LG

PLASMA MONITOR

OWNER'S MANUAL

MT-40PA15/B/G/K/S
MZ-40PA17/B/G/K/S

Please read this manual carefully before operating your set.
Retain it for future reference.
Record model number and serial number of the set.
See the label attached on the back cover and quote this information to your dealer when you require service.

Model number   :
Serial number   :

LG Plasma Monitor

What is a Plasma Display ?

If voltage is inputted to gas in glass panels, ultraviolet rays is outputted and fused with a fluorescent substance. At this moment, light is emitted. A Plasma Display is a next generation flat Display using this phenomenon.

160° - Wide angle range of vision

A Plasma Display provides more than 160° angle range of vision so that you can get a picture without distortion from any direction.

Easy installation

A Plasma Display is much lighter and smaller than other same class products so that you can install the Plasma Display at the desired place.

Big screen

The screen of a Plasma Display is 40" so that you can get vivid experience as if you are in a theater.

Multimedia Plasma Display

A Plasma Display can be connected with a computer so that you can use it as a screen for conference, game, internet and so on.

The explanation about coloured dots may be present on PDP screen

The PDP which is the display device of this product is composed of 0.9 to 2.2 million cells and a few cell defects can occur in the manufacture of the PDP. Several coloured dots visible on the screen would be acceptable, in line with other PDP manufacturers and would not mean that the PDP is faulty. We hope you will understand that the product which corresponds to this standard is regarded as acceptable. It means that it could not be changed or refunded.
We promise that we'll do our best to develop our technology to minimize the cell defects.

WARNING
This is Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

WARNING
TO REDUCE THE RISK OF FIRE AND ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

Contents

After reading this manu-
al, keep it in the place
where the user can
always contact easily.

Safety Instructions

- Use the Monitor at the place lower than the altitude of 6562 feet (2000m) to get the best quality of picture and sound.

⚠ WARNING

Do not place the Monitor in direct sunlight or near heat sources such as heat registers, stove and so on.
- This may cause a fire.

Do not use the Monitor in damp place such as a bathroom or any place where it is likely to get wet.
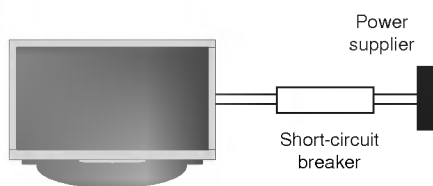- This may cause a fire or could give an electric shock.

Bend antenna cable between inside and outside building to prevent rain from flowing in.
- This may cause water damaged inside the Monitor and could give an electric shock.

Earth wire should be connected.
- If the earth wire is not connected, there is possible a danger of electric shock caused by the current leakage.
- If grounding methods are not possible, a separate circuit breaker should be employed and installed by a qualified electrician.
- Do not connect ground to telephone wires, lightning rods or gas pipe.

Power supplier

Short-circuit breaker

Do not placing anything containing liquid on top of the Monitor.
- This may cause a fire or could give an electric shock.

Do not insert any object into the exhaust vent.
- This may cause a fire or could give an electric shock.

Do not place heavy objects on the Monitor.
- This may cause serious injury to a child or adult.

Do not use water the Monitor while cleaning.
- This may cause damaged the Monitor or could give an electric shock.

In case of smoke or strange smell from the Monitor, switch it off ,unplug it from the wall outlet and contact your dealer or service center.
- This may cause a fire or could give an electric shock.

Do not attempt to service the Monitor yourself. Contact your dealer or service center.
- This may cause damaged the Monitor or could give an electric shock.

During a lightning thunder, unplug the Monitor from the wall outlet and don't touch an antenna cable.
- This may cause damaged the Monitor or could give an electric shock.

* Safety instructions have two kinds of information, and each meaning of it is as below.

⚡ 감전　　The violation of this instruction may cause serious injuries and even death.

⚠ WARNIN　The violation of this instruction may cause light injuries or damage of the product.

⚠ Take care of danger that may happen under specific condition.

⚠ NOTES

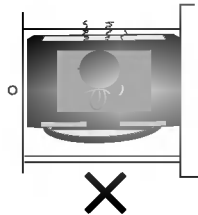**This plasma display is designed to be mounted horizontally (wide viewing).**

Never touch the power plug with a wet hand.
- This may cause an electric shock.

Disconnect from the mains and remove all connections before moving.

Do not place the Monitor in a built-in installation such as a bookcase or rack.
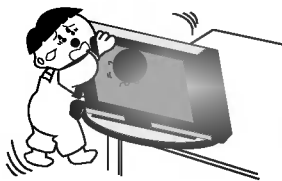- Ventilation required.

When installing the Monitor on a table, be careful not to place the edge of its stand.
- This may cause the Monitor to fall, causing serious injury to a child or adult, and serious damage to the Monitor.

Do not place an outside antenna in the vicinity of overhead power lines or other electric light or power circuits.
- This may cause an electric shock.

There should be enough distance between an outside antenna and power lines to keep the former from touching the latter even when the antenna falls.
- This may cause an electric shock.

Do not pull the cord but the plug when unplugging.
- This may cause a fire.

Ensure the power cord doesn't trail across any hot objects like a heater.
- This may cause a fire or an electric shock.

Do not plug when the power cord or the plug is damaged or the connecting part of the power outlet is loose.
- This may cause a fire or an electric shock.

Dispose of used batteries carefully to protect a child from eating them.
- In case that it eats them, take it to see a doctor immediately.

When moving the Monitor assembled with speakers do not carry holding the speakers.
- This may cause the Monitor to fall, causing serious injury to a child or adult, and serious damage to the Monitor.

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.
- This may cause damaged the Monitor or could give an electric shock.

Contact the service center once a year to clean the internal part of the Monitor.
- Accumulated dust can cause mechanical failure.

The distance between eyes and the screen should be about 5 ~ 7 times as long as diagonal length of the screen.
- If not, eyes will strain.

Unplug the Monitor from the wall outlet when it is left unattended and unused for long periods of time.
- Accumulated dust may cause a fire or an electric shock from deterioration or electric leakage.

