

# User's Guide

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## M5201C

**M**ake sure to read the **Important Precautions** before using the product.

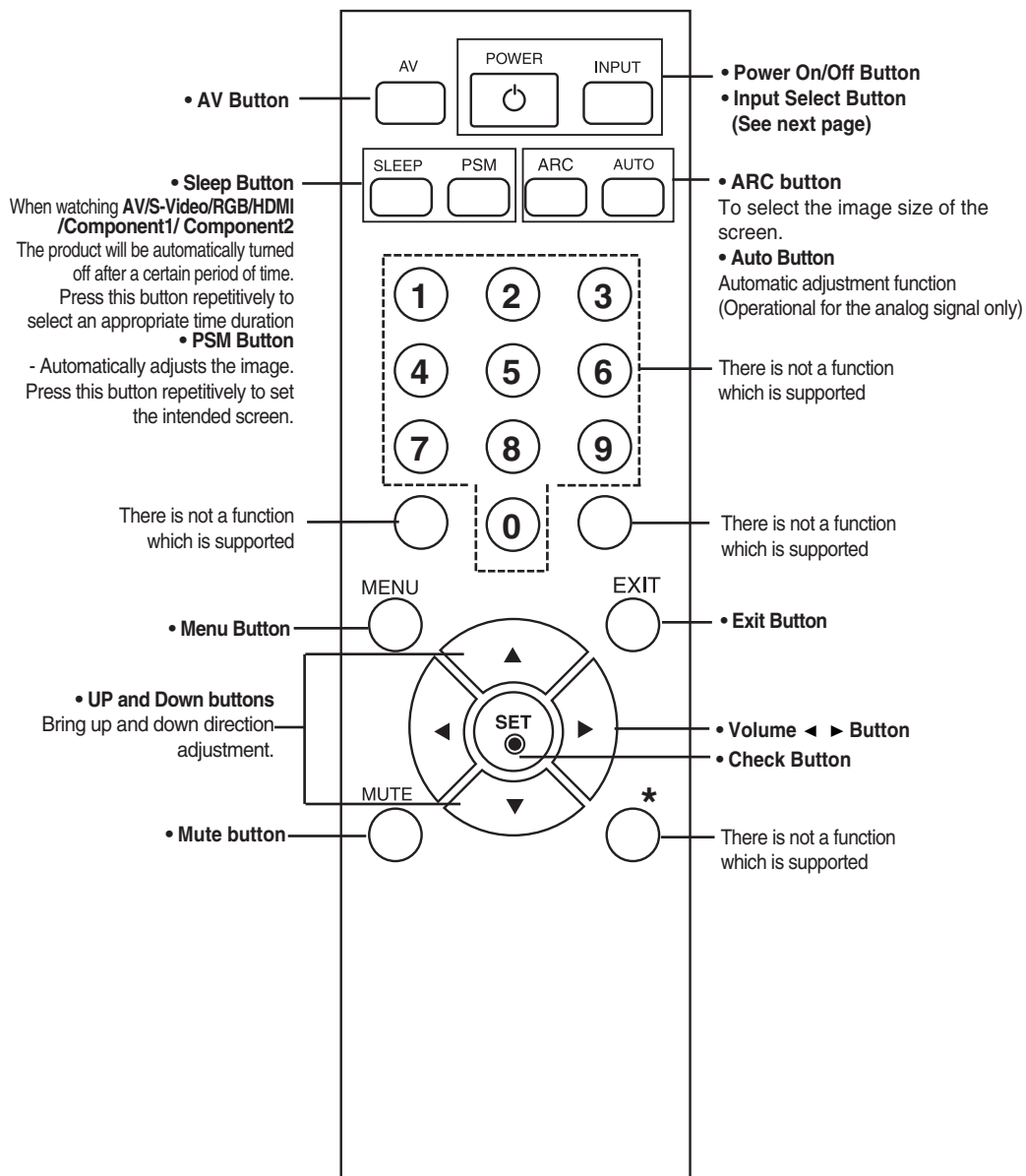
Keep the User's Guide(CD) in an accessible place for future reference.

**S**ee the label attached on the product and give the information to your dealer when you ask for service.



# Using the Remote Control

## ● Name of the Remote Control Buttons



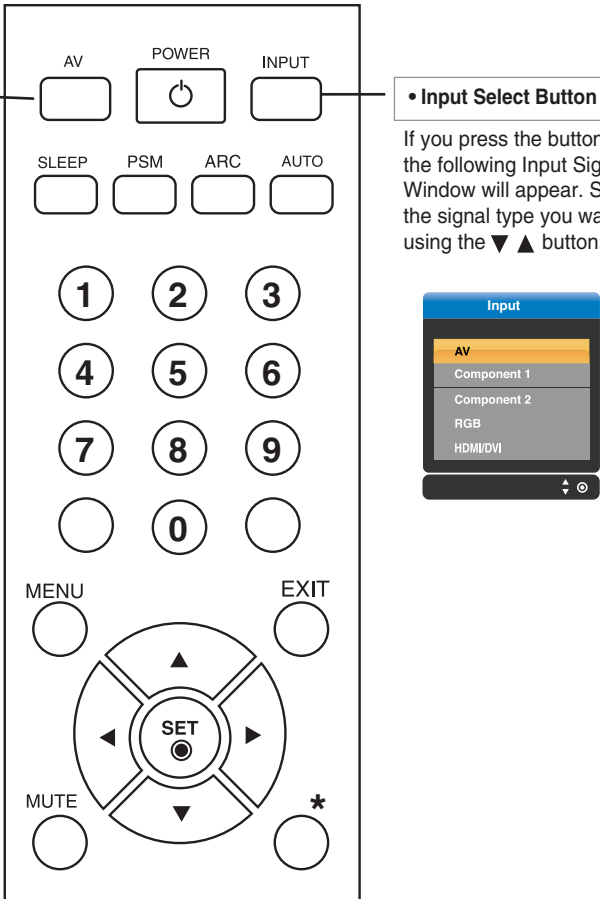
# Using the Remote Control

**• AV Button**

Each time you press the Input button it will change to  
AV → Component1 →  
Component2 → RGB →  
HDMI/DVI

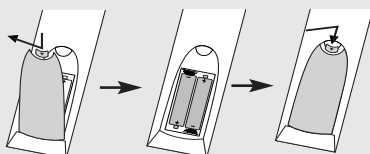
**• Input Select Button**

If you press the button once, the following Input Signal Window will appear. Select the signal type you want using the ▼ ▲ button.



The diagram shows a remote control with the following buttons: AV, POWER, INPUT, SLEEP, PSM, ARC, AUTO, a numeric keypad (1-0), MENU, EXIT, MUTE, SET, and \*. To the right is a screenshot of the 'Input' menu on a device screen, showing options: AV (highlighted), Component 1, Component 2, RGB, and HDMI/DVI.

## Inserting batteries into remote control.

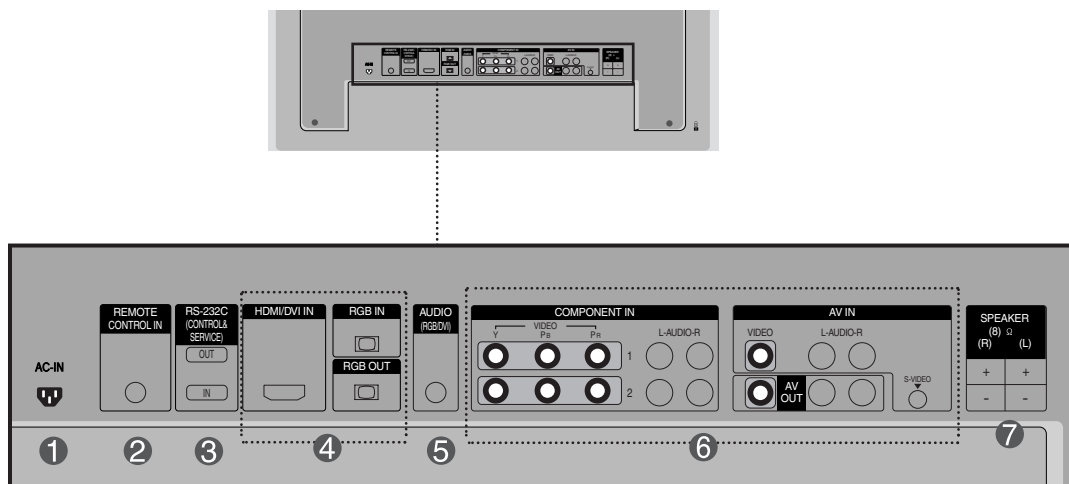


1. Take out the battery cap.
2. Insert the batteries with correct polarity (+/-).
3. Close the battery cap.
  - Dispose of used batteries in the recycle bin to prevent environmental pollution.

# Name and Function of the Parts

\* The product image in the user's guide could be different from the actual image.

## Rear View



- 1** Power Connector : Connect the power cord
- 2** Wired Remote Control Port
- 3** RS-232C Serial Ports
- 4** RGB, HDMI/DVI Ports
- 5** PC Sound Jack  
: Connect the audio cable to the \*LINE OUT jack of the PC sound card.
- 6** AV Ports
- 7** Speaker Ports

### \*LINE OUT

A terminal used to connect to the speaker including a built-in amplifier (Amp). Make sure that the connecting terminal of the PC sound card is checked before connecting. If the Audio Out of PC sound card has only Speaker Out, reduce the PC volume.

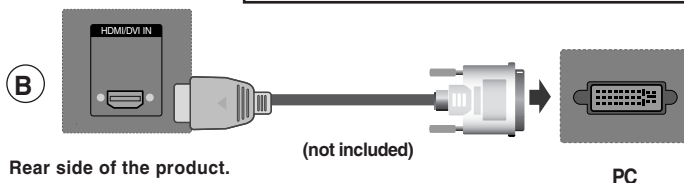
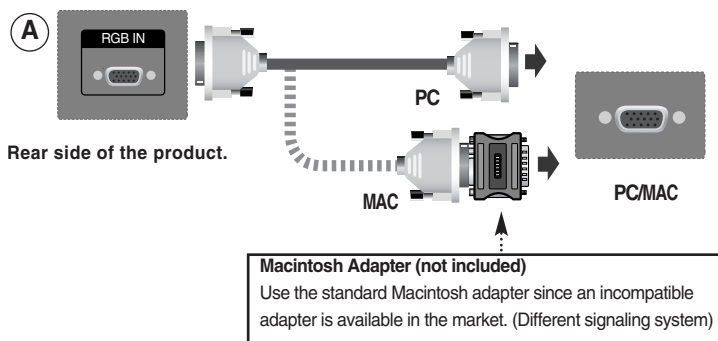
If the Audio Out of the PC sound card supports both Speaker Out and Line Out, convert to Line Out using the card jumper of the program (Refer to the Sound Card Manual).

