

# SyncMaster 320P



## Install Programs

▶▶ **MDC System** ▶▶  Natural Color



## Notational

Please read the following safety instructions as they are designed to prevent damage to property and harm to the user.

### Warning / Caution



Failure to follow directions noted by this symbol could result in bodily harm or damage to equipment.

### Notational Conventions



Prohibited



Important to read and understand at all times



Do not disassemble



Disconnect the plug from the outlet



Do not touch



Grounding to prevent an electric shock

## Power



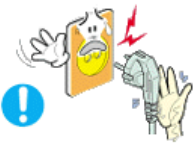
When not used for an extended period of time, set your computer to DPMS. If using a screen saver, set it to the active screen mode.

[Shortcut to Anti-Afterimage Instructions](#)

- Do not use a damaged or loose plug.

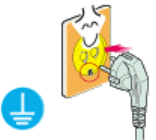


- This may cause an electric shock or fire.



• **Do not pull the plug out by the wire nor touch the plug with wet hands.**

- This may cause an electric shock or fire.



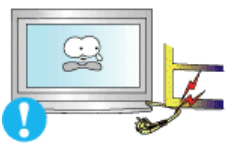
• **Use only a properly grounded plug and receptacle.**

- An improper ground may cause electric shock or equipment damage.



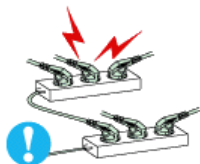
• **Insert the power plug firmly so that it does not come loose.**

- A bad connection may cause fire.



• **Do not excessively bend the plug and wire nor place heavy objects upon them, which could cause damage.**

- This may cause an electric shock or fire.



• **Do not connect too many extension cords or plugs to an outlet.**

- This may cause fire.

Notational

Power

**Installation**

Clean

Others

• **Installation**



Be sure to contact an authorized Service Center, when installing your monitor in a location with the heavy dust, high or low temperatures, high humidity, chemical substance and where it operates for 24 hours such as the airport, the train station or etc.

Failure to do so may cause a serious damage to your monitor.



• **Put your monitor in a location with low humidity and a minimum of dust.**

- Failure to do so may cause an electric shock or fire inside the monitor.

• **Do not drop the monitor when moving it.**



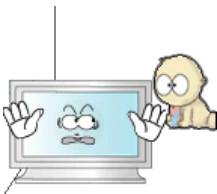
- This may cause damage to the product or human body.



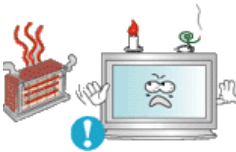
- **Install the monitor base in a showcase or shelf so that the end of the base does not protrude from the showcase or shelf.**
  - Dropping the product may cause damage to the product or personal injury.



- **Do not place the product on an unstable or small surface area.**
  - Place the product on an even, stable surface, as the product may fall and cause harm to someone walking by, specifically children.



- **Do not place the product on the floor.**
  - Someone, specifically children could trip over it.



- **Keep any flammable objects such as candles, insecticides or cigarettes away from the product.**
  - Otherwise, this may cause a fire.



- **Keep any heating devices away from the power cable.**
  - A melted coating may lead to electric shock or fire.



- **Do not install the product in places with poor ventilation, for instance, a bookshelf, closet, etc.**
  - Any increase in internal temperature may cause fire.



- **Set down the monitor carefully.**
  - The monitor could be damaged or broken.

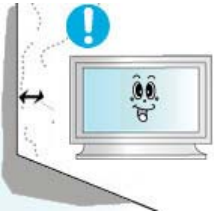


- **Do not place the monitor face down.**
  - The TFT-LCD surface may be damaged.



● **Installing a wall bracket must be done by a qualified professional.**

- Installation by unqualified personnel may result in injury.
- Always use the mounting device specified in the owner's manual.



● **When installing the product, make sure to keep it away from the wall (more than 10cm/4inch ) for ventilation purposes.**

- Poor ventilation may cause an increase in the internal temperature of the product, resulting in a shortened component life and degraded performance.

Notational

Power

Installation

Clean

Others

● **Clean**



When cleaning the monitor case or the surface of the TFT-LCD screen, wipe with a slightly moistened, soft fabric.



● **Do not spray water or detergent directly on the monitor.**

- This may cause damage, electric shock or fire.



● **Use the recommended detergent with a smooth cloth.**



● **If the connector between the plug and the pin is dusty or dirty, clean it properly with a dry cloth.**

- A dirty connector may cause an electric shock or fire.



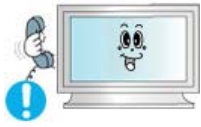
● **Make sure to unplug the power cord before cleaning the product.**

- Otherwise, this may cause electric shock or fire.



● **Unplug the power cord from the power outlet and wipe the product using a soft, dry cloth.**

- Do not use any chemicals such as wax, benzene, alcohol, thinners, insecticide, air freshener, lubricant or detergent.



● Contact the **Service Center** or **Customer Center** for interior cleaning once a year.

- Keep the product's interior clean. Dust which has accumulated in the interior over an extended period of time may cause malfunction or fire.

Notational

Power

Installation

Clean

Others

● Others



● Do not remove cover (or back).

- This may cause an electric shock or fire.
- Refer servicing to qualified service personnel.



● If your monitor does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately and contact an authorized dealer or service.

- This may cause an electric shock or fire.



● Keep the product away from places exposed to oil, smoke or moisture; do not install inside a vehicle.

- This may cause malfunction, an electric shock or fire.
- Especially avoid operating the monitor near water or outdoors where it could be exposed to snow or rain.



● If the monitor is dropped or the casing is damaged, turn the monitor off and unplug the power cord. Then contact the **Service Center** .

- The monitor may malfunction, causing an electric shock or fire.



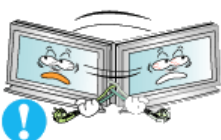
● Disconnect the plug from the outlet during storms or lightening or if it is not used for a long period of time.

- Failure to do so may cause an electric shock or fire.



● Do not try to move the monitor by pulling only the wire or the signal cable.

- This may cause a breakdown, electric shock or fire due to damage to the cable.



● Do not move the monitor right or left by pulling only the wire or the signal cable.

- This may cause a breakdown, electric shock or fire due to damage to the cable.



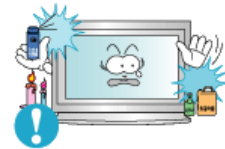
● **Do not cover the vents on the monitor cabinet.**

- Bad ventilation may cause a breakdown or fire.



● **Do not place water containers, chemical products or small metal objects on the monitor.**

- This may cause malfunction, an electric shock or fire.
- If a foreign substance enters the monitor, unplug the power cord and contact [the Service Center](#).



● **Keep the product away from combustible chemical sprays or inflammable substances.**

- This may cause an explosion or fire.



● **Never insert anything metallic into the monitor openings.**

- This may cause an electric shock, fire or injury.



● **Do not insert metal objects such as chopsticks, wire and gimlet or inflammable objects such as paper and match into the vent, headphone port or AV ports.**

- It may cause a fire or an electric shock. If an alien substances or water flows into the product, turn the product off, unplug the power connector from the wall outlet and contact [Service Center](#).



● **If you view a fixed screen for an extended period of time, residual image or blurriness may appear.**

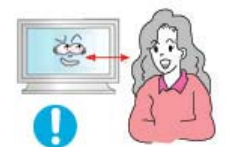
- Change the mode to energy save or set a screensaver to moving picture when you need to be away from the monitor for an extended period of time.



● **Adjust the resolution and frequency to the levels appropriate for the model.**

- Inappropriate resolution may cause undesirable picture quality.

32 inch - 1360 X 768



● **Watching the monitor continuously at a too close angle may result in eyesight damage.**



● **To ease eye strain, take at least a five-minute break after every hour of using the monitor.**





● **Do not install the product on an unstable, uneven surface or a location prone to vibrations.**

- Dropping the product may cause damage to the product or personal injury. Using the product in a location prone to vibrations may shorten the lifetime of the product or may catch fire.



● **When moving the monitor, turn off and unplug the power cord. Make sure that all cables, including the antenna cable and cables connecting to other devices, are disconnected before moving the monitor.**

- Failure to disconnect cables may damage it and lead to fire or an electric shock.



● **Make sure there are more than two people when moving the product.**

- Dropping the product may cause a malfunction or physical damage.



● **Place the product out of children's reach, as they could damage it by hanging onto it.**

- A falling product could cause physical damage even death.



● **When not using the product for an extended time period, keep the product unplugged.**

- Otherwise, this may cause heat emission from the accumulated dirt or degraded insulation, leading to electric shock or fire.



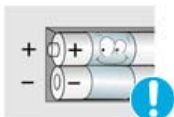
● **Do not place children's favorite objects (or anything else that may be tempting) on the product.**

- Children may try to climb on the product to retrieve an object. The product could fall, causing physical damage or even death.



● **When you remove batteries from the remote, be careful that they are not swallowed by children. Keep batteries out of the reach of children.**

- If swallowed, see a doctor immediately.



● **When replacing batteries, place the batteries in the correct +/- polarity position as indicated on battery holder.**

- Incorrect polarity may cause a battery to break or leak and could lead to fire, injury, or contamination (damage).



● **Use only specified standard batteries. Do not use new and used batteries together.**

- This may cause a battery to break or leak and could lead to fire, injury, or contamination (damage).



● **The battery (and rechargeable battery) are not ordinary refuse and must be returned for recycling purposes. The customer is responsible for returning the used or rechargeable battery for recycling purposes as the consumer of the battery.**

- The customer can return the used or rechargeable battery to a nearby



public recycling center or to a store selling the same type of the battery or rechargeable battery.

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[Unpacking](#) | [Front](#) | [Rear](#) | [Remote Control](#) | [Mechanical Lay-out](#)

Please make sure the following items are included with your monitor.  
If any items are missing, [contact your dealer](#).  
[Contact a local dealer](#) to buy optional items.



This stand is not for the Floor Standing Type.

**Unpacking**



**Monitor**

**Manual**



**Quick Setup Guide**



**Warranty Card**  
(Not available in all locations)



**User's Guide, MDC software,  
Natural Color software**

**Cable**



**D-Sub Cable**



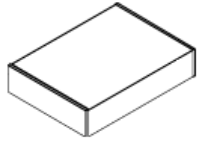
**Power Cord**



**Speaker Wire Cable**

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• **Sold separately**



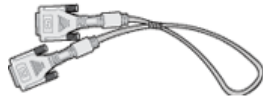
**Wall Mount KIT**



**Speaker Set**



**Stand KIT**



**DVI Cable**

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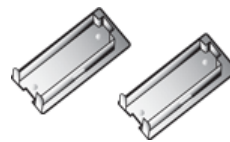
• **Others**



**Remote Control**



**Batteries (AAA X 2)**



**Cover-Hole**



**BNC to RCA  
Adapter Jack**



**Semi Stand**

Front



- |  |                          |
|--|--------------------------|
| 1. MENU  | 6. PIP                   |
| 2. Navigate button (Up-Down button)                    | 7. Power button          |
| 3. Adjust button (Left-Right button)/<br>Volume button | 8. Power indicator       |
| 4. ENTER   | 9. Remote Control Sensor |
| 5. SOURCE  |                          |

**1. MENU**

Use this button to open the on-screen menu and exit from the menu screen or close screen adjustment menu.

**2. Navigate buttons (Up-Down button)**

Moves from one menu item to another vertically or adjusts selected menu values.

**3. Adjust buttons (Left-Right button) / Volume buttons**

Moves from one menu item to another horizontally or adjusts selected menu values. Adjusts the audio volume.

**4. ENTER**

Activates a highlighted menu item.

**5. SOURCE**

Switches from PC mode to Video mode.

Changing the source is allowed only in external devices that are connected to the monitor at the time.

To switch Screen modes:

[PC] → [BNC] → [DVI] → [AV] → [S-VIDEO] → [Component]

>>Click here to see an animation clip

**6. PIP**

Push the PIP button to turn PIP screen On/Off.

More than one PIP couldn't be overlapped on screen as BNC and the component use the same terminal.

>>Click here to see an animation clip

**• PC / DVI**

: AV / S-Video / Component Mode

**• BNC**

: AV / S-Video Mode

**• AV / S-Video**

: PC / BNC / DVI Mode

**• Component**

: PC / DVI Mode

**7. Power button**

Use this button to turn the monitor on and off.

**8. Power indicator**

Power Indicator shows PowerSaver mode by green blinking.

**9. Remote Control Sensor**

Aim the remote control towards this spot on the Monitor.



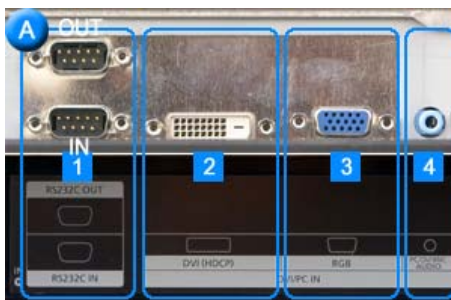
See [PowerSaver](#) described in the manual for further information regarding power saving functions. For energy conservation, turn your monitor OFF when it is not needed or when leaving it unattended

for long periods.

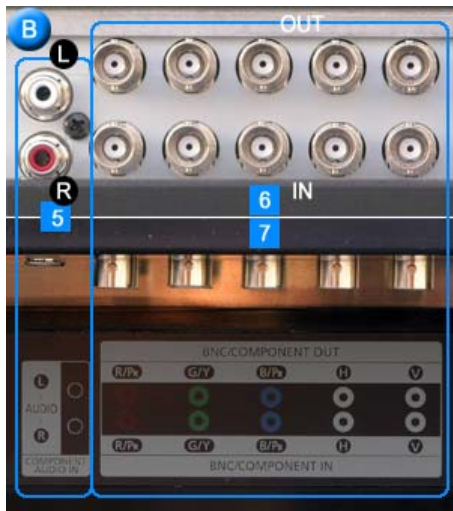
## Rear



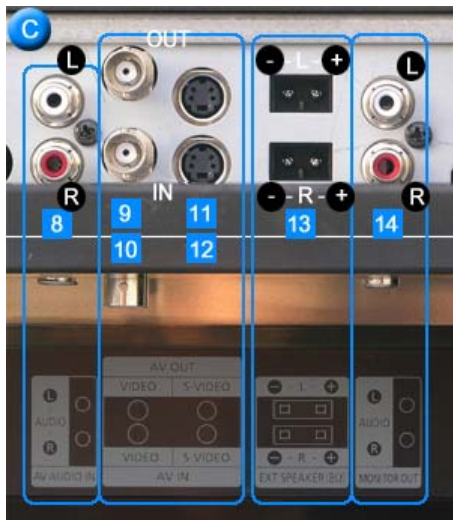
For detailed information concerning cable connections, refer to [Connecting Cables](#) under Setup. The monitor's rear configuration may vary slightly depending on the monitor model.



1. **RS232C OUT/IN (RS232C Serial PORT):** MDC(Multiple Display Control) Program Port
2. **DVI IN(HDCP) (PC Video Connection Terminal)**  
: Using DVI Cable (DVI-D to DVI-D) - DVI mode (Digital PC)
3. **PC IN(RGB) (PC Video Connection Terminal)**  
: Using D-Sub Cable (15 pin D-Sub) - PC mode (Analog PC)
4. **PC/DVI/BNC AUDIO IN (PC/DVI/BNC Audio Connection Terminal (Input))**



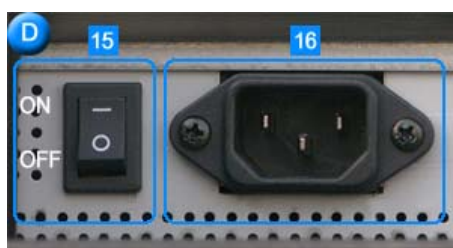
5. **COMPONENT AUDIO IN [L-AUDIO-R](Component Audio Connection Terminal (Input))**
6. **BNC/COMPONENT OUT (BNC/Component Connection Terminal (Output))**
  - BNC (Analog PC) Connection : connecting R, G, B, H, V port
  - Component Connection : connecting PR, Y, PBport
7. **BNC/COMPONENT IN (BNC/Component Connection Terminal (Input))**



8. **AV AUDIO IN [L-AUDIO-R](Monitor Audio Connection Terminal (Input))**
9. **AV OUT [VIDEO](VIDEO Connection Terminal) : AV mode (Output)**
10. **AV IN [VIDEO](VIDEO Connection Terminal) (Input)**
11. **AV OUT [S-VIDEO](S-Video Connection Terminal) : S-Video mode (Output)**
12. **AV IN [S-VIDEO](S-Video Connection Terminal) (Input)**
13. **EXT SPEAKER(8 Ω) (EXT Speaker Connection Terminal)**
14. **MONITOR OUT [L-AUDIO-R](Monitor Audio Connection Terminal (Output))**
  - MONITOR OUT is the terminal for sound output of PC, DVI or BNC.



The number of monitors that can be connected to loopout may be different under the circumstance such as cable, signal source, etc.  
With a cable which there is no degradation or signal source ten monitors can be connected.



15. **POWER S/W** : Switch the monitor on and off.
16. **POWER IN** : Power cord, plug into monitor and wall receptacle.