Only use the specified batteries.
- This make cause damaged the Monitor or could give an electric shock.

Controls of the Monitor

<Front Panel>

ON/OFF

MAIN POWER BUTTON

REMOTE CONTROL SENSOR

INPUT
SELECT

VOLUME
◄   ►

INPUT SELECT BUTTON

POWER/STANDBY INDICATOR
Illuminates red in standby.
Illuminates green when the Monitor is switched on

POWER BUTTON

VOLUME (◄,►) BUTTON

Watching External Equipment

AV INPUT

S-VIDEO INPUT

COMPONENT (480i/480p) (DVD INPUT)

AUDIO INPUT

RGB-PC INPUT(VGA/SVGA)

RS-232C INPUT

Connection to AV equipment

Connection to PC
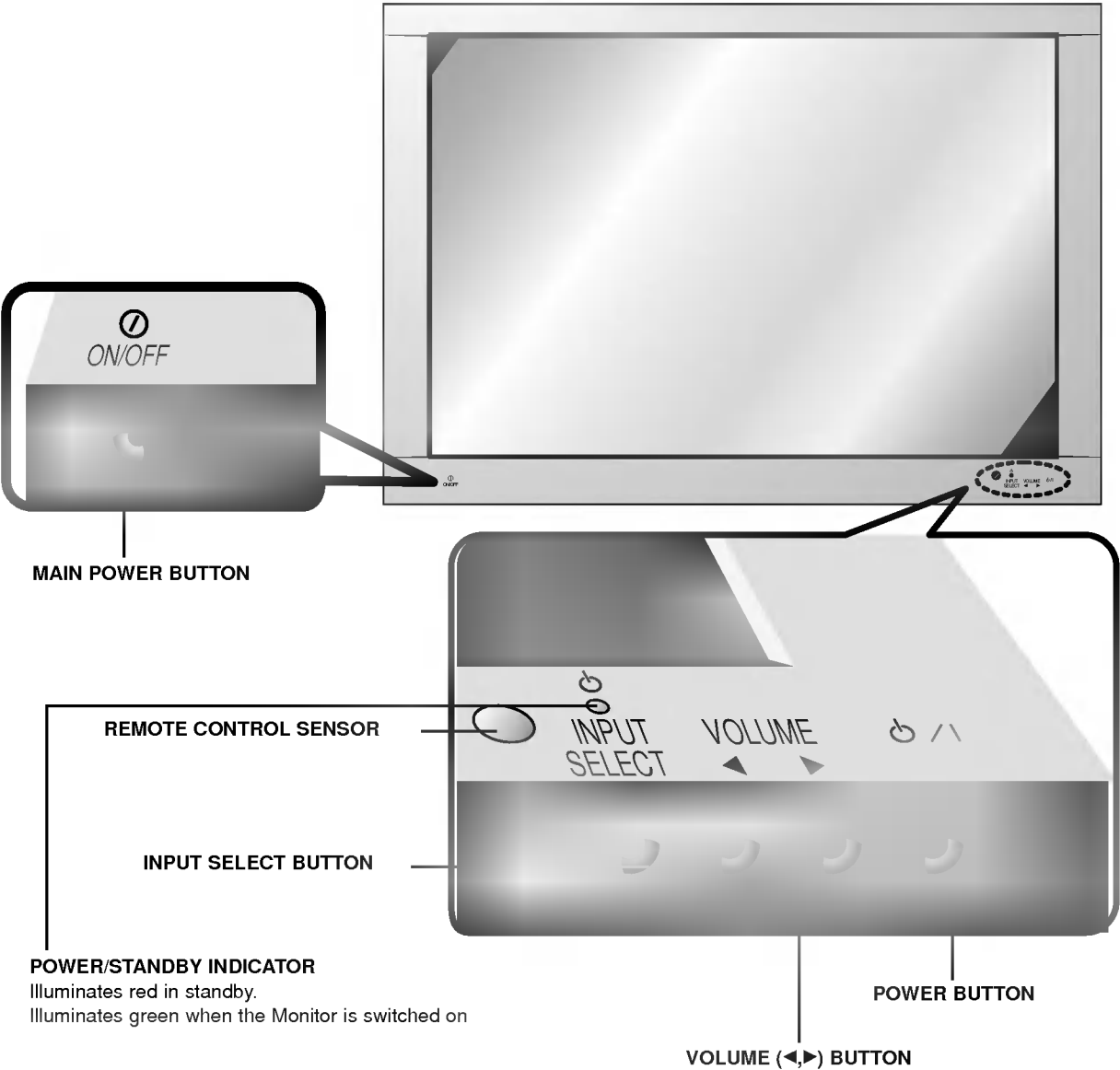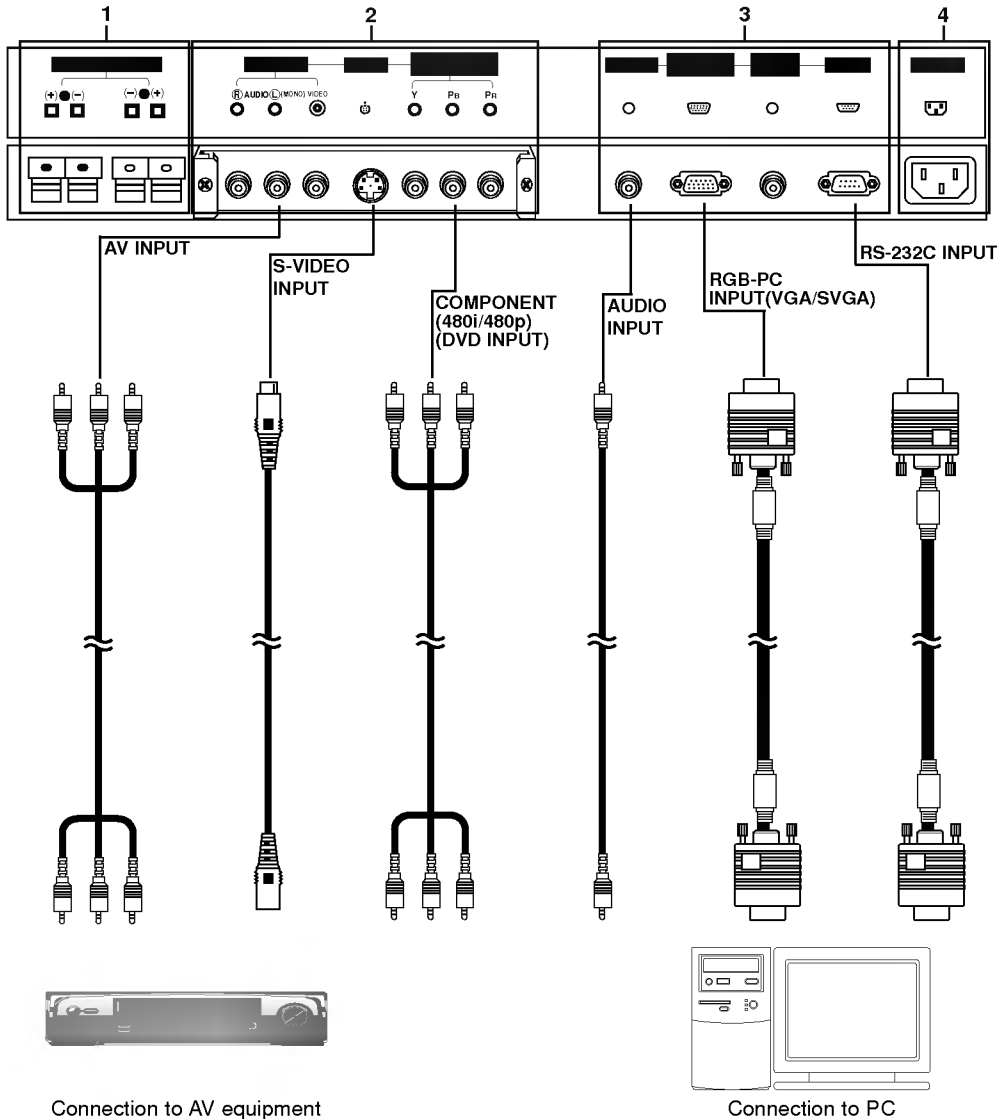
Note : *All cables shown are not provided with the Monitor,*
except a D-sub 15 pin cable is supplied to connect the Monitor to a PC.