# Connecting to External Devices

## ■ ■ ■ When Connecting to your PC

**1** First of all, see if the computer, product and the peripherals are turned off. Then, connect the signal input cable.

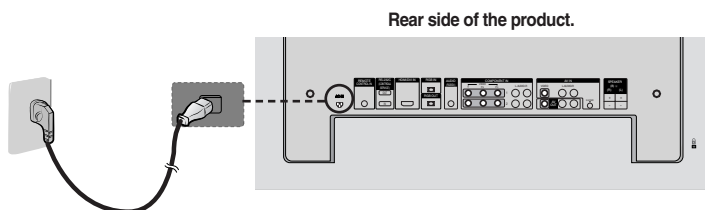
- A** When connecting with the D-Sub signal input cable.
- B** When connecting with the HDMI to DVI signal input cable (not included).



**2** Connect the Audio cable.



**3** Connect the power cord.



# Connecting to External Devices

- 4 ① Turn on power by pressing the power button on the product.



- ② Turn on the PC.

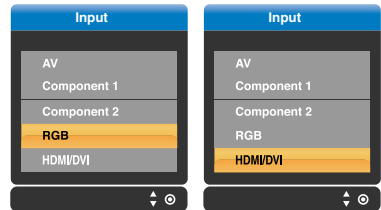
- 5 Select an input signal.  
Press the INPUT button on the remote control to select the input signal.

INPUT → ▼▲ → SET

Or, press the SOURCE button on the bottom of the product.

SOURCE → ▼▲ → AUTO/SET

- A When connecting with a D-Sub signal input cable.  
• Select **RGB** : 15-pin D-Sub analog signal.
- B When connecting with a HDMI to DVI signal input cable.  
• Select **HDMI/DVI** : HDMI to DVI Digital signal.



## Note

- **How to connect to two computers.**  
Connect the signal cables (HDMI to DVI and D-Sub) to each computer.  
Press the INPUT button on the remote control to select the computer to use.
- **Directly connect to a grounded power outlet on the wall or a power bar with a ground wire.**

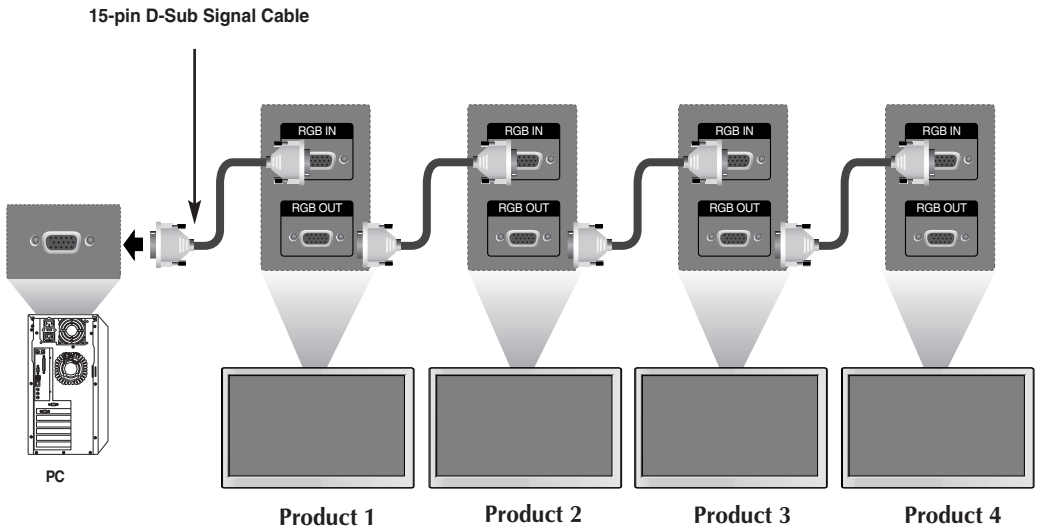
# Connecting to External Devices

## ■ ■ ■ Watching RGB Outputs

Use this function when displaying ANALOG RGB inputs of a PC to the other product.

- **To use different products connected to each other**

Connect one end of the signal input cable(15-pin D-Sub Signal Cable) to the **RGB OUT** connector of **product 1** and connect the other end to the RGB IN connector of other products.



### Note

- When multi-connecting in/out cascade format, no loss cables are recommended. We recommend that you should use cable distributor.

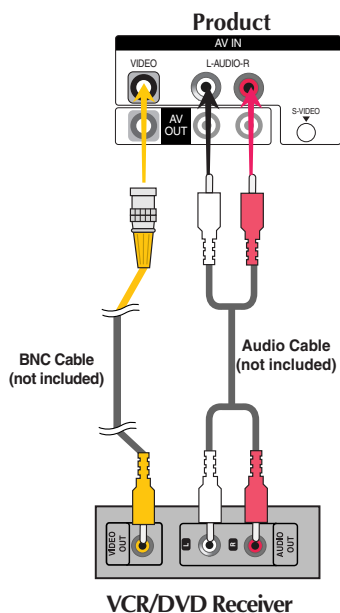
# Connecting to External Devices

## When watching VCR / DVD

1 Connect the video cable as shown in the below figure and then connect the power cord (See page 4).

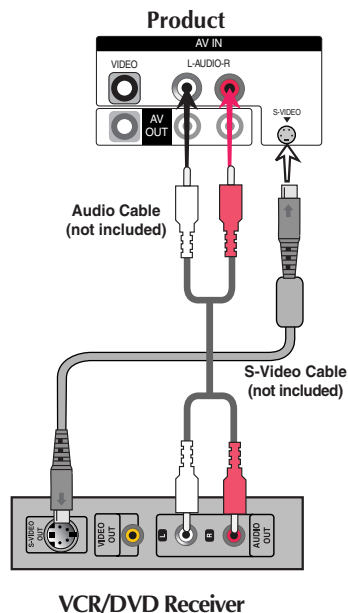
A When connecting with a BNC cable.

- Connect the input terminal with a proper color match.



B When connecting with a S-Video cable.

- Connect to the S-Video input terminal to watch high image quality movies.



2 Select an input signal.

Press the INPUT button on the remote control to select the input signal.

INPUT → ▼▲ → SET

Or, press the SOURCE button on the bottom of the product.

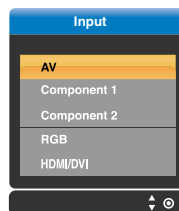
SOURCE → ▼▲ → AUTO/SET

A When connecting with an BNC cable.

- Select AV.

B When connecting with an S-Video cable.

- Select AV.



### Note

- When the BNC cable is connected simultaneously with S-Video cable, S-Video input has a priority.

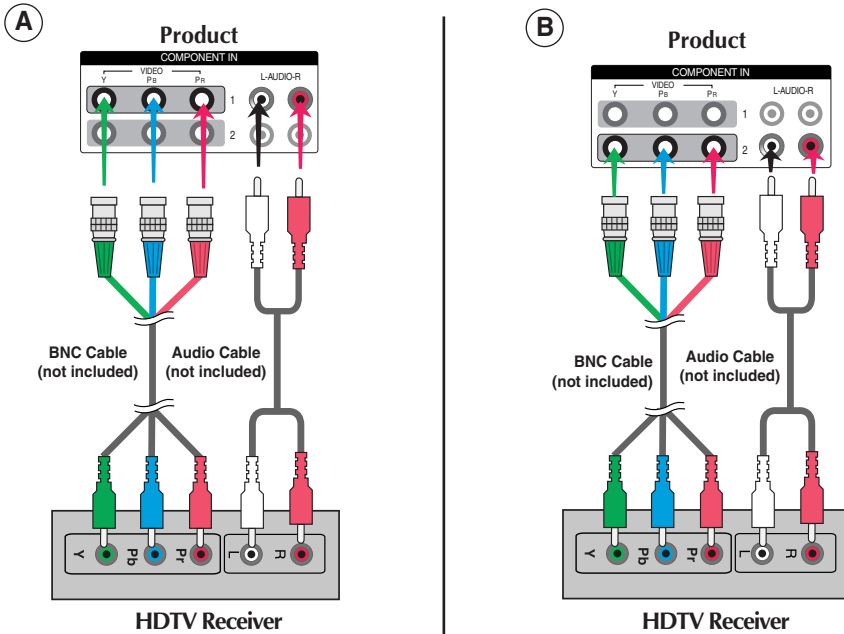


# Connecting to External Devices

■ ■ ■ When watching HDTV/DVD(480p/576p/720p/1080p/1080i/480i/576i)

**1** Connect the video/audio cable as shown in the below figure and then, connect the power cord (See page 4).

- Connect the input terminal with a proper color match.



**2** Select an input signal.  
Press the INPUT button on the remote control to select the input signal.

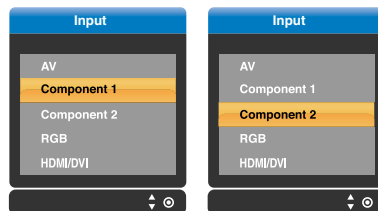
INPUT → ▼▲ → SET

Or, press the SOURCE button on the bottom of the product.