## 17. Kensington Lock

The Kensington lock is a device used to physically fix the system when using it in a public place.  
(The locking device has to be purchased separately.)

**For using a locking device, contact where you purchase it.**

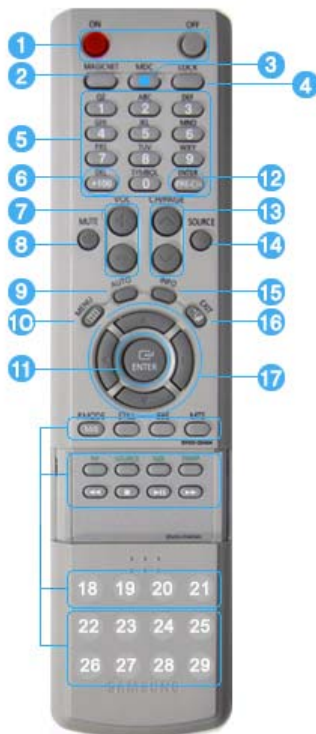


See [Connecting the Monitor](#) for further information regarding cable connections.

Unpacking | Front | Rear | **Remote Control** | Mechanical Lay-out

## Remote Control

The performance of the remote control may be affected by a TV or other electronic devices operated near the monitor, causing malfunction due to interference with frequency.



1. ON / OFF
2. MAGICNET
3. MDC
4. LOCK
5. MagicNet buttons
6. +100
7. VOL
8. MUTE
9. AUTO
10. MENU
11. ENTER
12. PRE-CH
13. CH/PAGE
14. SOURCE
15. INFO
16. EXIT
17. Up-Down Left-Right buttons
18. P.MODE (M/B)
19. STILL
20. BBE
21. MTS
22. PIP
23. SOURCE
24. SIZE
25. SWAP
26. ◀◀
27. ■



28. ►||

29. ►►

#### 1. ON / OFF

Use these buttons to turn the monitor on or off.

#### 2. MAGICNET

MagicNet Quick Launch Button.

- **This function does not work for this monitor.**

#### 3. MDC

MDC Quick Launch Button.

#### 4. LOCK

This button will activate or deactivate all function keys on both the remote control and the monitor except for the Power and LOCK buttons.

#### 5. MagicNet buttons

- Used for MagicNet.

- Alphanumeric: Used to enter the Internet address.
- DEL : Functions as the backspace.
- SYMBOL : Used to enter the symbols. (.O\_ -:/)
- ENTER : Used to enter values.

- **This function does not work for this monitor.**

#### 6. +100

Press to select channels over 100.

For example, to select channel 121, press "+100", then press "2" and "1".

- **This function does not work for this monitor.**

#### 7. VOL

Adjusts the audio volume.

>>[Click here to see an animation clip](#)

#### 8. MUTE

Pauses (mutes) the audio output temporarily.

Displayed on the lower left corner of the screen.

The audio resumes if MUTE or - VOL + is pressed in the Mute mode.

#### 9. AUTO

Adjusts the screen display automatically.

If you change resolution in the control panel, auto function will be executed.

#### 10. MENU

Use this button to open the on-screen menu and exit from the menu screen or close screen adjustment menu.

#### 11. ENTER

Activate a highlighted menu item.

#### 12. PRE-CH

This button is used to return to the immediately previous channel.

- **This function does not work for this monitor.**

#### 13. CH/PAGE

Selects channels or page.

- **This function does not work for this monitor.**

#### 14. SOURCE

Push this button to change video sources.

#### 15. INFO

Current picture information displays on the upper left corner of the screen.

#### 16. EXIT

Exits from the menu screen.

#### 17. Up-Down Left-Right buttons

Moves from one menu item to another horizontally, vertically or adjusts selected menu values.

#### 18. P.MODE (M/B)

When you press this button, current picture mode is displayed on the lower center of the screen.

##### AV / S-Video / Component : P.MODE

The Monitor has four automatic picture settings that are preset at the factory.

Then push button again to circle through available preconfigured modes.

( Dynamic → Standard → Movie → Custom )

##### PC/DVI/BNC : M/B (MagicBright™)

MagicBright™ is a new feature providing the optimum viewing environment depending on the contents of the image you are watching.

Then push button again to circle through available preconfigured modes.

(Entertain → Internet → Text → Custom )

#### 19. STILL

When you press this button, STILL is displayed on the lower center of the screen.

Press the button once to freeze the screen.

Press it again to unfreeze.

#### 20. BBE

Recreates the natural sound and improves sound clarity through boosting high and low range frequencies. As a result high sounds are clearer, brilliant and finely detailed while low sounds are tight, well-defined and harmonically rich.

#### 21. MTS

You can select the MTS (Multichannel Television Stereo) mode.

	Audio Type	MTS/S_Mode	Default
FM Stereo	Mono	Mono	Manual Change
	Stereo	Mono ↔ Stereo	
	SAP	Mono ↔ SAP	Mono

- This function does not work for this monitor.

#### 22. PIP

Every time you push the button, a PIP screen appears.

#### 23. SOURCE

The PIP window's signal source changes.

#### 24. SIZE

You can switch the Picture Size.

#### 25. SWAP

Swapping the contents of the PIP and main image.

The image in the PIP window will appear on the main screen, and the main screen image will appear in the PIP window.

#### 26. ◀◀

Rewind

#### 27. ■

Stop

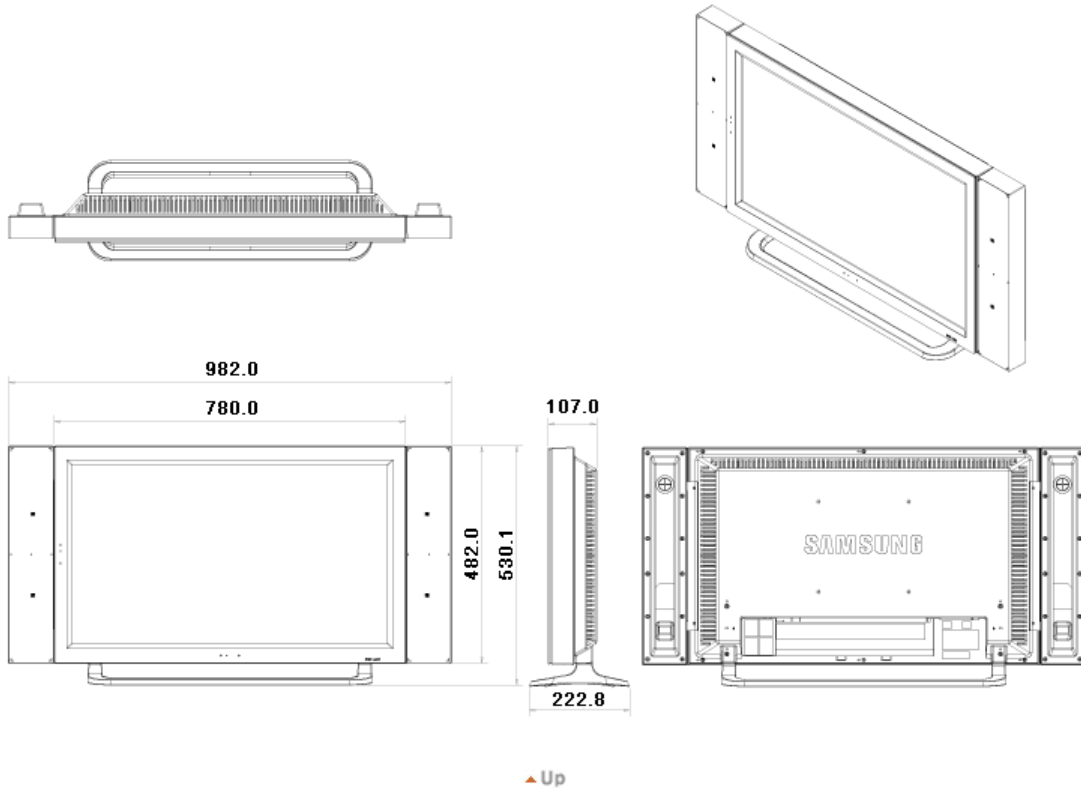
#### 28. ▶▶

Play/Pause

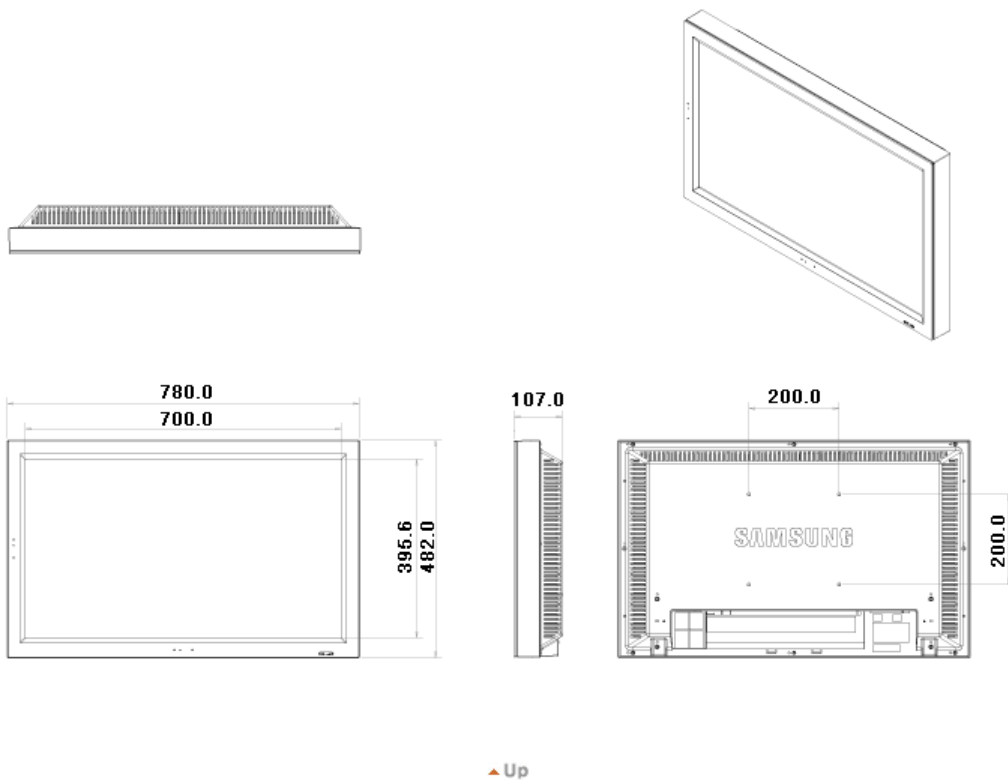
29. 

Fast forward

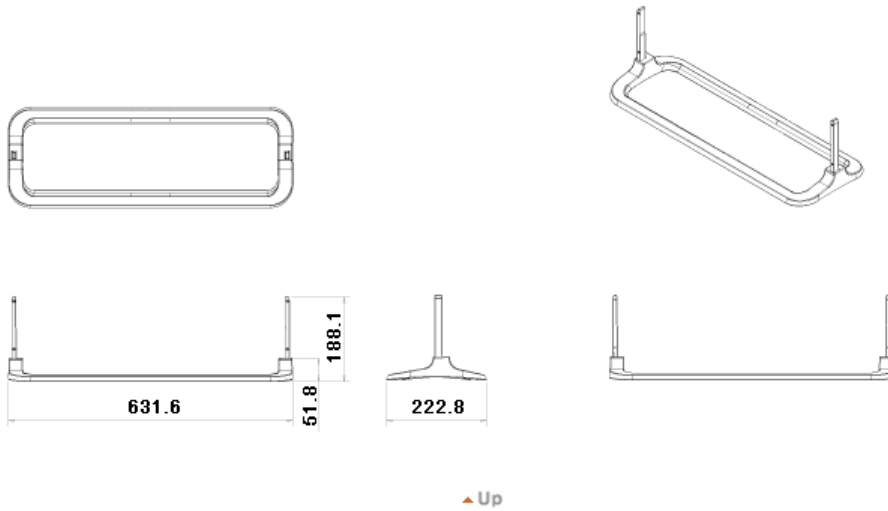
## 1. Mechanical Lay-out



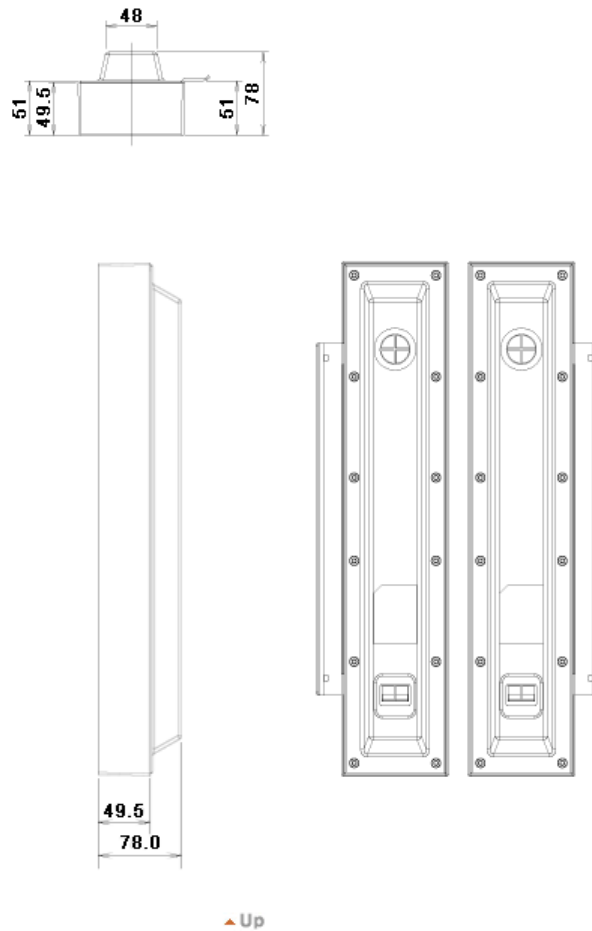
## 2. Monitor Head



### 3. Stand



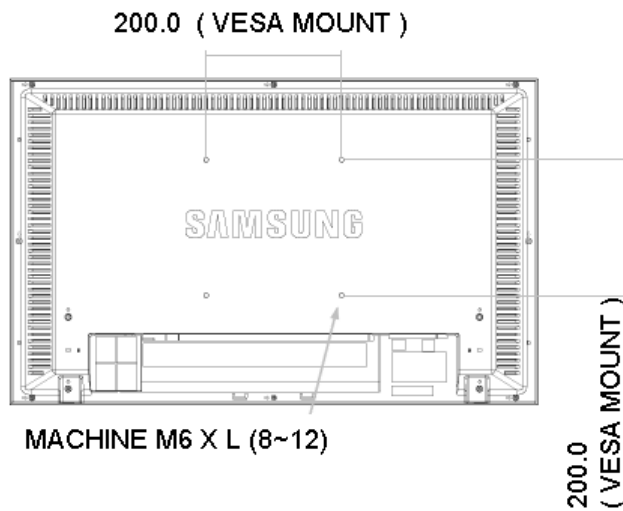
### 4. Speaker



### 5. Installation VESA Bracket

- When installing VESA, make sure to comply with the international VESA standards.
- Purchasing VESA Bracket and Installation Information : Please contact your nearest Samsung Distributor to place an order. After your order is placed, installation professionals will visit you and install the bracket.
- At least 2 persons are needed in order to move the LCD Monitor.
- Samsung is not responsible for any product damage or any injury caused by installation at customer's discretion.

### 🌐 Dimensions



For securing the bracket on a wall, use only machine screws of 6 mm diameter and 8 to 12 mm length.

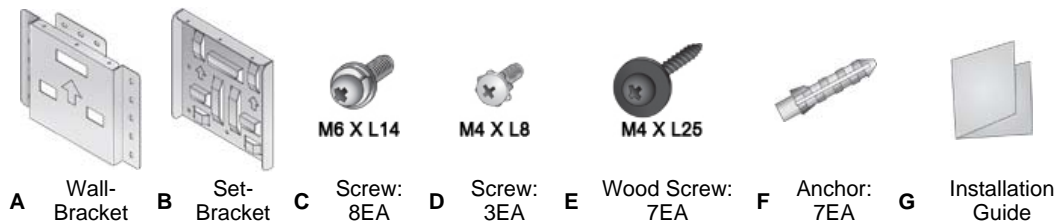
▲ Up

## 6. Wall Bracket Installation

- Contact a technician for installing the wall bracket.
- Samsung Electronics is not responsible for any damages to the product or harm to customers when the installation is done by the customer.
- This product is for installing on cement walls. The product may not stay in place when installed on plaster or wood.

### Components(Sold separately)

Only use the components and accessories shipped with the product.



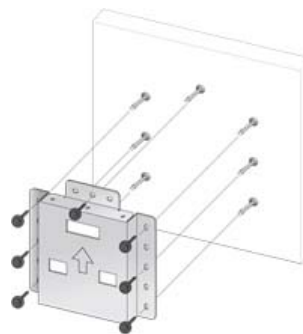
### How to assemble the Wall Mount Bracket

1

1. Mark the location of hole on the wall.
2. Make over 35mm-depth-hole on the marked location using drill.
3. Fix anchors **F** on each hole on the wall.
4. Connect wall-bracket **A** to the wall with wood screws **E** after fitting anchors **F** into the wall-bracket **A**.

