LCD Monitor
User Manual

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.

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1 Major Safety Precautions

1-1 Before You Start

Icons used in this manual

ICON	NAME	MEANING
!	Caution	Indicates cases where the function may not work or the setting may be canceled.
✎	Note	Indicates a hint or tip to operate a function.

Using this Manual

- Make yourself fully aware of the safety precautions before using this product.
- If a problem occurs, refer to the 'Troubleshooting' section.

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1-2   Custody and Maintenance

External Surface and Screen Maintenance

Clean the product with a soft dry cloth.

- Do not clean the product with a flammable substance such as benzene or thinner, or clean with a wet cloth. This can cause a problem with the product.

- Do not scratch the screen with your fingernails or a sharp object. This can cause permanent scratches and damage to the product.

- Do not clean the product by spraying water directly onto the product.
  If water enters the product, it can cause fire, electric shock, or a problem with the product.

- Do not use a supersonic humidifer near the monitor. A supersonic humidifier can cause a white stain to appear on the high-gloss portions of the product due to the inherent characteristics of the high golss material.
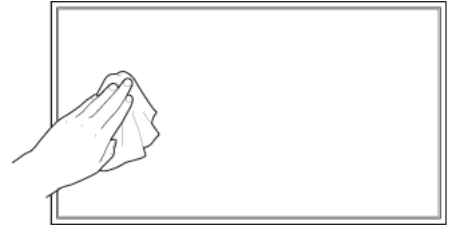
📋 The appearance and the color may differ depending on the model.

About persistent images

- Displaying a still image for a long time may create a persistent image or stain on the screen. If you do not use the product for a long time, set the power-saving mode or screen saver.

- Due to technological constraints of the LCD Panel manufacturer, the images generated by this product may appear either brighter or darker than normal by appr. 1ppm (parts per million) pixel.
  The number of sub-pixels of an LCD panel by size: The number of Sub-Pixels = Max. Horizontal Resolution x Max. Vertical Resolution x 3
    Example) If the maximum resolution is 1680 x 1050, the number of sub-pixels is 1680 x 1050 x 3 = 5,292,000.

1-3 Safety Precautions

Icons used for safety precautions

ICON	NAME	MEANING
⚠️	Warning	Failing to follow the precautions marked with this sign, may result in a serious injury or even a fatality.
⚠️	Caution	Failing to follow the precautions marked with this sign, may result in a personal injury or property damage.

Meaning of Signs

🚫 Do not perform.

❗ Must be followed.

🚫 Do not disassemble.

🔌 The power plug must be unplugged from the wall outlet.

🚫 Do not touch.
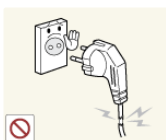
⏚ Must be grounded to prevent electric shock.

Power Related

📄 The product image used in the following pictures for your reference may look different from the actual product.
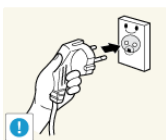
⚠️ **Warning**

Avoid using a damaged power cord or plug or a loose power outlet.

- Otherwise, it may result in electric shock or fire.

Avoid connecting multiple electric appliances to a single wall outlet.

- Otherwise, it may result in fire due to overheating of the wall outlet.

Avoid plugging in or unplugging the power supply with wet hands.

- Otherwise, it may result in electric shock.

Plug the power plug in firmly.

- Otherwise, it may result in fire.

Make sure to connect the power cord to a grounded wall outlet (for insulation class 1 equipment only).

- Otherwise, it may result in electric shock or injury.

Avoid bending or twisting the power cord excessively and avoid placing heavy objects on the cord.

- Otherwise, it may result in electric shock or fire due to a damaged power cord.
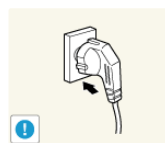
Keep the power cord and the product away from a heater.

- Otherwise, it may result in electric shock or fire.

If the pins of the power plug or the wall outlet are covered in dust, clean it using a dry cloth.
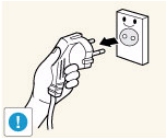
- Otherwise, it may result in fire.

⚠ Caution

Avoid unplugging the power plug while the product is operating.

- Otherwise, it may damage the product due to electric shock.

When unplugging the power plug from the wall outlet, make sure to hold it by the plug and not by the cord.

- Otherwise, it may result in electric shock or fire.

Make sure to use only the power cord supplied by our company. In addition, do not use the power cord of another electric appliance.

- Otherwise, it may result in electric shock or fire.

Connect the power plug to a wall outlet that can be easily reached.

- When a problem occurs with the product, you must unplug the power plug to cut the power off completely. You cannot cut the power off completely using only the power button on the product.

Installation Related

⚠ Warning

Avoid placing burning candles, mosquito-repellent or cigarettes on the product and installing the product near a heater.

- Otherwise, it may result in fire.

Avoid installing the product in a badly-ventilated location such as inside a bookshelf or closet.

- Otherwise, it may result in fire due to internal over-heating.

Avoid installing the product at an easily reachable height where children may reach it.

- If a child touches the product, the product may fall and this may result in injury.
- Since the front part is heavier, install the product on a flat and stable surface.

Avoid installing the product in a location exposed to dust, moisture (sauna), oil, smoke or water (rain drops) and installing it within a vehicle.

- This may result in electric shock or fire.

Keep the plastic bags used to pack the product away from children.

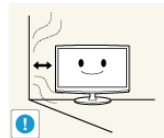- If children place the plastic bags over their heads, they may suffocate.

Ask an installation engineer or relevant company to install the product onto the wall.

- Otherwise, it may result in injury.
- Make sure to use the specified wall mount.

Keep a distance of at least 10 cm from the wall when installing the product for ventilation.

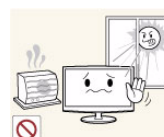- Otherwise, it may result in fire due to internal over-heating.

Avoid installing the product in a location that is unstable or exposed to excessive vibrations such as on an unstable or slanted shelf.

- The product may fall and this may result in damage to the product or injury.
- If you use the product in a location exposed to excessive vibrations, it may result in a problem with the product or fire.
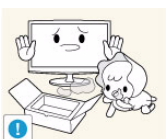
Avoid installing the product in a location exposed to direct sunlight and installing the product near a heat source such as a fire or heater.

- This may shorten the product life cycle or cause fire.

⚠ Caution

Do not let the product drop while moving it.

- This may result in a problem with the product or injury.

When installing the product on a console or shelf, make sure that the front of the product does not protrude out of the console or shelf.

- Otherwise, this may cause the product to fall off and result in a malfunction or injury.

- Make sure to use a cabinet or shelf suitable to the size of the product.

If the product is installed in a location where the operating conditions vary considerably, a serious quality problem may occur due to the surrounding environment. In this case, install the product only after consulting one of our service engineers about the matter.

- Places exposed to microscopic dust, chemicals, too high or low temperature, high humidity, such as airports or stations where the product is continuously used for a long time and so on.

Do not place the product face down on the floor.

- This may damage the panel of the product.

When putting the product down, handle it gently.

- Otherwise, it may result in a problem with the product or injury.

Cleaning Related

Since using a surfactant, which contains a large amount of alcohol, solvent or other strong chemicals, may result in the discoloration or cracking of the product exterior or the panel surface coming off, be sure to use the recommended cleansing agent only.

You can purchase the recommended cleansing agent from a service center.

Before cleaning the product, unplug the power cord.

- Otherwise, it may result in electric shock or fire.
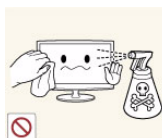
When cleaning the product, do not spray water directly over the product parts.

- Make sure that water does not enter the product.

- Otherwise, it may result in fire, electric shock or a problem with the product.

⚠ Caution

Avoid spraying cleansing agent directly onto the product.

- This may result in discoloration or cracking of the exterior of the product or the panel coming off.
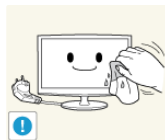
When cleaning the product, disconnect the power cord and clean the product with a soft dry cloth.

- Avoid using chemicals such as wax, benzene, alcohol, thinner, mosquito-repellent, fragrance, lubrication or cleansing agent when cleaning the product.
  This may result in the exterior being deformed or the print being removed.

Use a soft, damp cloth with a "monitor-exclusive cleansing agent" and wipe the product with it.

- If no monitor-exclusive cleansing agent is available, dilute a cleansing agent with water at a ratio of 1:10 before cleaning the product.

Since the exterior of the product is easily scratched, be sure to use a proper cleansing cloth. Use the cleansing cloth with a small amount of water. However, if the cloth is contaminated by alien substances, it may result in scratches to the exterior; therefore shake off any alien substances from the cloth before using it.

Usage Related

⚠ Warning

Since a high voltage runs through the product, never disassemble, repair or modify the product yourself.