SOURCE → ▼▲ → AUTO/SET

**A** • Select Component 1

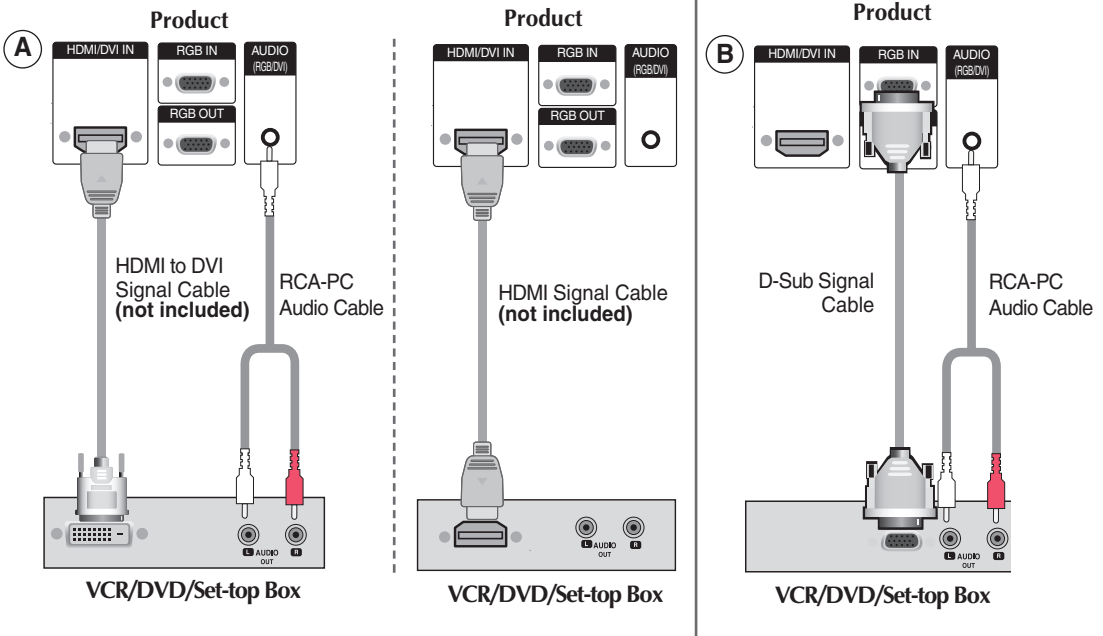
**B** • Select Component 2



# Connecting to External Devices

■ ■ ■ When watching HDMI/DVI/RGB from the VCR/DVD/Set-top Box (480p/576p/720p/1080p/1080i)

**1** Connect the video/audio cable as shown in the below figure and then connect the power cord (See page 4).



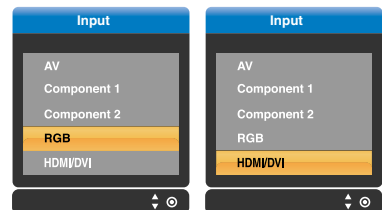
**2** Select an input signal.  
Press the **INPUT** button on the remote control to select the input signal.

INPUT → ▼▲ → SET

Or, press the **SOURCE** button on the bottom of the product.

SOURCE → ▼▲ → AUTO/SET

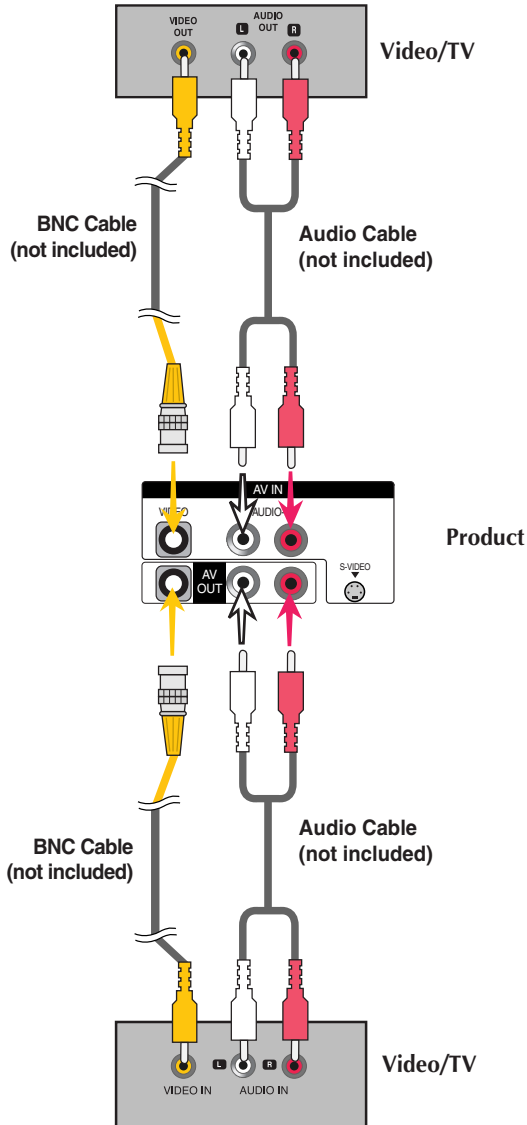
- A** When connecting with a HDMI to DVI signal input cable.  
When connecting with a HDMI signal input cable.  
• Select **HDMI/DVI**
- B** When connecting with a D-Sub signal input cable.  
• Select **RGB**



# Connecting to External Devices

## ■ ■ ■ Watching AV Outputs

- When you set the input signal of the main screen as 'AV (CVBS)', you can transmit the signal that you're watching to the AV output terminal.

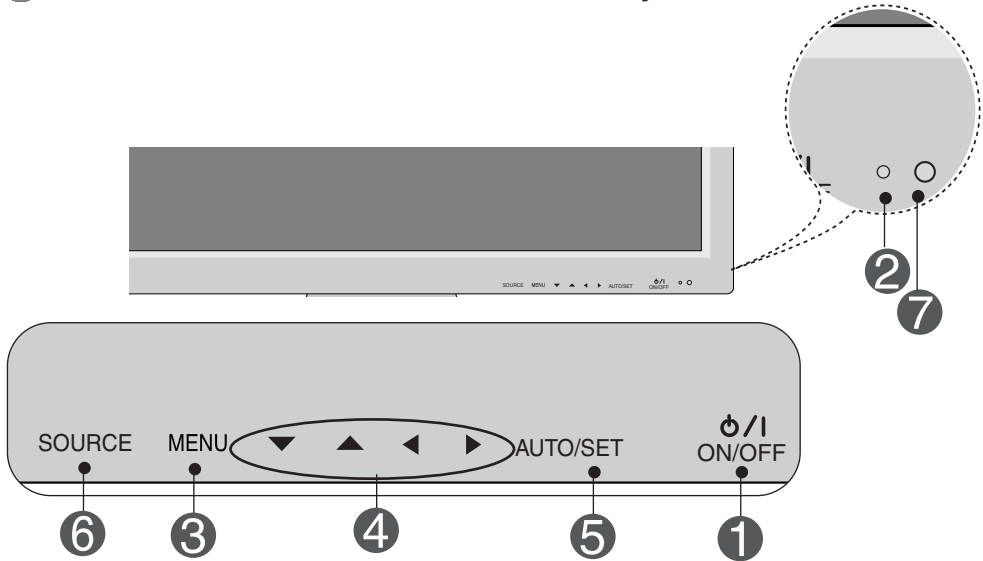


### Note

- When multi-connecting in/out cascade format, no loss cables are recommended. We recommend that you should use cable distributor.

# Selecting and Adjusting the Screen

## ● Name of the Buttons in the Screen Adjustment Unit



1

### Power Button

- Press this button to turn on the power. Press this button again to turn it off.

2

### Power Indicator

- This Indicator lights up green when the display operates normally (on mode). If the display is in sleep (Energy Saving) mode, this indicator color changes to amber.

3

### MENU Button

- Use this button to show/hide the OSD (On Screen Display) menu screen.

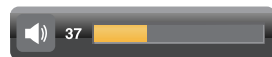
4

### OSD Select / Adjust Button

- Use this button to select an icon or adjust the setting in the OSD screen.

▼▲ • Adjust the up and down.

◀▶ • Adjust the volume.



# Selecting and Adjusting the Screen

## 5 Name of the Buttons in the Screen Adjustment Unit

5

**AUTO/SET Button**

[For PC Analog signal]

Auto in progress  
For optimal display change  
resolution to 1920 X 1080

[When Full HD Mode is active  
and 1920 X1080 is selected]

Auto in progress

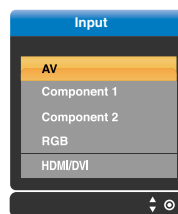
6

**SOURCE Button**

**SOURCE** → ▼▲ → **AUTO/SET**

• Select the input signal

<b>AV</b>	Composite Video, Separate Video
<b>Component 1</b>	HDTV, DVD
<b>Component 2</b>	HDTV, DVD
<b>RGB</b>	15-pin D-Sub analog signal
<b>HDMI/DVI</b>	Digital signal








7

**IR Receiver**

• The unit that receives the signal from the remote control.

# Selecting and Adjusting the Screen

## OSD Menu

Icon	Function Description
 PICTURE	Adjusts screen brightness, contrast and color that you prefer.
 SOUND	Adjusts the audio function.
 TIMER	Adjusts the timer function.
 SPECIAL	Adjusts the screen status according to the circumstances.
 SCREEN	Adjusts the screen video.



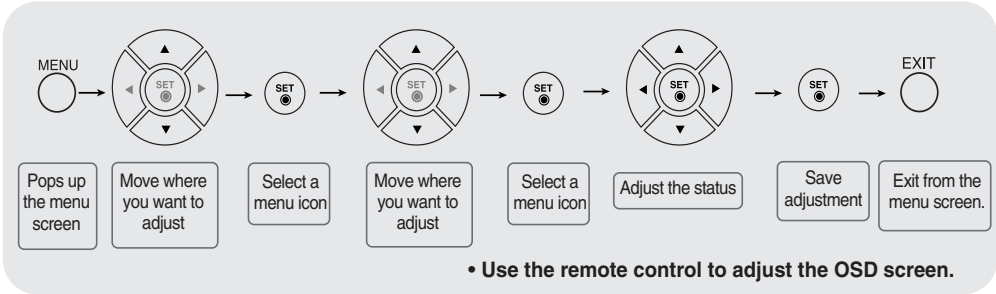
### Note

#### OSD(On Screen Display)

The OSD function enables you to adjust the screen status conveniently since it provides graphical presentation.

# Selecting and Adjusting the Screen

## ● How to adjust the OSD (On Screen Display) screen



- 1 Press the **MENU** Button, then the main menu of the OSD appears.
- 2 To access a control, use the ▼ ▲ Buttons.
- 3 When the icon you want becomes highlighted, press the **SET** Button.
- 4 Use the ▼ ▲ ◀ ▶ Buttons to adjust the item to the desired level.
- 5 Accept the changes by pressing the **SET** Button.
- 6 Exit the OSD by pressing the **EXIT** Button.

