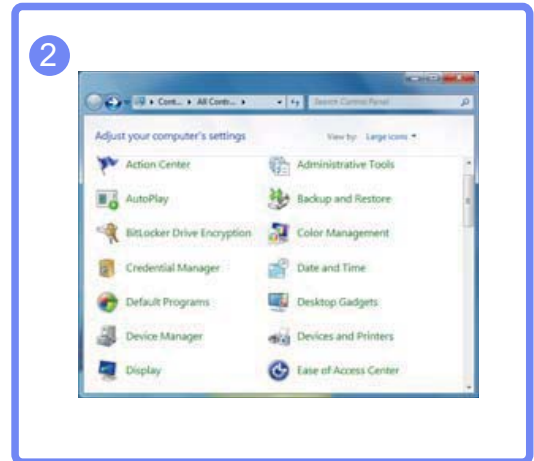
2.2.6   Driver Installation

- 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 Follow the instructions given on the screen to proceed with installation.

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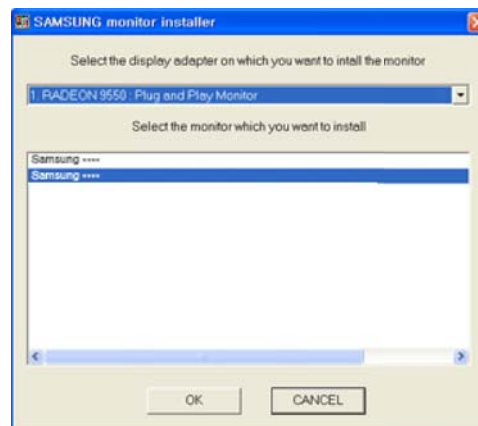
5 Go to Display Properties and check that the resolution and refresh rate are appropriate.

Refer to your Windows OS manual for further details.

2.2.7 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.

<div align="center">

Setup Guide

Language	English

The optimal resolution for this monitor is as follows:

**** x **** **Hz

Use the above settings to set the resolution on your PC.

▪ Current Resolution: **** x ****

Close

</div>
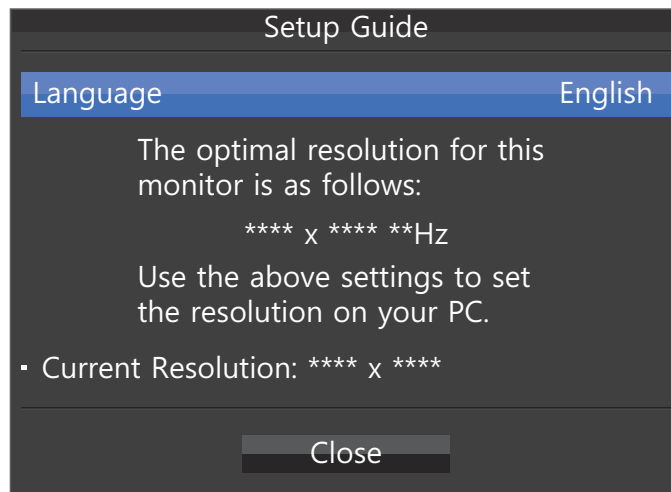
1 Press the JOG button to display the language settings menu.

2 To hide the message, move to **Close** with the JOG button. Next, press the JOG button.

> - 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.

3 Screen Setup

Configure the screen settings such as brightness.

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

3.1 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 **Eco Saving Plus** is enabled.
- This menu is not available when **SAMSUNG MAGIC Angle** is enabled.
- This menu is not available when **Game Mode** is enabled.
- This menu is not available when **Eye Saver Mode** is enabled.
- Not available when **PIP/PBP Mode** is set to **On**.

You can customize the brightness to suit your preferences.

3.1.1 Configuring SAMSUNG MAGIC Bright

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **SAMSUNG MAGIC Bright** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

Picture			Set to an optimum picture quality suitable for the working environment.
SAMSUNG MAGIC Bright	✔ Custom		
Brightness	Standard		
Contrast	Cinema		
Sharpness	Dynamic Contrast		
Color			
SAMSUNG MAGIC Angle		Off	
HDMI Black Level			
			◄ Return
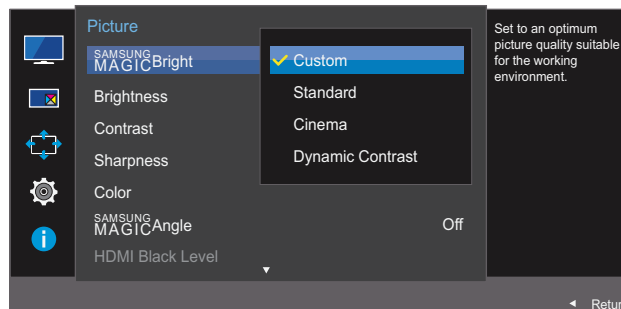
- **Custom**: Customize the contrast and brightness as required.
- **Standard**: Obtain a picture quality suitable for editing documents or using Internet.
- **Cinema**: Obtain the brightness and sharpness of TVs suitable for enjoying video and DVD content.
- **Dynamic Contrast**: Obtain balanced brightness through automatic contrast adjustment.

Screen Setup

Picture		Set to an optimum picture quality suitable for the working environment.
SAMSUNG MAGIC Bright	✓ Dynamic	
Brightness	Standard	
Contrast	Movie	
Sharpness	Custom	
Color		
SAMSUNG MAGIC Angle	Off	
HDMI Black Level	Low	

◄ Return

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

- **Dynamic**: Select this mode to view a sharper image than in **Standard** mode.
- **Standard**: Select this mode when the surroundings are bright. This also provides a sharp image.
- **Movie**: Select this mode when the surroundings are dark. This will save power and reduce eye fatigue.
- **Custom**: Select this mode when you want to adjust the image according to your preferences.

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

Screen Setup

3.2 Brightness

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

A higher value will make the picture appear brighter.

- This menu is not available when SAMSUNG MAGIC**Bright** is set to **Dynamic Contrast** mode.
- This menu is not available when **Eco Saving Plus** is enabled.
- This menu is not available when **Eye Saver Mode** is enabled.

3.2.1 Configuring Brightness

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Brightness** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

Picture		Adjust the brightness level. Values closer to 100 mean a brighter screen.
SAMSUNG MAGIC Bright	Custom	
Brightness	100	
Contrast	75	
Sharpness	60	
Color	▶	
SAMSUNG MAGIC Angle	Off	
HDMI Black Level		
	◀ Return	
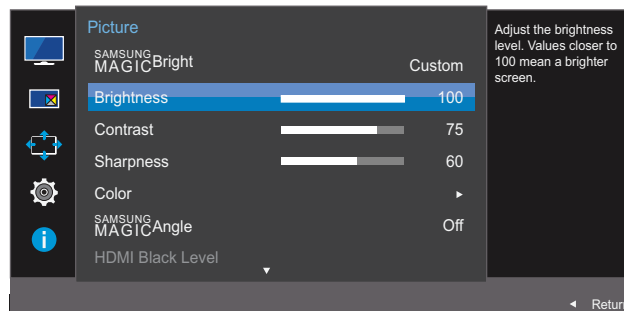
4 Adjust the **Brightness** controlling the JOG button LEFT/RIGHT.

5 The selected option will be applied.

Screen Setup

3.3   Contrast

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

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

> • This option is not available when ^{SAMSUNG}_{MAGIC}Bright is in **Cinema** or **Dynamic Contrast** mode.
> • This menu is not available when **Game Mode** is enabled.
> • This menu is not available when **PIP/PBP Mode** is set to **On** and the **Size** is set to ▯▯ (PBP Mode).

3.3.1   Configuring Contrast

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Contrast** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

Picture		Adjust the contrast level. Values closer to 100 mean a bigger light/dark contrast.
^{SAMSUNG}_{MAGIC}Bright	Custom	
Brightness	100	
Contrast	75	
Sharpness	60	
Color	▶	
^{SAMSUNG}_{MAGIC}Angle	Off	
HDMI Black Level	▼	
	◀ Return	

4 Adjust the **Contrast** controlling the JOG button LEFT/RIGHT.

5 The selected option will be applied.

Screen Setup
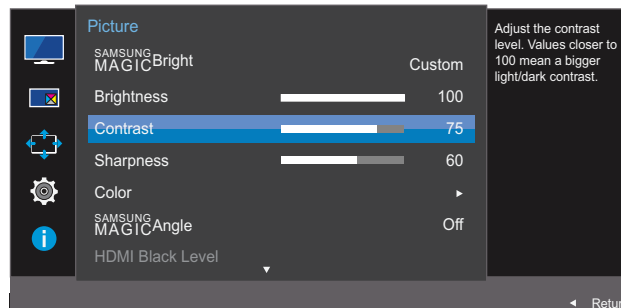
3.4   Sharpness

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 ᴿᴬᴹˢᵁᴺᴳMAGICBright is in **Cinema** or **Dynamic Contrast** mode.
- This menu is not available when **Game Mode** is enabled.
- Not available when **PIP/PBP Mode** is set to **On**.

3.4.1   Configuring Sharpness

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2   Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Sharpness** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

Picture		Adjust the sharpness of the picture. Values closer to 100 mean a sharper image.
SAMSUNG MAGICBright	Custom	
Brightness	100	
Contrast	75	
Sharpness	60	
Color	▶	
SAMSUNG MAGICAngle	Off	
HDMI Black Level		
	◀ Return	
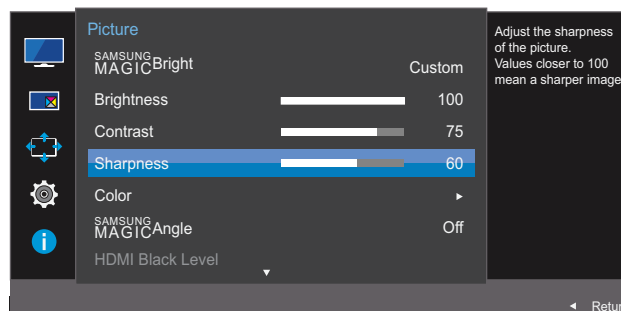
4   Adjust the **Sharpness** controlling the JOG button LEFT/RIGHT.