- Otherwise, it may result in fire or electric shock.
- If the product needs to be fixed, contact a service center.

When cleaning the product, do not spray water directly over the product parts.

- Make sure that water does not enter the product.
- Otherwise, it may result in fire, electric shock or a problem with the product.

If the product generates a strange noise, a burning smell, or smoke, unplug the power plug immediately and contact a service center.

- Otherwise, it may result in electric shock or fire.

Avoid letting children to hang or climb onto the product.

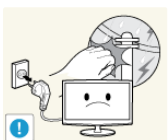- Otherwise, it may result in the product falling and this may result in injury or death.

If you drop the product or the case is damaged, turn the power off and unplug the power cord. Contact a service center.

- Otherwise, it may result in fire or electric shock.

Avoid placing objects such as toys and cookies on top of the product.

- If a child hangs over the product to grab an object, the object or the product may fall and this may result in injury or even death.

When thunder or lighting occurs, unplug the power cord and under no circumstance touch the antenna cable as this is dangerous.

- Otherwise, it may result in electric shock or fire.

Avoid dropping an object over the product or cause impact to the product.

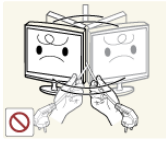- Otherwise, it may result in electric shock or fire.

Avoid moving the product by pulling the power cord or antenna cable.

- Otherwise, it may result in electric shock, fire or a problem with the product due to damage to the cable.

When a gas leak occurs, do not touch the product or the power plug and ventilate immediately.

- A spark may result in an explosion or fire.
- During a thunder or lighting storm, do not touch the power cord or antenna cable.

Avoid lifting up or move the product by holding only the power cord or signal cable.

- Otherwise, it may result in electric shock, fire or a problem with the product due to damage to the cable.
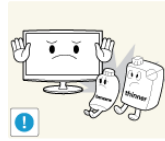
Avoid using or placing inflammable spray or objects near the product.

- This may result in an explosion or fire.

Avoid placing a liquid container such as a vase, flowerpot, beverage, cosmetics or drugs, or a metal object over the product.

- If water or an alien substance enters the product, turn the power off, unplug the power cord and contact a service center.
- Otherwise, it may result in a problem with the product, electric shock or fire.

Avoid inserting metal objects such as a chopsticks, coins or hairpins, or inflammable objects into the product (the vents, ports, etc).

- If water or an alien substance enters the product, turn the power off, unplug the power cord and contact a service center.
- Otherwise, it may result in a problem with the product, electric shock or fire.

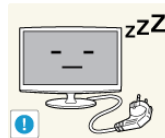Take care not to block the vent by a table cloth or curtain.

- Otherwise, it may result in fire due to internal overheating.

⚠ Caution

Displaying a still image for a long time may create a persistent image or stain on the screen.

- If you do not use the product for a long time, use the power-saving mode or set the screensaver to the moving picture mode.
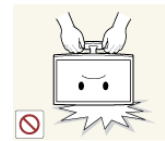
When not using the product for a long time such as leaving your home, unplug the power cord from the wall outlet.

- Otherwise, it may cause dust accumulation and result in fire caused by overheating or short circuit or result in an electric shock.
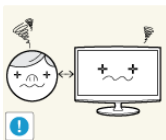
Set the appropriate resolution and frequency for the product.

- Otherwise, it may result in eye strain.

Avoid turning the product upside down or move the product holding only the stand.

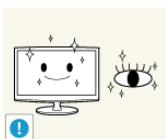- This may cause the product to fall resulting in damage to the product or injury.

Watching the product from too close a distance continuously may damage your eyesight.

Avoid using a humidifier or cooker near the product.

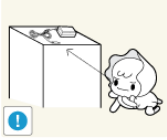- Otherwise, it may result in electric shock or fire.

It is important to give your eyes some rest (5 minutes every hour) when viewing the product screen for long periods of time.

- This will alleviate any eye strain.

Since the display panel is hot after using it for a long time, do not touch the product.

Keep small accessories away from the children.

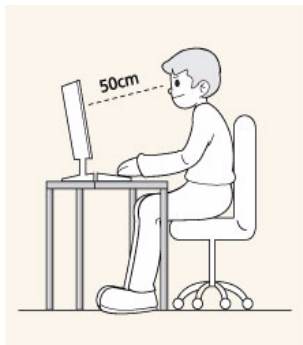Take care when adjusting the angle of the product or the height of the stand.

- If your hand or finger is caught, you may be injured.
- If the product is tilted excessively, the product may fall and this may result in injury.

Avoid placing a heavy object over the product.

- Otherwise, it may result in a problem with the product or injury.

Maintaining the Correct Posture when Using this Product

Maintain the correct posture when using this product.

- Straighten your back.
- Keep a distance of 45~50 cm from your eyes to the screen. Look down at the screen and face the screen forwards.
- Adjust the angle of the product so that light is not reflected onto the screen.
- Keep your elbow at a right angle and keep your arm level with the back of your hand.
- Keep your elbow at a right angle.
- Place your heels flat on the ground while keeping your knees at an angle of 90 degrees or higher and maintain the position of your arm so that your arm is below your heart.

2 Installing the Product

2-1 Package Contents

- For instructions on how to assemble a 1 x 3 or 2 x 3 video wall, refer to the assembly guide provided with the product packaging.
- Unpack the product and check if all of the following contents have been included.
- Store the packaging box in case you need to move the Product later.
- If any items are missing, contact your dealer.
- Contact a local dealer to purchase optional items.

Monitor

CONTENTS			
Quick Setup Guide	Product Warranty	User Manual	Power Cord
DVI Cable	DP Cable	Multi Control Pad	Magnetic Rubber (X 2)

OPTIONAL PARTS			
D-Sub Cable			

2-2   Connecting the Cables for a 1 x 1 Video Wall

> 🖺 The connecting part may differ depending on the product model.

1. Connect the product to a PC depending on the video output supported by the PC.
    *   When the graphics card provides D-Sub (Analog) output.
        *   Connect the [RGB IN] port of the product to the D-Sub port of the PC with the D-Sub cable.
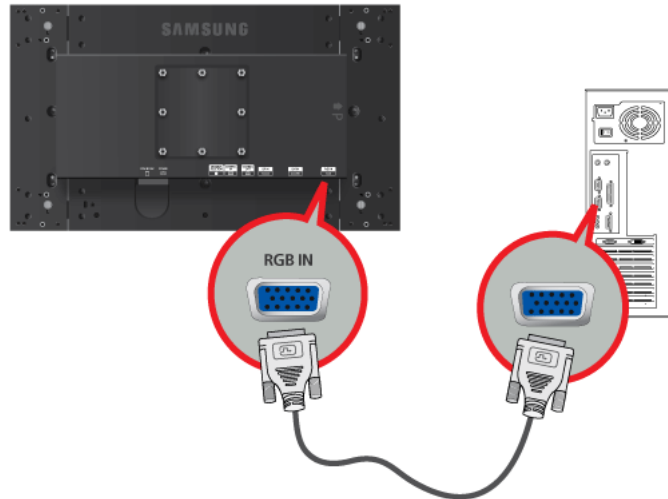
    *   When the graphics card provides DVI (Digital) output
        *   Connect the [DVI IN] port of the product to the DVI port of the PC with the DVI cable.
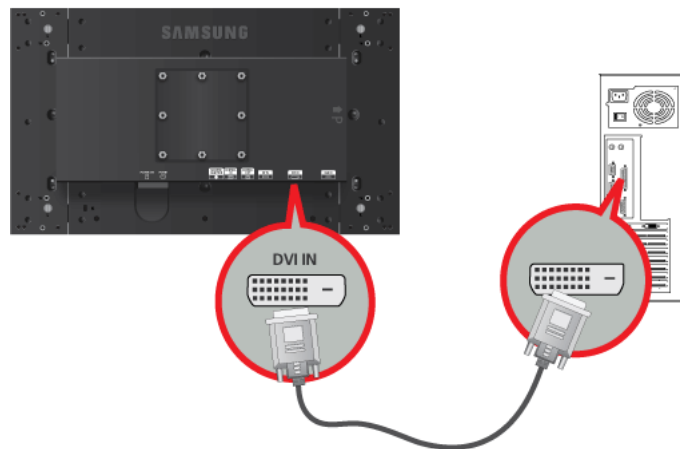
2. Connect one end of the power cord to the [POWER] port of the Primary Monitor and connect the other end of the power cord to the 220V or 110V wall outlet.
    (The input voltage is switched automatically.)