1. **EXTERNAL SPEAKER (8 ohm output)**
   Connect this terminal to the optionally available speaker.
   *For further information, refer to 'Speaker & Speaker stand' manual.

2. **AV INPUT / S-VIDEO / COMPONENT(480i/480p)(DVD INPUT) SOCKET**

   Note : *The interface board(AP-40EA21) is not equipped on MZ-40PA17 series models. Contact your dealer for buying this optional item.*

3. **RGB-PC INPUT (VGA/SVGA) / AUDIO INPUT SOCKET**
   Connect the monitor output socket of the PERSONAL COMPUTER to this socket.
   RS-232C IN SOCKET
   Connect it to the RS-232C socket on the PC.

4. **POWER INPUT SOCKET**
   This Monitor operates on AC power. The voltage is indicated on the Specifications page. Never attempt to operate the Monitor on DC power.

Watching VCR (When the Interface board is installed.)
► The interface board(AP-40EA21) is not equipped on MZ-40PA17 series models.

When connecting the Monitor to external equipment, match the colours of connecting ports (Video - yellow, Audio(L) - white, Audio(R) - red).
If you have a mono VCR, connect the audio cable from the VCR to the AUDIO(L/MONO) input of the Monitor.
Avoid having a fixed image remain on the screen for a long period of time. Typically a frozen still picture from a VCR or if a CH label is present; the fixed image may remain visible on the screen.

1. Press **INPUT SELECT** button on the remote control and select *Video*.
   (When connecting with S-Video, select the *S-Video*)
2. Insert a video tape into the VCR and press the **PLAY** button on the VCR. (See VCR owner's manual)

• To avoid picture noise (interference), leave an adequate distance between the VCR and monitor.

Watching Cable TV (When the Interface board is installed.)
► The interface board(AP-40EA21) is not equipped on MZ-40PA17 series models.

After subscribing to a cable TV service from a local provider and installing a converter, you can watch cable TV programming.

1. Press **INPUT SELECT** button on the remote control and select *Video*.
2. Tune to cable service provided channels using the cable box.

• For further information regarding cable TV service, contact your local cable TV service provider(s).

Watching external AV source (When the Interface board is installed.)
► The interface board(AP-40EA21) is not equipped on MZ-40PA17 series models.

When connecting the Plasma Monitor with external equipment, match the colours of connecting ports.

1. Press **INPUT SELECT** button on the remote control of the monitor to select *Video*.
2. Operate the corresponding external equipment.

Watching DVD (When the Interface board is installed.)
► The interface board(AP-40EA21) is not equipped on MZ-40PA17 series models.

How to connect
Connect DVD video inputs to Y, P_B, P_R of COMPONENT (480i/480p) (DVD INPUT) and audio inputs to Audio sockets of AV INPUT.

How to use
1. Press **INPUT SELECT** button on the remote control of the monitor to select *Component*.
2. Try this after turning on the DVD player.

• **Component Input ports**
You can get better picture quality if you connect DVD player with component input ports as below.

Component ports of the Monitor	Y	

Video output ports of DVD player	Y	Pb
	Y	B-Y
	Y	Cb
	Y	PB

Connecting PC
You can enjoy vivid picture and sound with connecting a PC with the Monitor.

Setup Instructions to Connect a PC to your Monitor
• Set the video mode of PC to VGA/SVGA to obtain the best picture quality for the Monitor.
• If the resolution of PC is over SVGA, there will be no picture on the Monitor.
• Connect the signal cable from the monitor output port of the PC to the RGB-PC INPUT (VGA/SVGA) port of the Monitor.
• Connect the audio cable from the PC to the Audio ports of the Monitor. (Audio cables not included with the Monitor)
• In case of using a sound card adjust PC sound properly.