5   The selected option will be applied.

3 Screen Setup

3.5 Color

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

- Adjust the tint of the screen. This menu is not available when ^{SAMSUNG}**MAGICBright** is set to **Cinema** or **Dynamic Contrast** mode.
- This menu is not available when **Game Mode** is enabled.
- This menu is not available when **Eye Saver Mode** is enabled.
- The **Color Tone** and **Gamma** menu is not available when ^{SAMSUNG}**MAGICAngle** is enabled.
- Not available when **PIP/PBP Mode** is set to **On**.

3.5.1 Configuring Color

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.

Next, press the JOG button.

2 Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Color** controlling the JOG button UP/DOWN and press the JOG button.

The following screen will appear.

Picture		Configure color settings.
SAMSUNG MAGIC Bright	Custom	
Brightness	100	
Contrast	75	
Sharpness	60	
Color	►	
SAMSUNG MAGIC Angle	Off	
HDMI Black Level		
	◄ Return	

Color		Adjust the red saturation level. Values closer to 100 mean greater intensity for the color.
Red	50	
Green	50	
Blue	50	
Color Tone	Normal	
Gamma	Mode1	
	◄ Return	
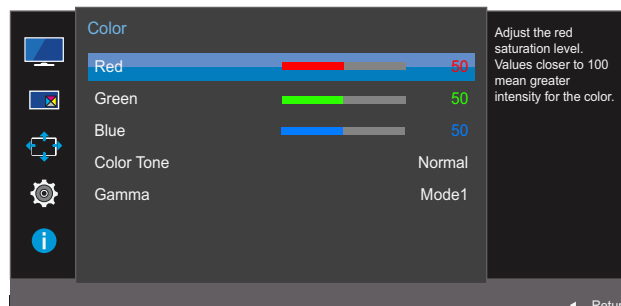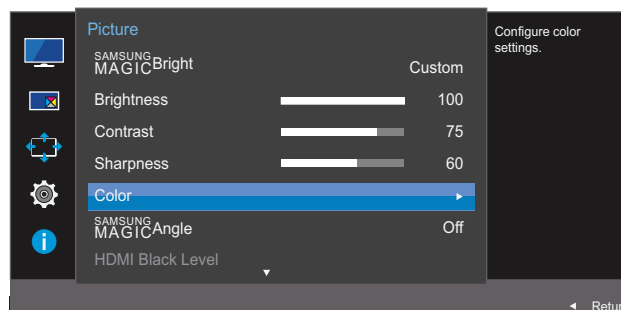
- **Red**: Adjust the red saturation level. Values closer to 100 mean greater intensity for the color.
- **Green**: Adjust the green saturation level. Values closer to 100 mean greater intensity for the color.
- **Blue**: Adjust the blue saturation level. Values closer to 100 mean greater intensity for the color.
- **Color Tone**: Select a color tone that best suits your viewing needs.

□ **Cool 2**: Set the color temperature to be cooler than **Cool 1**.

□ **Cool 1**: Set the color temperature to be cooler than **Normal** mode.

□ **Normal**: Display the standard color tone.

□ **Warm 1**: Set the color temperature to be warmer than **Normal** mode.

□ **Warm 2**: Set the color temperature to be warmer than **Warm 1**.

□ **Custom**: Customize the color tone.

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

• **Gamma**: Adjust the middle level of luminance.

□ **Mode1**

□ **Mode2**

□ **Mode3**

4 Move to the desired option by controlling the JOG button and then press the JOG button.

5 The selected option will be applied.

Screen Setup

3.6   SAMSUNG MAGIC Angle

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

- This option is not available when SAMSUNG MAGIC Bright is in **Cinema** or **Dynamic Contrast** mode.
- This menu is not available when **Game Mode** is enabled.
- This menu is not available when **Eye Saver Mode** is enabled.
- Not available when **PIP/PBP Mode** is set to **On**.

This feature provides the viewing angle, brightness, and tint to suit your preferences.

3.6.1   Configuring SAMSUNG MAGIC Angle

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to SAMSUNG MAGIC Angle controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

Picture		Select an angle that best suits your viewing position.
SAMSUNG MAGIC Bright	Custom	
Brightness		
Contrast	✓ Off	
Sharpness	Lean Back Mode 1	
Color	Lean Back Mode 2	
SAMSUNG MAGIC Angle	Standing Mode	
HDMI Black Level	Side Mode	
	◄ Return	

3 Screen Setup
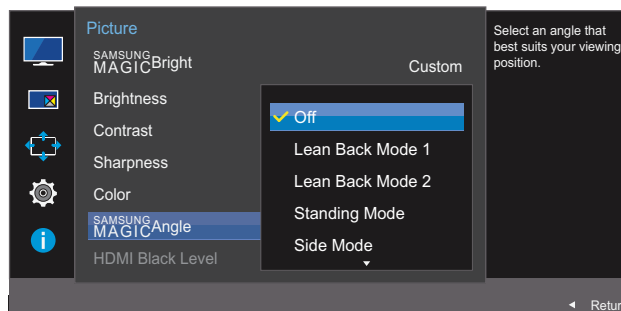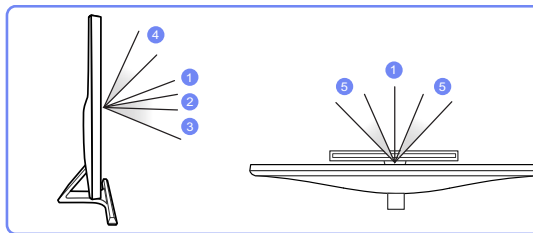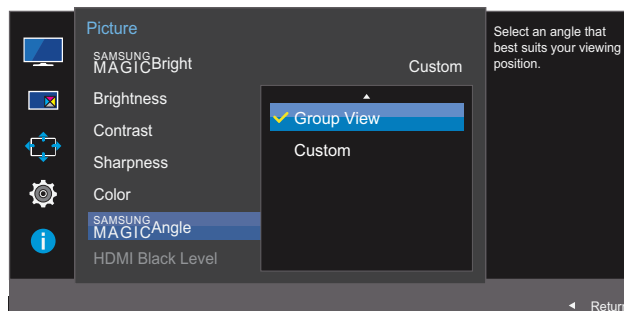
- **Off** ①: Select this option to view directly in front of the product.
- **Lean Back Mode 1** ②: Select this option to view from a place slightly lower than the product.
- **Lean Back Mode 2** ③: Select this option to view from a place lower than Lean Back Mode 1.
- **Standing Mode** ④: Select this 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 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

Screen Setup

3.7   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 1 or HDMI 2 mode.
> - Not available when PIP/PBP Mode is set to On.

3.7.1   Configuring the HDMI Black Level Settings

1 When the Function Key Guide appears, select [⊞] by moving the JOG button UP.

Next, press the JOG button.

2 Move to Picture controlling the JOG button UP/DOWN and press the JOG button.

3 Move to HDMI Black Level controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

Picture		Optimize HDMI picture brightness and contrast by adjusting the black level of the video signal.
SAMSUNG MAGIC Bright	Dynamic	
Brightness	100	
Contrast	75	
Sharpness	60	
Color		
SAMSUNG MAGIC Angle	Normal	
HDMI Black Level	✓ Low	
	◄ Return	

- 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 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

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

Screen Setup

3.8   Eye Saver Mode

> Not available when **PIP/PBP Mode** is set to **On**.

Set to an optimum picture quality suitable for eye relaxation.

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

3.8.1   Configuring Eye Saver Mode

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2   Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Eye Saver Mode** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

Picture		Set to an optimum picture quality suitable for eye relaxation.
Eye Saver Mode	✓ Off	
Game Mode	On	
Response Time		
Picture Size	Wide	
Screen Adjustment		
	◄ Return	
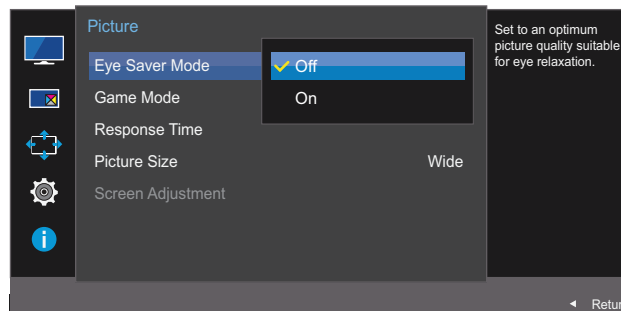
4   Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5   The selected option will be applied.

Screen Setup

3.9   Game Mode

Configure the product screen settings for game mode.

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

> - This menu is not available when **Eye Saver Mode** is enabled.
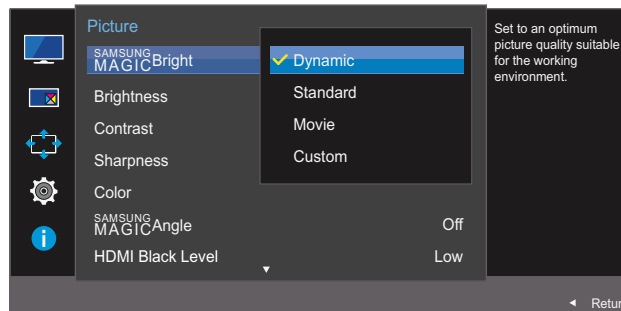> - Not available when **PIP/PBP Mode** is set to **On**.