POWER S/W : Turns the product on and off.
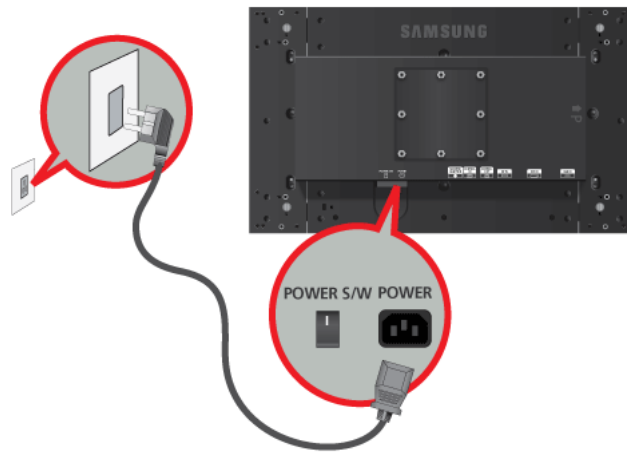
> • When the product is connected to a PC, you can turn the product on and use it.
> • When both the DVI (<Digital>) and D-Sub (<Analog>) cables are connected, you can select the input signal <Digital / Analog> by pressing the [⊡ SOURCE] button on the multi control pad.

2-3　　Connecting the Cables for a 1 x 3 or 2 x 3 Video Wall

- For instructions on how to assemble a 1 x 3 or 2 x 3 video wall, refer to the assembly guide provided with the product packaging.
- To connect DP cables, the PC must have DP ports.
- Connect the power cord and multi control pad to one of the installed monitors. This monitor becomes the primary monitor.
- The cables don't have to be connected in a particular order, but we recommend the procedure below.

Using the Video Wall as a Single Screen	Using the Video Wall as Multiple Screens	Specifying the Monitor Number

1. Using the Video Wall as a Single Screen

1-1. Connecting the DP Cables
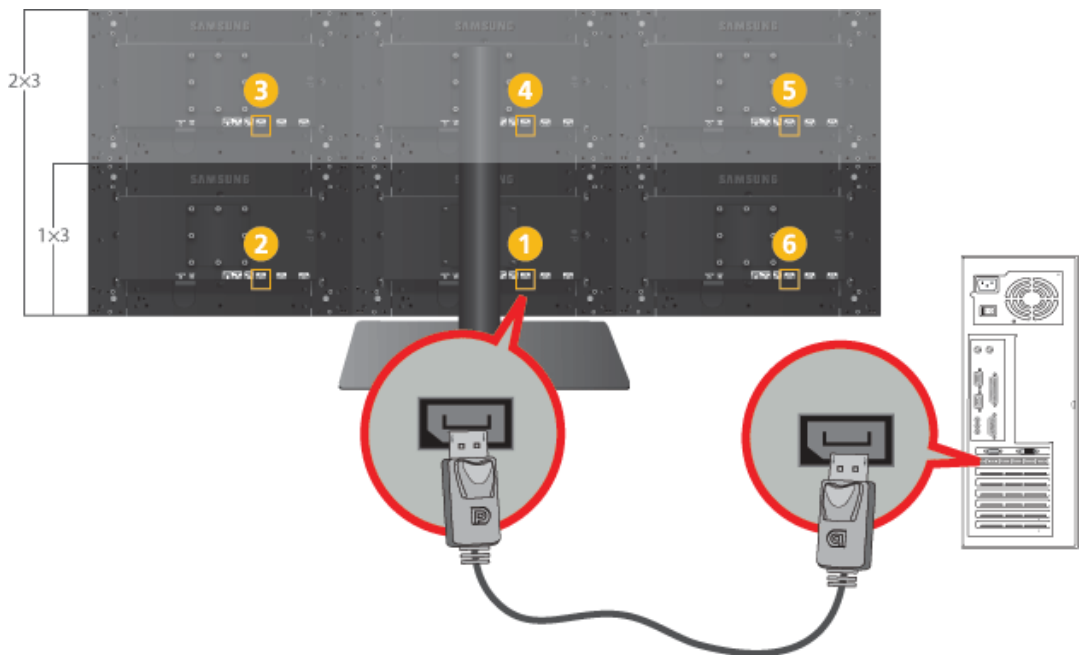
1 : **Primary Monitor**

1. Connect the [DP] ports of the PC and all the installed monitors using DP cables.

1-2. Connecting the Multi Control Pad
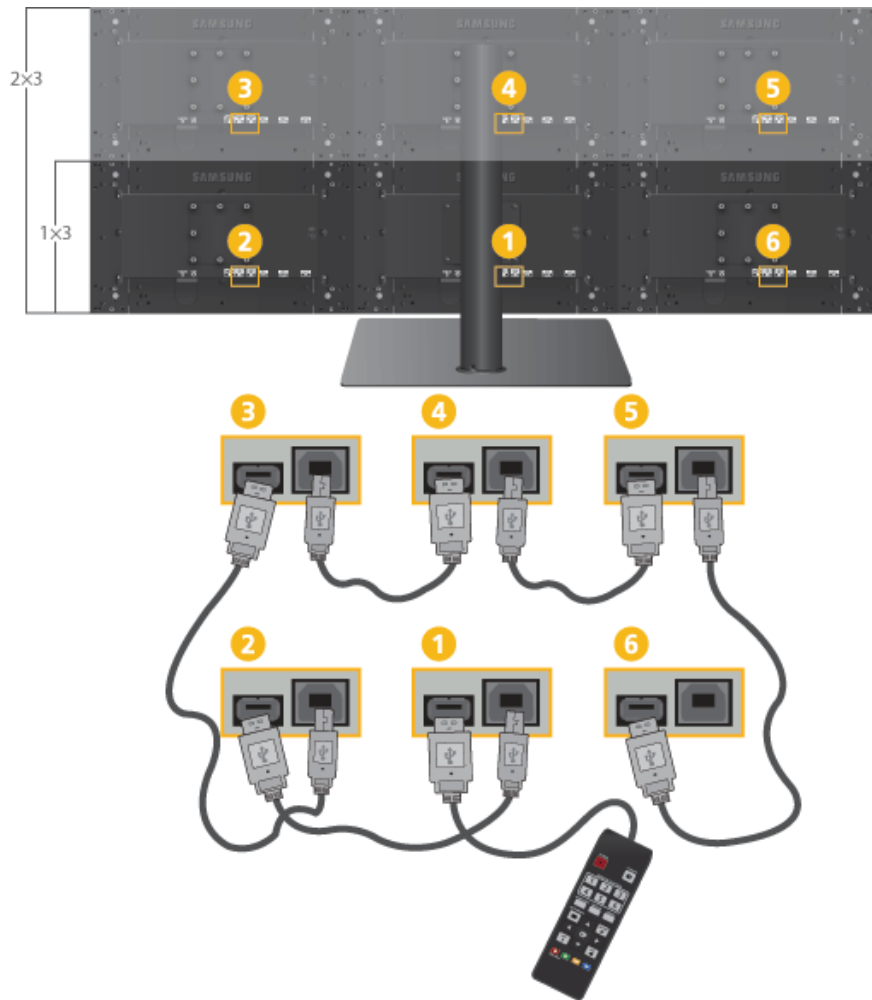
1 : Primary Monitor

1. Connect the multi control pad to the primary monitor using a USB cable.
2. Connect the [UP] port on the primary monitor to the [DOWN] port on one of the adjacent monitors using a USB cable.

- Monitors have no function buttons. To adjust functions, use the multi control pad.

- The monitors connected via USB cables can be controlled simultaneously by using the multi control pad.
  A monitor which is not connected via a USB cable cannot be controlled.

- The multi control pad can be connected to any of the provided monitors.