PC Setup
1. Press **POWER** button on the PC and press ⏻**ON/OFF** button on the Monitor. After this press ⏻/Ⅰbutton on the Monitor or press **POWER** button on the remote control.
2. Use the **INPUT SELECT** button on the remote control to select the RGB input source.
3. Set the resolution of PC under SVGA (800x600).

• If still picture is on the screen for a long period time, Screen Burn !
• If the resolution of PC is over SVGA, connect to the RGB-PC INPUT(VGA/SVGA) port of the Monitor after changing the resolution of PC under SVGA.
• If picture isn't be displayed properly by connecting a non-standard PC, contact your dealer for more information.
• It maybe occur a picture noise.according to any contrast or brightness in PC mode. In this case, adjust contrast or brightness level to get better picture quality.

# Displayable Monitor Specification

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)	Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
640x350	31.468	70.09	640x480	53.011	100.04
	37.861	85.08		64.062	120.00
640x400	31.469	70.08	800x600	35.156	56.25
	37.927	85.03		37.879	60.31
640x480	31.469	59.94		48.077	72.18
	35.000	66.66		46.875	75.00
	37.861	72.80		53.674	85.06
	37.500	75.00		56.000	90.00
	43.269	85.00		64.016	100.00
	45.913	90.03	832x624	49.725	74.55

(Synchronization input form : separate)
• There might be a noise according to any resolution, contrast or brightness in PC mode. Then change the PC mode into other resolution or adjust brightness and contrast on the menu until the picture is clean.

Controls of the remote control

- When using the remote control point it at the remote control sensor on the Monitor.
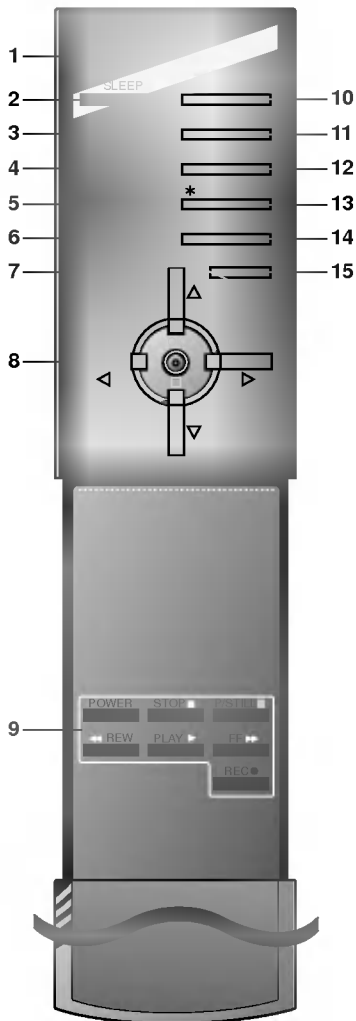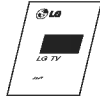
1. **POWER**
   switches the set on from standby or off to standby.

2. **SLEEP**
   sets the sleep timer.

3. **PSM (Picture Status Memory)**
   recalls your preferred picture setting.

4. **ARC (Aspect Ratio Control)**
   changes the picture format.

5. **PIP**
   switches the sub picture on or off.

6. **PIP INPUT**
   selects the input mode for the sub picture.

7. **MENU**
   selects a menu.

8. **▲ / ▼**
   selects a programme or a menu item.
   ◄ / ► (Volume Down/Up)
   adjusts the volume.
   adjusts menu settings.
   OK
   displays the current mode.

9. **VCR BUTTONS**
   control some video cassette recorders.

10. **INPUT SELECT BUTTON**
    selects *Video*, *S-Video*, *Component* or *RGB* mode.

11. **SSM (Sound Status Memory)**
    recalls your preferred sound setting.

12. **STILL**
    You can still the current picture.
    The sub picture is stilled in PIP mode.

13. **No Function**

14. **POSITION**
    moves the sub picture clock-wise.

15. **MUTE**
    switches the sound on or off.
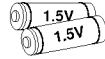
Installing Batteries
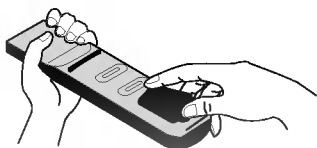
- Open the battery compartment cover on the back side and insert the batteries with correct polarity (+ to +, - to -).
- Apply two 1.5V alkaline batteries of AAA type. Don't mix the used batteries with new batteries.
- Install the batteries with the correct polarities.

Accessories

Owner's Manual

Alkaline batteries

1.5V
1.5V

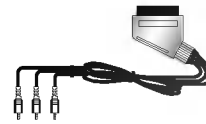Remote control handset

D-sub 15 pin cable

Power cord

Phone scart cable
(Optional)

Optional Extras

- Optional extras can be changed or modified for quality improvement without any notification new optional extras can be added.
- Contract your dealer for buying these items.

Interface board

Tilt wall mounting bracket

Wall mounting bracket

Ceiling mounting bracket
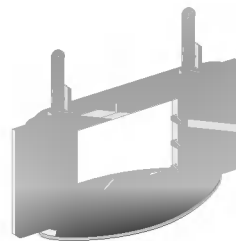
Floor type stand

11

Optional Extras

- Optional extras can be changed or modified for quality improvement without any notification new optional extras can be added.
- Contract your dealer for buying these items.
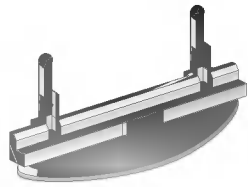
Desktop stand

Speakers

Speaker stand

Floor type speaker stand

Video cables

Audio cables

Monitor Installation

- The Monitor can be installed in various ways such as wall mounting type, desktop type, etc..
- Install this monitor only in a location where adequate ventilation is available.