3.9.1   Configuring Game Mode

1   When the Function Key Guide appears, select [▯] by moving the JOG button UP.

       Next, press the JOG button.

2   Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Game Mode** controlling the JOG button UP/DOWN and press the JOG button.

       The following screen will appear.

Picture		Optimizes image settings for playing games.
Eye Saver Mode		
Game Mode	✔ Off	
Response Time	On	
Picture Size	Always On	
Screen Adjustment		
	◄ Return	
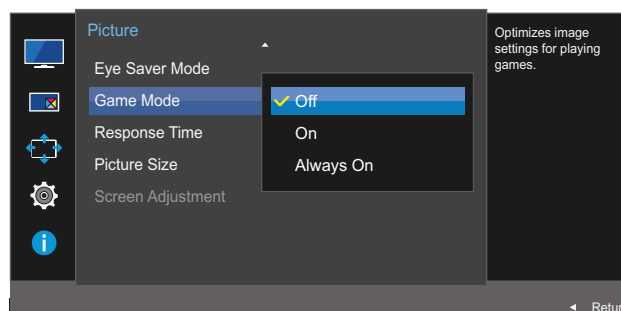
4   Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5   The selected option will be applied.

> - **Game Mode** turns **Off** when the monitor turns on, power-saving mode activates, or the input source changes.
> - If you want to keep **Game Mode** enabled all the time, select **Always On**.

Screen Setup

3.10   Response Time

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

- ● It is best to set **Response Time** to **Standard** or **Faster** when you are not viewing a movie.
- ● This menu is not available when **PIP/PBP Mode** is set to **On** and the **Size** is set to ▭/▭/▭ (PIP Mode).

3.10.1   Configuring the Response Time

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.

Next, press the JOG button.

2 Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Response Time** controlling the JOG button UP/DOWN and press the JOG button.

The following screen will appear.

	Picture		
🖵	Eye Saver Mode		Off
🗙	Game Mode		
⬌	**Response Time**	Standard	
	Picture Size	✓ Faster	
⚙	Screen Adjustment	Fastest	
ⓘ			
			◀ Return

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

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

3   Screen Setup
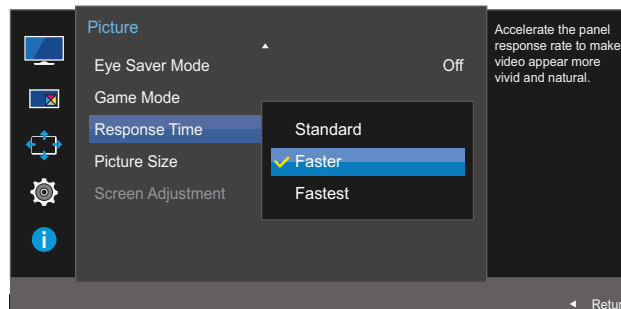
3.11   Picture Size

Change the picture size.

> 📝 This menu is not available when **PIP/PBP Mode** is set to **On** and the **Size** is set to ▯▯ (PBP Mode).

3.11.1   Changing the Picture Size

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2   Move to **Screen** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Picture Size** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

In **PC** mode

Picture		
Eye Saver Mode		Off
Game Mode		Off
Response Time		
Picture Size	Auto	
Screen Adjustment	✓ Wide	

Choose the size and aspect ratio of the picture displayed on screen.

◄ Return

- **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.

Screen Setup

In **AV** mode

Picture			Choose the size and aspect ratio of the picture displayed on screen.
Eye Saver Mode		Off	
Game Mode		Off	
Response Time			
Picture Size	4:3		
Screen Adjustment	✓ 16:9		
	Screen Fit		
		◄ Return	

- **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.

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

- The function may not be supported depending on the ports provided with the product.
- Changing the screen size is available when the following conditions are satisfied.
  □ A digital output device is connected using the HDMI/DP cable.
  □ The input signal is 480p, 576p, 720p, or 1080p and monitor can display normally (Not every model can support all of these signals.).
  □ This can only be set when the external input is connected through HDMI/DP and **PC/AV Mode** is set to **AV**.

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

3.12   Screen Adjustment

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

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2   Move to **Picture** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Screen Adjustment** controlling the JOG button UP/DOWN and press the JOG button.

4   Move to the **H-Position** or **V-Position** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

Picture	
Eye Saver Mode	Off
Game Mode	Off
Response Time	Faster
Picture Size	Screen Fit
Screen Adjustment	▶

◄   Return

Screen Adjustment		Move the image displayed on the screen to the left or right.
H-Position	3	
V-Position	3	

◄   Return

Screen Adjustment		Move the image displayed on the screen up or down.
H-Position	3	
V-Position	3	

◄   Return
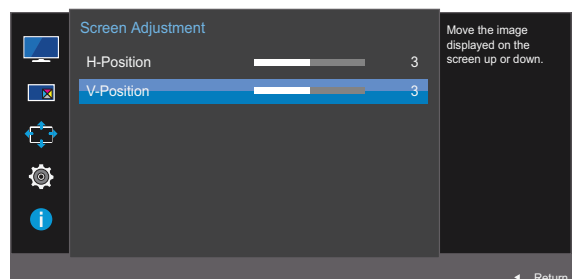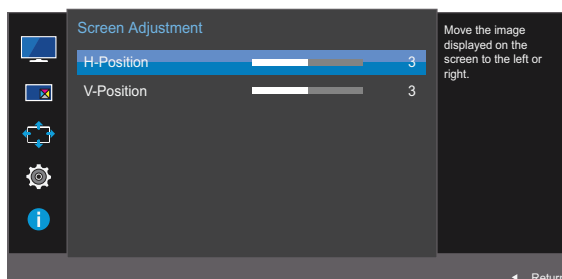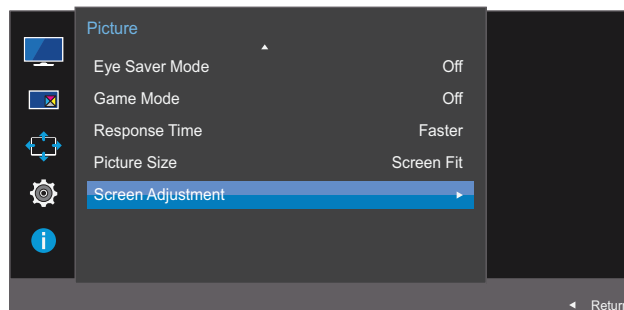
5   Adjust the **H-Position** or **V-Position** controlling the JOG button LEFT/RIGHT and press the JOG button.

6   The selected option will be applied.

4 Configuring the PIP/PBP Settings

4.1   PIP/PBP

The PIP (Picture in Picture) function separates the screen into two parts. One source device is displayed on the main screen at the same time the another source device is displayed in inset windows.

The PBP (Picture by Picture) function separates the screen in half displaying output from two different source devices simultaneously on the left and right sides of the screen.

- Compatible with Windows7 and Windows8.
- The **PIP/PBP** function may not be available depending on the specifications of the graphics card used. If the screen is blank in **PIP/PBP** mode when the optimum resolution is selected, go to **Control Panel** → **Display** → **Screen Resolution** and click **Detect** on the PC. (Instructions are based on Windows 7.) If the screen is blank when the resolution is set to the optimum resolution, change the resolution to 1280 x 1024.
- The screen may flicker briefly or appear after a delay when you enable or disable the **PIP/PBP** function or when you change the screen size with the **PIP/PBP** function activated.
  This can typically arise when a PC and a monitor are connected to two or more input sources.
  It has nothing to do with the performance of a monitor.
  The issue is mainly caused when the video signals are delayed in transmission to the monitor depending on the graphics card performance.
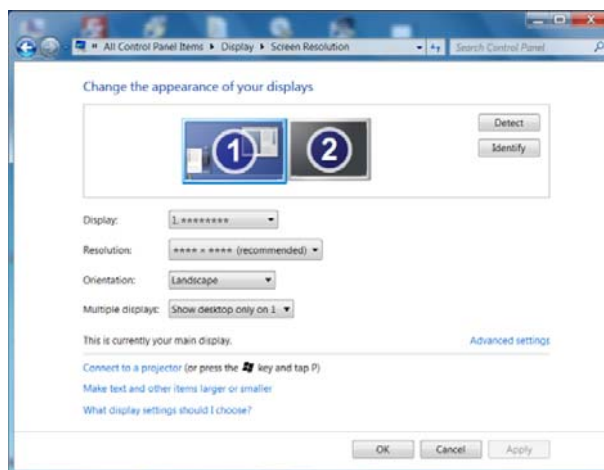
- To maximize the picture quality and Sound can be normal output it is recommended to use a graphics card or DVD that supports 4K (3840 x 2160 at 30HZ) resolution when connect **HDMI 1** port.
- To maximize the picture quality and Sound can be normal output it is recommended to use a graphics card or DVD that supports 4K (3840 x 2160 at 60HZ) resolution when connect **HDMI 2** port.
- When the **PIP/PBP** function is enabled, the resolution will not be able to automatically switch to the optimum resolution due to a compatibility issue between the graphics card and the Windows system. Set **PIP/PBP Mode** to **Off** or manually change the resolution to the optimum resolution using the Windows interface.

Configuring the PIP/PBP Settings

4.1.1 Configuring PIP/PBP Mode

Enable or disable the **PIP/PBP** function.

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.
   Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to the **PIP/PBP Mode** controlling the JOG button UP/DOWN and press the JOG button.
   The following screen will appear.