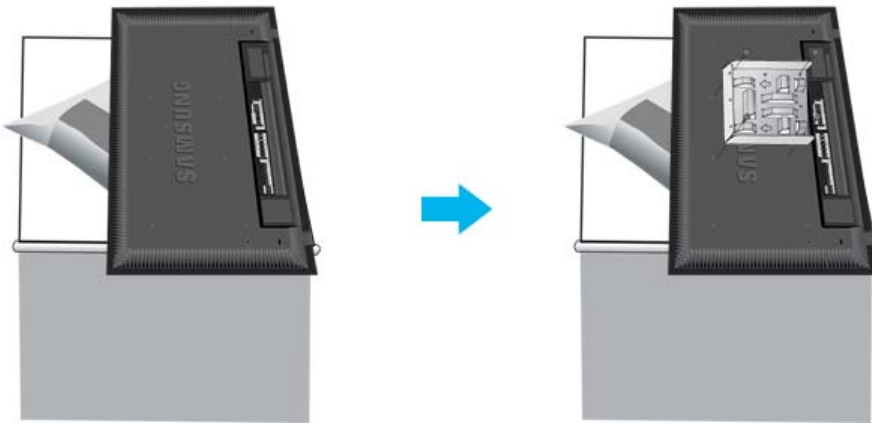


If the bracket is not firmly fixed to the wall, set can fall off.



2

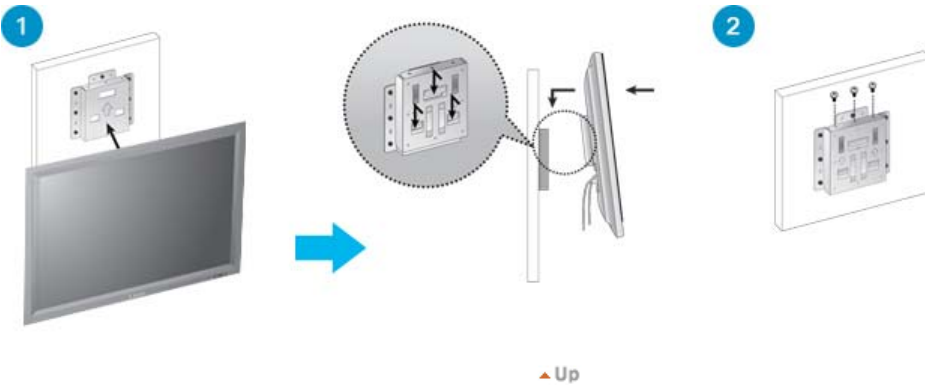
1. Turn the power off and unplug the power cord from the outlet.
2. Place the monitor faced down on a soft cloth or cushion on a table.
3. Attach the set-bracket **B** onto the rear side of the monitor set and secure the screws **C**.



- 3**
1. Insert three Hangers of the set-bracket **B** into the grooves of the wall-bracket **A**.
  2. Fix set-bracket **B** and wall-bracket **A** with screws **D**.



Before installing the set on the wall, connect the cables to the set first.







### Installing Stand Kit



Only the supplied bolts should be used.



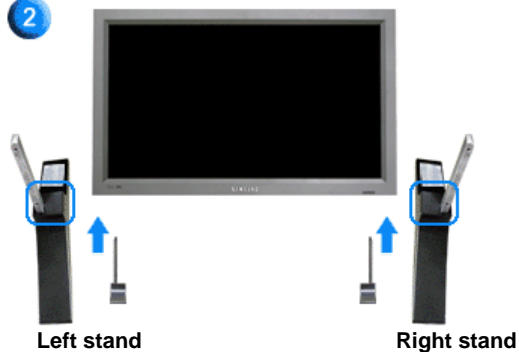
Samsung Electronics will not be responsible for damages caused by using a base other than those specified.

#### 1. Installing the Semi Stand

1



2



Make sure to install the stand with Caution label folded backward.

3



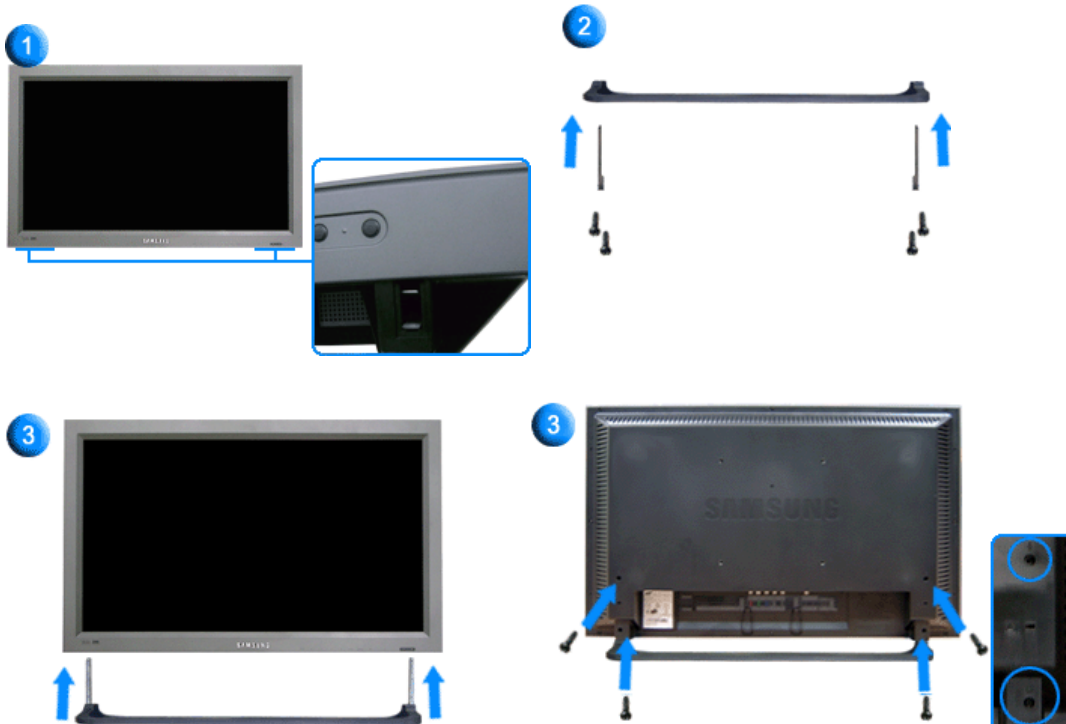
1. A 'Cover-Protector' is used to protect the hole at the bottom of the monitor, where the stand is inserted. Be sure to remove the 'Cover-Protector' when attaching the provided Semi Stand or stand kit (sold separately) and cover the hole using the 'Cover-Hole' when attaching the wall mount kit.
2. Set up the left and right stands respectively.

- Put the stand into the hole at the bottom of the monitor.  
Insert screw into the hole indicated and tighten. (M4 x L15)



This stand is originally designed for the adjustment of the screen angle. And the company is not responsible for any problem caused by any use of this stand. Do never use the product as a stand on which something is placed.

## 2. Installing Stand Kit (sold separately)



- A 'Cover-Protector' is used to protect the hole at the bottom of the monitor, where the stand is inserted. Be sure to remove the 'Cover-Protector' when attaching the provided Semi Stand or stand kit (sold separately) and cover the hole using the 'Cover-Hole' when attaching the wall mount kit.
- Make sure you put the parts in the right direction and in the right place. (M4 x L15)
- Put the stand into the hole at the bottom of the monitor.
- Insert screw into the hole indicated and tighten. (M4 x L15)

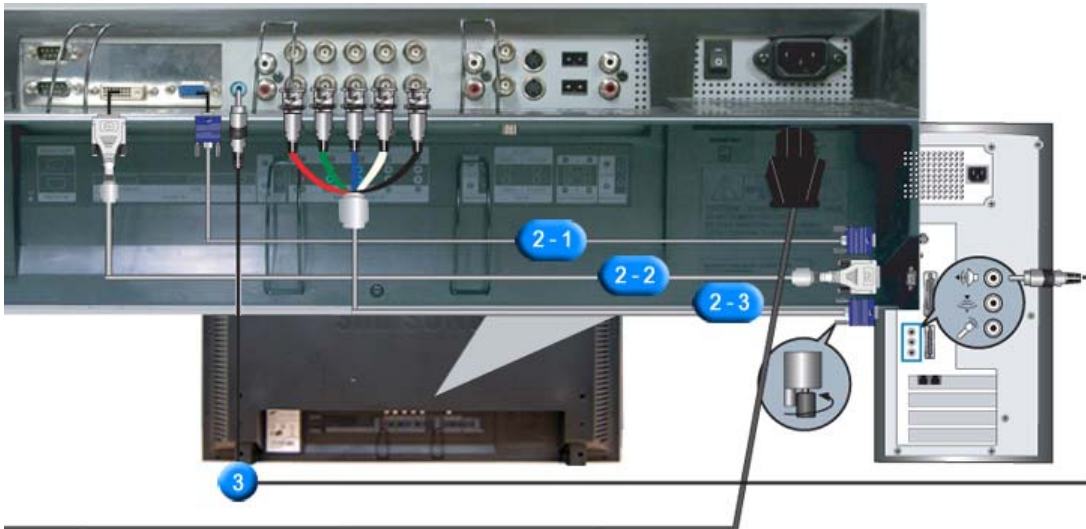
### In case of Power cord with Earth

In the event of failure, earth lead may cause electric shock. Make sure to wire the earth lead in an appropriate manner, before plug-in the AC power. Or, when un-wire the earth lead, make sure to plug-off the AC power in advance.



AV input devices like DVDs, VCRs or Camcorders as well as your computer may be connected to the monitor. For detailed information on connecting AV input devices, refer to User Controls under Adjusting Your Monitor.

### 1. Connecting to a Computer



1. Connect the power cord for your monitor to the power port on the back of the monitor. Turn on power switch.
2. There are 3 ways to connect the signal cable to your monitor. Choose one of the followings :

**2-1.** Using the D-sub (Analog) connector on the video card.  
 Connect the signal cable to the 15-pin, RGB port on the back of your monitor.



**2-2.** Using the DVI (Digital) connector on the video card.  
 Connect the DVI Cable to the DVI(HDCP) port on the back of your monitor.



**2-3.** Using the BNC (Analog) connector on the video card.  
 Connect the BNC Cable to the **BNC/COMPONENT IN - R, G, B, H, V** port on the back of your Monitor and the **15 pin D-sub Port** on the computer.





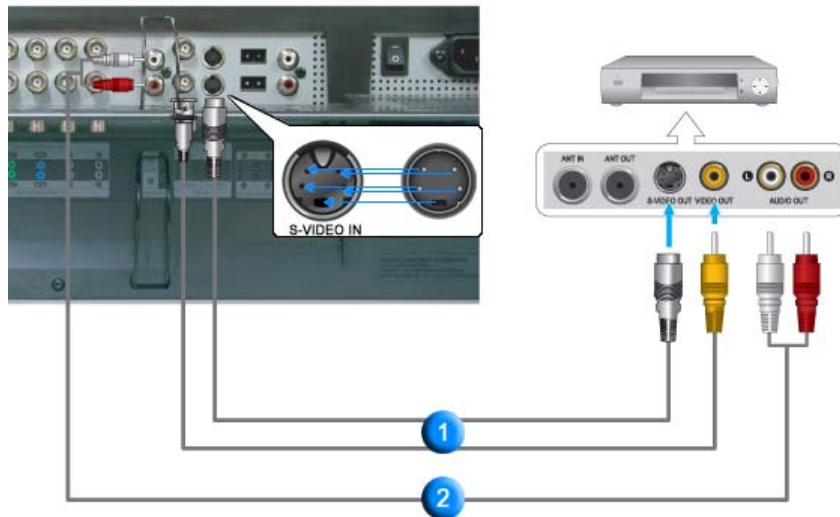
DVI cable or BNC cable is optional.

3. Connect the audio cable for your monitor to the audio port on the back of your computer.
4. Turn on both your computer and the monitor.



Contact a local Samsung Electronics [Service Center](#) to buy optional items.

## 2. Connecting to a VCR



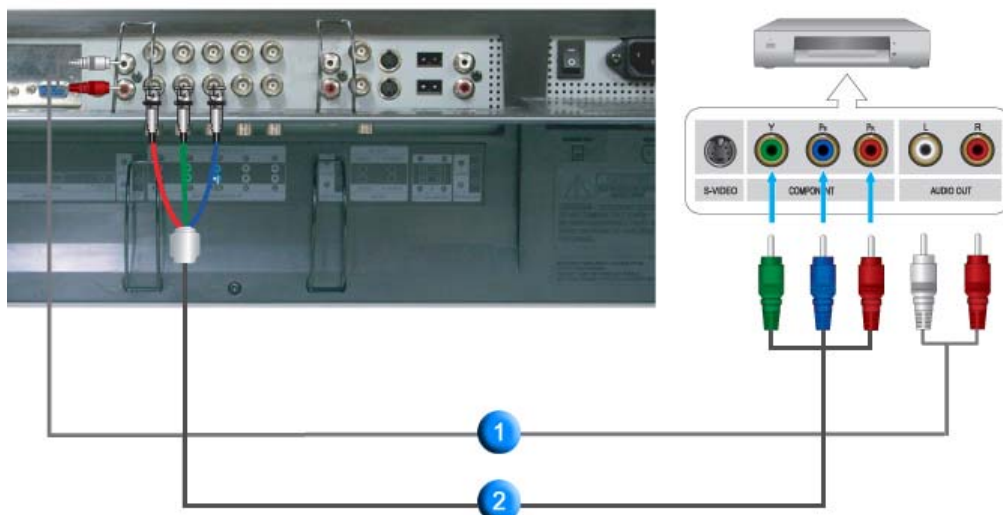
1. AV input devices like VCRs or Camcorders are connected to the **AV IN [VIDEO]** or **AV IN [S-VIDEO]** of the monitor using the S-VHS or BNC cable.



S-VHS or BNC cable is optional.

2. Connect the Audio (L) and Audio (R) terminals of a VCR or Camcorders to the monitor's **AV AUDIO IN [L-AUDIO-R]** using audio cables.
3. Select **AV** or **S-Video** that is connected to a VCR or Camcorders using the Source button on the monitor's front or remote control.
4. Then, start the VCR or Camcorders with a tape inserted.

## 3. Connecting to a DVD Player



1. Connect a set of audio cables between the **COMPONENT AUDIO IN [L-AUDIO-R]** on the Monitor and the AUDIO OUT jacks on the DVD player.
2. Connect a Component cable between the **BNC/COMPONENT IN - Pr, Y, Pb port** on the Monitor and the Pr, Y, Pb jacks on the DVD player.



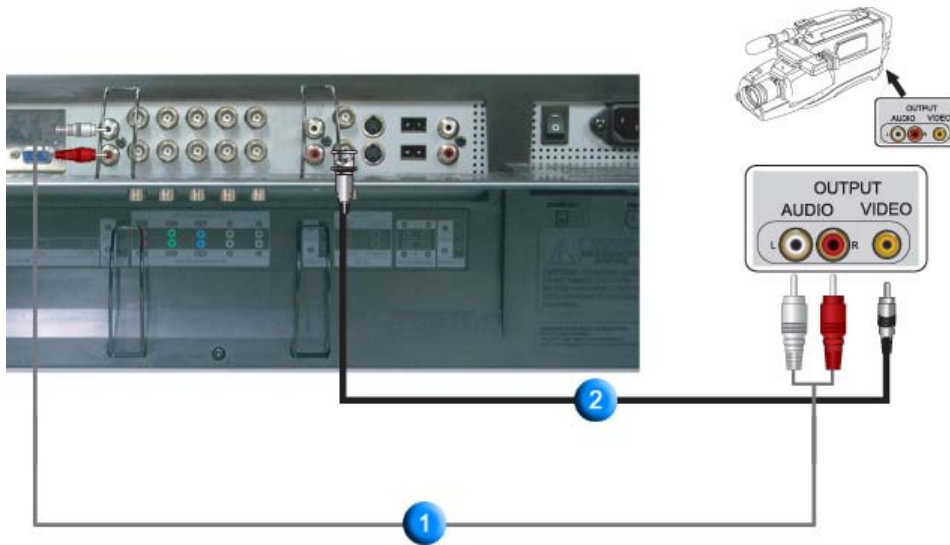
Component cable is optional.

3. Select **Component** that is connected to a DVD player using the Source button on the monitor's front or remote control.
4. Then, start the DVD Player with a DVD disc inserted.



For an explanation of Component video, see your DVD player owner's manual.

#### 4. Connecting a Camcorder



1. Locate the A/V output jacks on the camcorder. They are usually found on the side or back of the camcorder.  
Connect a set of audio cables between the AUDIO OUTPUT jacks on the camcorder and the **COMPONENT AUDIO IN [L-AUDIO-R]** on the Monitor.
2. Connect a video cable between the VIDEO OUTPUT jack on the camcorder and the **AV IN [VIDEO]** on the Monitor.
3. Select **AV** that is connected to a Camcorder using the Source button on the monitor's front or remote control.
4. Then, start the Camcorders with a tape inserted.