1-3. Connecting the Power Cord
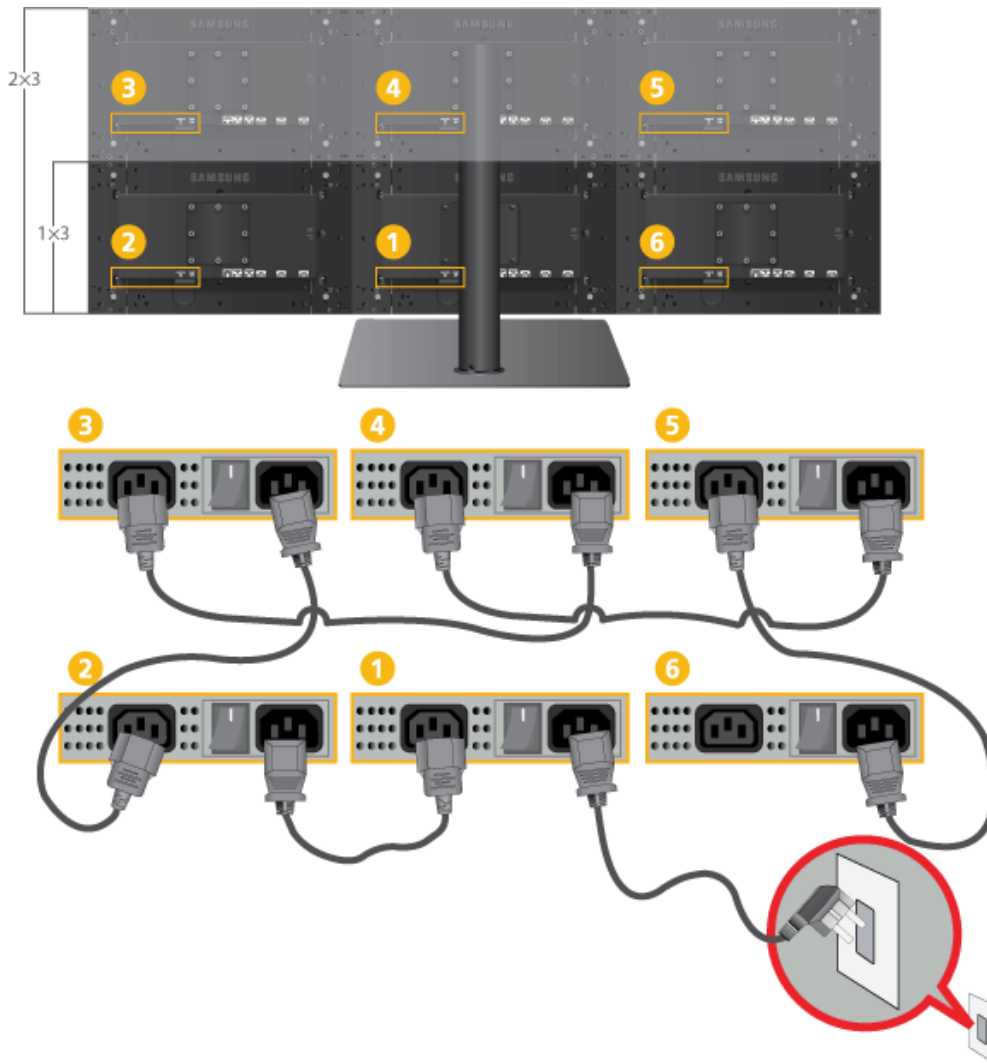
🟠 **: Primary Monitor**

1. Connect the primary monitor and the rest of the installed monitors using power cap cords.

2. Connect one end of the power cord to the [POWER] port of the product and connect the other end of the power cord to the 220V or 110V wall outlet.

   (The input voltage is switched automatically.)

3. POWER S/W : Turns the product on and off.

   - When the product is connected to a PC, you can turn the product on and use it.

      - If DP (<DP>) cables are used for the connection, select the input signal <DP> by pressing SELECT ALL and [⊡ SOURCE] on the multi control pad.

      - The power cord can be connected to any of the provided monitors, as required. However, we recommend the connections suggested above.

2. using the video wall as multiple screens

2-1. Option 1
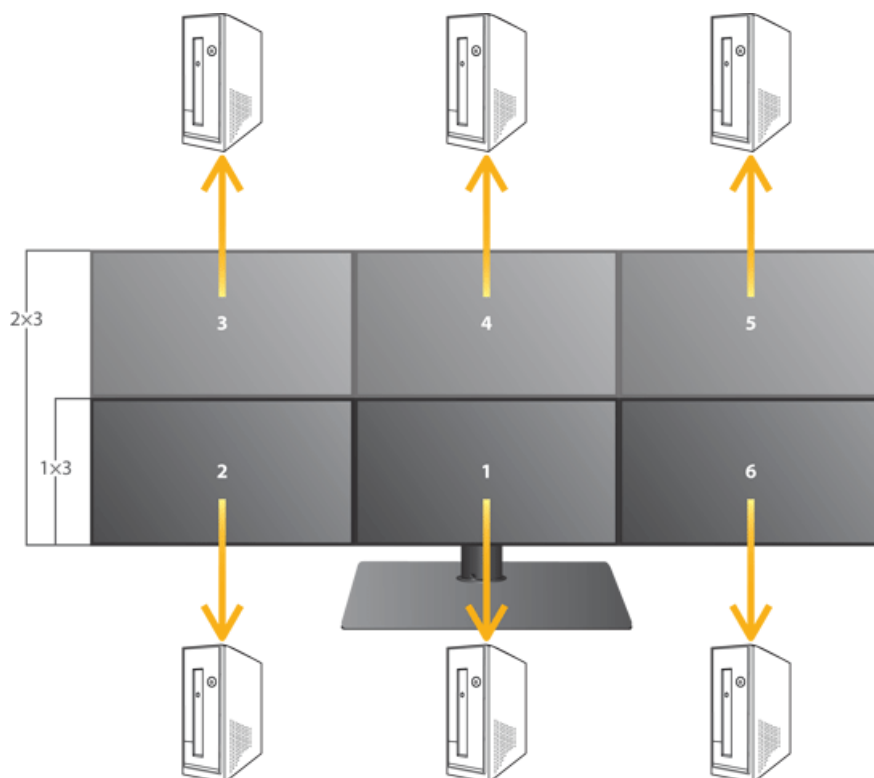
1. Connect each monitor to the corresponding PC using the DVI or D-Sub cable.

2. Each PC screen can be viewed.

   To use the video wall as multiple screens, select each monitor using the multi control pad and press [SOURCE] to select an appropriate input signal <Analog, Digital or DP> for each monitor.

2-2. Option 2
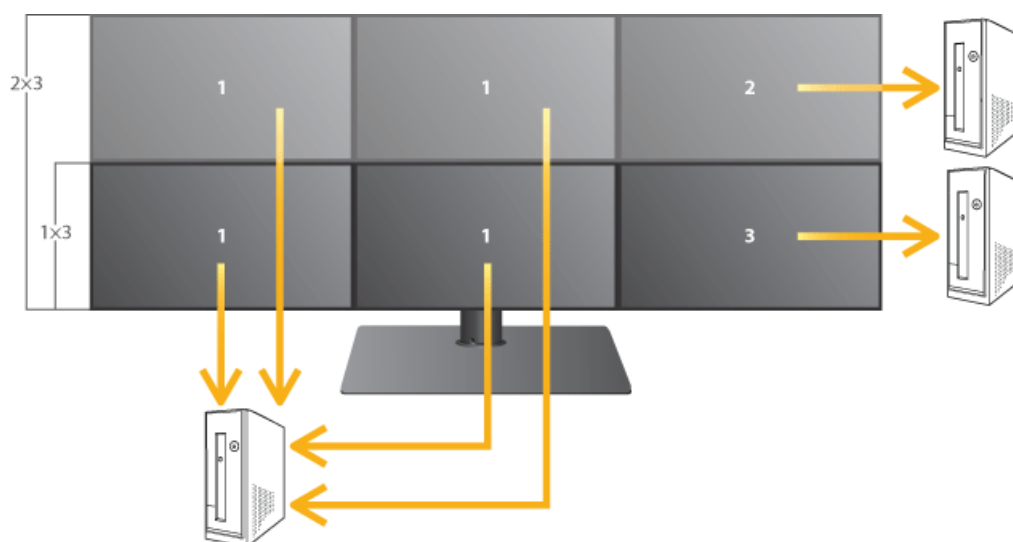
1. Connect the monitors numbered as 1 to a PC using DP cables.

   Connect them to the same PC.

2. Connect the monitors numbered as 2 and 3 to the corresponding PC respectively using DVI or D-Sub cables.

   To use the video wall as multiple screens, select each monitor using the multi control pad and press [SOURCE] to select an appropriate input signal <Analog, Digital or DP> for each monitor.

3. Specifying the Monitor Number

📝 The monitor number is set to 0 by default.

A monitor can be controlled by the multi-control pad even if the monitor number is not specified.
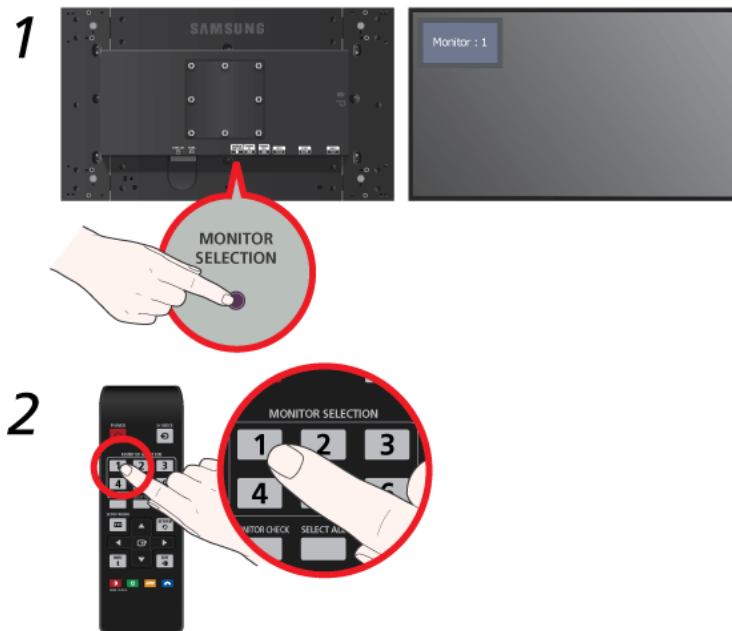
1. Press the [MONITOR SELECTION] button on the back of the monitor to specify the monitor number.
   (Range: 1 - 6)
2. To control the monitor you want, press the monitor number below MONITOR SELECTION on the multi-control pad.