To install as wall mounting type
a. Wall mount minimum allowable clearances for adequate ventilation

To install as desktop type
b. Pedestal mount minimum allowable clearances for adequate ventilation

Turning on the Monitor

- **When using the remote control, aim it at its sensor on the Monitor.**

st after installation

1. Connect power cord correctly.

2. Press the ⏻ **ON/OFF** button on the Monitor. At this moment, the Monitor is switched to standby mode. Press the **INPUT SELECT** button on the Monitor or press the **POWER**, **INPUT SELECT** button on the remote control and then the Monitor will be switched on.
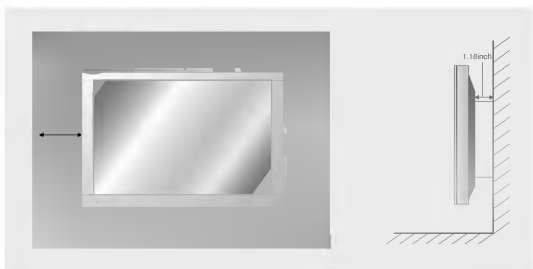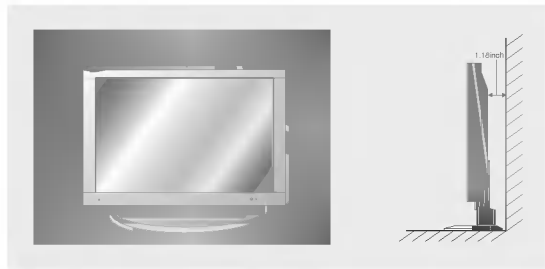
power cord **is still connected)**

1. **If the Monitor is turned off with the ⏻ON/OFF button on the Monitor**
   • Press the ⏻**ON/OFF** button on the Monitor to turn on the Monitor.

2. **If the Monitor is turned off with the remote control and also the ON/OFF button on the Monitor**
   • Press the ⏻**ON/OFF** button on the Monitor and then press the **INPUT SELECT** button on the Monitor or press the **POWER**, **INPUT SELECT** button on the remote control to turn on the Monitor.

• **Adjusting volume level**
   Volume(▶) button increases the level of sound and volume(◀) button decreases the level of sound.

Menu language setup

- The menu can be displayed on the screen in desired language. First select your language.

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ▶ button and then ▲ / ▼ button to select *Language*.

3. Press the ▶ button and then ▲ / ▼ button to select your desired language.
   From this point on, the on-screen display will be presented in the language of your choice.

4. Press the **OK** button.

Function checking

1. Press the **MENU** button.

2. Press the ▲ / ▼ button.

   • Each time you press this button you can see menus shown below.

<Video menu>

<Audio menu>

<Special menu>
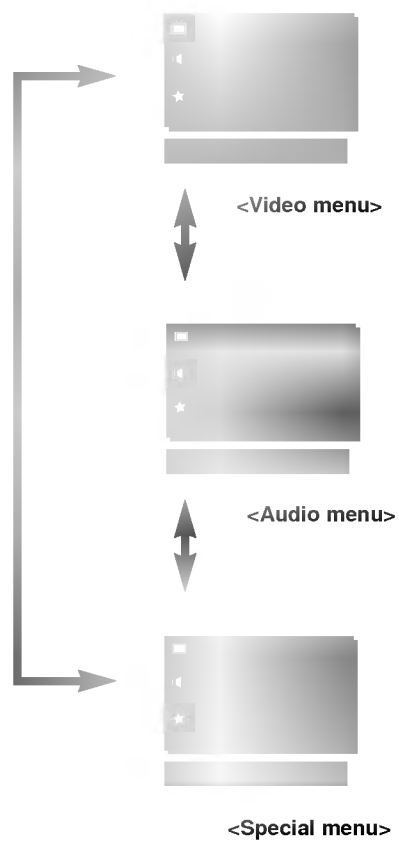
3. Press the ► button and then ▲ / ▼ or ◄ / ► button to select a function you want to use.

   • Press the **OK** button to exit.

VIDEO Menu

PSM (Picture Status Memory)

- This function adjusts the PDP to the best picture appearance
- This function is not available in PC mode and PIP.

1. Press the **PSM** button to select the picture appearance setup.

    • Each press **PSM** button changes the screen display as shown below.

    > **Dynamic** ⟶ **Mild** ⟶ **User**

    • You can also select **Dynamic**, **Mild** or **User** in the VIDEO menu.
    • The picture **Dynamic**, **Mild** and **User** are programmed for good picture reproduction at the factory and cannot be changed.

Adjusting Auto Colour Control

- Adjustments also affect the colour temperature if other input sources. Readjust colour temperature for PC input (RGB) if necessary.
- To initial values (reset to default settings), select the '**Normal**'.

1. Press the **MENU** button and then ▲ / ▼ button to select the VIDEO menu.
2. Press the ► button and then ▲ / ▼ button to select **Colour Temp.**.
2. Press the ► button and then ▲ / ▼ button to select **CSM**.
3. Press the ► button and then ▲ / ▼ button to select the desired colour temperature.
4. Press the **OK** button.

    • Each press of ▲ / ▼ button changes the screen display as shown below.

    > **Normal** ⟷ **Cool** ⟷ **Warm** ⟷ **User**

Adjusting Colour Temperature

- You should be adjust colour temperature in PC mode again although colour temperature is adjusted in other input source.
- To initialize adjusted value, select '0' in **Red**, **Green** and **Blue**.

1. Press the **MENU** button and then ▲ / ▼ button to select the VIDEO menu.
2. Press the ► button and then ▲ / ▼ button to select the **Colour Temp.**.
3. Press the ► button and then ▲ / ▼ button to select colour temperature items.
4. Press the ► button and then ◄ / ► button to make appropriate adjustments.
5. Press the **OK** button.

    • The adjustment range of **Red**, **Green** and **Blue** is -50~+50.

Manual picture control (User option)

- You can adjust picture contrast, brightness, colour, sharpness and tint to the levels you prefer.
- PIP settings are not adjustable.

1. Press the **MENU** button and then ▲ / ▼ button to select the VIDEO menu.
2. Press the ► button and then ▲ / ▼ button to select the desired picture item.
3. Press the ► button and then ◄ / ► button to make appropriate adjustments.
4. Press the **OK** button.