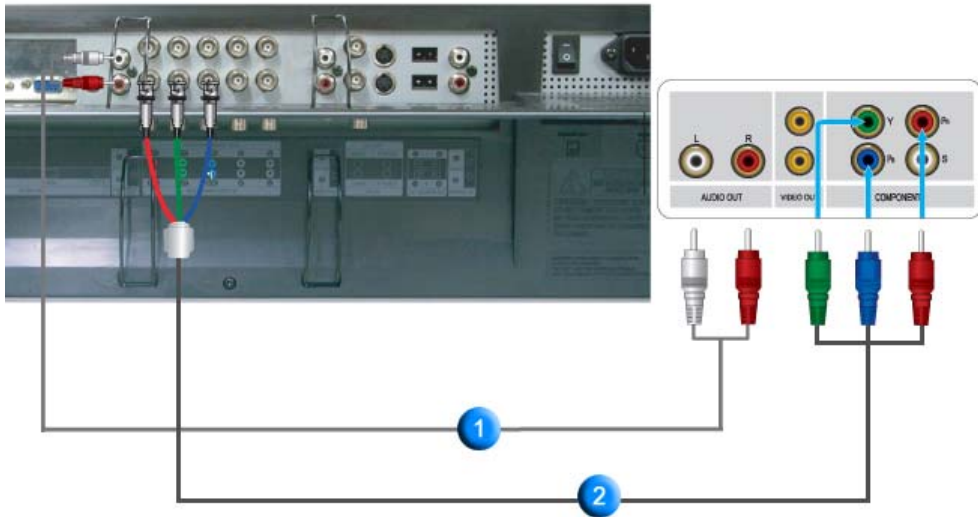


The audio-video cables shown here are usually included with a Camcorder.  
(If not, check your local electronics store.)  
If your camcorder is stereo, you need to connect a set of two cables.

#### 5. Connecting DTV Set Top Box



The connections for a typical Set Top Box are shown below.



1. Connect a set of audio cables between the **COMPONENT AUDIO IN [L-AUDIO-R]** on the Monitor and the **AUDIO OUT** jacks on the Set Top Box.
2. Connect a Component cable between the **BNC/COMPONENT IN - Pr, Y, Pb port** on the Monitor and the **Pr, Y, Pb** jacks on the Set Top Box.
3. Select **Component** that is connected to a DTV Set Top Box using the Source button on the monitor's front or remote control.



For an explanation of Component video, see your Set Top Box owner's manual.

## 6. Connecting Speakers

1. Tighten the SET and the speaker using the screws.



\* Mount the set of the speaker without the speaker stand.

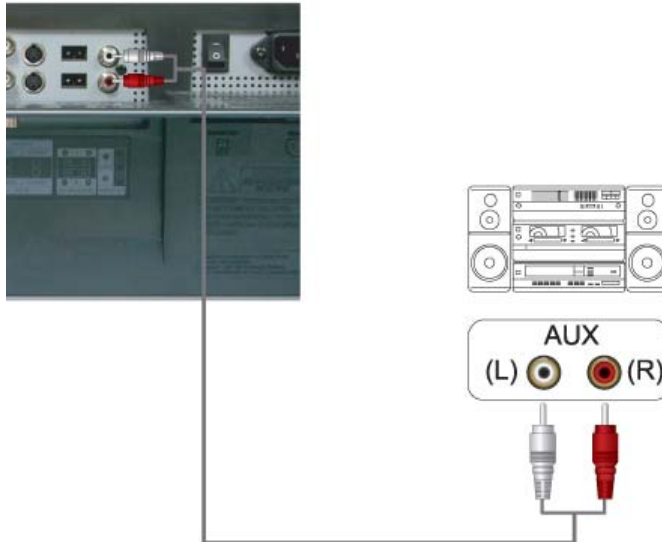
2. Connect the speaker connection cable between the speaker connection jack on the rear of the SET and the speaker connection jack on the rear of the speaker.



Do not move the SET holding the speaker when the SET is connected to the speaker. The speaker-bracket for connecting the SET speaker may be damaged.



## 7. Connecting to an Audio System



1. Connect a set of audio cables between the AUX L, R jacks on the AUDIO SYSTEM and the **MONITOR OUT [L-AUDIO-R]** on the Monitor.

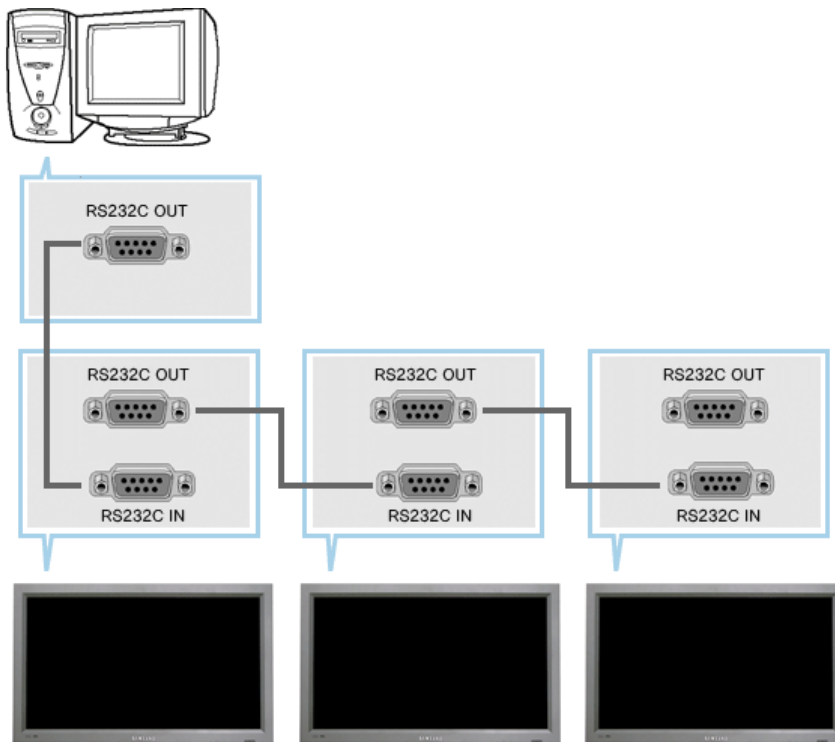
[Installing Stand Kit](#) | [Connecting the Monitor](#) | **MDC** | [Natural Color](#)

# Multiple Display Control *MDC System*

1. [Introduction](#)
2. [Beginning :](#)  
[Main Screen](#) | [Port Setting](#) |
3. [Power Control](#)
4. [Input Source Control](#)
5. [Image Size Control :](#)  
[PC, BNC, DVI](#) |  
[AV, S-Video, Component, DVI\(HDCP\)](#)
6. [Time Control](#)
7. [PIP Control :](#)  
[PIP Size](#) | [PIP Source](#)
8. [Settings Control :](#)  
[Picture](#) | [Picture PC](#) | [Audio](#) | [Image Lock](#) |
9. [Maintenance Control - Lamp Control](#)
10. [Maintenance Control - Scroll](#)
11. [Maintenance Control - Video Wall](#)
12. [Troubleshooting](#)
13. [Settings Value Display In Multiple Display Mode](#)

### 1. Introduction



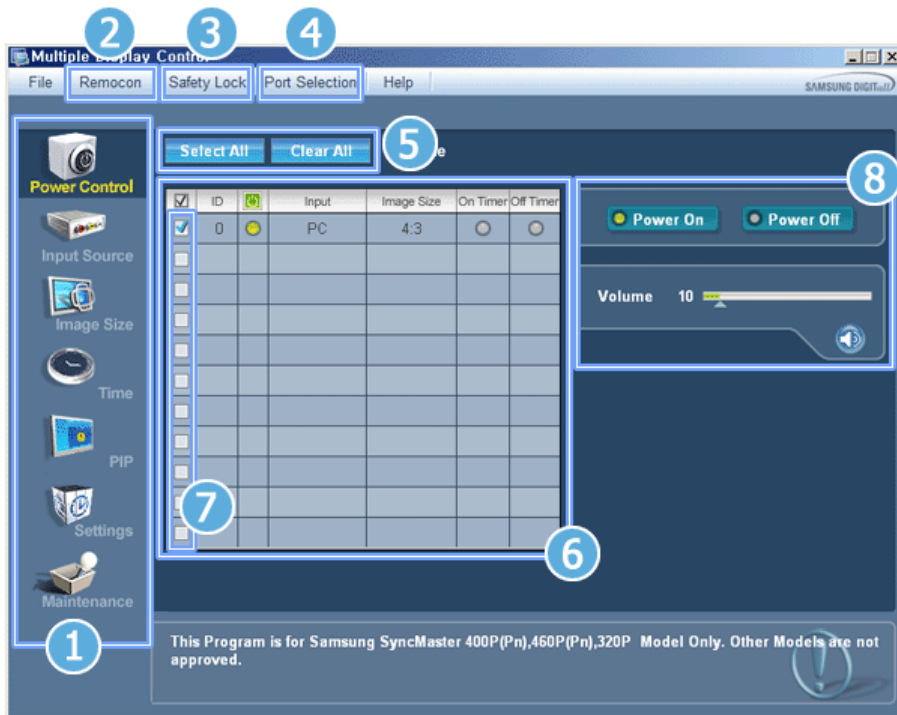


A Multiple Display Control (MDC) is an application allowing various displays to be easily and simultaneously operated on a PC. RS-232C, a standard of serial communication, is used for the communication between a PC and a display. Therefore, a serial cable should be connected between the serial port on a PC and the serial port on a display.

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## 2. Main Screen

- Click Start > Program > Multiple Display Control to start the program.
- Select a set to see the volume of the selected set within the slider.



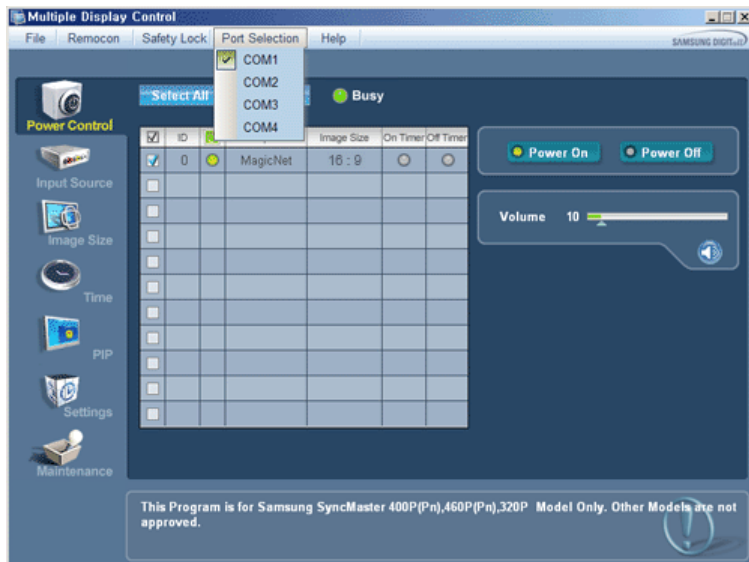
- 1 Main Icons
- 2 Remocon
- 3 Safety Lock
- 4 Port Selection
- 5 Select Button
- 6 Info Grid
- 7 Display Selection
- 8 Control Tools

1. Use the main icons to switch into each screen.
2. Allows you to enable or disable the remote control signal receiving function of the display unit.
3. The setting for the PC Serial Port can change. The original value is COM1.
4. Sets the Lock Function.
5. Click Select all or Clear to select or clear all displays.
6. Use Grid to view brief information on selected display.
7. Select a display from Display Selection.
8. Use Control Tools to control displays.



The remote control Enable/Disable function operates whether or not the power is On/Off, and this applies to all displays connected to the displays connected to the MDC. However, regardless of the status at the time the MDC is shut down, the remote control signal receiving function of all displays is initialized to Enable when the MDC is closed.

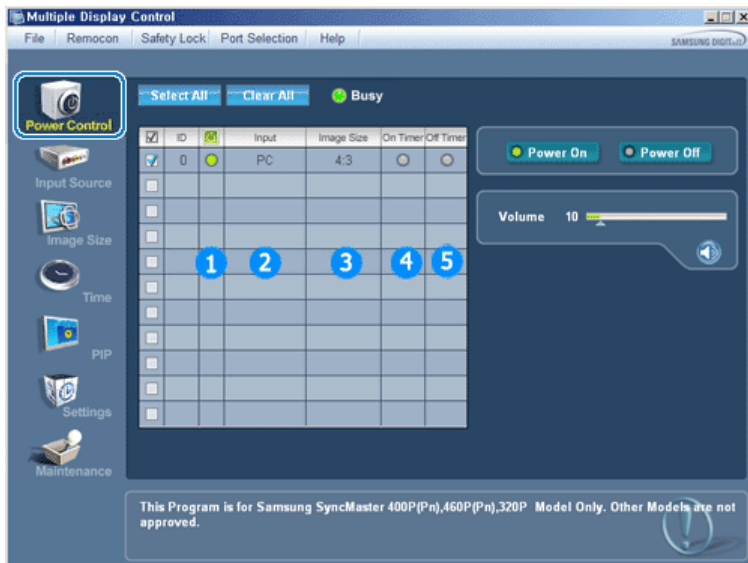
## 2. Beginning - Port Setting



1. Multiple Display Control is originally set to COM1.
2. If any port other than COM1 is used, COM1 to COM4 can be selected in Port Selection Menu.
3. If the exact port name which is connected to the monitor using a serial cable is not selected, communication will not be available.
4. The selected port is stored in the program and used for the next program as well.

### 3. Power Control

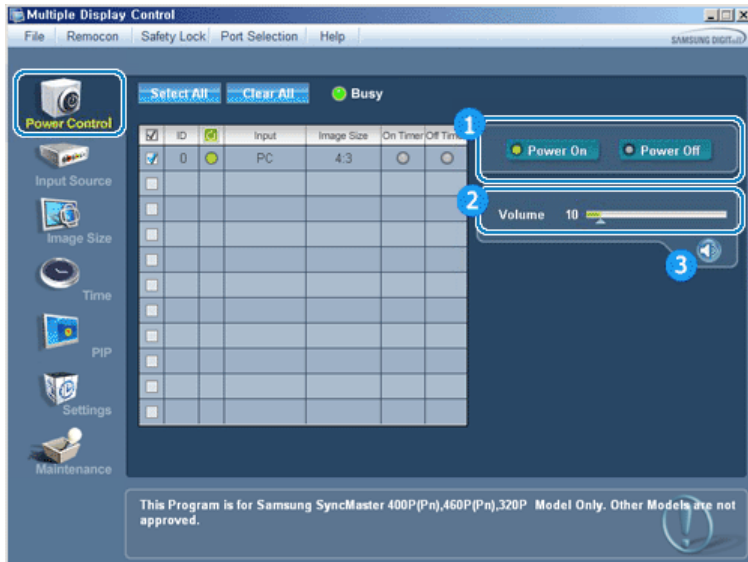
1. Click Power Control of the main icons and the Power Control screen appears.



- ▶ Info Grid shows some basic information necessary to Power Control.

- 1) Power Status
- 2) Input Source
- 3) Image Size
- 4) On Timer Status
- 5) Off Timer Status

2. Use the Select All button or Check Box to choose a display to control.



▶  Power Control allows controlling some of the functions of the selected display.

1) Power On/Off

- Turns the power of the selected display On/Off.

2) Volume Control

- Controls the volume level of the selected display.

It receives the volume value of the selected display from the sets and displays it in the slider.  
(When you cancel the selection or choose Select All, the value returns to the default value 10)

3) Mute On/Off

- Enables/disables the Mute function of the selected display.

When selecting one set at a time, enable Mute when the Mute function is enabled for the selected set.  
The Mute function is disabled automatically when you adjust the volume level.  
(The values return to the default settings when you undo the selections or choose "Select All.")

- **The Power Control feature is available for all displays.**
- **The Volume Control and Mute features are available only for the displays whose power status is ON.**

#### 4. Input Source Control

1. Click Input Source of the main icons and the Input Source control screen appears.  
Click Select All or use Check Box to select a display to control.



▶ Info Grid shows some basic information necessary to Input Source Control.

1) PC

- Changes the Input Source of the selected display to PC.

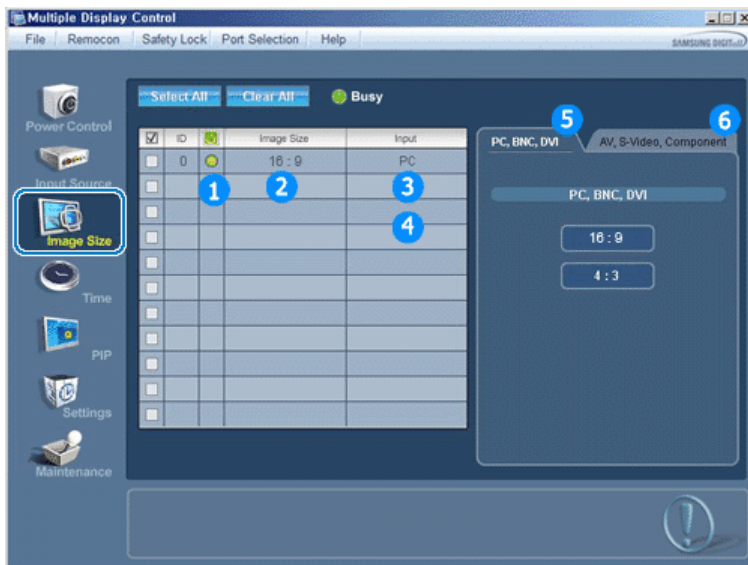
2) BNC

- Changes the Input Source of the selected display to BNC.