   📝 To control all of the connected monitors, press SELECT ALL on the multi-control pad.

2-4　Kensington Lock

A Kensington Lock is an anti-theft device that enables users to lock the product so that they can safely use it in public locations. Since the shape and usage of the locking device may differ depending on the model and the manufacturer, for more information, refer to the User Manual supplied with the locking device for more information.

> You must purchase the Kensington Lock separately.
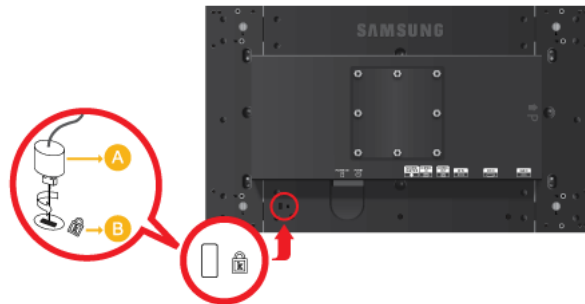
To lock the product, follow these steps:

1. Wrap the Kensington lock cable around a large, stationary object such as a desk or chair.

2. Slide the end of the cable with the lock attached through the looped end of the Kensington lock cable.

3. Insert the locking device into the Kensington slot on the Monitor (B).

4. Lock the lock (A).

> •   These are general instructions. For exact instructions, see the User Manual supplied with the locking device.
>
>   •   You can purchase the locking device from an electronics store, an online shop, or our service center.

3 Using the product

3-1 Setting the Optimal Resolution

If you turn the power on after purchasing the product, a message regarding the optimal resolution setting appears on the screen. Select a language and the optimal resolution.
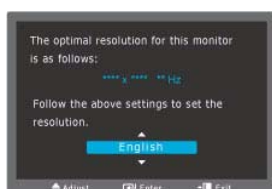
▲/▼ : You can select a language with these buttons.

▥ **SETUP/MENU** : If you press this button, the message disappears.

- • The message appears up to 3 times if the resolution has not been set to the optimal resolution.
- • To set the resolution to the optimal resolution
    1. When the PC is turned off, connect the product and the PC and turn the power on.
    2. Right-click over the Desktop and select 'Properties' from the pop-up menu.
    3. In the 'Settings' tab, set the resolution to the optimal resolution.

3-2   Standard Signal Mode Table

📝 The LCD monitor has one optimal resolution for the best visual quality depending on the screen size due to the inherent characteristics of the panel, unlike for a CDT monitor.

Therefore, the visual quality will be degraded if the optimal resolution is not set for the panel size. It is recommended setting the resolution to the optimal resolution of the product.

If the signal from the PC is one of the following standard signal modes, the screen is set automatically.

However, if the signal from the PC is not one of the following signal modes, a blank screen may be displayed or only the Power LED may be turned on. Therefore, configure it as follows referring to the User Manual of the graphics card.

DISPLAY MODE	HORIZONTAL FREQUENCY (KHZ)	VERTICAL FREQUENCY (HZ)	PIXEL CLOCK (MHZ)	SYNC POLARITY (H/V)
VESA, 640 x 480	31.469	59.940	25.175	-/-
VESA, 800 x 600	35.156	56.250	36.000	+/+
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1280 x 800	49.702	59.810	83.500	-/+
VESA, 1280 x 960	60.000	60.000	108.000	+/+
VESA, 1280 x 1024	63.981	60.020	108.000	+/+
VESA, 1440 x 900	55.935	59.887	106.500	-/+
VESA, 1600 x 1200	75.000	60.000	162.000	+/+
VESA, 1680 x 1050	65.290	59.954	146.250	-/+
VESA, 1920 x 1080	67.500	60.000	148.500	+/+

Horizontal Frequency

The time taken to scan one line from the left-most position to the right-most position on the screen is called the horizontal cycle and the reciprocal of the horizontal cycle is called the horizontal frequency. The horizontal frequency is represented in kHz.

Vertical Frequency

A panel must display the same picture on the screen tens of times every second so that humans can see the picture. This frequency is called the vertical frequency. The vertical frequency is represented in Hz.

3-3 Installing the Device Driver

🖉 If you install the device driver, you can set up the appropriate resolution and frequency for the product. The device driver is included on the CD-ROM supplied with the product. If the supplied drive file is corrupted, please visit a service center or Samsung Electronics website(http://www.samsung.com/), and download the driver.

1. Insert the driver installation CD-ROM into the CD-ROM drive.
2. Click on "Windows Driver".
3. Complete the remaining installation steps according to the instructions displayed on the screen.
4. Select the model of your product from the model list.
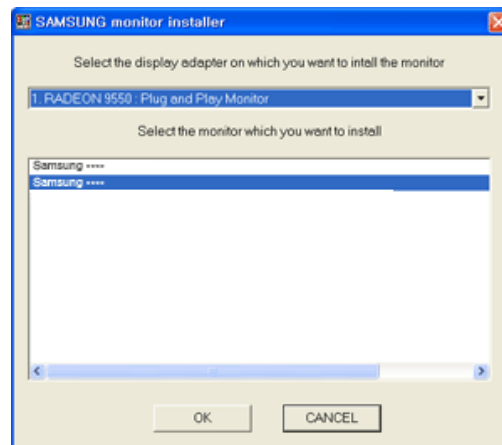
5. Check if the appropriate resolution and screen refresh rate are displayed in the Control Panel settings. For more information, refer to the document about the Windows operating system.

3-4   Product Operating Buttons

Multi Control Pad

📝 This product can be controlled by using the multi control pad.

1 ⏻ **POWER**

Turns the product On/Off.

2 **MONITOR SELECTION**

Selects a monitor.

3 **MONITOR CHECK** : Displays the monitor number.

SELECT ALL : Selects all monitors.

UNSELECT: Cancels selecting all monitors.

4 ⊞ **SETUP/MENU**

Press this button to view the On Screen Display (OSD).

5 ▲▼◀▶ Up-Down Left-Right buttons

↵ Enter button

Activates the selected menu item.
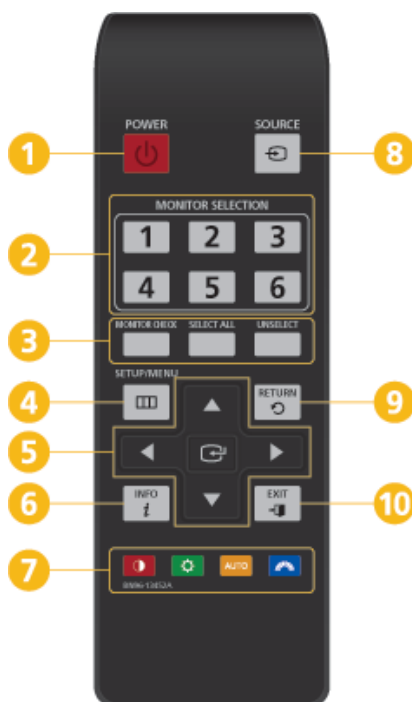
6 *i* **INFO**

Displays the current picture information.

◐ : Controls the contrast of the screen.

☼ : Use this button to control the brightness of the screen.

AUTO : Automatically adjusts the picture in <Analog> mode.

☀ : Provides preset picture settings optimized for various user environments such as editing a document, surfing the Internet, playing games, watching sports or movies and so on.

8 ⊡ **SOURCE**

Press the button to change the input signal SOURCE. (Analog/Digital/DP)

9 ↺ **RETURN**

Returns to the previous menu.

10 ⤵ **EXIT**

Exits from the menu screen.