## ● How to adjust the screen automatically

You need to adjust the screen display when connecting the product to a new computer or changing the mode. Refer to the following section to set an optimal product screen.

[When Full HD Mode is active and 1920 X1080 is selected]

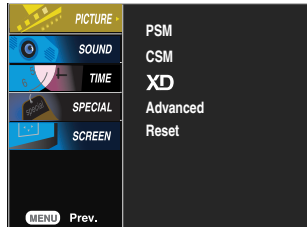
Auto in progress

Press the AUTO/SET button (**AUTO button** in a remote Control) in the PC analog signal. Then, an optimal screen status will be selected that fits into the current mode.

If adjustment is not satisfactory, you need to adjust screen position, clock and phase in the OSD menu.

# Selecting and Adjusting the Screen

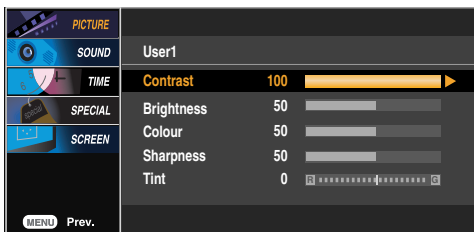
## PICTURE Adjusting Screen Color



### PSM

The **PSM** function automatically adjusts the screen image quality depending on the AV usage environment.

- **Dynamic** : Select this option to display with a sharp image.
- **Standard** : The most general and natural screen display status.
- **Mild** : Select this option to display with a mild image.
- **User1,2** : Select this option to use the user-defined settings.



**Contrast** : Adjust the difference between the light and dark levels in the picture.

**Brightness** : To adjust the brightness of the screen.

**Colour** : To adjust the color to desired level.

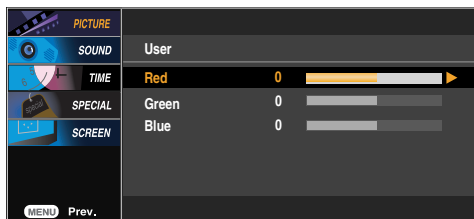
**Sharpness** : To adjust the clearness of the screen.

**Tint** :To adjust the tint to desired level.

### CSM

Selecting a factory setting color set.

- **Warm** : Slightly reddish white.
- **Normal** : Slightly bluish white.
- **Cool** : Slightly purplish white.
- **User** : Select this option to use the user-defined settings.



**Red / Green / Blue**  
Set your own color levels.



#### Note

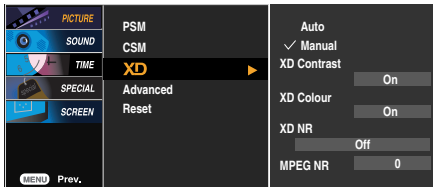
If the 'PSM' setting in the **PICTURE** menu is set to **Dynamic**, **Standard** or **Mild** the subsequent menus will be automatically set.



# Selecting and Adjusting the Screen

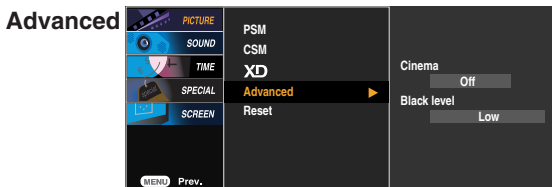
## PICTURE Adjusting Screen Color

- XD** XD is LG Electronics' unique picture improving technology that displays a real **HD** source through an advanced digital signal processing algorithm.  
This function is not available in **RGB-PC** or **HDMI/DVI PC** modes.  
This menu is activated after selecting **User1** or **User2** of **PSM**.



- **Auto** : XD is automatically changed to Auto.
- **Manual** : When selecting the Manual, you can adjust the **XD Contrast**, **XD Colour**, **XD NR**, **MPEG NR**.

- **XD Contrast** : Optimizing the contrast automatically according to the brightness of the reflection.
- **XD Colour** : Adjusting the colors of the reflection automatically to reproduce as closely as possible to natural colors.
- **XD NR** : Removing the noise up to the point where it does not damage the original picture.
- **MPEG NR** : You can select **MPEG NR** to reduce the picture noise which may appear on the screen while watching the AV.



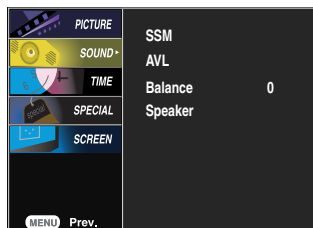
- **Cinema** : (Function works in the following mode - AV, Component 480i/576i)  
When you watch the movie, this function adjusts the set to the best picture appearance.
- **Black Level** : (Function works in the following mode - AV(NTSC), HDMI/DVI)  
adjusts the contrast and the brightness of the screen using the black level of the screen.

- **Low** : The reflection of the screen gets brighter.
- **High** : The reflection of the screen gets darker.
- **Auto** : Realizing the black level of the screen and set it to High or Low automatically. (Europe an version only)

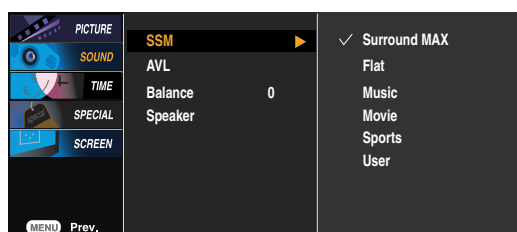
**Reset** Return **PSM**, **CSM**, **XD**, **Advanced** to the default factory settings.

# Selecting and Adjusting the Screen

## SOUND Adjusting the audio function

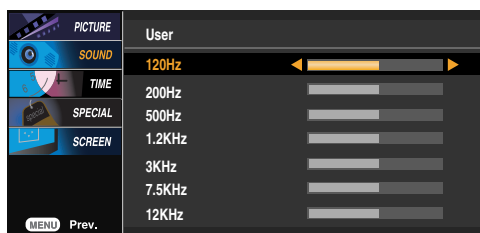


### SSM



The best sound tone quality will be selected automatically depending on the video type that you're currently watching.

- **Surround MAX** : Set the **Surround MAX** on. This function plays back the mono or stereo sound input with the dynamic surround effects. It will provide rich and profound sound tone. If you set the **Surround MAX** on, user audio setting can not be adjusted.
- **Flat** : The most commanding and natural audio.
- **Music** : Select this option to enjoy the original sound when listening to the music.
- **Movie** : Select this option to enjoy sublime sound.
- **Sports** : Select this option to watch sports broadcasting.
- **User** : Select this option to use the user-defined audio settings.



**AVL** To adjust uneven sound volumes across all channels or signals automatically to the most appropriate level. To use this feature, select On.

**Balance** Use this function to balance sound from the left and right speakers.

**Speaker** You can adjust internal speaker status.  
If you want to use your external hi-fi stereo system, turn off the internal speakers of the set.

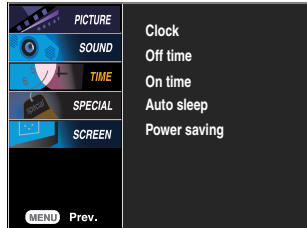


### Note

When connected to your computer and the 'SSM' setting in the audio menu is **Flat, Music, Movie** or **Sports**, the available menus are **Balance, AVL** and **Surround MAX**.

# Selecting and Adjusting the Screen

## Adjusting the timer function



### Clock

If the time is on the clock is incorrect, reset the clock manually.

- 1) Press the **MENU** button and then use ▼▲ button to select the **TIME** menu.
- 2) Press the ► button and then use ▼▲ button to select the **Clock** menu.
- 3) Press the ► button and then use ▼▲ button to set the hour(00~23).
- 4) Press the ► button and then use ▼▲ button to set the minutes(00~59).

**Off / On time** The off time automatically switches the set to standby at the pre-set time.

- 1) Press the **MENU** button and then use ▼▲ button to select the **TIME** menu.
- 2) Press the ► button and then use ▼▲ button to select **Off time** or **On time**.
- 3) Press the ► button and then use ▼▲ button to set the hour(01~23).
- 4) Press the ► button and then use ▼▲ button to set the minutes(00~59).
- 5) Press the ► button and then use ▼▲ button to select **On** or **Off**.

### Auto sleep

If **Auto sleep** is active and there is no input signal, the set switches to standby mode automatically after 10 minutes.

- 1) Press the **MENU** button and then use ▼▲ button to select the **Auto sleep** menu.
- 2) Press the ► button and then use ▼▲ button to select **On** or **Off**.

### Power saving

As for power saving mode, the power consumption can be made by setting the power consumption level at desired hour.

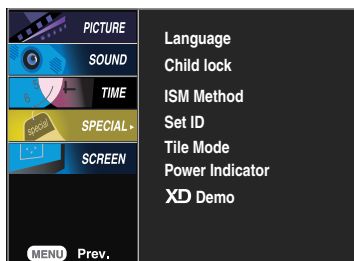
### Note



- Once the on or off time is set, these functions operate daily at the preset time.
- Off time function overrides On time function if they are set to the same time.
- The set must be in standby mode for the On time to work.
- When On time is operated, input screen is turned on as it was turned off.

# Selecting and Adjusting the Screen

## **SPECIAL** Selecting the options



### Language

To choose the language in which the control names are displayed.

### Child lock

Use the ▼ ▲ buttons to select **On** or **Off**. The monitor can be set up so that it can only be used with the remote control. This feature can prevent unauthorized viewing.

In order to lock the OSD screen adjustment, set the **Child lock** tab to the '**On**' position.

In order to unlock it, do the following :

- Push the **MENU** button on the remote control and set **Child lock** to the '**Off**' position.

### ISM Method

A frozen or still picture from a PC/Video game displayed on the screen for prolonged periods will result in a ghost image remaining even when you change the image. Avoid allowing a fixed image to remain on the screen for a long period of time.