- 3) DVI
    - Changes the Input Source of the selected display to DVI.
  - 4) AV
    - Changes the Input Source of the selected display to AV.
  - 5) S-Video
    - Changes the Input Source of the selected display to S-Video.
  - 6) Component
    - Changes the Input Source of the selected display to Component.
  - 7) MagicNet
    - The Input source of MagicNet works only on MagicNet model.
- **The Input Source Control feature is available only for the displays whose power status is ON.**
- 

## 5. Image Size Control - PC, BNC, DVI

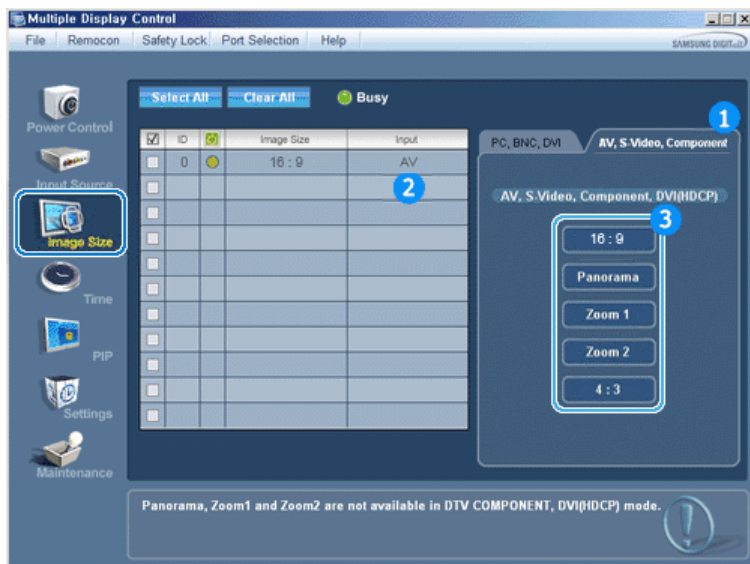
1. Click Image Size of the main icons and the Image Size control screen appears.



- ▶ Info Grid shows some basic information necessary to Image Size Control.
- 1) Power
    - Shows the power status of the current display.
  - 2) Image Size
    - Shows the current Image Size of the display in use.
  - 3) Input Source
    - Shows the current Input Source of the display in use.
  - 4) Info Grid displays only the displays whose Input Source is PC,BNC,DVI .
  - 5) When you click Image Size, the PC, BNC, DVI tabs first appear.
    - The Image Size Control button controls Image Size available for PC,BNC,DVI.
  - 6) Click the AV, S-Video, Component tab to control Image Size for respective Input Source.
    - **Image Size Control is available only for the displays for which power status is ON.**
    - **The Input source of MagicNet works only on MagicNet model.**
- 

## 5. Image Size Control - AV, S-Video, Component, DVI(HDCP)

1. Click Image Size of the main icons and the Image Size control screen appears.



▶ Info Grid shows some basic information necessary to Image Size Control.

- 1) Click the AV, S-Video, Component tab to adjust Image Size for AV, S-Video, Component. Click Select All or use Check Box to select a display to control.
- 2) Info Grid displays only the display having AV, S-Video, Component or DVI(HDCP) as input source.
- 3) Switch Image Size of the selected display randomly.



**Panorama, Zoom1 and Zoom2 are not available for selection when the input signal type for Component and DVI (HDCP) is 720p or 1080i.**

- The Image Size Control feature is available only for the displays whose power status is ON.
- The Input source of MagicNet works only on MagicNet model.

## 6. Time Control

1. Click Time of the main icons and the Time Control screen appears.



▶ Info Grid shows some basic information necessary to Time Control.

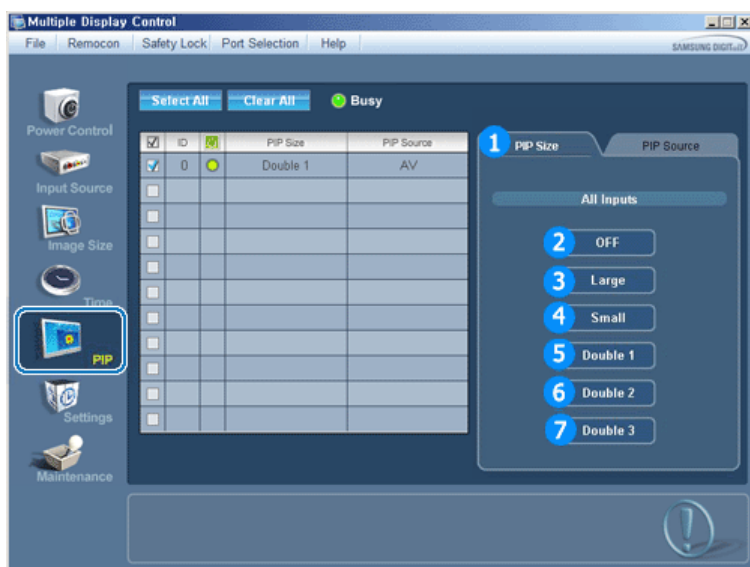
- 1) Current Time
  - Set the current time for the selected display (PC Time).
  - To change the current time, first change the PC Time.
- 2) On Time Setup
  - Set the hour, minute, AM/PM of On Time, Status, Source, volume of the selected display.
- 3) Off Time Setup
  - Set the hour, minute, and AM/PM, Status for Off Timer of the selected display.
- 4) Shows the On Timer settings.
- 5) Shows the Off Timer settings.

- Time Control is available only for the displays for which the power status is ON.

- The Input source of MagicNet works only on MagicNet model.
- 

## 7. PIP Control - PIP Size

1. Click PIP of the main icons and the PIP control screen appears.  
Click Select All or use Check Box to select a display to control.

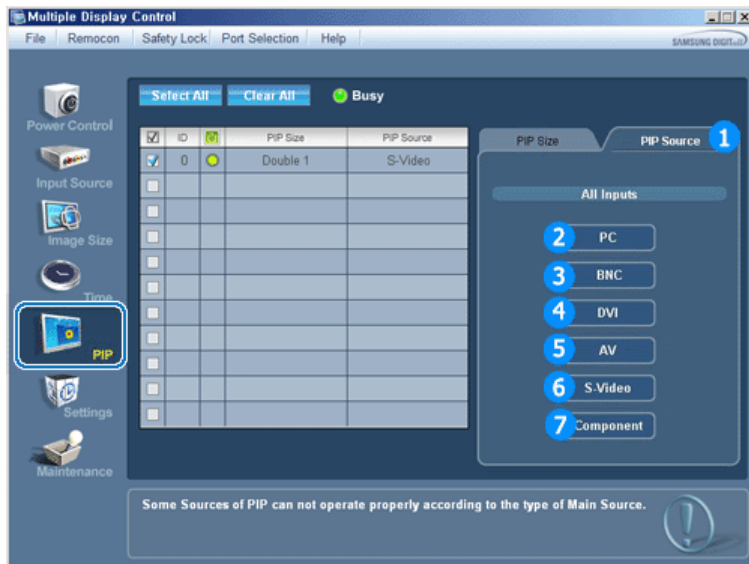


- ▶ Info Grid shows some basic information necessary to PIP Size Control.

- 1) PIP Size
    - Shows the current PIP Size of the display in use.
  - 2) OFF
    - Turns off the PIP of the selected display.
  - 3) Large
    - Turns on the PIP of the selected display and changes the size to Large.
  - 4) Small
    - Turns on the PIP of the selected display and changes the size to Small.
  - 5) Double1
    - Turns on the PIP of the selected display and changes the size to Double 1.
  - 6) Double2
    - Turns on the PIP of the selected display and changes the size to Double 2.
  - 7) Double3 (Picture By Picture)
    - Turns on the PIP of the selected display and changes the size to Double 3.
- **PIP Size can be controlled with turning on the monitor power.**
  - **The Input source of MagicNet works only on MagicNet model.**
- 

## 7. PIP Control - PIP Source

1. Click PIP of the main icons and the PIP control screen appears.



► Info Grid shows some basic information necessary to PIP Source Control.

- 1) PIP Source
  - PIP Source can be controlled with turning on the monitor power.
- 2) PC
  - Changes the source of the PIP of the selected display to PC.
- 3) BNC
  - Changes the source of the PIP of the selected display to BNC.
- 4) DVI
  - Changes the source of the PIP of the selected display to DVI.
- 5) AV
  - Changes the source of the PIP of the selected display to AV.
- 6) S-Video
  - Changes the source of the PIP of the selected display to S-Video.
- 7) Component
  - Changes the source of the PIP of the selected display to Component.



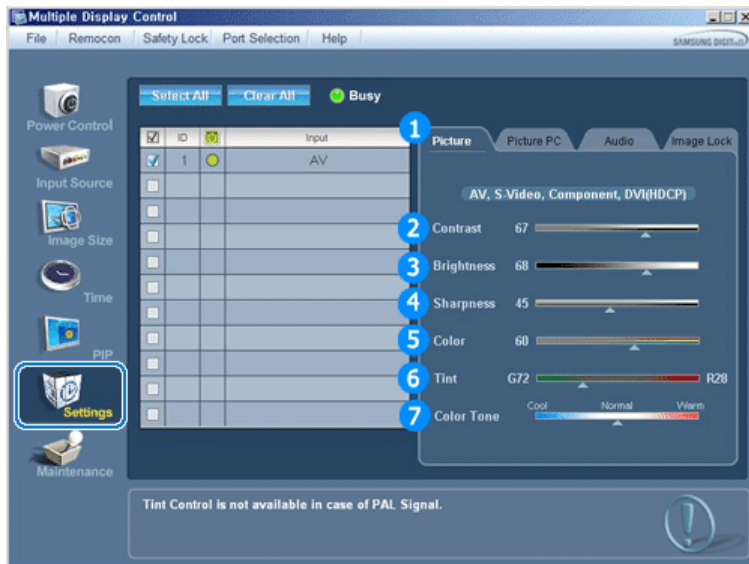
**Some of the PIP Sources may not be available for selection depending on the input source type of the Main Screen.**

- **The PIP Control feature is available only for the displays whose power status is ON and the PIP function is set to ON.**
- **The Input source of MagicNet works only on MagicNet model.**

## 8. Settings Control - Picture

1. Click Settings of the main icons and the Settings Control screen appears.





- ▶ Info Grid shows some basic information necessary to Settings Control. When each function is selected, the set value of the selected function is displayed in the slide. When Select All is selected, the default value (50) returns. Changing a value in this screen will automatically change the mode to "CUSTOM."

- 1) Picture
    - Available only for AV, S-Video, Component, DVI(HDCP).
  - 2) Contrast
    - Adjusts Contrast of the selected display.
  - 3) Brightness
    - Adjusts Brightness of the selected display.
  - 4) Sharpness
    - Adjusts Sharpness of the selected display.
  - 5) Color
    - Adjusts Color of the selected display.
  - 6) Tint
    - Adjusts Tint of the selected display.
  - 7) Color Tone
    - Adjusts Color Tone of the selected display.
- **This feature is available only for the displays whose power status is ON and if no selection is made, the factory default is displayed.**
  - **The Input source of MagicNet works only on MagicNet model.**

## 8. Settings Control - Picture PC

1. Click Settings of the main icons and the Settings Control screen appears.



- ▶ Info Grid shows some basic information necessary to Settings Control. When each function is selected, the set value of the selected function is displayed in the slide. When Select All is selected, the default value (50) returns. Changing a value in this screen will automatically change the mode to "CUSTOM."

- 1) Picture PC
  - Available only for PC, BNC, DVI.
- 2) Contrast
  - Adjusts Contrast of the selected display.
- 3) Brightness
  - Adjusts Brightness for the selected display.
- 4) Red
  - Adjusts red Color of the selected display.
- 5) Green
  - Adjusts green Color of the selected display.
- 6) Blue
  - Adjusts blue Color of the selected display.

- **This feature is available only for the displays whose power status is ON and if no selection is made, the factory default is displayed.**
- **The Input source of MagicNet works only on MagicNet model.**

## 8. Settings Control - Audio

1. Click Settings of the main icons and the Settings Control screen appears.



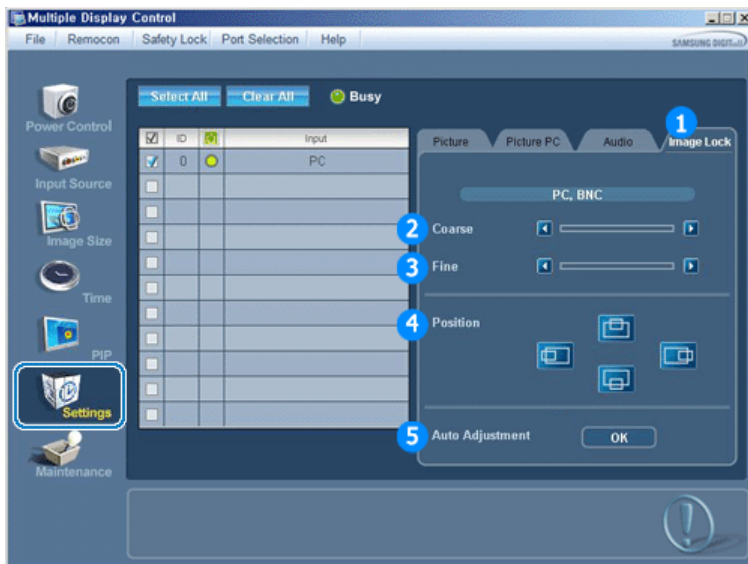
- ▶ Info Grid shows some basic information necessary to Settings Control. When each function is selected, the set value of the selected function is displayed in the slide.

When Select All is selected, the default value (50) returns.  
Changing a value in this screen will automatically change the mode to "CUSTOM."

- 1) Audio
    - Controls audio settings for all input sources.
  - 2) Bass
    - Adjusts Bass of the selected display.
  - 3) Treble
    - Adjusts Treble of the selected display.
  - 4) Balance
    - Adjusts Balance of the selected display.
  - 5) Dolby Virtual
    - Dolby Virtual Sound On/Off of the selected display.
  - 6) BBE
    - BBE Sound On/Off of the selected display.
  - 7) Sound Select
    - Select either Main or Sub when PIP is On.
- **This feature is available only for the displays whose power status is ON and if no selection is made, the factory default is displayed.**
  - **The Input source of MagicNet works only on MagicNet model.**
- 

## 8. Settings Control - Image Lock

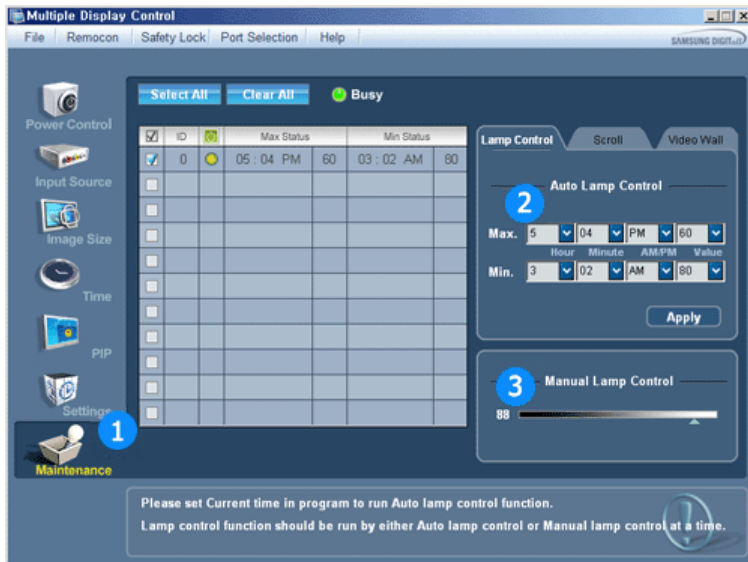
1. Click Settings of the main icons and the Settings Control screen appears.



- ▶ Info Grid shows some basic information necessary to Settings Control.
- 1) Image Lock
    - Available only for PC, BNC.
  - 2) Coarse
    - Adjusts Coarse of the selected display.
  - 3) Fine
    - Adjusts Fine of the selected display.
  - 4) Position
    - Adjusts Position of the selected display.
  - 5) Auto Adjustment
    - Self-Adjust to the incoming PC signal.
- **Settings Control is available only for the displays for which the power status is ON.**
  - **The Input source of MagicNet works only on MagicNet model.**
- 

## 9. Maintenance Control - Lamp Control

1. Click on the "Maintenance" icon in the Main Icon column to display the Maintenance screen.



► An "Info Grid" showing several basic data items appears.

1) Maintenance

- Allows Maintenance Control for all input sources.

2) Auto Lamp Control

- Automatically adjusts the backlight of the selected display at a specified time.

- The Auto Lamp Control automatically turns off if you adjust using the Manual Lamp Control.