3-5 Using the Screen Adjustment Menu (OSD: On Screen Display)

The Screen Adjustment Menu (OSD: On Screen Display) Structure

TOP MENUS	SUB MENUS				
▦ PICTURE	Brightness	Contrast	Sharpness	MagicBright	Coarse
	Fine	Response Time			
🎨 COLOR	MagicColor	Red	Green	Blue	Color Tone
	Color Effect	Gamma			
⊡ SIZE & POSITION	H-Position	V-Position	Image Size	Menu H-Position	Menu V-Position
⚙ SETUP&RESET	Reset	Menu Transparency	Language	Off Timer On/Off	Off Timer Setting
	Auto Source	PC/AV Mode	Display Time		
ⓘ INFORMATION					

▦ PICTURE

<div align="center"><PC signals></div>

<div align="center"><AV signals></div>
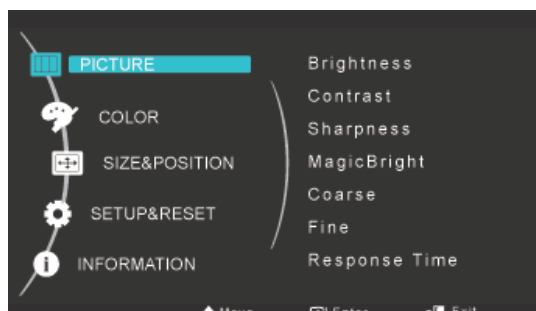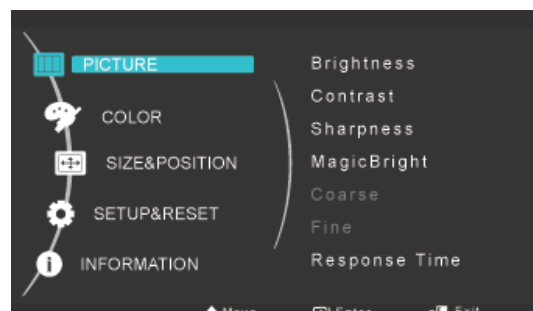
MENU	DESCRIPTION
Brightness	Controls the screen brightness. This menu is unavailable when <MagicBright> is set to <Dynamic Contrast> mode.
Contrast	Controls the contrast of the pictures displayed on the screen This menu is unavailable when <MagicBright> is set to <Dynamic Contrast> mode. This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode.
Sharpness	Controls the clarity of details of pictures displayed on the screen This menu is unavailable when <MagicBright> is set to <Dynamic Contrast> mode. This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode.

MENU	DESCRIPTION
MagicBright	Provides preset picture settings optimized for various user environments such as editing a document, surfing the Internet, playing games, watching sports or movies and so on. • <Custom> If the preset picture modes are not sufficient, users can configure the <brightness> and <Contrast> directly using this mode. • <Standard> Select this mode when the surroundings are bright. This also provides a sharp image. • <Game> This mode provides the picture setting appropriate for playing games that include lots of graphics and that require a fast screen refresh rate. • <Cinema> This mode provides brightness and sharpness settings similar to those of a TV for the best entertainment environment (movie, DVD, etc.). • <Dynamic Contrast> Controls the picture contrast automatically so that bright and dark pictures are balanced overall.
Coarse	Removes vertical noise lines (line pattern) from the screen. The location of the screen may be changed after the adjustment. In this case, move the screen so that the screen is displayed at the center of the display panel using the <H-Position> menu. 🖎 This function is only available in <Analog> mode.
Fine	Removes horizontal noise lines (line pattern) from the screen. If you cannot remove the noise completely with the <Fine> function, adjust the <Coarse> and then use the <Fine> function again. 🖎 This function is only available in <Analog> mode.
Response Time	Accelerates the response time of the LCD panel faster than the original response time so that moving pictures appear sharper and more natural. • <Normal> • <Faster> • <Fastest> 🖎 It is recommended setting the <Normal> or <Faster> when not viewing a movie.

COLOR

MENU	DESCRIPTION
MagicColor	Expresses natural colors more clearly without changing the picture quality using proprietary digital picture quality improvement technology developed by Samsung Electronics. • <Off> - Turns the <MagicColor> function off. • <Demo> - You can compare the pictures processed by <MagicColor> with the original pictures. • <Full> - Provides a clearer picture including areas corresponding to skin color. • <Intelligent> - Improves the chroma of pictures except for areas corresponding to skin color.
Red	You can adjust the red color value of pictures according to your preference. This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode.
Green	You can adjust the green color value of pictures according to your preference. This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode.
Blue	You can adjust the blue color value of pictures according to your preference. This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode.
Color Tone	You can set the color temperature according to your preference. • <Cool> - Sets the color temperature of the screen to a cooler color. • <Normal> - Sets the color temperature of the screen to the standard color temperature. • <Warm> - Sets the color temperature of the screen to a warmer color. • <Custom> - Select this menu to set the color temperature manually. If you do not like the preset color temperatures, you can manually adjust the colors of <Color Effect>. This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode.
Color Effect	You can change the overall atmosphere by changing the color of pictures. This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode. • <Off> - Turns the <Color Effect> function off. • <Grayscale> -Displays pictures in black and white. • <Green> - Displays pictures in green mono color. • <Aqua> - Displays pictures in aqua mono color. • <Sepia> - Displays pictures in sepia mono color.
Gamma	Using this menu, you can change the intensity of the colors of medium brightness. • <Mode1> - <Mode2> - <Mode3>

 (This is unavailable when <MagicBright> is set to <Dynamic Contrast> mode.)

SIZE & POSITION

MENU	DESCRIPTION
H-Position	Moves the position of the display area on the screen horizontally. 🖉 This function is only available in <Analog> mode.
V-Position	Moves the position of the display area on the screen vertically. 🖉 This function is only available in <Analog> mode.
Image Size	**PC signals** • <Auto> - The picture is displayed at the aspect ratio of the input signal. • <Wide> - The picture is displayed in full screen regardless of the aspect ratio of the input signal. 🖉 • A signal not in the standard mode table is not supported. • If the resolution is set to the optimal resolution, the aspect ratio does not change whether the <Image Size> is set to <Auto> or <Wide>. **AV signals** • <4 : 3> - Displays pictures at the 4 : 3 aspect ratio. • <16 : 9> - Displays pictures at the 16 : 9 aspect ratio. • <Screen Fit> - If a 720P, 1080i or 1080P signal is input in DVI input mode, the picture is displayed as is without truncation. 🖉 This can only be set when the external input is connected through DVI and <PC/AV Mode> is set to <AV>.
Menu H-Position	You can adjust the horizontal position of the OSD.
Menu V-Position	You can adjust the vertical position of the OSD.

⦿ SETUP&RESET

MENU	DESCRIPTION
Reset	Use this function to restore the visual quality and color settings to the factory defaults. • <No> - <Yes>
Menu Transparency	You can select the transparency of the OSD. • <Off> - <On>

MENU	DESCRIPTION
Language	Select a language for the OSD. • English, Deutsch, Español, Français, Italiano, Svenska, Русский, Português, Türkçe, Polski, Magyar ✎ The selected language is only applied to the product OSD. This setting does not affect the other functions of the PC.
Off Timer On/Off	You can turn the Off Timer on or off. • <Off> - <On>
Off Timer Setting	Turns the power off automatically when the configured time is reached.
Auto Source	• <Auto> - The monitor automatically selects an input signal. • <Manual> - Users have to manually select an input signal.
PC/AV Mode	Set to <PC> when connected to a PC and <AV> when connected to an AV device. ✎ This function does not support <Analog> mode.
Display Time	The OSD automatically disappears if no action is taken by the user. You can determine the time to wait before the OSD is hidden. • <5 sec> - <10 sec> - <20 sec> - <200 sec>

ⓘ INFORMATION
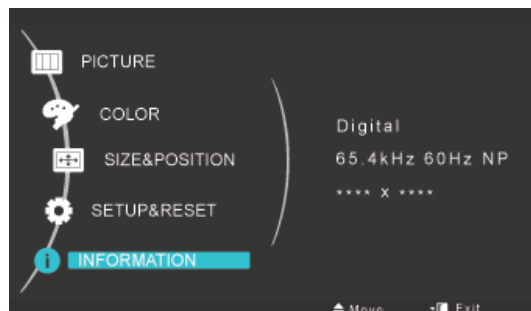
MENU	DESCRIPTION
INFORMATION	Shows the frequency and resolution set on the PC.

4 Installing the Software

4-1 Natural Color

What is Natural Color ?

This software works only for Samsung products and enables adjusting the displayed colors on the product and matches the colors on the product with the colors of the printed pictures. For more information, refer to the online help of the software (F1).

The Natural Color is provided online. You can download it from the website below and install;

http://www.samsung.com/us/consumer/learningresources/monitor/naturalcolorexpert/pop_download.html

What is MagicTune?

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

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

Installing the Software

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

2. Select the MagicTune™ setup program.

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

3. Select the installation language and click [Next].

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

> 📝 • The software may not work properly if you do not restart the computer after the installation.
>
> • The MagicTune™ icon may not appear depending on the computer system and the product specifications.
>
> • If the shortcut icon does not appear, press the F5 key.