**Normal** : If image sticking is never a problem, ISM is not necessary -set to Normal.

**White wash** : White wash removes permanent images from the screen.

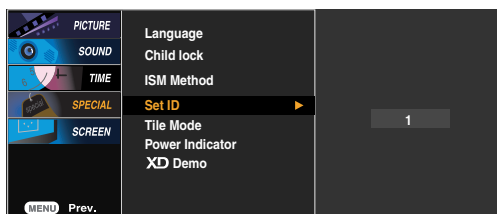
(An excessive permanent image may be impossible to clear entirely with white wash.)

**Orbiter** : May help prevent ghost images. However, it is best not to allow any fixed image to remain on the screen. To avoid a permanent image on the screen, the screen will move every 2 minutes.

**Inversion** : This function inverts the panel colour of the screen. The panel colour is automatically inverted every 30 minutes.

**Orb.+Inv.** : This function inverts the panel colour of the screen and may help prevent ghost images. The panel colour is automatically inverted every 30 minutes and the screen will move every 2 minutes.

### Set ID



You can assign a unique **Set ID** NO (name assignment) to each product when several products are connected for display. Specify the number (1~99) using the ▼ ▲ button and exit. Use the assigned **Set ID** to individually control each product using the Product Control Program.

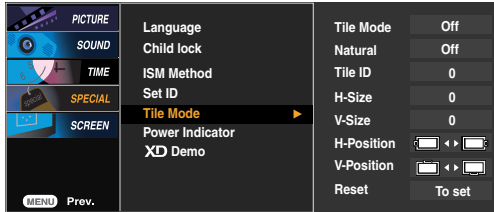
# Selecting and Adjusting the Screen

## **SPECIAL** Selecting the options

### • To use this function

- Must be displayed with various other products.
- Must be in a function that can be connected to RS-232C or RGB Out

### Tile mode



It is used to enlarge the screen and also used with several products to view screen.

### • Tile Mode

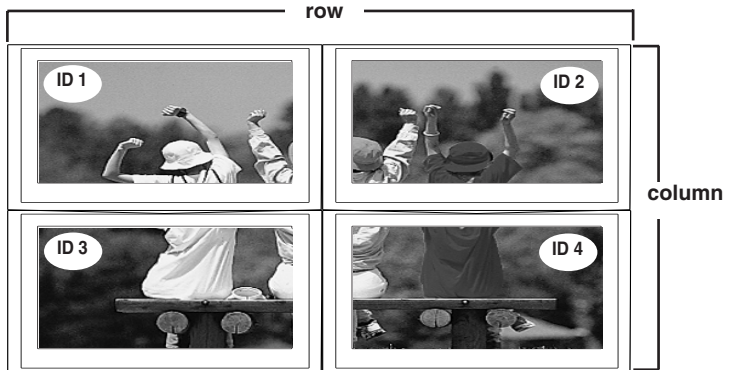
Tile mode and choose Tile alignment and set the ID of the current product to set location.

\* Only after pressing the SET button the adjustments made to the settings will be saved.

- Tile mode : row x column ( r = 1, 2, 3, 4 c = 1, 2, 3, 4)
- 4 x 4 available.
- Configuration of an integration screen is also available as well as configuration of One by one Display.



- Tile mode (product 1 ~ 4) : r(2) x c(2)



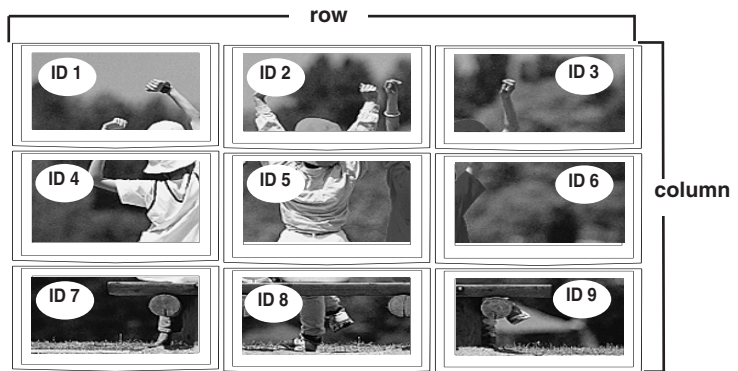
# Selecting and Adjusting the Screen



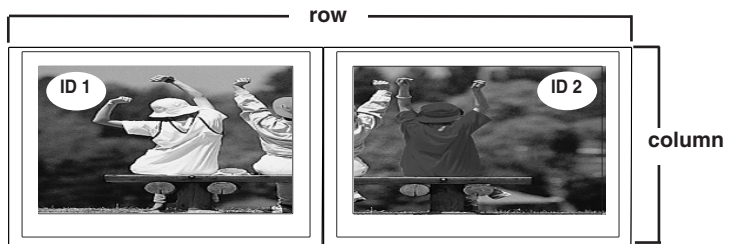
SPECIAL

## Selecting the options

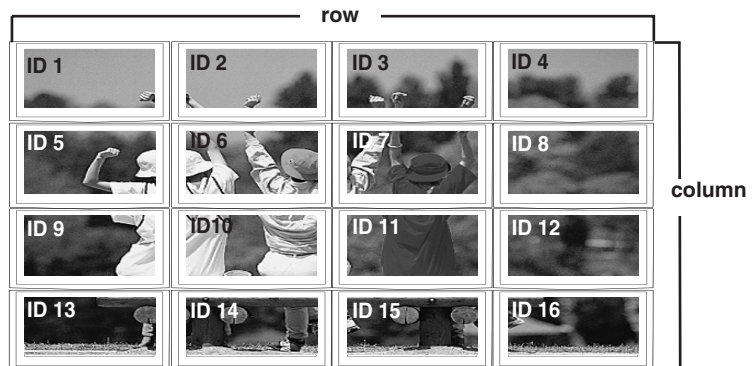
- Tile mode (product 1 ~ 9) : r(3) x c(3)



- Tile mode (product 1 ~ 2) : r(2) x c(1)

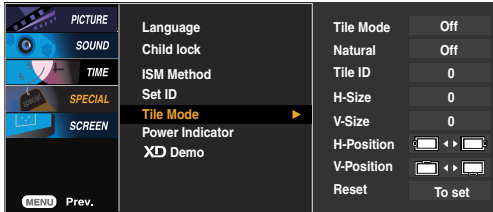


- Tile mode (product 1 ~16) : r(4) x c(4)



# Selecting and Adjusting the Screen

## SPECIAL Selecting the options



- **Natural** The image is omitted by the distance between the screens to be naturally shown.
- **Tile ID** Select the location of the Tile by setting an ID.
- **H Size** Adjust the horizontal size of the screen taking into account the size of the bezel.
- **V Size** Adjust the vertical size of the screen taking into account the size of the bezel.
- **H-Position** Moving the screen position horizontally.
- **V-Position** Moving the screen position vertically.
- **Reset** Function to initialize and release Tile.  
All Tile setting are released when selecting Tile recall and the screen returns to Full screen.

### Power Indicator

Use this function to set the power indicator on the front side of the product to **On** or **Off**.

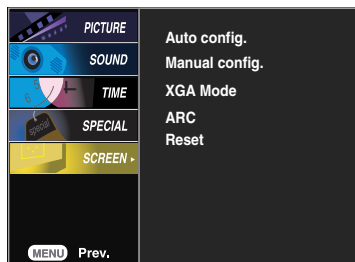
If you set **Off**, it will go off. If you set **On** at any time, the power indicator will automatically be turned on.

### XD Demo

Use it to see the difference between XD demo on and XD Demo off.  
(XD Demo function is not available in RGB PC/ HDMI/DVI PC mode.)

# Selecting and Adjusting the Screen

## SCREEN Adjusting Screen CLOCK/PHASE and Position



### Auto-config. (RGB-PC input only)

This button is for the automatic adjustment of the screen position, clock and phase. This function is suitable for analogue signal input only.

### Manual- config.

If the picture isn't clear after auto adjustment and characters are still trembling, adjust the picture phase manually.

\* Phase, Clock function are not available in RGB DTV, Component, HDMI/DVI DTV.)

**Clock** To minimize any vertical bars or stripes visible on the screen background. The horizontal screen size will also change. This function is suitable for analogue signal input only

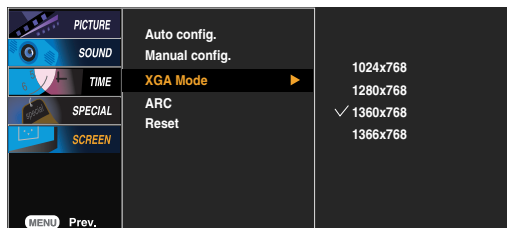
**Phase** To adjust the focus of the display. This item allows you to remove any horizontal noise and clear or sharpen the image of characters. This function is suitable for analogue signal input only.

**H-Position** Moving the screen position horizontally.

**V-Position** Moving the screen position vertically.

### XGA Mode (RGB-PC only).

For more improved or better picture quality, select the same mode corresponding to computer resolution.





# Selecting and Adjusting the Screen

## SCREEN Adjusting Screen CLOCK/PHASE and Position

**ARC** To select the image size of the screen.

**Spectacle** When your AV receives the wide screen signal, it will lead you to adjust the picture horizontally, in a nonlinear proportion, to fill the entire screen.

**Full** When your AV receives the wide screen signal, it will lead you to adjust the picture horizontally or vertically, in a linear proportion, to fill the entire screen fully. (Europe an version only)

**Original** When your AV receives the wide screen signal, it will be automatically changed to picture format to be sent.

**4:3** This picture format is 4:3 of general AV.

**16:9** You can enjoy movies (the picture format of 16:9) or general TV programmes through 16:9 mode. Programmes with 16:9 format are viewed naturally but 4:3 programmes are magnified on the left and right so that the screen is 16:9 format.

**1:1** This picture format is 1:1 of general AV. (only RGB PC, HDMI/DVI PC)

**14:9** You can enjoy the picture format of 14:9 or general AV programmes through 14:9 mode. Programmes with 14:9 are viewed naturally, but 4:3 programmes are magnified on the top/bottom and left/right sides.

**Zoom1, 2** You can enjoy movies on a vast screen through Zoom mode. The 4:3 programmes are magnified on the top/bottom and left/right sides so that screen is 16:9 format. The bottom and top of the picture may be lost.