PIP/PBP		Turn PIP/PBP Mode on or off.
PIP/PBP Mode	✔ Off	
Size	On	
Position		
Sound Source		
Source		
Picture Size		
Contrast		
	◄ Return	

- **Off** / **On**

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

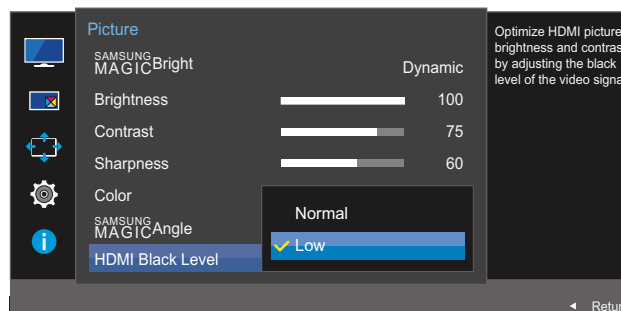# Configuring the PIP/PBP Settings
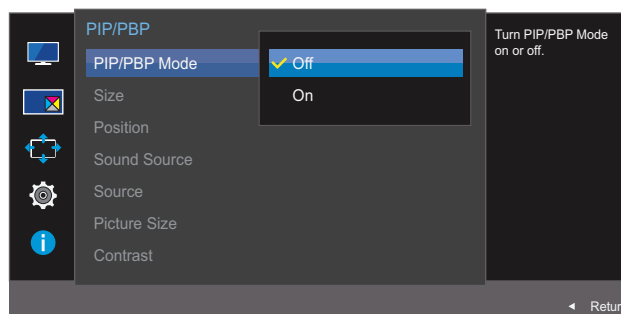
4.1.2 Configuring Size

Select the size and aspect ratio of the sub-screen.

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.
Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to the **Size** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

PIP/PBP		Select the size and aspect ratio of the sub-screen.
PIP/PBP Mode		
Size		
Position		
Sound Source		
Source		• Main: HDMI 1
Picture Size		• Sub: HDMI 2
Contrast	75/75	
	◄ Return	

- : Select the icon image if you want to use PBP mode where the optimum resolution for the left and right sides of the screen is 1920 x 2160 (width x height).

- : Select the icon image if you want to use PIP mode where the optimum resolution for the sub-screen is 720 x 480 (width x height).

- : Select the icon image if you want to use PIP mode where the optimum resolution of the sub-screen is 1280 x 720 (width x height).

- : Select the icon image if you want to use PIP mode where the optimum resolution of the sub-screen is 1920 x 1080 (width x height).

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

Configuring the PIP/PBP Settings

4.1.3 Configuring Position

Select the position of the sub-screen from the available options.

1 When the Function Key Guide appears, select [￭] by moving the JOG button UP.
Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to the **Position** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

```
PIP/PBP

 PIP/PBP Mode                On          Select the position of
                                         the sub-screen from
 Size                                    the available options.

 Position              ✓ ▭

 Sound Source            ▭

 Source                  ▭
                                          ▪ Main:
 Picture Size            ▭                   HDMI 1
                                          ▪ Sub:
 Contrast                                    HDMI 2

                                  ◄  Return
```

- ▟ / ▟ / ▟ / ▟
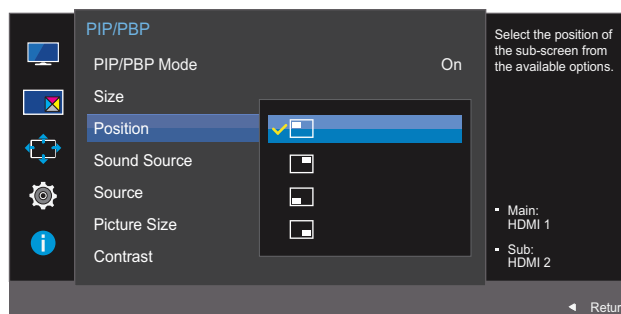
4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

> - Not available when PBP is selected.
> - The screen may flicker if the input signal is unstable.

4

Configuring the PIP/PBP Settings

4.1.4 Configuring Sound Source

Set which screen you want to hear the sound for.

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to the **Sound Source** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

> The white area of the icon means that the **Sound Source** comes from the main screen/sub-screen or the left/right screen.

PIP

PIP/PBP		Set which screen you
PIP/PBP Mode	On	want to hear the sound for.
Size	▣	
Position		
Sound Source	✓▣	
Source	▣	
Picture Size		· Main: HDMI 1
Contrast	75	· Sub: HDMI 2
	◀ Return	

- ▣ / ▣

PBP

PIP/PBP		Set which screen you
PIP/PBP Mode	On	want to hear the sound for.
Size	▣	
Position		
Sound Source	✓▣	
Source	▣	
Picture Size		· Main: HDMI 1
Contrast	75/75	· Sub: HDMI 2
	◀ Return	

- ▣ / ▣

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

Configuring the PIP/PBP Settings

4.1.5   Configuring Source

Select the source for each screen.

PIP

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.
Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 In PIP mode (**Size** / /), move the JOG button UP/DOWN to select **Source** and then press
the JOG button.
The following screen will appear.

- **HDMI 1**
- **HDMI 2**
- **DisplayPort**

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.
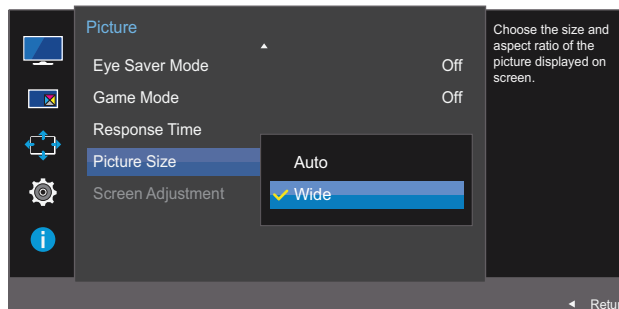
5 The selected option will be applied.

- The input source for the main screen changes.
- With the exception of the current input source, the other two input sources can be selected.
- The screen may flicker if the input signal is unstable.
- When the Function Key Guide appears, move the JOG button LEFT to select the [ ] icon and
then press the JOG button. The main screen will switch in the order
DisplayPort → **HDMI 1** → **HDMI 2**.
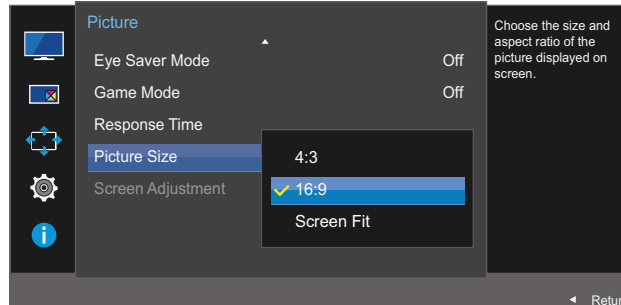
Configuring the PIP/PBP Settings

PBP

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.
Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 In PBP mode (**Size**   ), move the JOG button UP/DOWN to select **Source** and then press the JOG button.
The following screen will appear.

PIP/PBP		Select the source for each screen.
PIP/PBP Mode	On	
Size		
Position		
Sound Source		
Source	►	
Picture Size	►	
Contrast	75/75	
	◄ Return	

Source		
HDMI 1	HDMI 2	Apply
		Cancel
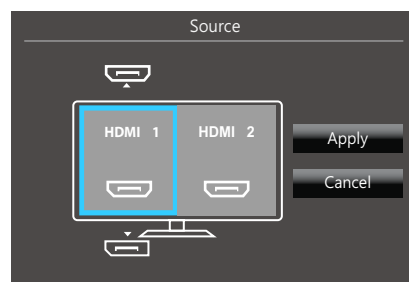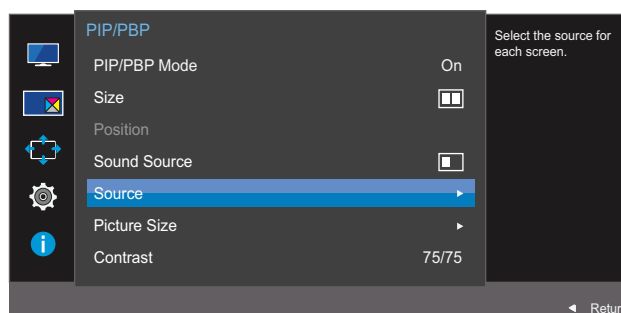
- **HDMI 1**
- **HDMI 2**
- **DisplayPort**

4 Control the JOG button UP/DOWN and choose the left/right external input source.

5 Move the JOG button LEFT/RIGHT to select **Apply** and then press the JOG button. Pressing the JOG button after selecting **Cancel** will cancel **Source** configuration and revert back to the **PIP/PBP** control menu.

 - The input source for the main screen changes.
 - The screen may flicker if the input signal is unstable.
 - When the input signal of the left and right screens are the same, the operation cannot be performed.
 - When the Function Key Guide appears, move the JOG button LEFT to select the [ ] icon and then press the JOG button. The same PBP source setting menu appears.

Configuring the PIP/PBP Settings

4.1.6 Configuring Picture Size

Select the image size for sub-screen.

PIP

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.
Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 In PIP mode (**Size** / /), move the JOG button UP/DOWN to select **Picture Size** and then press the JOG button.
The following screen will appear.

In **PC** mode

PIP/PBP		
PIP/PBP Mode	On	
Size		
Position		
Sound Source		
Source		
Picture Size	Auto	
Contrast	✓ Wide	

Select the image size for each screen.