PSM	►
Colour Temp.	►
Contrast	100 ►
Brightness	50 ►
Colour	50 ►
Sharpness	50 ►
Tint	0 ►
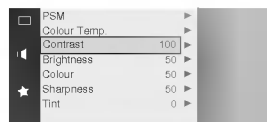
AUDIO Menu

SSM (Sound Status Memory)

- This function lets you enjoy the best sound without any special adjustment because the Monitor automatically selects the appropriate sound option based on the program content.

1. Press the **SSM** button to select the picture appearance setup.

Flat → *Speech* → *Movie* → *Music* → *User*

• You can also select *Flat*, *Speech*, *Movie*, *Music* or *User* in the AUDIO menu.

AVL (Auto Volume Leveler)

- This feature maintains an equal volume level; even if you change channels.

1. Press the **MENU** button and than ▲ / ▼ button to select the AUDIO menu.
2. Press the ► button and then ▲ / ▼ button to select *AVL*.
3. Press the ► button and then ▲ / ▼ button to select *On* or *Off*.
4. Press the **OK** button.

AVL

Adjusting Sound (Manual Setting)

1. Press the **MENU** button and then ▲ / ▼ button to select the AUDIO menu.
2. Press the ► button and then ▲ / ▼ button to select the desired sound item.
3. Press the ► button and then ◄ / ► button to make appropriate adjustments.
4. Press the **OK** button.

Treble

SPECIAL Menu

Setting Picture Format

- You are available to 4:3 in RGB-PC (except 800x600) mode.

1. Press the **ARC** button to select a desired picture format.

• *4:3*
This picture format is 4 to 3 of general Plasma Display.

• *Zoom*
You can enjoy the cinema in a vast screen through the Zoom mode. The screen 4:3 is magnified to the upper/lower sides so that the screen 16:9 is full. The bottom and top of the picture may be lost.

• You can also select *4:3* or *Zoom* in the Special menu.

Screen Adjustments (VIDEO and S-VIDEO mode only)

- This is the function to correct trembling or picture instability while viewing a video tape.

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ▶ button and then ▲ / ▼ button to select *Screen Adj.*.

3. Press the ▶ button and then ▲ / ▼ button to to select *TV* or *VCR*.

• Select the *VCR* option if watching a VCR.
• Select the *TV* option for other equipment.(Except VCR)

4. Press the **OK** button.

Auto adjustment (RGB mode only)

- Automatically adjusts picture position and minimizes image shaking.

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ▶ button and then ▲ / ▼ button to select *Screen Adj.*.

3. Press the ▶ button and then ▲ / ▼ button to select *Auto-configure*.

4. Press the ▶ button.
• When *Auto-configure* has finished, *OK* will be shown on screen.
• If the position of the image is still not correct, try Auto adjustment again.

5. If picture needs to be adjusted more after Auto adjustment in *RGB*, you can adjust the *V-Position*, *H-Position* and *Phase*.

- Although the image is still not correct, your Monitor is functioning properly but needs further adjustment.

Adjusting horizontal / vertical position (RGB and COMPONENT 480p mode only)

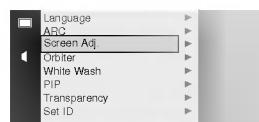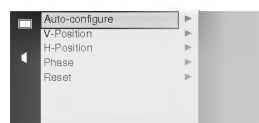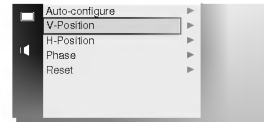1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ► button and then ▲ / ▼ button to select **Screen Adj.**.

3. Press the ► button and then ▲ / ▼ button to select **V-Position** or **H-Position**.

   • Select **V-Position** for vertical position adjustment.
   • Select **H-Position** for horizontal position adjustment.

4. Press the ► button and then ◄ / ► button to adjust until you get desired horizontal or vertical position and then press the **OK** button.

   • Based on the input mode, the adjustment range of **V-Position** or **H-Position** may change.
   • Based on the input signal, the position of the picture may not change even though you have adjusted the horizontal or vertical position with this function.

Adjusting phase (RGB mode only)

- If the picture isn't clear after auto adjustment and especially that characters are still trembling, then adjust the picture phase manually.
- When watching PIP, **Screen** option is not available in Special menu.

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ► button and then ▲ / ▼ button to select **Phase**.

3. Press the ► button and then ◄ / ► button to adjust phase and then press the **OK** button.
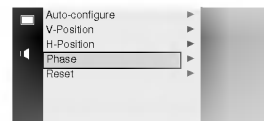
   • The adjustment range of **Phase** is 0 ~ 63.

Initializing (Reset to factory value) (RGB mode only)

• To initialize the adjusted value, select **Reset** with the ▲ / ▼ button and then press the ► button.

Orbiter

- Avoid keeping a fixed image remain on the Monitor's screen for a long period of time. A frozen still picture from a PC/video game set displayed on the screen for prolonged periods will result in an image ghost remaining even when you change the image.
- To avoid a permanent image on the screen, the screen will move every 2 minutes.
- This is the function to prolong hour till having a fixed image but it doesn't avoid permanent image perfectly.

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ► button and then ▲ / ▼ button to select **Orbiter**.

3. Press the ► button and then ▲ / ▼ button to select **On** or **Off**.

4. Press the **OK** button.
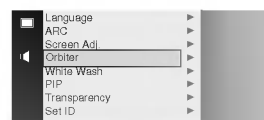
White Wash

- This is the function to remove permanent image on the screen.
- Set *White Wash* '*On*' until fixed image disappears.

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ▶ button and then ▲ / ▼ button to select *White Wash*.

3. Press the ▶ button and then ▲ / ▼ button to select *On* or *Off*.

4. Press the **OK** button.

Adjusting OSD Transparency

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ▶ button and then ▲ / ▼ button to select *Transparency*.

3. Press the ▶ button and then ◀ / ▶ button to adjust OSD transparency.

   • The adjustment range of *Transparency* is 0 ~ 5.