3) Manual Lamp Control

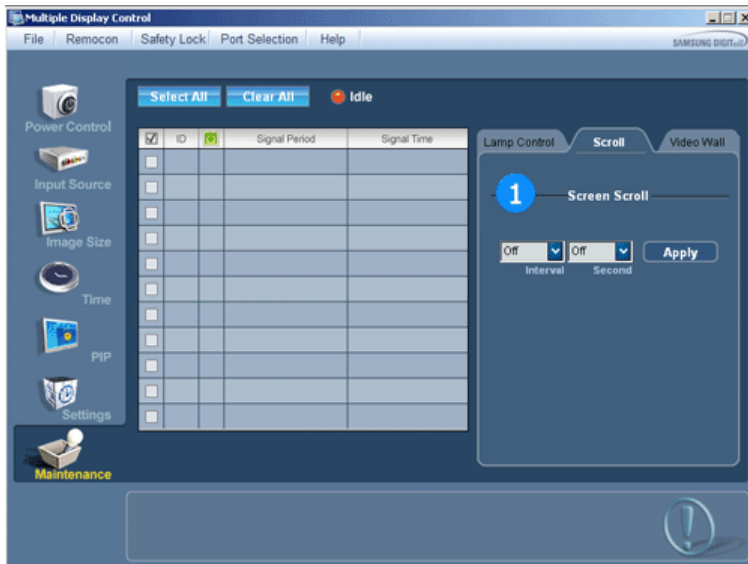
- Allows you to adjust the backlight of the selected display regardless of the time.

The Auto Lamp Control automatically turns off if you adjust using the Manual Lamp Control function.

- **The Maintenance Control feature is available only for the displays whose power status is ON.**
- **The Input source of MagicNet works only on MagicNet model.**

## 10. Maintenance Control - Scroll

1. Click on the "Maintenance" icon in the Main Icon column to display the Maintenance screen.



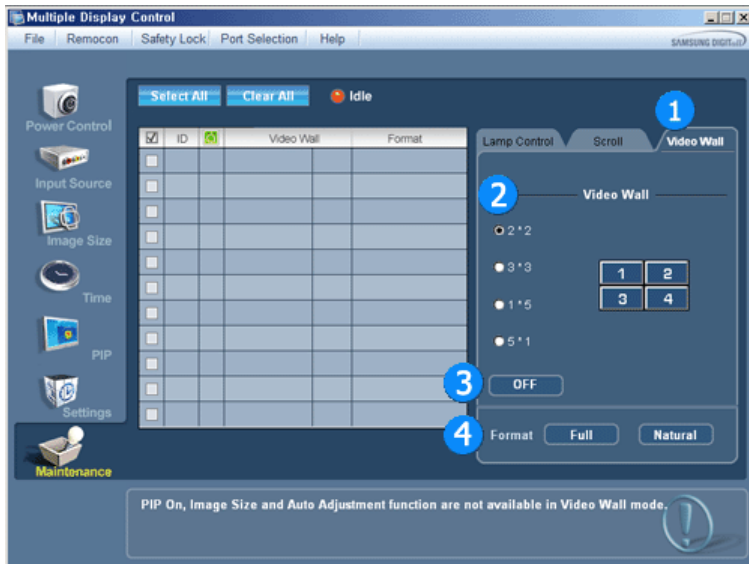
1) Screen Scroll

Eliminates the afterimages that can result when the selected display stays in Pause mode for an extended period of time. You can set the repeat cycle timer by selecting the "Interval" by hour and "Second" by second.

- **The Maintenance Control feature is available only for the displays whose power status is ON.**
- **The Input source of MagicNet works only on MagicNet model.**

## 11. Maintenance Control - Video Wall

1. Click on the "Maintenance" icon in the Main Icon column to display the Maintenance screen.



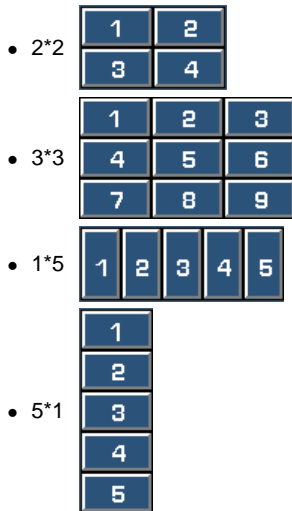
1) Video Wall

- A video wall is a set of video screens that are connected together, so that each screen shows a part of the whole picture or so that the same picture is repeated on each screen.

2) Screen Divider

- The screen can be divided into.  
You can select a number of screens with a different layout when dividing.

- Select a mode from Screen Divider.
- Select a display from Display Selection.
- The place will be set up by pressing a number in the selected mode..

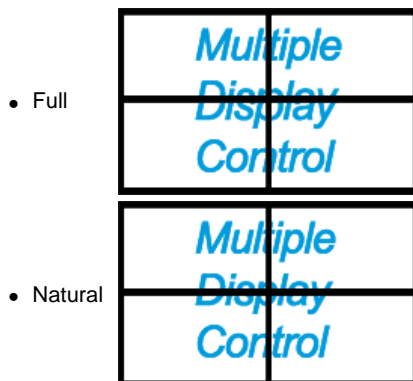


3) On / Off

- Turns on/off the Video Wall function of the selected display.

4) Format

- The format can be selected to see a divided screen.



- The Maintenance Control function is available only for the displays where the power status is ON.
  - The Input source of MagicNet works only on MagicNet model.
- 

## 12. Troubleshooting

1. The display you wish to control does not appear on the Power Control Info Grid
  - Check the connection of RS232C. (Check if it is properly connected to the Com1 port)
  - Check the displays to see if any of the other displays connected have the same ID. If more than one displays have the same ID, those displays are not properly detected by the program due to data conflict.
  - Check if the Display Set ID is a number between 1 and 10. (Adjust using the Display menu)



A Display Set ID must be a value between 1 and 10.  
If the value is out of the range, the MDC system cannot control the display.

2. The display you wish to control does not appear on the other Control Info Grids
  - Check to see if the display power is ON. (You can check this in Power Control Info Grid)
  - Check if you can change the input source of the display.
3. The dialogue box appears repeatedly.
  - Check to see if the display you wish to control is selected.
4. Both On Timer and Off Timer have been set but different time is showing.
  - Apply current time to synchronize the display clocks.
5. The remote may not function properly when you turn off the remote Function, disconnect the RS-232C cable, or exit the program in an Irregular manner. Rerun the program and turn the remote function again to Restore normal functions.



This program may malfunction due to problems in communication circuits or interference from electronic appliances nearby.



---

## 13. Settings Value Display In Multiple Display Mode

- ▶ When there are more than one displays connected, the settings values are displayed as follows.
1. No selection: Displays the Factory Default Value.
  2. Selected one display: Fetches and displays the settings value for the selected display.
  3. Selected one display (ID1) and add another display (ID3): The program, which was displaying the settings value of ID 1, fetches and displays the value of ID3.
  4. Selected all sets using Select All: Returns to the Factory Default Value.
- 



### Natural Color

- Natural Color Software Program



One of the recent problems in using a computer is that the color of the images printed out by a printer or other images scanned by a scanner or a digital camera are not the same as those shown on the monitor.

The Natural Color S/W is the very solution for this problem. It is a color administration system developed by Samsung Electronics in association with Korea Electronics & Telecommunications Research Institute (ETRI).

This system is available only for Samsung monitors and makes the color of the images on the monitor the same as the printed or scanned images.

For more information, refer to Help (F1) in the software program.

#### **How to install the Natural Color software**

Insert the CD included with the Samsung monitor into the CD-ROM Drive. Then, the initial screen of the program Natural Color will be executed. Click Natural Color on the initial screen to install the Natural Color software.

To install the program manually, insert the CD included with the Samsung monitor into the CD-ROM Drive, click the [Start] button of Windows and then select [Execute].

Enter D:\color\engl\setup.exe and then press the <Enter> key.

(If the drive where the CD is inserted is not D:\, enter the applicable drive.)

#### **How to delete the Natural Color software program**

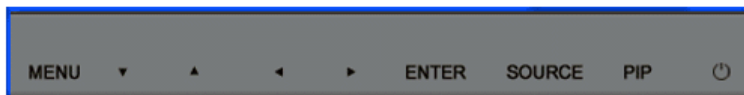
Select "**Setting**" / "**Control Panel**" on the "**Start**" menu and then double-click "**Add/Delete a program**".

Select Natural Color from the list and then click the [Add/Delete] button.







## Input



Available Mode    **P** : PC / BNC / DVI    **A** : AV    **S** : S-Video    **C** : Component

OSD	Description	Play
<b>Source List</b>	<p>Use to select PC, BNC or other external input sources connected to the Monitor. Use to select the screen of your choice.</p> <p><b>- The direct button on the remote control is 'SOURCE' button.</b></p> <p> <b>The PIP turns off when the monitor is switched to an external source.</b></p> <ol style="list-style-type: none"> <li>1) PC</li> <li>2) BNC</li> <li>3) DVI</li> <li>4) AV</li> <li>5) S-Video</li> <li>6) Component</li> </ol>	
<b>PIP</b>	<p>When external A/V devices such as VCRs or DVDs are connected to the monitor, PIP allows you to watch video from those devices in a small window super-imposed on the PC</p>	



Video signal. (Off/On)



**More than one PIP couldn't be overlapped on screen as BNC and the component use the same terminal.**

#### 1) PIP

- The direct button on the remote control is '**PIP**' button.

Off

On

: Turn the PIP Screen on or off.

#### 2) Source

- The direct button on the remote control is '**SOURCE**' button.

**PC / DVI**

: AV / S-Video / Component Mode

**BNC**

: AV / S-Video Mode

**AV / S-Video**

: PC / BNC / DVI Mode

**Component**

: PC / DVI Mode

: Select the input source for the PIP.

#### 3) Swap

- The direct button on the remote control is '**SWAP**' button.

: Swapping the contents of the PIP and main image.

The image in the PIP window will appear on the main screen, and the main screen image will appear in the PIP window.

#### 4) Size

- The direct button on the remote control is '**SIZE**' button.

: Change the Size of the PIP window.

If you select in Size, Position and Transparency will not be activated.

#### 5) Position

: Change the Position of the PIP window.

#### 6) Transparency

**High**

**Medium**

**Low**

**Opaque**

: Adjust the Transparency of PIP windows.

**Available Mode : PIP**



#### Edit Name

Name the input device connected to the input jacks to make your input source selection easier.

1) **PC**

2) **BNC**

3) **DVI**

4) **AV**

5) **S-Video**

6) **Component**









## Picture

**PC / BNC / DVI Mode**



Available Mode **P** : PC / BNC / DVI **A** : AV **S** : S-Video **C** : Component





OSD	Description	Play
<b>MagicBright™</b>	<p>MagicBright™ is a new feature providing the optimum viewing environment depending on the contents of the image you are watching.</p> <p>Currently four different modes are available: Entertain, Internet, Text and Custom.</p> <p>Each mode has its own pre-configured brightness value. You can easily select one of four settings by simply pressing the MagicBright™ control button.</p> <p><b>- The direct button on the remote control is 'M/B' button.</b></p> <p><b>1) Entertain</b> : High brightness For watching motion pictures such as a DVD or VCD.</p> <p><b>2) Internet</b> : Medium brightness For working with a mixture of images such as text and graphics.</p> <p><b>3) Text</b> : Normal brightness For documentations or works involving heavy text.</p> <p><b>4) Custom</b> Although the values are carefully chosen by our engineers, the pre-configured values may not be comfortable to your eyes depending on your taste. If this is the case, adjust the brightness and contrast by using the OSD menu.</p>	
<b>Custom</b>	<p>You can use the on-screen menus to change the contrast and brightness according to personal preference.</p> <p><b>1) Contrast</b> : Adjust the Contrast.</p> <p><b>2) Brightness</b> : Adjust the Brightness.</p>	
<b>If you adjust picture using Custom function, MagicBright will turn to Custom mode.</b>		
<b>Color Tone</b>	<p>The tone of the color can be changed.</p> <p><b>1) Cool</b> <b>2) Normal</b> <b>3) Warm</b> <b>4) Custom</b></p>	
<b>Color Control</b>	<p>Adjust the individual R, G, B color controls.</p> <p><b>1) Red</b> <b>2) Green</b></p>	











	<b>3) Blue</b>	
 <b>If you adjust picture using Color Control function, Color Tone will turn to Custom mode.</b>		
<b>Image Lock</b>	<p>Image Lock is used to fine-tune and get the best image by removing noise that creates unstable images with jitter and shimmer. If satisfactory results are not obtained using the Fine adjustment, use the Coarse adjustment and then use Fine again.</p> <p><b>1) Coarse</b> : Removes noise such as vertical stripes. Coarse adjustment may move the screen image area. You may relocate it to the center using the horizontal control menu.</p> <p><b>2) Fine</b> : Removes noise such as horizontal stripes. If the noise persists even after fine tuning, repeat it after adjusting the frequency (clock speed).</p> <p><b>3) Position</b> : Adjusts the screen location horizontally and vertically.</p>	<p>1) Coarse / Fine 3) Position</p> 
<b>Auto Adjustment</b>	<p>The values of Fine, Coarse, position are adjusted automatically. If you change resolution in the control panel, auto function will be executed. <b>- The direct button on the remote control is 'AUTO' button.</b></p>	
<b>Signal Balance</b>	<p>Used to make up for the weak RGB signal which has been transmitted by a long signal cable.</p> <p><b>1) Signal Balance</b> You can select with the signal control either On or Off.</p> <p><b>2) Signal Control</b> You can adjust the R Phase, G Phase, B Phase, Gain and Sharpness manually.</p>	<p>1) Signal Balance 2) Signal Control</p> 
<b>Size</b>	<p>You can switch the Size.</p> <p><b>1) 16:9</b> <b>2) 4:3</b></p>	
<b>PIP Picture</b>	<p>You can adjust the PIP Screen Settings.</p> <p><b>1) Contrast</b> : Adjusts the Contrast of the PIP window on the screen.</p> <p><b>2) Brightness</b> : Adjusts the Brightness of the PIP window on the screen.</p> <p><b>3) Sharpness</b> : Adjusts the difference between the lightest and darkest areas of the PIP window.</p> <p><b>4) Color</b> : Adjusts the Color of the PIP window on the screen.</p> <p><b>5) Tint</b> : Adds a natural tone to the PIP window.</p> <p><b>Available Mode : PIP</b></p>	

● **AV / S-Video / Component Mode**



Available Mode    **P** : PC / BNC / DVI    **A** : AV    **S** : S-Video    **C** : Component

OSD	Description	Play
<b>Mode</b>	<p>The Monitor has four automatic picture settings ("Dynamic", "Standard", "Movie" and "Custom") that are preset at the factory.</p> <p>You can activate either Dynamic, Standard, Movie, or Custom. You can select "Custom" which automatically recalls your personalized picture settings.</p> <p><b>- The direct button on the remote control is 'P.MODE' button.</b></p> <ol style="list-style-type: none"> <li>1) <b>Dynamic</b></li> <li>2) <b>Standard</b></li> <li>3) <b>Movie</b></li> <li>4) <b>Custom</b></li> </ol>	
<b>Custom</b>	<p>You can use the on-screen menus to change the contrast and brightness according to personal preference.</p> <ol style="list-style-type: none"> <li>1) <b>Contrast</b> : Adjusts the Contrast.</li> <li>2) <b>Brightness</b> : Adjusts the Brightness.</li> <li>3) <b>Sharpness</b> : Adjust the picture sharpness.</li> <li>4) <b>Color</b> : Adjust the picture color.</li> <li>5) <b>Tint</b> ( Available in AV/S-Video Mode Only ) : Adds a natural tone to the display.</li> </ol>	
<b>Color Tone</b>	<p>The tone of the color can be changed. The individual color components are also user adjustable.</p> <ol style="list-style-type: none"> <li>1) <b>Cool2</b></li> <li>2) <b>Cool1</b></li> <li>3) <b>Normal</b></li> <li>4) <b>Warm1</b></li> <li>5) <b>Warm2</b></li> </ol>	
<b>Size</b>	<p>You can switch the Size.</p> <ol style="list-style-type: none"> <li>1) <b>16:9</b></li> <li>2) <b>Panorama</b></li> <li>3) <b>Zoom 1</b></li> <li>4) <b>Zoom 2</b></li> <li>5) <b>4:3</b></li> </ol> <p>- ZOOM1, ZOOM2, Panorama are not available in 1080i(or over 720p) of DTV.</p>	
<b>Digital NR</b>	<p>- Digital Noise Reduction.</p> <p>You can turn the Noise Elimination feature Off/On.</p> <p>The Digital Noise Elimination feature allows you to enjoy</p>	













	clearer and crisper images. <ul style="list-style-type: none"> <li> Off</li> <li> On</li> </ul>	
<b>Film Mode</b>	You can turn Film Mode Off/On. The Film Mode feature offers you a theater-quality viewing experience. <ul style="list-style-type: none"> <li> Off</li> <li> On</li> </ul>	
<b>DNle Demo</b>	- Digital Natural Image engine Samsung's new technology brings you more detailed images with contrast and white enhancement and 3D noise reduction. A New image compensation algorithm gives brighter, clearer images to our customers. DNle technology will match every signal to your eyes.  You can compare a screen with DNle to that without DNle. The left half will show an image with DNle while the right half will display the image without DNle. <b>This monitor supports the DNle feature by default.</b> <ul style="list-style-type: none"> <li> Off : Switches off the DNle Demo mode.</li> <li> On : Switches on the DNle Demo mode.</li> </ul>	
<b>PIP Picture</b>	You can adjust the PIP Screen Settings. <b>1) Contrast</b> : Adjusts the Contrast of the PIP window on the screen. <b>2) Brightness</b> : Adjusts the Brightness of the PIP window on the screen.  <b>Available Mode : PIP</b>	