◄ Return

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

Configuring the PIP/PBP Settings

In **AV** mode

PIP/PBP

PIP/PBP Mode   On

Size

Position

Sound Source

Source   ✓ 4:3

Picture Size   16:9

Contrast   Screen Fit

Select the image size
for each screen.

◀   Return

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

- **16:9**: Display the picture of the sub-screen with an aspect ratio of 16:9.

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

> - The function may not be supported depending on the ports provided with the product.
> - Changing the screen size is available when the following conditions are satisfied.
>   □ A digital output device is connected using the HDMI/DP cable.
>   □ The input signal is 480p, 576p, 720p, or 1080p and monitor can display normally (Not every model can support all of these signals.).
>   □ This can only be set when the external input is connected through HDMI/DP and **PC/AV Mode** is set to **AV**.

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

Configuring the PIP/PBP Settings

PBP

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.
Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 In PBP mode (**Size**), move the JOG button UP/DOWN to select **Picture Size** and then press the JOG button.
The following screen will appear.

PIP/PBP		Select the image size for each screen.
PIP/PBP Mode	On	
Size		
Position		
Sound Source		
Source	▸	
Picture Size	▸	
Contrast	75/75	
◂ Return		

In **PC** mode

Picture Size

Auto   Auto   Apply
Cancel

- ● **Auto**: Display the picture according to the aspect ratio of the each screen input source.
- ● **Wide**: Display the picture in full screen regardless of the aspect ratio of the each screen input source.

Configuring the PIP/PBP Settings

In **AV** mode

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

- **16:9**: Display the picture of the sub-screen with an aspect ratio of 16:9.

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

> - The function may not be supported depending on the ports provided with the product.
> - Changing the screen size is available when the following conditions are satisfied.
>   □ A digital output device is connected using the HDMI/DP cable.
>   □ The input signal is 480p, 576p, 720p, or 1080p and monitor can display normally (Not every model can support all of these signals.).
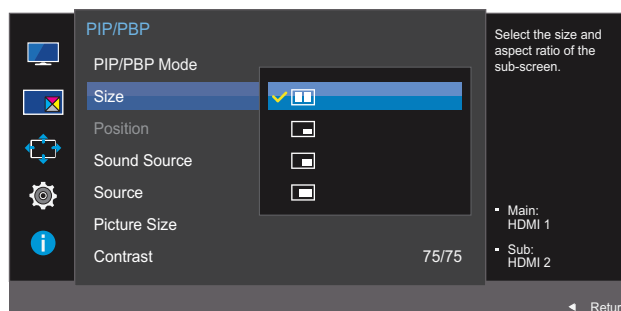>   □ This can only be set when the external input is connected through HDMI/DP and **PC/AV Mode** is set to **AV**.

4 Move to the desired option controlling the JOG button and press the JOG button.

5 The selected option will be applied.

Configuring the PIP/PBP Settings

4.1.7 Configuring Contrast

PIP

Adjust the contrast level for sub-screen.

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.

Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 In PIP mode (**Size** / /), move the JOG button UP/DOWN to select **Contrast** and then press the JOG button.

The following screen will appear.

PIP/PBP		Adjust the contrast level for each screen.
PIP/PBP Mode	On	
Size		
Position		
Sound Source		
Source		
Picture Size	75	
Contrast		
		◄ Return

4 Adjust the **Contrast** controlling the JOG button LEFT/RIGHT.

5 The selected option will be applied.

Configuring the PIP/PBP Settings

PBP

Adjust the contrast level for each screen.

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.
Next, press the JOG button.

2 Move to the **PIP/PBP** controlling the JOG button UP/DOWN and press the JOG button.

3 In PBP mode (**Size**), move the JOG button UP/DOWN to select **Contrast** and then press the
JOG button.

The following screen will appear.

PIP/PBP		Adjust the contrast
PIP/PBP Mode	On	level for each screen.
Size		
Position		
Sound Source		
Source	▶	
Picture Size	▶	
Contrast	75/75	
◀ Return		

Contrast	◀ ▬▬▬▬ ▶	75
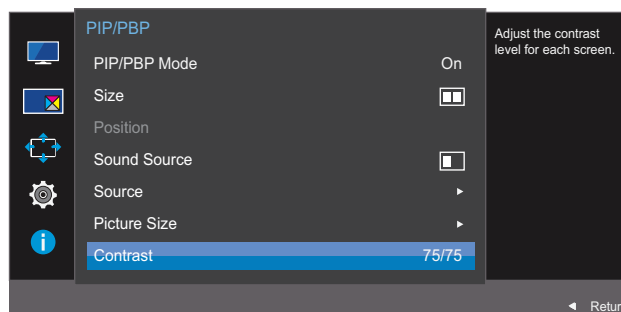
4 Adjust the **Contrast** controlling the JOG button LEFT/RIGHT.

5 The selected option will be applied.

5 Coordinating OSD

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

5.1   Transparency

Set the transparency for the menu windows.
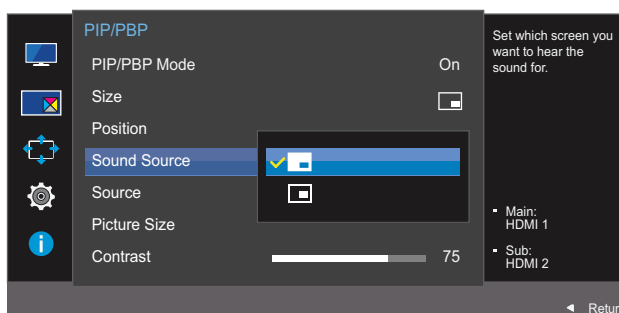
5.1.1   Changing Transparency

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **OnScreen Display** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Transparency** controlling the JOG button UP/DOWN and press the JOG button.
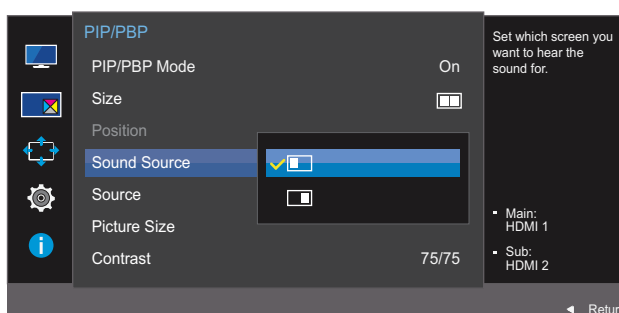The following screen will appear.

OnScreen Display		Configure the transparency of the menu windows.
Transparency	Off	
Language	✔ On	
Display Time		
		◄ Return
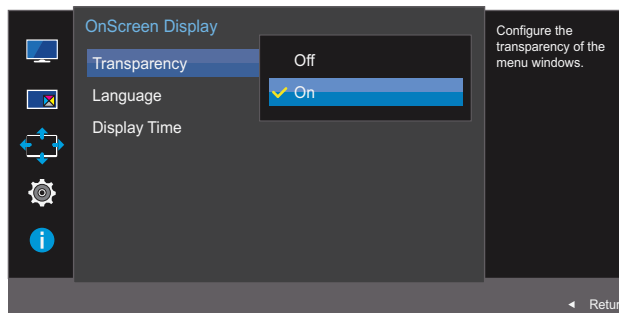
4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

5.2   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.

5.2.1   Configuring Language

1 When the Function Key Guide appears, select [ ] by moving the JOG button UP.

Next, press the JOG button.

2 Move to **OnScreen Display** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Language** controlling the JOG button UP/DOWN and press the JOG button.

The following screen will appear.

OnScreen Display		Set the menu language.
Transparency		
Language	Deutsch	
Display Time	✓ English	
	Español	
	Français	
	Italiano	
		◄ Return

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.
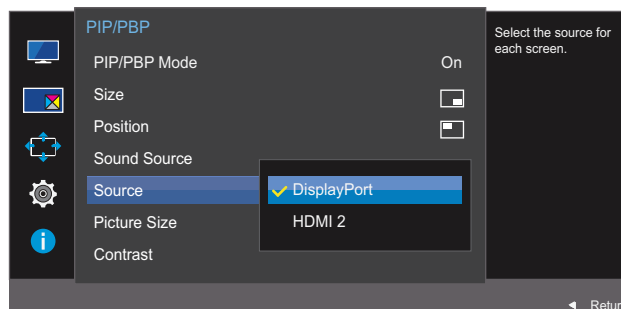
5 The selected option will be applied.

Coordinating OSD

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 When the Function Key Guide appears, select [ ] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **OnScreen Display** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Display Time** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

OnScreen Display		Set how long the menu window will remain on screen for when it is not in use.
Transparency	On	
Language		
Display Time	5 sec	
	10 sec	
	✔ 20 sec	
	200 sec	
	◄ Return	

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

6 **Setup and Reset**
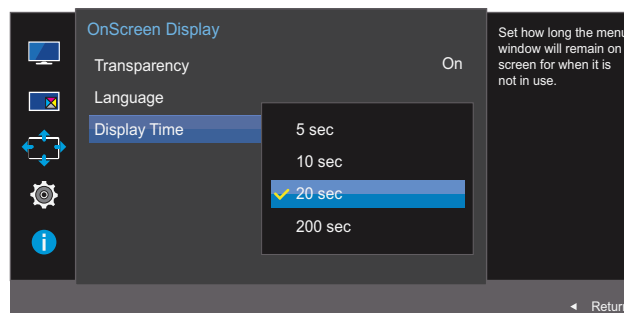
A detailed description of each function is provided. Refer to your product for details.

6.1 Eco Saving Plus

The **Eco Saving Plus** 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.
- This menu is not available when **Game Mode** is enabled.
- This menu is not available when **Eye Saver Mode** is enabled.
- Not available when **PIP/PBP Mode** is set to **On**.