4. Press the **OK** button.
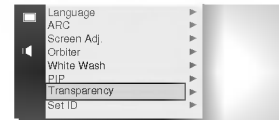
Sleep Timer

- Sleep timer turns the monitor off at the preset time.
- Press the **SLEEP** button to select the number of minutes. The display ◀ --- ▶ will appear on the screen, followed by *10*, *20*, *30*, *60*, *90*, *120*, *180* and *240*. The timer begins to count down from the number of minutes selected.
- When the sleep time you want is displayed on the screen, don't press the sleep button. After 20 seconds, the screen display disappears and sleep time is set.

• To check the remaining sleep time, press the **SLEEP** or **OK** button just once.
• If you turn the Monitor off after setting the sleep timer, the setting is erased. The sleep timer will then have to be set again.
• To release sleep time setting, press the **SLEEP** or ◀ / ▶ button repeatedly to select ◀ --- ▶.
• '⚠ ⏻ 1' is displayed, one minute before the Monitor is due to switch off.

PIP Function

- Select **RGB** input source before pressing PIP
- This function works only when the interface board is installed.
- This function works only in the following resolution;
  640x480, 800x600 (only in Vertical frequency 60 Hz), Component 480p
- With PIP active, not all picture formats can be used for the main/sub picture.

Watching PIP

Press the **PIP** button to switch on the sub pictures.
Press this button again to switch it off.

Selecting the input signal

Press the **PIP INPUT** button in PIP mode.

• Each time you press **PIP INPUT** button, you toggle *Video*, *S-Video* and *Component*.

    Component source only works in 480i mode.

Selecting PIP sound options

- Select **RGB** input source before pressing PIP.
- To use this function, connect PC video port to RGB-PC INPUT(VGA/SVGA) socket and connect PC audio port to AUDIO INPUT.
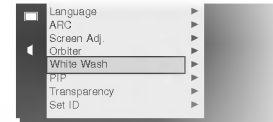- *Sound Select* is always selected *Sound[M]* regardless of prior sound choice.

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.

2. Press the ▶ button and then ▲ / ▼ button to select *PIP*.

3. Press the ▶ button and then ▲ / ▼ button to select *Sound Select*.

4. Press the ▶ button and then ▲ / ▼ *Sound[M]* or *Sound[S]*.

5. Press the **OK** button.

Moving the Sub picture

Press the **POSITION** button in PIP mode.

• Each press of the **POSITION** button will change the position of the sub picture on the screen clockwise.

External Control Device Setup

- Connect the RS-232C input jack to an external control device (such as a computer or an A/V control system) and control the Monitor's functions externally.
- Connect the serial port of the control device to the RS-232C jack on the Monitor back panel.
- RS-232C connection cables are not supplied with the Monitor.
- The Monitor remote control and front panel controls (except main power) will not be functional if the Monitor is controlled by a PC computer or other external device.
- When you connect a control (RS-232C) cable to this monitor, use control cable attached the ferrite core. If you do not do this, this monitor will not conform to mandatory CISPR22 (EN55022) standards.

Type of connector : D-Sub 9-pin male

No.	Pin name
1	No connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection
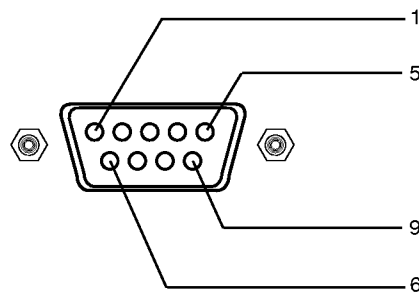
* Use a null modem cable.
  Wire the 7-Wire cable so that each pair of data lines cross between the two devices. These data line pairs are RXD (Receive data) and TXD (Transmit data), DTR (DTE side ready) and DSR (DCE side ready), and RTS (Ready to send) and CTS (Clear to send).
  When using the 3-Wire cable connected to RXD, TXD and GND; Pin No. 4 (DTR) and Pin No. 6 (DSR) must be connected to the monitor. (The cable must be disconnected from the Monitor to be able to use the remote control and Monitor front panel controls.)
* With the RS-232 input connected, the Monitor cannot be controlled by both an external control device and the remote control at the same time. The Monitor can only be controlled by either the remote control or the external control device.

RS-232C configurations

7-wire configuration
(Standard RS-232C cable)

	PC		PDP	
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
	DB 9		DB 9	

Control line

3-wire configuration
(Not standard)

	PC		PDP	
RXD	2		3	TXD
TXD	3		2	RXD
GND	5		5	GND
DTR	4		4	DTR
DSR	6		6	DSR
RTS	7		7	RTS
CTS	8		8	CTS
	DB 9		DB 9	
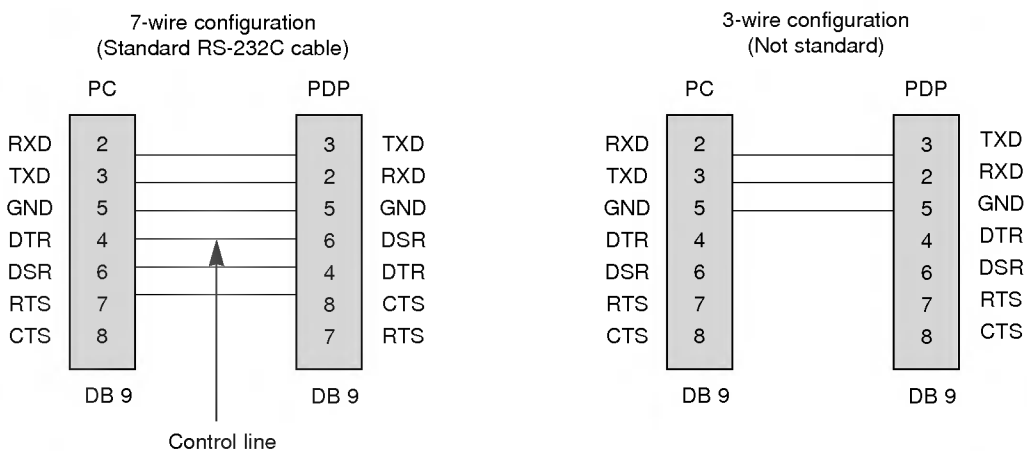
Set ID

- Use this function to specify a monitor ID number.