[Input](#) | [Picture](#) | [Sound](#) | [Setup](#) | [Multi Control](#) | [Direct Functions](#)

## Sound



Available Mode    **P** : PC / BNC / DVI    **A** : AV    **S** : S-Video    **C** : Component













OSD	Description	Play
<b>Mode</b>	<p>The Monitor has a built-in high fidelity stereo amplifier.</p> <p><b>1) Standard</b> : Choose Standard for the standard factory settings.</p> <p><b>2) Music</b> : Choose Music when watching music videos or concerts.</p> <p><b>3) Movie</b> : Choose Movie when viewing movies.</p> <p><b>4) Speech</b> : Choose Speech when watching a show that is mostly dialogue (i.e., news).</p> <p><b>5) Custom</b> : Choose Custom if you want to adjust the settings according to personal preference.</p>	
<b>Custom</b>	<p>The sound settings can be adjusted to suit your personal preference.</p> <p><b>1) Bass</b> : Emphasize low frequency audio.</p> <p><b>2) Treble</b> : Emphasize high frequency audio.</p> <p><b>3) Balance</b> : Allows you to adjust the sound balance between the left and right speakers. - <b>You can hear the sound even when the sound value is set to 0.</b></p>	
<b>Dolby Virtual</b>	<p>Dolby Virtual Sound Off/On (Dolby Virtual simulates the effect of the Dolby Surround sound system, recreating the movie-theatre or concert-hall- quality sound.)</p> <p> Off</p> <p> On</p>	
<b>BBE</b>	<p><b>The direct button on the remote control is 'BBE' button.</b></p> <p>BBE (Bass Booster Effect) recreates the natural sound and improves sound clarity through boosting high and low range frequencies. As a result, high sounds are clearer, brilliant and finely detailed while low sounds are tight, well-defined and harmonically rich.</p> <p> Off</p> <p> On</p>	
 <b>BBE and Dolby Virtual cannot be functioned at the same time.</b>		
<b>Sound Select</b>	<p>You can select either Main or Sub when PIP is On.</p> <p> Main</p> <p> Sub</p> <p><b>Available Mode : PIP</b></p>	




























## Setup





Available Mode **P** : PC / BNC / DVI **A** : AV **S** : S-Video **C** : Component

OSD	Description	Play
<b>Time</b>	<p>Use to choose one of 4 time settings, Clock Set, Sleep Timer, On Timer, and Off Timer.</p> <p><b>1) Clock Set</b> : Current Time Setting.</p> <p><b>2) Sleep Timer</b> : Use to set the Monitor to turn off automatically in certain minutes. (Off, 30, 60, 90, 120, 150, 180)</p> <p><b>3) On Timer</b> : Use to set the Monitor to turn on automatically at a preset time. Use to control the mode, volume level at the time the monitor turns on automatically.</p> <p><b>4) Off Timer</b> : Use to set the monitor to turn off automatically at a preset time.</p> <p> When you select turning <b>Yes</b> the <b>On Timer</b> or <b>Off Timer</b> when <b>Clock Set</b> is undefined, a guiding message pops up: <b>"Set the clock first."</b></p>	<p>1) Clock Set </p> <p>2) Sleep Timer </p> <p>3) On Timer </p> <p>4) Off Timer </p> <p><b>PASC</b></p>
<b>Lamp Control</b>	Used to adjust inverter lamp in order to reduce energy consumption.	
<b>Language</b>	<p>You can choose one of 11 languages.</p> <ul style="list-style-type: none"> <li>English, Deutsch, Español, Français, Italiano, Svenska, 日本語, 中国語, Русский, 한국어, Português</li> </ul> <p> The language chosen affects only the language of the OSD. It has no effect on any software running on the computer.</p>	
<b>Menu Transparency</b>	<p>Changes the opaqueness of the background of the OSD.</p> <p>1) High 2) Medium 3) Low 4) Opaque</p>	
<b>Safety Lock PIN</b>	You can change the password.	
<b>Reset</b>	<p>Picture parameters are replaced with the factory default values.</p> <p>1) Image Reset 2) Color Reset</p>	<p>1) Image Reset </p> <p>2) Color Reset </p>

<p><b>Video Wall</b></p>	<p>A video wall is a set of video screens that are connected together, so that each screen shows a part of the whole picture or so that the same picture is repeated on each screen.</p> <p><b>1) Video Wall</b> : Turns Off/On the Video Wall function of the selected display.</p> <ul style="list-style-type: none"> <li> Off</li> <li> On</li> </ul> <p><b>2) Format</b> : The format can be selected to see a divided screen.</p> <ul style="list-style-type: none"> <li> Full Provides a full screen without any margins.</li> <li> Natural Displays a natural image with the original aspect ratio intact.</li> </ul> <p><b>3) Screen Divider</b> : The screen can be divided into. You can select a number of screens with a different layout when dividing.</p> <ul style="list-style-type: none"> <li>• Select a mode from Screen Divider.</li> <li>• Select a display from Display Selection.</li> <li>• The place will be set up by pressing a number in the selected mode.</li> </ul> <ul style="list-style-type: none"> <li> 2*2</li> <li> 3*3</li> <li> 4*4</li> <li> 1*5</li> <li> 5*1</li> </ul> <p> <b>When Video Wall is running, the PIP, Auto Adjustment, Image Lock, and Size functions are not available. Launching Video Wall while PIP is running, will switch PIP Off.</b></p>	<p style="text-align: right;"><b>P</b></p> <p>1) Video Wall </p> <p>2) Format </p> <p>3) Screen Divider </p>
<p><b>Resolution Select</b></p>	<p>When the picture is not displayed properly on the screen when setting the graphics card resolution of the computer to 1024 x 768 @ 60Hz, 1280 x 768 @ 60Hz, 1360 x 768 @ 60Hz or 1366 x768 @ 60Hz, by using this function(Resolution Select) you can have the picture displayed on the screen in the specified resolution.</p> <ul style="list-style-type: none"> <li> Off</li> <li> 1024 X 768</li> <li> 1280 X 768</li> <li> 1360 X 768</li> <li> 1366 X 768</li> </ul> <p> <b>Selecting the menu is only allowed when the graphics resolution is set to 1024 x 768 @ 60Hz, 1280 x 768 @ 60Hz, 1360 x 768 @ 60Hz or 1366 x768 @ 60Hz.</b></p>	<p></p>
<p><b>Screen Scroll</b></p>	<p>The Screen Scroll function is used to prevent afterimages that may appear when a still picture is displayed on the screen over a long time.</p> <ul style="list-style-type: none"> <li>- The Screen Scroll function scrolls the screen for the specified period of time.</li> <li>- This function is not available when the power is turned off.</li> </ul> <p><b>1) Auto Scroll</b> : Determines whether to turn the Screen Scroll function On or Off.</p> <ul style="list-style-type: none"> <li> Off</li> <li> On</li> </ul> <p><b>2) Interval</b> : Determines the time interval to run the Screen Scroll operation. (1~10 Hours) The time is calculated on the basis of the power on time. By default, the time is set to 10 hours.</p> <ul style="list-style-type: none"> <li> 1~10 Hours</li> </ul>	<p>1) Auto Scroll </p> <p>2) Interval </p> <p>3) Second </p> <p></p>



### 3) Second

: Determines the time period to run the Screen Scroll operation.  
(1~5 Seconds)  
By default, the time is set to 5 seconds.



1~5 Seconds

Input | Picture | Sound | Setup | **Multi Control** | Direct Functions

## Multi Control



Available Mode    **P** : PC / BNC / DVI    **A** : AV    **S** : S-Video    **G** : Component





OSD	Description	Play
<b>Multi Control</b>	Assigns individual ID to the SET. <b>1) ID Setup</b> : Assigning distinctive IDs to the SET. <b>2) ID Input</b> : Use to select the transmitter functions of the individual SET. Only the SET whose ID corresponds to the transmitter setting becomes activated.	1) ID Setup  2) ID Input  <b>P A S C</b>

Input | Picture | Sound | Setup | **Multi Control** | Direct Functions

## Direct Functions



Available Mode    **P** : PC / BNC / DVI    **A** : AV    **S** : S-Video    **C** : Component

OSD	Description	Play
<b>MDC</b>	Move to the Multi Control OSD screen.	
<b>LOCK</b>	<p>Set the Safety Lock function.</p> <p><b>1) Lock On</b> : It will be locked on.</p> <p><b>2) Lock Off</b> : It will be locked off.</p> <p> <b>When setting the Lock function, you can only operate power and lock buttons on the remote control and set.</b></p> <p><b>The preset password on the monitor is "0000".</b></p>	<p>1) Lock On </p> <p>2) Lock Off </p>



## Self-Test Feature Check



Check the following items yourself before calling for service. Contact the [Service Center](#) for problems that you cannot solve by yourself.

[Self-Test Feature Check](#) | [Not Optimum Mode](#) | [Maintenance and Cleaning](#) | [Symptoms & Recommended Actions](#)

### 1. Self-Test Feature Check

Your monitor provides a self test feature that allows you to check whether your monitor is functioning properly.

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer.
3. Turn on the monitor.

The figure shown below ("Check Signal Cable") appears on a black background when the monitor is in its normal working condition though it does not sense any video signal: While in the Self-Test mode, the LED power indicator remains green and the figure moves around on the screen.

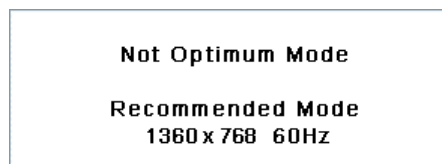


4. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.

If your monitor screen remains blank after using the previous procedure, check your video controller and computer system; **your monitor is functioning properly.**

### 2. Not Optimum Mode

You can view the screen even in more than 1360x768 resolution. However you will have the following message for a minute; You can choose to change the screen resolution or stay in the current mode during that time. And if the resolution is more than 85Hz, you will see the black screen because the monitor does not support over 85Hz.





Refer to Specifications > [Preset Timing Modes](#) for the resolutions or frequencies that are supported by the monitor.

### 3. Maintenance and Cleaning

1. Maintaining the Monitor Case.  
Clean with a soft cloth after disconnecting the power cord.



- Do not use benzene, thinner or other flammable substances, or a wet cloth.
- We recommend a Samsung cleansing agent is used to prevent damage to the screen.

2. Maintaining the Flat Panel Display Screen.  
Clean with a soft cloth (cotton flannel) smoothly.



- Never use acetone, benzene or thinner. (They may cause flaws or deformation of the screen surface.)
- The user will be required to pay costs and related expenses for repair of damages caused by him/her.

### 4. Symptoms and Recommended Actions



A monitor recreates visual signals received from the computer. Therefore, if there is trouble with the computer or the video card, this can cause the monitor to become blank, have poor coloring, noise, Video mode not supported, etc. In this case, first check the source of the problem, and then contact a [Service Center or your dealer](#).

1. Check if the power cord and the video cables are properly connected to the computer.
2. Check if the computer beeps more than 3 times when booting. (If it does, request an after-service for the main board of the computer.)
3. If you installed a new video card or if you assembled the PC, check if you installed the adapter(video) driver and the monitor driver.
4. Check if the scanning ratio of the video screen is set at 50Hz or 85Hz. (Do not exceed 60Hz when using the maximum resolution.)
5. If you have problems in installing the adapter (video) driver, boot the computer in Safe Mode, remove the Display Adapter at the "**Control Panel, System, Device Administrator**" and then reboot the computer to reinstall the adapter (video) driver.

[Self-Test Feature Check](#) | [Check List](#) | [Q & A](#)

#### Check List



The following table lists possible problems and their solutions. Before calling for service, check the information in this section to see if you can remedy any problems yourself. If you do need assistance, please call [the phone number on the Information section](#) or [contact your dealer](#).

[Problems related to Installation](#) | [Problems related to Screen](#) | [Problems related to Audio](#) | [Problems related to Remote Control](#)

#### 1. Problems related to Installation



Problems related to the monitor installation and their solutions are listed.

Problems	Solutions
The monitor screen flickers.	<ul style="list-style-type: none"> <li>• Check if the signal cable between the computer and the monitor is securely connected and tightened. (Refer to <a href="#">Connecting to a Computer</a>)</li> </ul>

#### 2. Problems related to Screen



Problems related to the monitor screen and their solutions are listed.

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Problems	Solutions
Screen is blank and power indicator is off	<ul style="list-style-type: none"> <li>Ensure that the power cord is firmly connected and the LCD monitor is on. (Refer to the <a href="#">Connecting the Monitor</a>)</li> </ul>
"Check Signal Cable" message	<ul style="list-style-type: none"> <li>Ensure that the signal cable is firmly connected to the PC or video sources. (Refer to the <a href="#">Connecting the Monitor</a>)</li> <li>Ensure that the PC or video sources are turned on.</li> </ul>
"Not Optimum Mode " message	<ul style="list-style-type: none"> <li>Check the maximum resolution and the frequency of the video adapter.</li> <li>Compare these values with the data in the <a href="#">Preset Timing Modes Chart</a>.</li> </ul>
Picture rolls vertically.	<ul style="list-style-type: none"> <li>Check if the signal cable is securely connected. Connect it again securely. (Refer to <a href="#">Connecting to a Computer</a>)</li> </ul>
Image is not clear. Picture is blurred.	<ul style="list-style-type: none"> <li>Run Frequency <a href="#">Coarse</a> and <a href="#">Fine</a> tuning.</li> <li>Turn on again after removing all accessories (video extension cable, etc.)</li> <li>Set resolution and frequency to the recommended ranges.</li> </ul>
Picture image is unstable and vibrates.	<ul style="list-style-type: none"> <li>Check if the resolution and frequency set for the computer video card falls in the range supported by the monitor. If not, reset them referring to the current <a href="#">Information</a> under the monitor menu and <a href="#">Preset Timing Modes</a>.</li> </ul>
Ghost images are shown in the picture.	
The image is too light or too dark	<ul style="list-style-type: none"> <li>adjust the brightness and contrast. (Refer to the <a href="#">Brightness, Contrast</a>)</li> </ul>
Screen color is inconsistent.	<ul style="list-style-type: none"> <li>Adjust color using <a href="#">Custom</a> under OSD Color Adjustment menu.</li> </ul>
Color image is distorted with dark shadows.	
White color is poor.	
Power Indicator blinks green.	<ul style="list-style-type: none"> <li>The monitor is currently saving the changes made in settings to the OSD memory.</li> </ul>
Screen is blank and power indicator light is steady green or blinks every 0.5 or 1 seconds	<ul style="list-style-type: none"> <li>The monitor is using its power management system.</li> <li>Press a key on the keyboard.</li> </ul>
The screen is blank and is blinking.	<ul style="list-style-type: none"> <li>If you see the "TEST GOOD" message on the screen when you press the MENU button, check the cable connection between the monitor and the computer to ensure that the connector is properly connected.</li> </ul>

### 3. Problems related to Audio



Problems related to audio signals and their solutions are listed below.

Problems	Solutions
No sound	<ul style="list-style-type: none"> <li>Ensure that the audio cable is firmly connected to both the audio-in port on your monitor and the audio-out port on your sound card. (Refer to the <a href="#">Connecting the Monitor</a>)</li> <li>Check the volume level. (Refer to the <a href="#">Volume</a>)</li> </ul>
Sound level is too low.	<ul style="list-style-type: none"> <li>Check the volume level. (Refer to the <a href="#">Volume</a>)</li> <li>If the volume is still too low after turning the control to its maximum, check the volume control on the computer sound</li> </ul>

	card or software program.
<b>Sound is too high pitched or too low pitched</b>	<ul style="list-style-type: none"> <li>Adjust the <a href="#">Treble</a> and <a href="#">Bass</a> to appropriate level.</li> </ul>

#### 4. Problems related to Remote Control



Problems related to the remote control and their solutions are listed.