Restrictions and Problems with the Installation (MagicTune™)

The installation of MagicTune™ may be affected by the graphics card, motherboard and the networking environment.

System Requirements

OS

* Windows 2000
* Windows XP Home Edition
* Windows XP Professional
* Windows Vista 32Bit
* Windows 7 32Bit

> 📝 For MagicTune™, Windows 2000 or later is recommended.

Hardware

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

> 📝 For more information, refer to the website.

Removing the Software

You can only remove MagicTune™ through [Add or Remove Programs] in Windows.

To remove MagicTune™, complete the following steps.

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

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

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

4. Click [Change or Remove Programs] to remove the software.

5. Select [Yes] to start removing MagicTune™.

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

For technical support, the FAQ (frequently asked questions) or information about the software upgrade for MagicTune™, please visit our website.

What is MultiScreen ?

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

Installing the Software

1. Insert the installation CD into the CD-ROM drive.
2. Select the MultiScreen setup program.

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

3. When the Installation Wizard appears, click [Next].
4. Complete the remaining software installation steps according to the instructions displayed on the screen.

   • The software may not work properly if you do not restart the computer after the installation.
   • The MultiScreen icon may not appear depending on the computer system and the product specifications.
   • If the shortcut icon does not appear, press the F5 key.

Restrictions and Problems with the Installation (MultiScreen)

The MultiScreen installation may be affected by the graphics card, motherboard and the networking environment.

Operating System

OS

• Windows 2000
• Windows XP Home Edition
• Windows XP Professional
• Windows Vista 32Bit
• Windows 7 32Bit

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

Hardware

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

Removing the Software

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

Select MultiScreen from the program list and click the [Add/Delete] button.

5 Troubleshooting

5-1 Monitor Self-Diagnosis

- You can check if the product is working properly using the Self-Diagnosis function.
  - If a blank screen is displayed and the Power LED blinks even if the product and the PC are properly connected, perform the self-diagnosis function according to the procedures below.

1. Turn the product and the PC off.
2. Separate the D-Sub cable from the product .
3. Turn the product on.
4. If the product is working properly, the 'Check Signal Cable' message appears.
   In this case, if a blank screen is displayed again, make sure that there is no problem with the PC and the connection. The product is working properly.

5-2   Before Requesting Service

📝 Please check the following before requesting After-Sales service. If the problem continues, please contact your nearest Samsung Electronics Service Center.

A BLANK SCREEN APPEARS / I CANNOT TURN THE PRODUCT ON	
Is the power cord connected properly?	Check the connection status of the power cord.
Is the "Check Signal Cable" message displayed on the screen?	Check the cable connecting the PC and the product. If the message keeps appearing even though the cable connection is correct, press [⊞ SOURCE] on the multi control pad and check the input signal again.
Is the "Not Optimum Mode" message displayed on the screen?	This occurs when the signal from the graphics card exceeds the maximum resolution or the maximum frequency of the product. In this case, set up the appropriate resolution and the frequency for the product.
Is a blank screen displayed and does the power LED blink at a 1 second interval?	This occurs when the power saving function is running. If you click the mouse or press any key, the screen will be turned on.
Did you connect with a DVI cable?	If you connect the DVI cable when the PC has booted up or if you reconnect the DVI cable after disconnecting the cable while using a PC, the screen may not be displayed because some graphics cards do not output the video signal. In this case, reboot the PC while the DVI cable is connected.
THE IMAGE IS TOO LIGHT OR TOO DARK.	
Adjust the Brightness and Contrast. (Refer to the <Brightness>, <Contrast>) If <MagicBright> is set to <Dynamic Contrast>, the display brightness can differ according to the input signal.	
THE ON SCREEN ADJUSTMENT MENU (OSD) DOES NOT APPEAR.	
Did you cancel the screen adjustment?	Check if the <OSD Adjustment Lock> function is set to Off.
THE COLOR IS WEIRD / THE PICTURE IS DISPLAYED IN BLACK AND WHITE.	
Is the entire screen displayed in the same color as if viewing the screen through a cellophane paper?	Check the cable connection to the computer. Reinsert the graphics card into the computer completely. Check if the <Color Effect> is set to <Off>.
Is the graphics card configured correctly?	Set up the graphics card referring to the user manual.
THE DISPLAY AREA SUDDENLY MOVES TO AN EDGE OR TO THE CENTER.	
Did you change the graphics card or the driver?	Please press the [AUTO] button to run the auto adjustment function.
Did you change the resolution and frequency appropriate to the product?	Set the resolution and the frequency to the appropriate values in the graphics card refer to the (Standard Signal Mode Table)
Is the graphics card configured correctly?	Set up the graphics card referring to the user manual.
THE PICTURES ARE OUT-OF-FOCUS.	
Did you change the resolution and the frequency appropriate to the product?	Set the resolution and the frequency to the appropriate values in the graphics card refer to the (Standard Signal Mode Table)

THE COLOR IS DISPLAYED IN 16 BIT (16 COLORS). THE COLOR HAS BEEN CHANGED AFTER CHANGING THE GRAPHICS CARD.	
Did you install the device driver for the product?	Windows XP : Set the color again by selecting Control Panel → Appearance and Themes → Display → Settings.
	Windows ME/2000 : Set the color again by selecting Control Panel → Display → Settings.
	Windows Vista : Change the color settings by selecting Control Panel → Appearance and Personalization → Personalization → Display settings.
	Windows 7 : Change the color settings by selecting Control Panel → Appearance and Personalization → Display → Adjust resolution → Advanced settings → Monitor.
	(For more information, refer to the Windows user manual for the computer.)
Is the graphics card configured correctly?	Configure the color again in accordance with the new graphics card driver.

WHEN I CONNECT THE MONITOR, THE 'UNKNOWN MONITOR, PLUG&PLAY (VESA DDC) MONITOR FOUND' MESSAGE IS DISPLAYED.	
Did you install the device driver for the product?	Install the device driver referring to the descriptions about the driver installation.
Check if all the Plug&Play (VESA DDC) functions are supported referring to the User Manual of the graphics card.	Install the device driver referring to the descriptions about the driver installation.

WHEN I LOOK AT THE EXTERIOR EDGES OF THE PRODUCT, SMALL ALIEN SUBSTANCES APPEAR ON IT.
Since this product is designed so that the color has a soft appearance by coating it with a transparent material over the black edges, such things may be seen. This is not a defect of the product.

A "BEEP, BEEP" SOUND IS HEARD WHEN BOOTING THE COMPUTER.
If the beep sound is generated 3 or more times when booting up the computer, please request service for the computer.

FAQ!	PLEASE TRY THE FOLLOWING!
How can I change the frequency (refresh rate) of the video signal?	You have to change the frequency of the graphics card.
	Windows XP : Change the frequency by selecting Control Panel → Appearance and Themes → Display → Settings → Advanced → Monitor, and then change the refresh rate under Monitor Settings.
	Windows ME/2000 : Change the frequency by selecting Control Panel → Display → Settings → Advanced → Monitor, and then change the refresh rate under Monitor Settings.
	Windows Vista : Change the frequency by selecting Control Panel → Appearance and Personalization → Personalization → Display settings → Advanced settings → Monitor, and then change the refresh rate under Monitor Settings.
	Windows 7 : Change the frequency by selecting Control Panel → Appearance and Personalization → Display → Adjust resolution → Advanced settings → Monitor, and then change the refresh rate under Monitor Settings.
	(For more information, refer to the User Manual of the computer or the graphics card.)
How can I change the resolution?	Windows XP : Change the resolution by selecting Control Panel → Appearance and Themes → Display → Settings.
	Windows ME/2000 : Change the resolution by selecting Control Panel → Display → Settings.
	Windows Vista : Change the resolution by selecting Control Panel → Appearance and Personalization → Personalization → Display settings.
	Windows 7 : Change the resolution by selecting Control Panel → Appearance and Personalization → Display → Adjust resolution.
	(For more information, refer to the User Manual of the computer or the graphics card.)
How can I use the power saving function?	Windows XP : Configure it by selecting Control Panel → Appearance and Themes → Display → Screen Saver Setting or configure it in the BIOS Setup of the computer.
	Windows ME/2000 : Configure it by selecting Control Panel → Display → Screen Saver Setting or Configure it in the BIOS Setup of the computer.
	Windows Vista : Change settings by selecting Control Panel → Appearance and Personalization → Personalization → Screen Saver. You can also use the BIOS SETUP menu on the PC.
	Windows 7 : Change settings by selecting Control Panel → Appearance and Personalization → Personalization → Screen Saver. You can also use the BIOS SETUP menu on the PC.
	（For more information, refer to the Windows user manual for the computer.）