ARC	MODE	AV	Component	HDMI/DVI		RGB	
				DTV	PC	DTV	PC
	<b>Spectacle</b>	●	×	×	×	×	×
	<b>Full</b>	●	×	×	×	×	×
	<b>Original</b>	●	×	×	×	×	×
	<b>4:3</b>	●	●	●	×	●	×
	<b>16:9</b>	●	●	●	●	●	●
	<b>14:9</b>	●	×	×	×	×	×
	<b>Zoom1</b>	●	●	●	×	●	×
	<b>Zoom2</b>	●	●	●	×	●	×
	<b>1:1</b>	×	×	×	●	×	●

**Reset** Return **Manual config.** to the default factory settings.

# Troubleshooting

## No image is displayed

- Is the product power cord connected?
  - See if the power cord is properly connected to the outlet.
  - See if the power switch is turned on.
  - Adjust brightness and contrast again.
- Is the power indicator light on?
- Power is on, power indicator is blue but the screen appears extremely dark.
- the power indicator amber?
- Does the 'Out of range' message appear?
  - If the product is in power saving mode, move the mouse or press any key.
  - The signal from the PC (video card) is out of the vertical or horizontal frequency range of the product. Adjust the frequency range by referring to the Specifications in this manual.
    - \* **Maximum resolution**
    - RGB : 1920 x 1080 @60Hz
    - HDMI/DVI : 1920 x 1080 @60Hz
- Does the 'Check signal cable' message appear?
  - The signal cable between PC and product is not connected. Check the signal cable.
  - Press the 'INPUT' menu in the remote Control to check the input signal.

## 'Unknown Product' message appears when the product is connected.

- Did you install the driver?
  - Install the product driver, which is provided with the product, or download it from the web site. (<http://www.lge.com>)
  - See if the plug&play function is supported by referring to the video card user manual.

## 'Controls Locked' message appears.

- The 'Controls Locked' message appears when pressing the Menu button.
  - The control locking function prevents unintentional OSD setting change due to careless usage. To unlock the controls, simultaneously press the Menu button and ► button for several seconds. (You cannot set this function using the remote control buttons. You can set this function in the product only.)



### Note

\* **Vertical frequency:** To enable the user to watch the product display, screen image should be changed tens of times every second like a fluorescent lamp. The vertical frequency or refresh rate is the times of image display per second. The unit is Hz.

\* **Horizontal frequency:** The horizontal interval is the time to display one vertical line. When 1 is divided by the horizontal interval, the number of horizontal lines displayed every second can be tabulated as the horizontal frequency. The unit is kHz.

# Troubleshooting

## The screen image looks abnormal.

- **Is the screen position wrong?**
  - D-Sub analog signal – Press the “AUTO” button in the remote control to automatically select the optimal screen status that fits into the current mode. If adjustment is not satisfactory, use the Position OSD menu.
  - See if the video card resolution and frequency are supported by the product. If the frequency is out of range, set to the recommended resolution in the Control Panel – Display – Setting menu.
- **Do thin lines appear on the background screen?**
  - D-Sub analog signal – Press the “AUTO” button in the remote control to automatically select an optimal screen status that fits into the current mode. If adjustment is not satisfactory, use the Clock OSD menu.
- **Horizontal noise appears or the characters look blurred.**
  - D-Sub analog signal – Press the “AUTO” button in the remote control to automatically select an optimal screen status that fits into the current mode. If adjustment is not satisfactory, use the Phase OSD menu.
- **The screen is displayed abnormally.**
  - The proper input signal is not connected to the signal port. Connect the signal cable that matches with the source input signal.

## After-image appears on the product.

- **After-image appears when the product is turned off.**
  - If you use a fixed image for a long time, the pixels may be damaged quickly. Use the screen-saver function.

# Troubleshooting

## The audio function does not work.

- **No sound?**
  - See if the audio cable is connected properly.
  - Adjust the volume.
  - See if the sound is set properly.
- **Sound is too dull.**
  - Select the appropriate equalize sound.
- **Sound is too low.**
  - Adjust the volume.

## Screen color is abnormal.

- **Screen has poor color resolution (16 colors).**
  - Set the number of colors to more than 24 bits (true color)  
Select Control Panel – Display – Settings – Color Table menu in Windows.
- **Screen color is unstable or mono-colored.**
  - Check the connection status of the signal cable.  
Or, re-insert the PC video card.
- **Do black spots appear on the screen?**
  - Several pixels (red, green, white or black color) may appear on the screen, which can be attributable to the unique characteristics of the LCD panel. It is not a malfunction of the LCD.

## The operation does not work normally.

- **The power suddenly turned off.**
  - Is the sleep timer set?
  - Check the power control settings.  
Power interrupted.
  - "CAUTION! FAN STOP!"  
If the power is turned off after this message appears, it means that the fan is out of order. In this case, contact your local service center.

# Specifications

The product specifications can change without prior notice for product improvement.

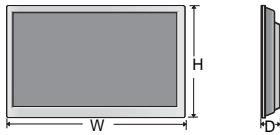
## LCD Panel

52 inches (132.17 cm) TFT (Thin Film Transistor)  
LCD (Liquid Crystal Display) Panel  
Visible diagonal size: 132.17 cm  
0.200 mm X 0.600 mm (Pixel Pitch)

## Power

<b>Rated Voltage</b>	AC 100-240V ~ 50/60Hz 4.0A
<b>Power Consumption</b>	On Mode : 400W Typ.
	Sleep Mode : ≤ 2W (RGB) / 4W(HDMI/DVI)
	Off Mode : ≤ 2W

## Dimensions & Weight



Width x Height x Depth  
128.3 cm (50.51 inches) x 76.62 cm (30.17 inches) x 11.74 cm (4.62 inches)

## Net

42.36 kg (93.39 lbs)

## NOTE

- Information in this document is subject to change without notice.

# Specifications

The product specifications can change without prior notice for product improvement.

<b>Video Signal</b>	<b>Max. Resolution</b>	RGB : 1920 X 1080 @60Hz HDMI/DVI : 1920 X 1080 @60Hz
	<b>Recommended Resolution</b>	RGB :1920 X 1080 @60Hz (Full HD) HDMI/DVI :1920 X 1080 @60Hz (Full HD)
	<b>Horizontal Frequency</b>	RGB : 30 - 83 kHz HDMI/DVI : 30 - 83 kHz
	<b>Vertical Frequency</b>	56 - 85 Hz
	<b>Synchronization Type</b>	Separate/Composite/Digital
<b>Input Connector</b>		15-pin D-Sub type, HDMI (digital), S-Video, Composite Video, Component, RS-232C
<b>Environmental Conditions</b>	<b>Operational Condition</b>	Temperature: 0°C ~ 40°C , Humidity: 10% ~ 80%
	<b>Storage Condition</b>	Temperature: -20°C ~ 60°C , Humidity: 5% ~ 90%

## NOTE

- Information in this document is subject to change without notice.

# Specifications

## ● PC Mode – Preset Mode

Preset mode		Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Preset mode		Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 350	31.469	70.8	11	1024 x 768	60.123	75.029
2	720 x 400	31.468	70.8	12	1024 x 768	68.68	85
3	640 x 480	31.469	59.94	13	1280 x 720	44.772	59.855
4	640 x 480	37.500	75	14	1280 x 768	47.7	60
5	640 x 480	43.269	85	15	1360 x 768	47.72	59.799
6	800 x 600	37.879	60.317	16	1366 x 768	47.7	60
7	800 x 600	46.875	75	17	1280 x 1024	63.981	60.02
8	800 x 600	53.674	85.061	18	1280 x 1024	79.98	75.02
9	832 x 624	49.725	74.55	19	1680 x 1050	65.290	59.954
10	1024 x 768	48.363	60	20	1920 x 1080	67.50	60

## ● DTV Mode

	Component	RGB(DTV)	HDMI/DVI(DTV)
480i	o	x	x
576i	o	x	x
480p	o	o	o
576p	o	o	o
720p	o	o	o
1080i	o	o	o
1080p	o	o	o

## ● Power Indicator

Mode	Product
On Mode	Green
Sleep Mode	Amber
Off Mode	-

### NOTE

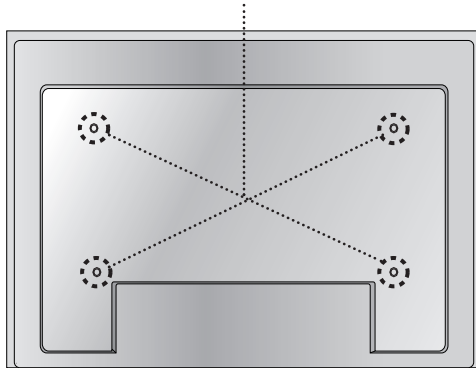
- DTV/PC selection on RGB and HDMI/DVI inputs is available for PC resolutions : 640 X 480/60Hz, 1280X720/60Hz, 1920 X 1080/60Hz and DTV resolutions : 480p, 720p, 1080p.

# Specifications

## VESA wall mounting

Connected to another object (stand type and wall-mounted type.) This product accepts a VESA-compliant mounting interface pad.- **(This has to be purchased separately if required.)**

For further information, refer to the VESA Wall Mounting Instruction Guide.



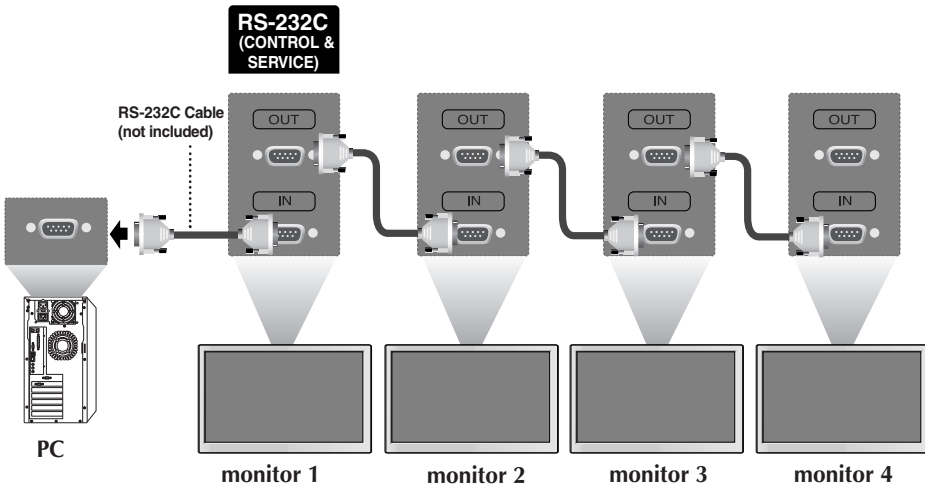


Use this method to connect several products to a single PC.  
 You can control several products at a time by connecting them to a single PC.