6.1.1 Configuring Eco Saving Plus

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Eco Saving Plus** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

System			Adjust the power consumption of the product to save energy.
Eco Saving Plus		Off	
Off Timer		Auto	
PC/AV Mode		✓ Low	
DisplayPort Ver.		High	
Source Detection			
Key Repeat Time		Acceleration	
Power LED On		Stand-by	
			◄ Return
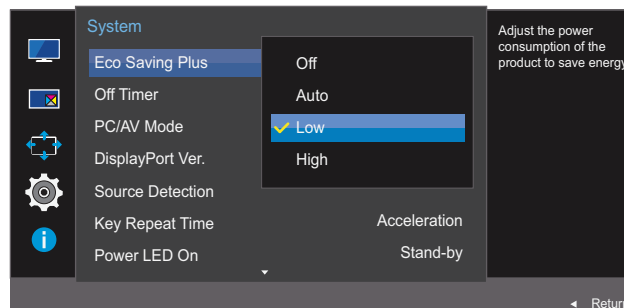
- **Off**: Deactivate the **Eco Saving Plus** function.
- **Auto**: The power consumption will automatically be reduced by about 10% over the current setting.
  (The reduction of power consumption depends on the customer screen brightness condition.)
- **Low**: The power consumption will be reduced by 25% over the default setting.
- **High**: The power consumption will be reduced by 50% over the default setting.

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

6.2   Off Timer

You can set the product to automatically turn off.

6.2.1   Configuring Off Timer

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2   Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Off Timer** controlling the JOG button UP/DOWN and press the JOG button.

4   Move to **Off Timer** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

System	
Eco Saving Plus	On
Off Timer	►
PC/AV Mode	►
DisplayPort Ver.	1.2
Source Detection	Auto
Key Repeat Time	Acceleration
Power LED On	Stand-by

Enable or disable the Off Timer.

◄ Return

Off Timer	
Off Timer	✔ Off
Turn Off After	On

Enable or disable the Off Timer.

◄ Return

- **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.

5   Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.
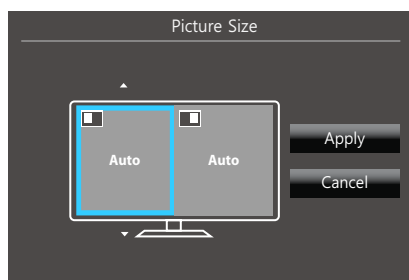
6   The selected option will be applied.

6.2.2   Configuring Turn Off After

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2   Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Off Timer** controlling the JOG button UP/DOWN and press the JOG button.

4   Move to **Turn Off After** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

```
┌──────────────────────────────────────────────────────┐
│          Off Timer                                     │
│  🖳                                                    │
│          Off Timer                        On           │
│  ▣     Turn Off After                      ►           │
│                                                        │
│  ✛                                                     │
│                                                        │
│  ⚙                                                    │
│                                                        │
│  ⓘ                                                    │
│                                                        │
│                                         ◄   Return     │
└──────────────────────────────────────────────────────┘
```

Set the monitor to automatically turn off after a certain time period.

5   Adjust the **Turn Off After** controlling the JOG button LEFT/RIGHT.

6   The selected option will be applied.

> ● The off timer can be set within a range of 1 to 23 hours. The product will automatically power off after the specified number of hours.
>
> ● This option is only available when **Off Timer** is set to **On**.
>
> ● For products for the market in some regions, the **Off Timer** is set to automatically activate 4 hours after the product powers on. This is done in accordance with power supply regulations. If you do not want the timer to activate, go to **MENU** → **System** and set **Off Timer** to **Off**.

6   Setup and Reset

6.3   PC/AV Mode

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

- Supplied for the wide models only such as 16:9 or 16:10.
- If the monitor (when set to **HDMI 1**, **HDMI 2** or **DisplayPort**) is in power saving mode or is displaying the message **Check Signal Cable**, press the **MENU** button to display the On Screen Display(OSD). You can select **PC** or **AV**.

6.3.1   Configuring PC/AV Mode

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.

Next, press the JOG button.

2   Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **PC/AV Mode** controlling the JOG button UP/DOWN and press the JOG button.

4   Move to the **HDMI 1**, **HDMI 2** or **DisplayPort** controlling the JOG button UP/DOWN and press the JOG button.

The following screen will appear.

System	
Eco Saving Plus	On
Off Timer	▸
PC/AV Mode	▸
DisplayPort Ver.	1.2
Source Detection	Auto
Key Repeat Time	Acceleration
Power LED On	Stand-by

Set to AV to enlarge the picture.

◂ Return

PC/AV Mode		
DisplayPort	✔ PC	
HDMI 1	AV	
HDMI 2		

Select the PC/AV mode for the DisplayPort source.

◂ Return

PC/AV Mode		
DisplayPort		
HDMI 1	✔ PC	
HDMI 2	AV	

Select the PC/AV mode for the HDMI 1 source.

◂ Return

5   Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

6   The selected option will be applied.
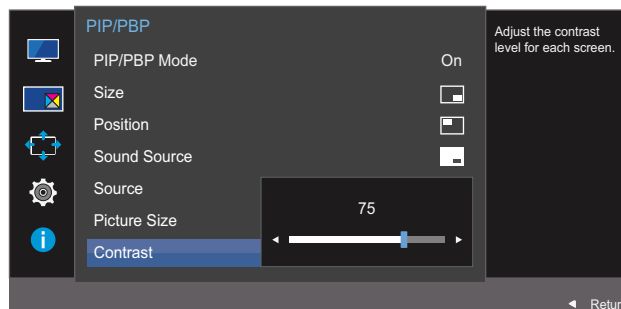
6 Setup and Reset
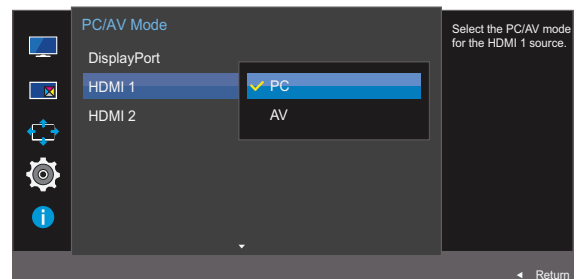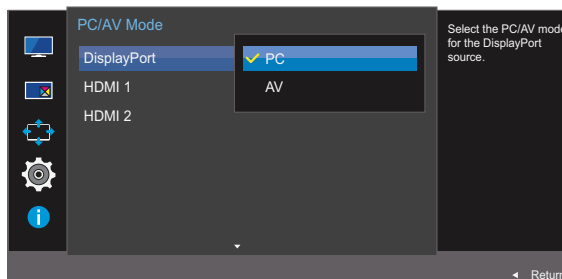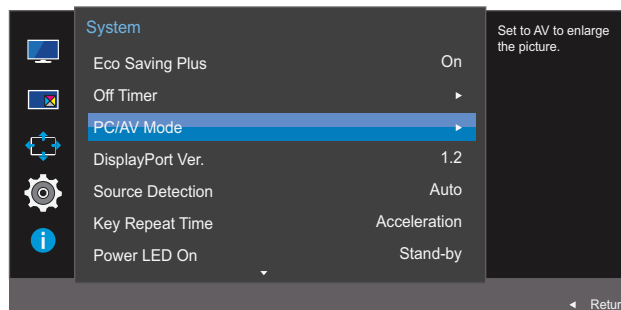
6.4 DisplayPort Ver.

Select your Displayport. Displayport 1.1 supports High Bit Rate 1, while 1.2 supports High Bit Rate 2.

> - Incorrect settings may cause the screen to go blank. If this occurs, check the device specifications.
> - If the monitor (when set to **HDMI 1**, **HDMI 2** or **DisplayPort**) is in power saving mode or is displaying the message **Check Signal Cable**, press the [∏] button to display the On Screen Display (OSD). You can select **1.1** or **1.2**.
> - If you select **1.1**, the maximum resolution of your screen drops to 2560 x 1440 due to the limitations in HBR1 transmission speeds.

6.4.1 Configuring DisplayPort Ver.

1 When the Function Key Guide appears, select [∏] by moving the JOG button UP.

Next, press the JOG button.

2 Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **DisplayPort Ver.** controlling the JOG button UP/DOWN and press the JOG button.

The following screen will appear.

System	
Eco Saving Plus	On
Off Timer	▶
PC/AV Mode	
DisplayPort Ver.	1.1
Source Detection	✓ 1.2
Key Repeat Time	
Power LED On	Stand-by

Select your Displayport. Displayport 1.1 supports HBR 1, while 1.2 supports HBR 2.

◀ Return
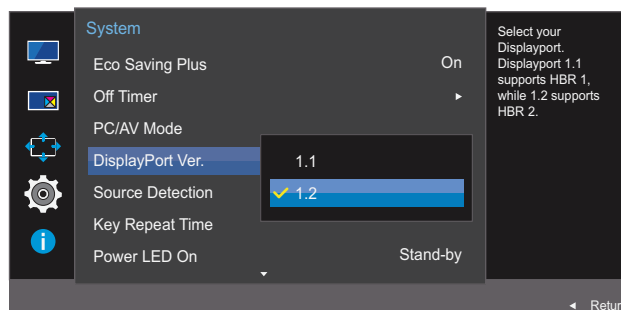
- **1.1** / **1.2**

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

Setup and Reset
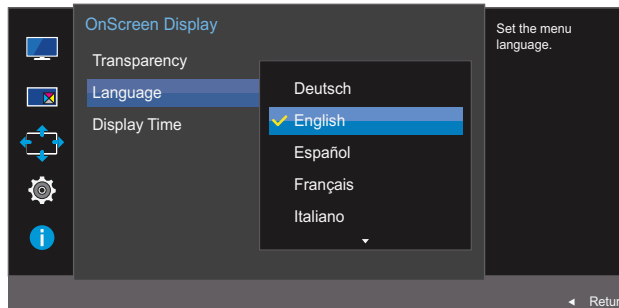
6.5   Source Detection

You can activate **Source Detection**.