6 More Information

6-1 Specifications

MODEL NAME		MD230 / MD230X3 / MD230X6
LCD Panel	Size	23 inch (58 cm)
	Display area	509.76 mm (H) x 286.74 mm (V) (20.07 inch x 11.29 inch)
	Pixel Pitch	0.2655 mm (H) x 0.2655 mm (V) (0.01 inch x 0.01 inch)
Synchronization	Horizontal	30~81 kHz
	Vertical	56~60 Hz
Display Color		16.7M
Resolution	Optimum resolution	1920 x 1080 @ 60 Hz
	Maximum resolution	1920 x 1080 @ 60 Hz
Maximum Pixel Clock		186 MHz (Analog, DVI, Display Port)
Power Supply		This product supports 100 - 240 V. Since the standard voltage may differ from country to country, please check the label on the back of the product.
Signal connectors		15pin D-sub, 24Pin DVI, 20Pin DP(Display Port), USB In, USB Out (Multi Control pad used only)
Dimensions (WxHxD) / Weight	MD230	528.6 x 308.0 x 60.5 mm (20.8 x 12.1 x 2.4 inch) / 5.6 Kg (12.3 lbs)
	MD230X3(L)	1585.8 x 563.0 x 307.2 mm (62.4 x 22.2 x 12.1 inch) / 24.1 Kg (53.1 lbs)
	MD230X3(P)	924.0 x 672.7 x 307.2 mm (36.4 x 26.5 x 12.1 inch) / 24.1 Kg (53.1 lbs)
	MD230X6	1585.8 x 760.3 x 307.2 mm (62.4 x 29.9 x 12.1 inch) / 43.1 Kg (95.0 lbs)
VESA Mounting Interface		100 mm x 100 mm (3.9 x 3.9 inch)
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

MD230	Class B (Information Communication equipment for residential use) This device is registered for EMC requirements for home use (Class B). It can be used in all areas. (Class B equipment emits less electromagnetic waves than Class A equipment.)
MD230X3 / MD230X6	Class A (Information Communication equipment for industrial use) Attention dealers and users. This device is registered for EMC requirements for industrial use (Class A) and can be used in areas other than general households.

SCREW	HEAD	π [mm]	LENGTH [mm]	TYPE
A	FH	4.0	8.0	MACHINE
B	BH		10.0	

 Design and specifications are subject to change without prior notice.

6-2 Power Saving Function

This product provides a power saving function that automatically turns the screen off when the product is not used for a predetermined period of time to reduce power consumption.
When the product is in power saving mode, the power is not turned off and you can turn the screen on again by pressing any key or clicking the mouse. However, the power saving function only works when the product is connected to a computer that provides the power saving function.

STATE		NORMAL OPERATION	POWER SAVING MODE	POWER OFF
Power Consumption	MD230	46 Watts	1 Watts	1 Watts
	MD230X3	138 Watts	3 Watts	3 Watts
	MD230X6	276 Watts	6 Watts	6 Watts

If there is no power cut-off switch, the power consumption is "0" only when the power cord is disconnected.

6-3   Contact SAMSUNG WORLDWIDE

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
CANADA	1-800-SAMSUNG(726-7864)	http://www.samsung.com
MEXICO	01-800-SAMSUNG(726-7864)	http://www.samsung.com
LATIN AMERICA		
ARGENTINA	0800-333-3733	http://www.samsung.com
BRAZIL	0800-124-421 4004-0000	http://www.samsung.com
CHILE	800-SAMSUNG(726-7864)	http://www.samsung.com
COLOMBIA	01-8000112112	http://www.samsung.com
COSTA RICA	0-800-507-7267	http://www.samsung.com
ECUADOR	1-800-10-7267	http://www.samsung.com
EL SALVADOR	800-6225	http://www.samsung.com
GUATEMALA	1-800-299-0013	http://www.samsung.com
HONDURAS	800-7919267	http://www.samsung.com
JAMAICA	1-800-234-7267	http://www.samsung.com
NICARAGUA	00-1800-5077267	http://www.samsung.com
PANAMA	800-7267	http://www.samsung.com
PUERTO RICO	1-800-682-3180	http://www.samsung.com
REP. DOMINICA	1-800-751-2676	http://www.samsung.com
TRINIDAD & TOBAGO	1-800-SAMSUNG(726-7864)	http://www.samsung.com
VENEZUELA	0-800-100-5303	http://www.samsung.com
EUROPE		
AUSTRIA	0810 - SAMSUNG(7267864,€ 0.07/min)	http://www.samsung.com
BELGIUM	02-201-24-18	http://www.samsung.com/be (Dutch) http://www.samsung.com/be_fr (French)
CZECH	800 - SAMSUNG (800-726786)	http://www.samsung.com
	Distributor pro Českou republiku: Samsung Zrt., česká organizační složka, Oasis Florenc, Sokolovská394/17, 180 00, Praha 8	
DENMARK	70 70 19 70	http://www.samsung.com
EIRE	0818 717100	http://www.samsung.com
ESTONIA	800-7267	http://www.samsung.com
FINLAND	030 - 6227 515	http://www.samsung.com
FRANCE	01 48 63 00 00	http://www.samsung.com

EUROPE		
GERMANY	01805 - SAMSUNG (726-7864,€ 0,14/ Min)	http://www.samsung.com
HUNGARY	06-80-SAMSUNG(726-7864)	http://www.samsung.com
ITALIA	800-SAMSUNG(726-7864)	http://www.samsung.com
LATVIA	8000-7267	http://www.samsung.com
LITHUANIA	8-800-77777	http://www.samsung.com
LUXEMBURG	261 03 710	http://www.samsung.com
NETHERLANDS	0900 - SAMSUNG (0900-7267864) (€ 0,10/Min)	http://www.samsung.com
NORWAY	815-56 480	http://www.samsung.com
POLAND	0 801 1SAMSUNG (172678) 022 - 607 - 93 - 33	http://www.samsung.com
PORTUGAL	80820 - SAMSUNG (726-7864)	http://www.samsung.com
SLOVAKIA	0800-SAMSUNG(726-7864)	http://www.samsung.com
SPAIN	902 - 1 - SAMSUNG (902 172 678)	http://www.samsung.com
SWEDEN	0771 726 7864 (SAMSUNG)	http://www.samsung.com
SWITZERLAND	0848-SAMSUNG(7267864, CHF 0.08/ min)	http://www.samsung.com/ch http://www.samsung.com/ch_fr (French)
U.K	0845 SAMSUNG (7267864)	http://www.samsung.com

CIS		
ARMENIA	0-800-05-555	
AZERBAIJAN	088-55-55-555	
BELARUS	810-800-500-55-500	
GEORGIA	8-800-555-555	
KAZAKHSTAN	8-10-800-500-55-500	
KYRGYZSTAN	00-800-500-55-500	http://www.samsung.com
MOLDOVA	00-800-500-55-500	
RUSSIA	8-800-555-55-55	http://www.samsung.com
TADJIKISTAN	8-10-800-500-55-500	http://www.samsung.com
UKRAINE	0-800-502-000	http://www.samsung.com/ua http://www.samsung.com/ua_ru
UZBEKISTAN	8-10-800-500-55-500	http://www.samsung.com

ASIA PACIFIC		
AUSTRALIA	1300 362 603	http://www.samsung.com
CHINA	400-810-5858 010-6475 1880	http://www.samsung.com
HONG KONG	(852) 3698 - 4698	http://www.samsung.com/hk http://www.samsung.com/hk_en/

ASIA PACIFIC		
INDIA	3030 8282 1800 110011 1800 3000 8282 1800 266 8282	http://www.samsung.com
INDONESIA	0800-112-8888 021-5699-7777	http://www.samsung.com
JAPAN	0120-327-527	http://www.samsung.com
MALAYSIA	1800-88-9999	http://www.samsung.com
NEW ZEALAND	0800 SAMSUNG (0800 726 786)	http://www.samsung.com
PHILIPPINES	1-800-10-SAMSUNG(726-7864) 1-800-3-SAMSUNG(726-7864) 1-800-8-SAMSUNG(726-7864) 02-5805777	http://www.samsung.com
SINGAPORE	1800-SAMSUNG(726-7864)	http://www.samsung.com
TAIWAN	0800-329-999	http://www.samsung.com
THAILAND	1800-29-3232 02-689-3232	http://www.samsung.com
VIETNAM	1 800 588 889	http://www.samsung.com

MIDDLE EAST & AFRICA		
BAHRAIN	8000-4726	
JORDAN	800-22273	
SOUTH AFRICA	0860-SAMSUNG(726-7864)	http://www.samsung.com
TURKEY	444 77 11	http://www.samsung.com
U.A.E	800-SAMSUNG(726-7864)	http://www.samsung.com

6-4 Correct Disposal of This Product (Waste Electrical & Electronic Equipment) - Europe only

(Applicable in the European Union and other European 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.