## Connecting the cable

Connect the RS-232C cable as shown in the picture.

\* The RS-232C protocol is used for communication between the PC and product. You can turn the product on/off, select an input source or adjust the OSD menu from your PC.




## RS-232C Configurations

7-Wire Configurations (Standard RS-232C cable)			
	PC	Monitor	
RXD	2	3	TXD
TXD	3	2	RXD
GND	5	5	GND
DTR	4	6	DSR
DSR	6	4	DTR
RTS	7	8	CTS
CTS	8	7	RTS
	D-Sub 9 (Female)	D-Sub 9 (Female)	

3-Wire Configurations (Not Standard)			
	PC	Monitor	
RXD	2	3	TXD
TXD	3	2	RXD
GND	5	5	GND
DTR	4	6	DTR
DSR	6	4	DSR
RTS	7	7	RTS
CTS	8	8	CTS
	D-Sub 9 (Female)	D-Sub 9 (Female)	

## Communication Parameter

- ▶ Baud Rate : 9600baudRate (UART)
- ▶ Data Length : 8bits
- ▶ Parity Bit : None
- ▶ Stop Bit : 1bit
- ▶ Flow Control : None
- ▶ Communication Code : ASCII code
- ▶ Use a crossed (reverse) cable

 Command Reference List

	COMMAND1	COMMAND2	DATA(Hexa)
01. Power	k	a	00H - 01H
02. Input Select	k	b	02H - 09H
03. Aspect Ratio	k	c	01H - 09H
04. Screen Mute	k	d	00H - 01H
05. Volume Mute	k	e	00H - 01H
06. Volume Control	k	f	00H - 64H
07. Contrast	k	g	00H - 64H
08. Brightness	k	h	00H - 64H
09. Color	k	i	00H - 64H
10. Tint	k	j	00H - 64H
11. Sharpness	k	k	00H - 64H
12. OSD Select	k	l	00H - 01H
13. Remote Lock/ key Lock	k	m	00H - 01H
14. Balance	k	t	00H - 64H
15. Color Temperature	k	u	00H - 03H
16. Abnormal state	k	z	FFH
17. ISM mode	j	p	00H - 08H
18. Auto configuration	j	u	01H
19. Key	m	c	Key Code
20. Tile Mode	d	d	00H - 44H
21. Tile H Size	d	g	00H - 64H
22. Tile V Size	d	h	00H - 64H
23. Tile ID Set	d	i	00H - 10H
24. Natural Mode (In Tilemode)	d	j	00H - 01H
25. Elapsed time return	d	l	FFH
26. Temperature value	d	n	FFH
27. Lamp fault check	d	p	FFH

## ● Transmission / Receiving Protocol

### Transmission

```
[Command1][Command2][ ][Set ID][ ][Data][Cr]
```

- \* [Command 1]: First command. (j, k, m, d)
- \* [Command 2]: Second command.
- \* [Set ID]: Set up the Set ID number of product.  
range : 1~99. by setting '0', server can control all products.  
\* In case of operating with more than 2 sets using set ID as '0' at the same time, it should not be checked the ack message.  
Because all sets will send the ack message, so it's impossible the check the whole ack messages.
- \* [DATA]: To transmit command data.  
Transmit 'FF' data to read status of command.
- \* [Cr]: Carriage Return  
ASCII code '0x0D'
- \* [ ]: ASCII code Space (0x20)

### OK Acknowledgement

```
[Command2][ ][Set ID][ ][OK][Data][x]
```

- \* The Product transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data.  
If the data is data write mode, it returns the data of the PC computer.

### Error Acknowledgement

```
[Command2][ ][Set ID][ ][NG][Data][x]
```

- \* If there is error, it returns NG

## ● Transmission / Receiving Protocol

### 01. Power(Command : a)

- ▶ To control Power On/Off of the Set.

#### *Transmission*

```
[k][a][ ][Set ID][ ][Data][Cr]
```

Data 0 : Power Off      1 : Power On

#### *Acknowledgement*

```
[a][ ][Set ID][ ][OK][Data][x]
```

- ▶ To show the status of Power On/Off.

#### *Transmission*

```
[k][a][ ][Set ID][ ][FF][Cr]
```

#### *Acknowledgement*

```
[a][ ][Set ID][ ][OK][Data][x]
```

Data 0 : Power Off      1 : Power On

### 02. Input Select (Command : b) (Main Picture Input)

- ▶ To select input source for the Set.  
You can also select an input source using the SOURCE button on the remote control.

#### *Transmission*

```
[k][b][ ][Set ID][ ][Data][Cr]
```

Data 2 : AV	6 : RGB (DTV)
4 : Component 1	7 : RGB (PC)
5 : Component 2	8 : HDMI (DTV)
	9 : HDMI (PC)

#### *Acknowledgement*

```
[b][ ][Set ID][ ][OK][Data][x]
```

Data 2 : AV	6 : RGB (DTV)
4 : Component 1	7 : RGB (PC)
5 : Component 2	8 : HDMI (DTV)
	9 : HDMI (PC)

## ● Transmission / Receiving Protocol

### 03. Aspect Ratio(Command : c) (Main picture format)

▶ To adjust the screen format.

You can also adjust the screen format using the ARC (Aspect Ratio Control) button on remote control or in the Screen menu.

#### Transmission

[k][c][ ][Set ID][ ][Data][Cr]

Data 1 : Normal Screen (4:3)	5 : Zoom2
2 : Wide Screen (16 :9)	6 : Original
3 : Horizon (Spectacle)	7 : 14 : 9
4 : Zoom1	8 : Full (Europe version only)
	9 : 1 : 1 (PC)

#### Acknowledgement

[c][ ][Set ID][ ][OK][Data][x]

### 04. Screen Mute(Command : d)

▶ To select screen mute on/off.

#### Transmission

[k][d][ ][Set ID][ ][Data][Cr]

Data 0 : Screen mute off (Picture on)  
1 : Screen mute on (Picture off)

#### Acknowledgement

[d][ ][Set ID][ ][OK][Data][x]

## ● Transmission / Receiving Protocol

### 05. Volume Mute(Command : e)

- ▶ To control On/Off of the Volume Mute.

#### Transmission

```
[k][e][ ][Set ID][ ][Data][Cr]
```

Data 0 : Volume Mute On (Volume Off)  
1 : Volume Mute Off (Volume On)

#### Acknowledgement

```
[e][ ][Set ID][ ][OK][Data][x]
```

Data 0 : Volume Mute On (Volume Off)  
1 : Volume Mute Off (Volume On)

### 06. Volume Control(Command : f)

- ▶ To adjust Volume .

#### Transmission

```
[k][f][ ][Set ID][ ][Data][Cr]
```

Data Min : 00H ~ Max : 64H  
(Hexadecimal code)

#### Acknowledgement

```
[f][ ][Set ID][ ][OK][Data][x]
```

Data Min : 00H ~ Max : 64H

- Refer to 'Real data mapping' page A7.

## Transmission / Receiving Protocol

### 07. Contrast(Command : g)

- ▶ To adjust screen contrast.
- You can also adjust the contrast in the Picture menu.

#### Transmission

```
[k][g][ ][Set ID][ ][Data][Cr]
```

Data Min : 00H ~ Max : 64H

- Refer to 'Real data mapping' as shown below.

#### Acknowledgement

```
[g][ ][Set ID][ ][OK][Data][x]
```

\* Real data mapping

0 : Step 0

:

A : Step 10

:

F : Step 15

10 : Step 16

:

64 : Step 100

### 08. Brightness(Command : h)

- ▶ To adjust screen brightness.
- You can also adjust the brightness in the Picture menu.

#### Transmission

```
[k][h][ ][Set ID][ ][Data][Cr]
```

Data Min : 00H ~ Max : 64H

- Refer to 'Real data mapping' as shown below.

#### Acknowledgement

```
[h][ ][Set ID][ ][OK][Data][x]
```

\* Real data mapping

0 : Step

:

A : Step 10

:

F : Step 15

10 : Step 16

:

64 : Step 100

## ● Transmission / Receiving Protocol

### 09. Color(Command : i) (Video only)

- ▶ To adjust the screen color.  
You can also adjust the color in the Picture menu.

#### *Transmission*

```
[k][i][ ][Set ID][ ][Data][Cr]
```

Data    Min : 00H ~ Max : 64H  
(Hexadecimal code)

- Refer to 'Real data mapping' page A7.

#### *Acknowledgement*

```
[i][ ][Set ID][ ][OK][Data][x]
```

Data    Min : 00H ~ Max : 64H

### 10. Tint(Command : j) (Video only)

- ▶ To adjust the screen tint.  
You can also adjust the tint in the Picture menu.

#### *Transmission*

```
[k][j][ ][Set ID][ ][Data][Cr]
```

Data    Red: 00H ~ Green: 64H  
(Hexadecimal code)

- Refer to 'Real data mapping' page A7.

#### *Acknowledgement*

```
[j][ ][Set ID][ ][OK][Data][x]
```

Data    Red: 00H ~ Green: 64H

- \* Tint Real data mapping
- 0 : Step -50
- :
- 64 : Step 50



## ● Transmission / Receiving Protocol

### 11. Sharpness(Command : k) (Video only)

- ▶ To adjust the screen Sharpness.  
You can also adjust the sharpness in the Picture menu.

#### Transmission

```
[k][k][ ][Set ID][ ][Data][Cr]
```

Data Min : 00H ~ Max : 64H  
(Hexadecimal code)

- Refer to 'Real data mapping' page A7.

#### Acknowledgement

```
[k][ ][Set ID][ ][OK][Data][x]
```

Data Min : 00H ~ Max : 64H

### 12. OSD Select(Command : l)

- ▶ To control OSD on/off to the set.