> ![icon] Not available when **PIP/PBP Mode** is set to **On**.

6.5.1   Configuring Source Detection

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2   Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Source Detection** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

```
                    System
  ┌──┐
  │  │            Eco Saving Plus                Off
  └──┘            Off Timer                        ▶
  ┌──┐            PC/AV Mode                       ▶          Decide how input
  │ ✕│            DisplayPort Ver.                              sources will be
  └──┘                                                          detected.
  ┌──┐            Source Detection        ✓ Auto
  │  │            Key Repeat Time            Manual
  └──┘            Power LED On
  ⚙
                                                              ◀  Return
  ⓘ
```
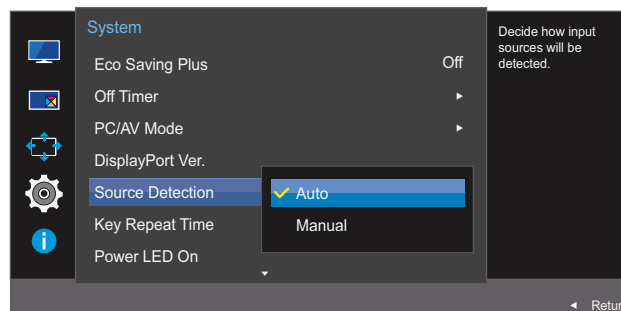
- **Auto**: The input source is automatically recognized.
- **Manual**: Manually select an input source.

4   Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

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 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Key Repeat Time** controlling the JOG button UP/DOWN and press the JOG button.
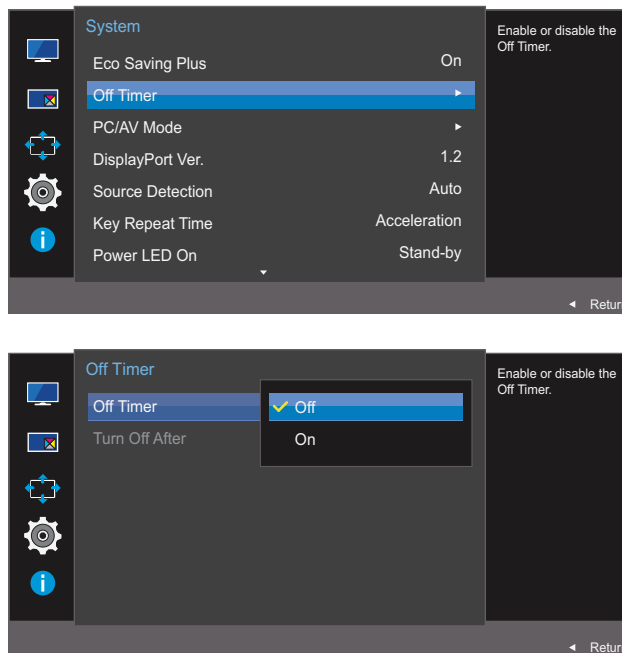The following screen will appear.

System	
Eco Saving Plus	Off
Off Timer	▶
PC/AV Mode	
DisplayPort Ver.	✓ Acceleration
Source Detection	1 sec
Key Repeat Time	2 sec
Power LED On	No Repeat

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

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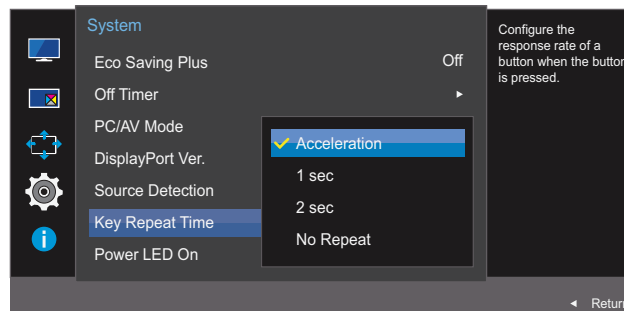
- **Acceleration**, **1 sec**, or **2 sec** can be selected. If **No Repeat** is selected, a command responds only once when a button is pressed.

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

6   **Setup and Reset**

6.7   Power LED On

Configure the settings to enable or disable the power LED located at the lower part of the product.

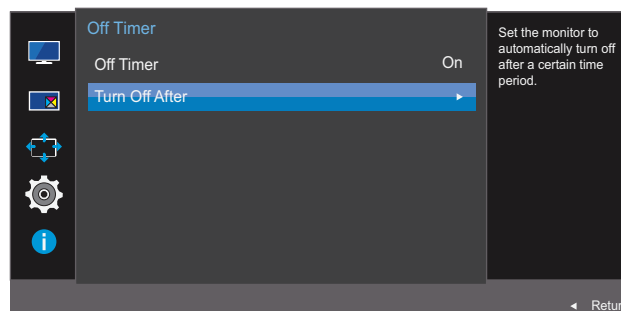### 6.7.1   Configuring Power LED On

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
    Next, press the JOG button.

2 Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3 Move to **Power LED On** controlling the JOG button UP/DOWN and press the JOG button.
    The following screen will appear.

System		
Eco Saving Plus		Off
Off Timer		▸
PC/AV Mode		▸
DisplayPort Ver.		1.2
Source Detection		
Key Repeat Time	Working	
Power LED On	✓ Stand-by	

Set the status of the power LED.

◂   Return
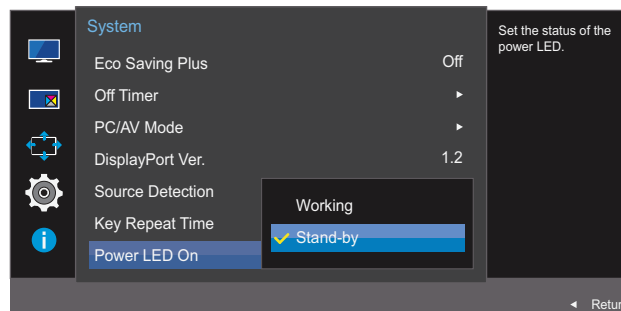
- **Working**: The power LED is on when the product is turned on.

- **Stand-by**: The power LED is on when the product is turned off.

4 Move to the desired option controlling the JOG button UP/DOWN and press the JOG button.

5 The selected option will be applied.

6   Setup and Reset

6.8   Reset All

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

6.8.1   Initializing Settings (Reset All)

1   When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2   Move to **System** controlling the JOG button UP/DOWN and press the JOG button.

3   Move to **Reset All** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

System		Return all the settings for the product to the default factory settings.
Reset All		
		◄ Return

All the menu settings will be reset
to default.

Are you sure you want to reset?

Yes	No

4   Move to the desired option controlling the JOG button LEFT/RIGHT and press the JOG button.

5   The selected option will be applied.

7 Information Menu and Others
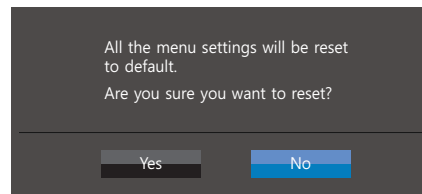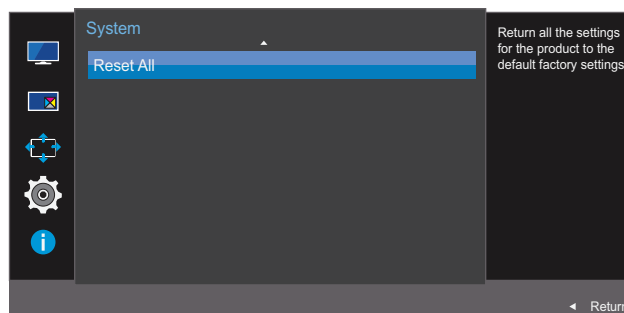
A detailed description of each function is provided. Refer to your product for details.

7.1 Information

View the current input source, frequency and resolution.

7.1.1 Displaying Information

1 When the Function Key Guide appears, select [▥] by moving the JOG button UP.
Next, press the JOG button.

2 Move to **Information** controlling the JOG button UP/DOWN and press the JOG button.
The following screen will appear.

PBP

PIP

Information Menu and Others
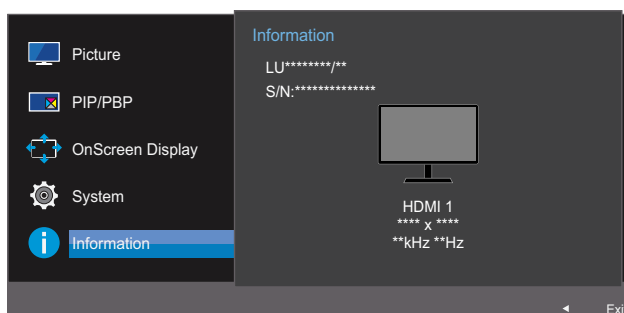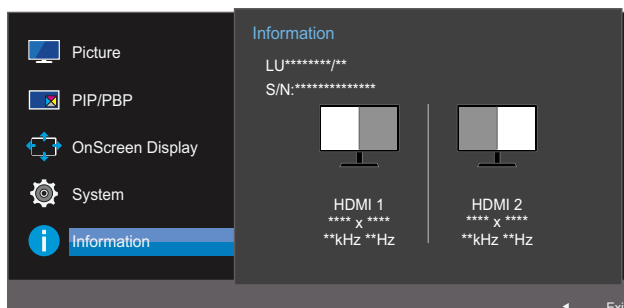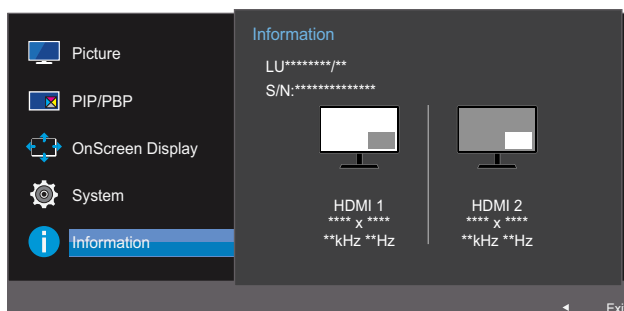
7.2 Configuring Eye Saver Mode, Brightness, and Contrast from the Initial Screen

Adjust the **Brightness**, **Contrast** and **Eye Saver Mode** by moving the JOG button.