Problems	Items to check
<b>The remote control buttons do not respond.</b>	<ul style="list-style-type: none"> <li>Check the battery polarities (+/-).</li> <li>Check if the batteries have been exhausted.</li> <li>Check if the power is on.</li> <li>Check if the power cord is securely connected.</li> <li>Check if a special fluorescent or neon lamp is on in the vicinity.</li> </ul>

[Self-Test Feature Check](#) | 
 [Check List](#) | 
 [Q & A](#)

#### Q & A

Question	Answer
<b>How can I change the frequency?</b>	<p>Frequency can be changed by reconfiguring the video card.</p> <p>Note that video card support can vary, depending on the version of the driver used. (Refer to the computer or the video card manual for details.)</p>
<b>How can I adjust the resolution?</b>	<ul style="list-style-type: none"> <li>Windows XP : Set the resolution at the Control Panel→Appearance and Themes→Display→Settings.</li> <li>Windows ME/2000 : Set the resolution at the Control Panel→Display→Settings. * Contact the video card manufacturer for details.</li> </ul>
<b>How can I set the Power Saving function?</b>	<ul style="list-style-type: none"> <li>Windows XP : Set the resolution at the Control Panel→Appearance and Themes→Display→Screen Saver . Set the function at BIOS-SETUP of the computer. (Refer to Windows/Computer Manual).</li> <li>Windows ME/2000 : Set the resolution at the Control Panel→Display→Screen Saver. Set the function at BIOS-SETUP of the computer. (Refer to Windows/Computer Manual).</li> </ul>
<b>How can I clean the outer case/LCD Panel?</b>	<p>Disconnect the power cord and then clean the monitor with a soft cloth, using either a cleaning solution or plain water.</p> <p>Do not leave any remains of the detergent nor scratch the case. Do not allow any water to go inside the monitor.</p>



**General**

**General**

Model Name SyncMaster 320P

**LCD Panel**

Size 32" Diagonal  
 Display area 697.685mm (H) x 392.256mm (V)  
 Pixel Pitch 0.511mm (H) x 0.511mm (V)  
 Type a-si TFT active matrix

**Synchronization**

Horizontal 30 ~ 70 kHz  
 Vertical 50 ~ 85 Hz

**Display Color**

16.7M Colors

**Resolution**

Optimum resolution 1360 x 768 / 1366 x 768 @ 60Hz depends on graphics card used  
 Maximum resolution 1366 x 768 @ 60Hz

**Input Signal, Terminated**

RGB Analog , DVI(Digital Visual Interface) Compliant Digital RGB.  
 0.7Vp-p ±5%, Positive bright, 75 ohms ±10%(Terminated),  
 Separate H/V sync, TTL level, positive or negative

**Maximum Pixel Clock**

100 MHz(Analog, Digital)

**Power Supply**

AC 100 ~ 240 VAC(+/- 10%), 60/50 Hz ± 3Hz

**Signal Cable**

15pin-to-15pin D-sub cable, detachable, 1.8m  
 DVI-D to DVI-D connector, detachable, 2.0m

**Signal Connectors**

D-sub, BNC, DVI-D, YPbPr, S-VHS, VCR



## Power Consumption

Less than 180W

## Power Saving

Less than 5W

## Dimensions (WxHxD)/ Weight

780 X 482 X 107 mm / 30.1 X 19.0 X 4.6 inch / 16.1kg

780 X 530 X 223 mm / 30.1 X 20.9 X 8.8 inch (With Stand) - Option

982 X 482 X 107 mm / 38.7 X 19.0 X 4.2 inch (With Speaker) - Option

982 X 530 X 223 mm / 38.7 X 20.9 X 8.8 inch (With Speaker, With Stand) - Option

## VESA Mounting Interface

200mm x 200mm (for use with Specialty(Arm) Mounting hardware.)

## Environmental considerations

Operating Temperature: 50°F ~ 104°F (10°C ~ 40°C)  
Humidity: 10% ~ 80%, non-condensing

Storage Temperature: -4°F ~113°F (-20°C ~ 45°C)  
Humidity: 5% ~ 95%, non-condensing

## Audio Characteristics

Audio Input 1 RCA Jack Red(R) White(L), 0.5Vrms (-9dB)

Audio Input 2 RCA Jack Red(R) White(L), 0.5Vrms (-9dB)

PC Audio Input 3.5ØStereo Jack, 0.5Vrms (-9dB)

Frequency RF: 80Hz ~ 15kHz (at -3dB)

Response A/V: 80Hz ~ 20kHz (at -3dB)

## Plug and Play Capability

This monitor can be installed on any Plug & Play compatible system. Interaction of the monitor and computer systems will provide the best operating conditions and monitor settings. In most cases, monitor installation will proceed automatically, unless the user wishes to select alternate settings.

## Dot Acceptable

TFT LCD panel manufactured by using advanced semiconductor technology with precision of 1ppm(one millionth) above is used for this product. But the pixels of RED, GREEN, BLUE and WHITE color seem to be bright sometimes or some of black pixels could be seen. This is not from bad quality and you can use it without uneasiness.

- For example, the number of TFT LCD sub pixels that is contained in this product are 3,133,440.



**Design and specifications are subject to change without prior notice.**

General | **PowerSaver** | Preset Timing Modes |

## PowerSaver

This monitor has a built-in power management system called PowerSaver. This system saves energy by switching your monitor into a low-power mode when it has not been used for a certain amount of time. The monitor automatically returns to normal operation when you press a key on the keyboard. For energy conservation, turn your monitor OFF when it is not needed, or when leaving it unattended for long periods. The PowerSaver system operates with a VESA DPMS compliant video card installed in your computer. Use a software utility installed on your computer to set up this feature.

State	Normal Operation	Power saving mode EPA	Power off (Power Switch)	Power off (Mechanical Power S/W)
Power Indicator	Green	Green, Blinking	Black	Black
Power Consumption	Less than 180W	Less than 5W (Off-mode)	Less than 1W (at 120Vac)	Less than 0W



## ● Preset Timing Modes

If the signal transferred from the computer is the same as the following Preset Timing Modes, the screen will be adjusted automatically. However, if the signal differs, the screen may go blank while the power LED is on. Refer to the video card manual and adjust the screen as follows.

**Table 1. Preset Timing Modes**

Display Mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	49.500	+/+
IBM, 640 x 350	31.469	70.086	25.175	+/-
IBM, 640 x 480	31.469	59.940	25.175	-/-
IBM, 720 x 400	31.469	70.087	28.322	-/+
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 640 x 480	43.269	85.008	36.000	-/-
VESA, 800 x 600	35.156	56.250	36.000	+,-/+,-
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 800 x 600	53.674	85.000	56.250	+/+
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, 1024 x 768	68.677	85.997	94.500	+/+
VESA, 1360 x 768	47.712	60.000	85.500	+/+

### Horizontal Frequency

The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle and the inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz



### Vertical Frequency

Like a fluorescent lamp, the screen has to repeat the same image many times per second to display an image to the user. The frequency of this repetition is called Vertical Frequency or Refresh Rate. Unit: Hz



## Service

The address and phone number of the company can be changed without previous notice.

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## Terms

### ● Sync Signal

Sync (Synchronized) Signals refer to the standard signals that are required to display desired colors on the monitor. They are divided into Vertical and Horizontal Sync Signals. These signals display normal color images by the set resolution and frequency.

#### Types of Sync Signals

Separate	This is a scheme of transmitting individual vertical sync signals to the monitor.
Composite	This is a scheme of combining vertical sync signals into one composite signal and transmitting it to the monitor. The monitor displays the color signals by separating the composite signal into original color signals.

### ● Dot Pitch

The image on a monitor is composed of red, green and blue dots. The closer the dots, the higher the resolution. The distance between two dots of the same color is called the 'Dot Pitch'. Unit: mm

### ● Vertical Frequency

The screen must be redrawn several times per second in order to create and display an image for the user. The frequency of this repetition per second is called Vertical Frequency or Refresh Rate. Unit: Hz

Example: If the same light repeats itself 60 times per second, this is regarded as 60 Hz.

### ● Horizontal Frequency

The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle. The inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

### ● Interlace and Non-Interlace Methods

Showing the horizontal lines of the screen from the top to the bottom in order is called the Non-Interlace method while showing odd lines and then even lines in turn is called the Interlace method. The Non-Interlace method is used for the majority of monitors to ensure a clear image. The Interlace method is the same as that used in TVs.

### ● Plug & Play

This is a function that provides the best quality screen for the user by allowing the computer and the monitor to exchange information automatically. This monitor follows the international standard VESA DDC for the Plug & Play function.

### ● Resolution

The number of horizontal and vertical dots used to compose the screen image is called 'resolution'. This number shows the accuracy of the display. High resolution is good for performing multiple tasks as more image information can be shown on the screen.

Example: If the resolution is 1360 X 768 , this means the screen is composed of 1360 horizontal dots (horizontal resolution) and 768 vertical lines (vertical resolution).

### ● Multiple Display Control (MDC)

A Multiple Display Control (MDC) is an application allowing various displays to be easily and simultaneously operated on a PC. RS-232C, a standard of serial communication, is used for the communication between a PC and a display.

## For Better Display

1. Adjust computer resolution and screen injection rate (refresh rate) on computer as described below to enjoy the best quality of picture. You can have an uneven quality of picture in the screen if the best quality of picture is not provided in TFT-LCD.
  - Resolution: 1360 x 768

- o Vertical frequency (refresh rate): 60 Hz
2. TFT LCD panel manufactured by using advanced semiconductor technology with precision of 1ppm (one millionth) above is used for this product. But the pixels of RED, GREEN, BLUE and WHITE color seem to be bright sometimes or some of black pixels could be seen. This is not from bad quality and you can use it without uneasiness.
    - o For example, the number of TFT LCD sub pixels that is contained in this product are 3,133,440
  3. When you clean the monitor and the panel outside, please apply the recommended small amount of cleaner by using soft and dry cloth and polish it. Let LCD area not to be forced but to be scrubbed out softly.  
If excessive force is applied, you can have a stain on it.
  4. If you are not satisfied with the quality of picture, you can get better quality of picture by executing "auto adjustment function" in display screen that is appeared as window termination button is pressed.  
If there's still noise after automatic adjustment, use FINE/COARSE adjustment function.
  5. If you view a fixed screen for an extended period of time, residual image or blurriness may appear. Change the mode to energy save or set a screensaver to moving picture when you need to be away from the monitor for an extended period of time.

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[Service](#) | [Terms](#) | [For Better Display](#) | [Authority](#) | [Image Retention Free](#) | [Correct Disposal](#) |

## Authority

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## PRODUCT INFORMATION (Image Retention Free)

LCD Monitors and TVs may have image retention when switching from one image to another especially after displaying a stationary image for a long time. This guide is to demonstrate correct usage of LCD products in order to protect them from Image retention.

### • What is Image retention ?

During normal operation of a LCD panel, pixel image retention doesn't occur. However, if the same image is displayed for a long time, a slight difference in electric charge accumulates between the two electrodes which encase the liquid crystal. This may cause the liquid crystal to build up in a certain areas of the display. Thus, the previous image is retained when switching to a new video image. All display products, including LCD, are subject to image retention. This is not a product defect.

Please follow the suggestions below to protect your LCD from image retention

### • Power Off, Screen Saver, or Power Save Mode

Ex)

- Turn the power off when using a stationary pattern.
  - Turn the power off for 4 hours after 24 hours in use
  - Turn the power off for 2 hours after 12 hours in use
- Use a Screen saver if possible
  - Screen saver in one color or a moving image is recommended.
- Set the Monitor to power off with the PC Display Properties Power Scheme.

### • Suggestions for specific applications

Ex) Airports, Transit Stations, Stock Markets, Banks, and Controlling Systems

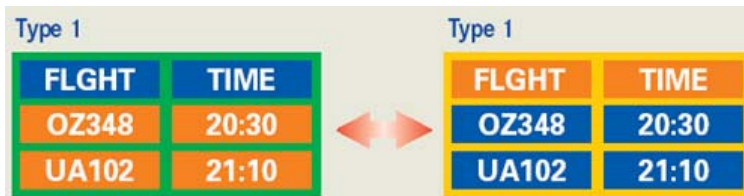
We recommend that you follow set up of your display system program as below:

### • Display Information together with Logo or Moving image cycle.

Ex) Cycle : Display Information for 1 hour followed by a Display Logo or moving image for 1 minute.

### • Change the Color Information periodically (Use 2 different colors).

Ex) Rotate the Color Information with 2 colors every 30 minutes.



Avoid using a combination of characters and background color with large difference in luminance.

Avoid using Grey colors, which can cause Image retention easily.

- Avoid: Colors with big difference in luminance (Black & White, Grey)

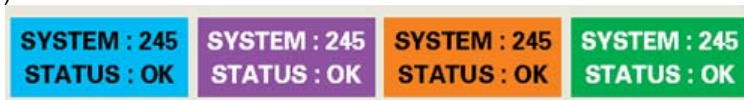
Ex)



- Recommended settings: Bright colors with little difference in luminance

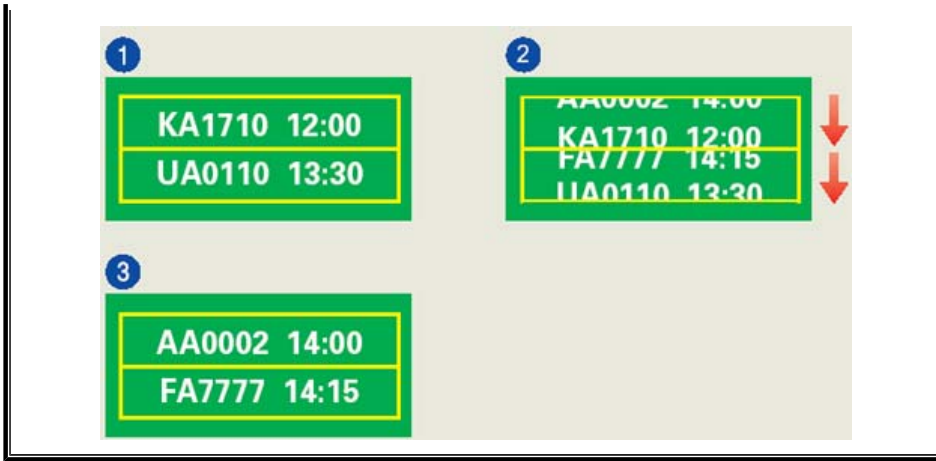
- Change the characters color and background color every 30 minutes

Ex)



- Every 30 minutes, change the characters with movement.

Ex)

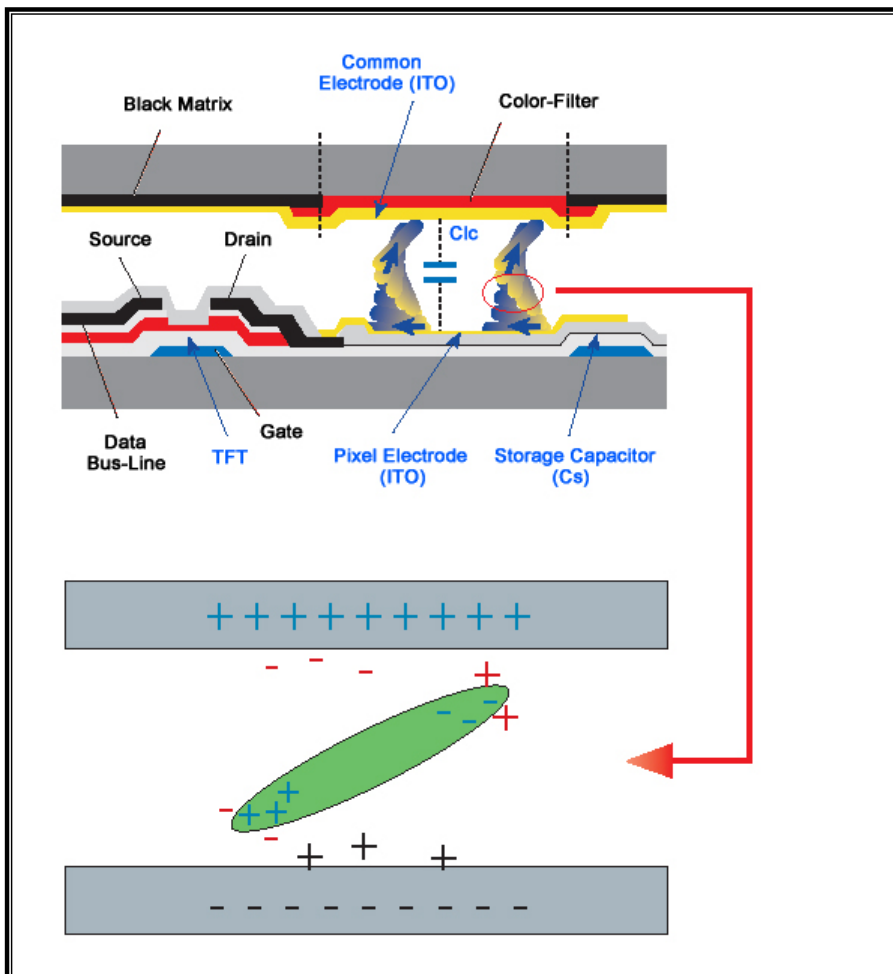


- The best way to protect your monitor from Image retention is to set your PC or System to operate a Screen Saver program when you are not using it.

Image retention may not occur when a LCD panel is operated under normal conditions.

Normal conditions are defined as continuously changing video patterns. When the LCD panel is operated for a long time with a fixed pattern (-over 12 hours-), there may be slight difference in voltage between electrodes that work the liquid crystal (LC) in a pixel. The voltage difference between electrodes increases with time, forcing the liquid crystal to lean. When this occurs, the previous image may be seen when the pattern is changed.

To prevent this, the accumulated voltage difference must be decreased.



- Our LCD Monitor satisfies ISO13406-2 Pixel fault Class II



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

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**(Applicable in the European Union and other European countries with separate collection systems)**

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it 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 this item for environmentally safe recycling.

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

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