#### Transmission

```
[k][l][ ][Set ID][ ][Data][Cr]
```

Data 0 : OSD Off      1 : OSD On

#### Acknowledgement

```
[l][ ][Set ID][ ][OK][Data][x]
```

Data 0 : OSD Off      1 : OSD On

### 13. Remote Lock /Key Lock (Command : m)

- ▶ To control Remote Lock on/off to the set.  
This function, when controlling RS-232C, locks the remote control and the local keys.

#### Transmission

```
[k][m][ ][Set ID][ ][Data][Cr]
```

Data 0 : Off      1 : On

#### Acknowledgement

```
[m][ ][Set ID][ ][OK][Data][x]
```

Data 0 : Off      1 : On

## ● Transmission / Receiving Protocol

### 14 Balance(Command : t)

▶ To adjust the sound balance.

#### Transmission

```
[k][t][ ][Set ID][ ][Data][Cr]
```

Data Min : 00H ~ Max : 64H

(Hexadecimal code)

- Refer to 'Real data mapping' page A7.

#### Acknowledgement

```
[t][ ][Set ID][ ][OK][Data][x]
```

Data Min : 00H ~ Max : 64H

\* Balance : L50 ~ R50

### 15. Color Temperature (Command : u)

▶ To adjust the screen color temperature.

#### Transmission

```
[k][u][ ][Set ID][ ][Data][Cr]
```

Data 0 : Normal

1 : Cool

2 : Warm

3 : User

#### Acknowledgement

```
[u][ ][Set ID][ ][OK][Data][x]
```

Data 0 : Normal

1 : Cool

2 : Warm

3 : User

## ● Transmission / Receiving Protocol

### 16. Abnormal state (Command : z)

▶ Abnormal State : Used to Read the power off status when Stand-by mode.

#### *Transmission*

```
[k][z][ ][Set ID][ ][Data][Cr]
```

Data FF : Read

- 0 : Normal (Power on and signal exist)
- 1 : No signal (Power on)
- 2 : Turn the monitor off by remote control
- 3 : Turn the monitor off by sleep time function
- 4 : Turn the monitor off by RS-232C function
- 6 : AC down
- 8 : Turn the monitor off by off time function
- 9 : Turn the monitor off by auto off function

#### *Acknowledgement*

```
[z][ ][Set ID][ ][OK][Data][x]
```

### 17. ISM mode(Command: j p)

▶ Used to select the afterimage preventing function.

#### *Transmission*

```
[j][p][ ][Set ID][ ][Data][Cr]
```

- Data
- 1 : Inversion
  - 2 : Orbiter
  - 3 : Orb.+Inv.
  - 4 : White Wash
  - 8 : Normal

#### *Acknowledgement*

```
[p][ ][Set ID][ ][OK][Data][x]
```

 Transmission / Receiving Protocol**18. Auto Configure(Command: j u)**

- ▶ To adjust picture position and minimize image shaking automatically. it works only in RGB(PC) mode.

*Transmission*

```
[j][u][ ][Set ID][ ][Data][Cr]
```

Data 1 : To set

*Acknowledgement*

```
[u][ ][Set ID][ ][OK][Data][x]
```

**19. Key(Command : m c)**

- ▶ To send IR remote key code.

*Transmission*

```
[m][c][ ][Set ID][ ][Data][Cr]
```

Data Key code : Refer to page A18.

*Acknowledgement*

```
[c][ ][Set ID][ ][OK][Data][x]
```

## ● Transmission / Receiving Protocol

### 20. Tile Mode(Command : d d)

▶ Change a Tile Mode.

*Transmission*

```
[d][d][Set ID][Data][x]
```

Data	Description
00	Tile mode is off.
12	1 x 2 mode(column x row)
13	1 x 3 mode
14	1 x 4 mode
...	...
44	4 x 4 mode

\* The data can not be set to 0X or X0 except 00.

*Acknowledgement*

```
[d][00][OK/NG][Data][x]
```

 Transmission / Receiving Protocol**21. Tile H Size(Command : d g)**

▶ To set the Horizontal size.

*Transmission*

```
[d][g][Set ID][Data][x]
```

Data    Min : 00H ~ Max : 64H

*Acknowledgement*

```
[g][Set ID][OK/NG][Data][x]
```

**22. Tile V Size(Command : d h)**

▶ To set the Vertical size.

*Transmission*

```
[d][h][Set ID][Data][x]
```

Data    Min : 00H ~ Max : 64H

*Acknowledgement*

```
[h][Set ID][OK/NG][Data][x]
```

## ● Transmission / Receiving Protocol

### 23. Tile ID Set(Command : d i)

- ▶ To assign the Tile ID for Tiling function .

#### Transmission

```
[d][i][Set ID][Data][x]
```

Data Min : 00H ~ Max : 10H  
(Hexadecimal code)

#### Acknowledgement

```
[i][Set ID][OK/NG][Data][x]
```

### 24 Natural Mode (In Tilemode) (Command : d j)

- ▶ The image is omitted by the distance between the screens to be naturally shown.

#### Transmission

```
[d][j][Set ID][Data][x]
```

Data 0 : Natural Off  
1 : Natural On  
ff : Read Status

#### Acknowledgement

```
[j][Set ID][OK/NG][Data][x]
```

### 25. Elapsed time return(Command : d l)

- ▶ To read the elapsed time.

#### Transmission

```
[d][l][Set ID][Data][x]
```

\* The data is always FF(in Hex).

#### Acknowledgement

```
[l][Set ID][OK/NG][Data][x]
```

\* The data means used hours.  
(Hexadecimal code)

## ● Transmission / Receiving Protocol

### 26. Temperature value (Command : d n)

▶ To read the inside temperature value.

#### *Transmission*

```
[d][n][Set ID][Data][x]
```

\* The data is always FF(in Hex).

#### *Acknowledgement*

```
[n][Set ID][OK/NG][Data][x]
```

\* The data is 1 byte long in Hexadecimal.

### 27. Lamp fault Check(Command : d p)

▶ To check lamp fault.

#### *Transmission*

```
[d][p][Set ID][Data][x]
```

\* The data is always FF(in Hex).

#### *Acknowledgement*

```
[p][Set ID][OK/NG][Data][x]
```

Data 0 : Lamp Fault

1: Lamp OK



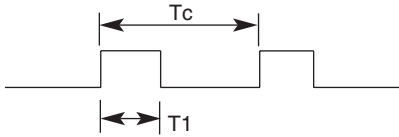
**How to connect**

- ▶ Connect your wired remote control to Remote Control port on the Product.

**Remote Control IR Code**

▶ **Output waveform**

single pulse, modulated with 37.917KHz signal at 455KHz



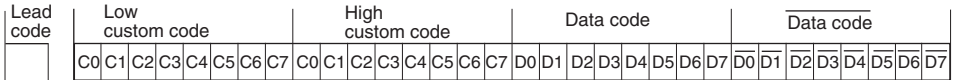
Carrier frequency

$$FCAR = 1/Tc = fosc/12$$

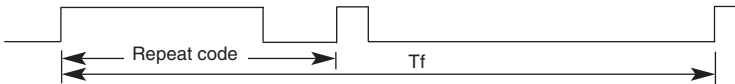
$$\text{Duty ratio} = T1/Tc = 1/3$$

▶ **Configuration of frame**

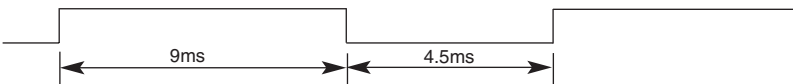
- 1st frame



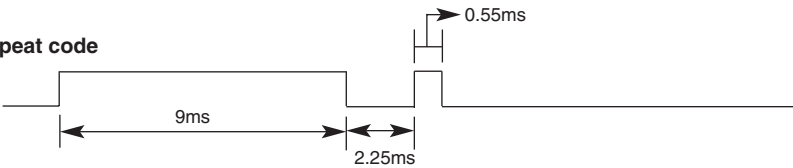
- Repeat frame



▶ **Lead code**

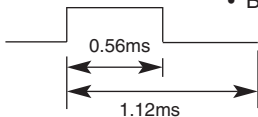


▶ **Repeat code**

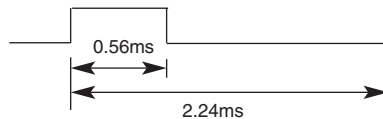


▶ **Bit description**

- Bit "0"



- Bit "1"



▶ **Frame interval : Tf**

- The waveform is transmitted as long as a key is depressed.



Tf=108ms@455KHz

Code(Hexa)	Function	Note
00	▲	R/C Button
01	▼	R/C Button
02	VOL(▶)	R/C Button
03	VOL(◀)	R/C Button
08	POWER ON/OFF	PR/C Button (Power On/Off)
C4	POWER ON	Discrete IR Code(Only Power On)
C5	POWER OFF	Discrete IR Code(Only Power On)
09	MUTE	R/C Button
98	AV	R/C Button
0B	INPUT	R/C Button
0E	SLEEP	R/C Button
43	MENU	R/C Button
5B	EXIT	R/C Button
6E	PSM	R/C Button
44	SET	R/C Button
10	Number Key 0	R/C Button
11	Number Key 1	R/C Button
12	Number Key 2	R/C Button
13	Number Key 3	R/C Button
14	Number Key 4	R/C Button
15	Number Key 5	R/C Button
16	Number Key 6	R/C Button
17	Number Key 7	R/C Button
18	Number Key 8	R/C Button
19	Number Key 9	R/C Button
5A	AV	Discrete IR Code(Input AV Selection)
BF	COMPONENT1	Discrete IR Code(Input COMPONENT1 Selection)
D4	COMPONENT2	Discrete IR Code(Input COMPONENT2 Selection)
D5	RGB PC	Discrete IR Code(Input RGB PC Selection)
D7	RGB DTV	Discrete IR Code(Input RGB DTV Selection)
C6	HDMI/DVI	Discrete IR Code(Input HDMI/DVI Selection)
79	ARC	R/C Button
76	ARC (4:3)	Discrete IR Code(Only 4:3 mode)
77	ARC (16:9)	Discrete IR Code(Only 16:9 mode)
AF	ARC (ZOOM)	Discrete IR Code(Only ZOOM1, ZOOM2 mode)
99	AUTO CONFIC	Discrete IR Code