 Eye Saver Mode

- Not available when **PIP/PBP Mode** is set to **On**.

 Brightness

- This menu is not available when $^{SAMSUNG}_{MAGIC}$**Bright** is set to **Dynamic Contrast** mode.
- This menu is not available when **Eco Saving Plus** is enabled.
- This menu is not available when **Eye Saver Mode** is enabled.

 Contrast

- This option is not available when $^{SAMSUNG}_{MAGIC}$**Bright** is in **Cinema** or **Dynamic Contrast** mode.
- This menu is not available when **Game Mode** is enabled.
- This menu is not available when **PIP/PBP Mode** is set to **On** and the **Size** is set to ▯▯ (PBP Mode).

1 When you control the JOG button UP/DOWN, the following screen will appear.

The following screen will appear.

˄ Contrast	
Eye Saver Mode	Off
˅ Brightness	

2 Move the JOG button UP/DOWN to select **Brightness**, **Contrast** or **Eye Saver Mode**.

3 Move the JOG button LEFT/RIGHT to adjust the **Brightness**, **Contrast** or **Eye Saver Mode** setting.

Information Menu and Others

7.3   Configuring Volume in the Initial Screen

7.3.1   Volume

Adjust the **Volume** by moving the JOG button when the Direct Key Guide is displayed on the screen.

1 When you control the JOG button LEFT/RIGHT, the following screen will appear.

Volume	◄ ━━━━━━━━━━━━━━━ ►	50
	▼ Mute	

2 Adjust the **Volume** controlling the JOG button LEFT/RIGHT.

Move the JOG button down to enable **Mute**. The following screen will appear on the product.
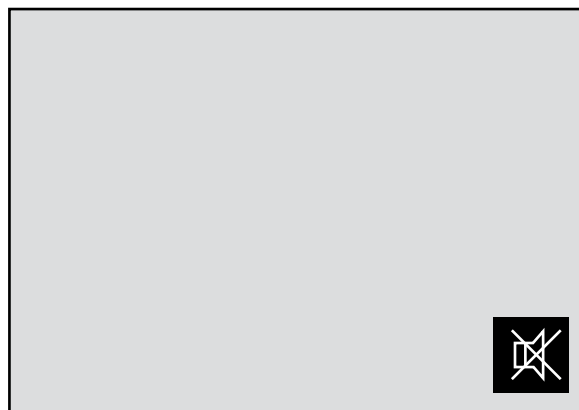
 Mute is disabled when you adjust the monitor volume by moving the JOG button left or right.

Mute can also be disabled when the monitor turns on or power-saving mode activates.

 ● If the audio quality of a connected input device is poor, the Auto Mute function on the product may mute the sound or cause choppy audio when applying the headphones or speakers.

Set the input volume for the input device to at least 20% and control the volume using the volume control (JOG button LEFT/RIGHT) on the product.

◻ What is Auto Mute?

The function mutes the audio to improve sound effect when there is sound noise or when the input signal is weak, usually due to a problem with the volume of an input device.

● To activate the **Mute** function, access the **Volume** control screen, then use the JOG button to move the focus down.

To deactivate the **Mute** function, access the **Volume** control screen, then increase or decrease the **Volume**.

8   Installing the Software

8.1   Easy Setting Box

 Easy Setting Box

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

8.1.1   Installing the Software

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

2   Select the "Easy Setting Box" setup program.

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

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

4   Follow the instructions given on the screen to proceed with installation.

> - The software may not work properly if you do not restart the computer after the installation.
> - The "Easy Setting Box" icon may not appear depending on the computer system and the product specifications.
> - If the shortcut icon does not appear, press the F5 key.

Restrictions and Problems with the Installation ("Easy Setting Box")

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

System Requirements

OS

- Windows XP 32Bit/64Bit
- Windows Vista 32Bit/64Bit
- Windows 7 32Bit/64Bit
- Windows 8 32Bit/64Bit

Hardware

- At least 32MB of memory
- At least 60MB of free space on the hard disk drive

8 Installing the Software

8.1.2   Removing the Software

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

Select "Easy Setting Box" from the program list and click the **Add/Delete** button.

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")

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 88).
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 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 88) 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 37) and **Contrast** (page 38).
Screen color is inconsistent.	Change the **Color** settings. (Refer to "3.5 Color")
The colors on the screen have a shadow and are distorted.	Change the **Color** settings. (Refer to "3.5 Color")
White does not really look white.	Change the **Color** settings. (Refer to "3.5 Color")
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.

Sound issue

Issues	Solutions
There is no sound.	Check the connection of the audio cable or adjust the volume.
	Check the volume.
The volume is too low.	Adjust the volume.
	If the volume is still low after turning it up to the maximum level, adjust the volume on your PC sound card or software program.

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.

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

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.

Specifications

10.1 General

Model Name		U28E590D
Panel	Size	28 Inches (70 cm)
	Display area	620.93 mm (H) x 341.28 mm (V) 24.4 Inches (H) x 13.4 Inches (V)
	Pixel Pitch	0.16 mm (H) x 0.16 mm (V) 0.006299 Inches (H) x 0.006299 Inches (V)
Power Supply		AC 100 - 240 V ~ (+/- 10 %), 50/60 Hz ± 3 Hz
Dimensions (W x H x D) / Weight	Without Stand	660.9 x 381.3 x 73.5 mm 26.0 x 15.0 x 2.9 Inches
	With Stand	660.9 x 468.5 x 187.1 mm / 5.28 kg 26.0 x 18.4 x 7.4 Inches / 11.6 lbs
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

10 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 Test Condition	Power saving mode	Power off (Power button)
Power Indicator	On	Blinking	Off
Power Consumption	25.3 W	Typical 0.3 W	Less than 0.3 W

- The power consumption level can vary in different operating conditions or when settings are changed.
- 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, disconnect the power cord. 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.

Model Name		U28E590D
Synchronization	Horizontal Frequency	30 – 135 kHz (DisplayPort) 30 – 90 kHz (HDMI1) 30 – 135 kHz (HDMI2)
	Vertical Frequency	56 – 75 Hz (DisplayPort) 24 – 75 Hz (HDMI1/HDMI2)
Resolution	Optimum Resolution	3840 x 2160 @ 60 Hz (DisplayPort) 3840 x 2160 @ 30 Hz (HDMI1) 3840 x 2160 @ 60 Hz (HDMI2)
	Maximum Resolution	3840 x 2160 @ 60 Hz (DisplayPort) 3840 x 2160 @ 30 Hz (HDMI1) 3840 x 2160 @ 60 Hz (HDMI2)

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.

Specifications

Displayport

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	-/+
VESA, 1920 x 1080	67.500	60.000	148.500	+/+
VESA, 2560 x 1440	88.787	59.951	241.500	+/-
VESA, 3840 x 2160RB	133.313	59.997	533.250	+/-

10

HDMI1

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	-/+
VESA, 1920 x 1080	67.500	60.000	148.500	+/+
VESA, 2560 x 1440	88.787	59.951	241.500	+/-
VESA, 3840 x 2160	67.500	30.000	297.000	+/+

Specifications

HDMI2

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	-/+
VESA, 1920 x 1080	67.500	60.000	148.500	+/+
VESA, 2560 x 1440	88.787	59.951	241.500	+/-
VESA, 3840 x 2160RB	133.313	59.997	533.250	+/-

- 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.

10 Specifications

- 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.

- Some resolutions listed in the table above may not be available depending on graphics card specifications.

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/support
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CHILE	800-SAMSUNG (726-7864)	http://www.samsung.com/cl/support
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Appendix

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PANAMA	800-7267 800-0101	http://www.samsung.com/latin/support (Spanish) http://www.samsung.com/latin_en/support (English)
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PERU	0800-777-08	http://www.samsung.com/pe/support
PUERTO RICO	1-800-682-3180	http://www.samsung.com/latin/support (Spanish) http://www.samsung.com/latin_en/support (English)

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Appendix

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MACAU	0800 333	http://www.samsung.com/support

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Appendix

AFRICA		
RWANDA	9999	http://www.samsung.com/support
SENEGAL	800-00-0077	http://www.samsung.com/africa_fr/support
SOUTH AFRICA	0860 SAMSUNG (726 7864)	http://www.samsung.com/support
SUDAN	1969	http://www.samsung.com/support
TANZANIA	0800 755 755 / 0685 889 900	http://www.samsung.com/support
UGANDA	0800 300 300	http://www.samsung.com/support
ZAMBIA	0211 350370	http://www.samsung.com/support

Appendix

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.

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.

Appendix

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.

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 1200 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.

Index

Index

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