1. Press the **MENU** button and then ▲ / ▼ button to select the SPECIAL menu.
2. Press the ► button and then ▲ / ▼ button to select **Set ID**.
3. Use the ◄ / ► button to adjust **Set ID** to choose the desired monitor ID number.

   • The adjustment range of **Set ID** is 1 ~ 99.
     Refer to 'Real data mapping1' (See p.24).

- The RS-232C input jack is used to control the Monitor's functions using an external control device.

Communication Parameters

• Baud rate : 115200 bps (UART)
• Data length : 8 bits
• Parity : None
• Stop bit : 1 bit
• Communication code : ASCII code

* If the command interval is interrupted for more than 4 seconds, only Command 1 will be recognized.
  Be careful when using the power command.

Command Reference List

	COMMAND 1	COMMAND 2	DATA (Hexadecimal)
01. Power	k	a	00 ~ 01
02. Input Select	k	b	00 ~ 03
03. Aspect Ratio	k	c	00 ~ 02
04. Screen mute	k	d	00 ~ 01
05. Volume mute	k	e	00 ~ 01
06. Volume control	k	f	00 ~ 64
07. Contrast	k	g	00 ~ 64
08. Brightness	k	h	00 ~ 64
09. Colour	k	i	00 ~ 64
10. Tint	k	j	00 ~ 64
11. Sharpness	k	k	00 ~ 64
12. OSD select	k	l	00 ~ 01
13. Remote control lock mode	k	m	00 ~ 01
14. PIP	k	n	00 ~ 01
15. Sound input select	k	p	00 ~ 01
16. PIP position	k	q	00 ~ 03
17. Treble	k	r	00 ~ 64
18. Bass	k	s	00 ~ 64
19. Balance	k	t	00 ~ 64
20. Colour temperature	k	u	00 ~ 03
21. Red adjustment	k	v	00 ~ 64
22. Green adjustment	k	w	00 ~ 64
23. Blue adjustment	k	$	00 ~ 64
24. PIP input source	k	y	01 ~ 03

Transmission / Receiving Protocol

Transmission

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

* [Command 1]   : k
* [Command 2]   : To control PDP set.
* [Set ID]   : You can adjust the set ID to choose desired monitor ID number in special menu. See previous page. Adjustment range is 1 ~ 99. When selecting Set ID '0', every connected PDP set is controlled.
* [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 Monitor 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]

* The Monitor transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

01. Power (Command:a)

▶ To control Power On/Off of the Monitor.

Transmission

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

Data 0 : Power Off
     1 : Power On

Acknowledgement

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

Data 0 : Power Off
     1 : Power On

▶ To show Power On/Off.

Transmission

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

Acknowledgement

Data 0 : Power Off
     1 : Power On

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

Data 0 : Power Off
     1 : Power On

* In like manner, if other functions transmit 'FF' data based on this format, Acknowledgement data feed back presents status about each function.

02. Input select (Command:b) (Main picture input)

▶ To select input source for the Monitor.
You can also select an input source using the INPUT SELECT button on the Monitor's remote control.

Transmission

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

Data 0 : RGB
     1 : Component
     2 : Video
     3 : S-Video

Acknowledgement

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

Data 0 : RGB
     1 : Component
     2 : Video
     3 : S-Video

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 Special menu.

Transmission

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

Data 0 : Wide screen (16:9)
     1 : Normal screen (4:3)
     2 : Full screen (Zoom)

Acknowledgement

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

Data 0 : Wide screen (16:9)
     1 : Normal screen (4:3)
     2 : Full screen (Zoom)

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]

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

05. Volume mute (Command:e)

▶ To control volume mute on/off.
You can also adjust mute using the MUTE button on remote control.

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.
You can also adjust volume with the volume buttons on remote control.

Transmission

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

Data Min : 00 ~ Max : 64
     * Refer to 'Real data mapping1'(See p.24).

Acknowledgement

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

Data Min : 00 ~ Max : 64

07. Contrast (Command:g)

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

Transmission

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

Data Min : 00 ~ Max : 64
   * Refer to 'Real data mapping1' as shown below.

Acknowledgement

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

Data Min : 00 ~ Max : 64

08. Brightness (Command:h)

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

Transmission

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

Data Min : 00 ~ Max : 64
   * Refer to 'Real data mapping1' as shown below.

Acknowledgement

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

Data Min : 00 ~ Max : 64

09. Colour (Command:i)

▶ To adjust the screen colour.
You can also adjust colour in the Video menu.

Transmission

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

Data Min : 00 ~ Max : 64
   * Refer to 'Real data mapping1' as shown below.

Acknowledgement

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

Data Min : 00 ~ Max : 64

10. Tint (Command:j)

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

Transmission

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

Data Red : 00 ~ Green : 64
   * Refer to 'Real data mapping1'as shown below.

Acknowledgement

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

Data Red : 00 ~ Green : 64

11. Sharpness (Command:k)

▶ To adjust the screen sharpness.
You can also adjust sharpness in the Video menu.

Transmission

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

Data Min : 00 ~ Max : 64
   * Refer to 'Real data mapping1' as shown below.

Acknowledgement

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

Data Min : 00 ~ Max : 64

12. OSD select (Command:l)

▶ To select OSD (On Screen Display) on/off.

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 control lock mode (Command:m)

▶ To lock the front panel controls on the monitor and
remote control.

Transmission

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

Data 0 : off
   1 : on

Acknowledgement

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

Data 0 : off
   1 : on

* In not use the remote control, you can set this mode.

* **Real data mapping 1**	* **Real data mapping 2**
0 : Step 0 ⋮ A : Step 10 (Set ID 10) ⋮ F : Step 15 (Set ID 15) 10 : Step 16 (Set ID 16) ⋮ 64 : Step 100	0 : -10 5 : -9 A : -8 ⋮ 2D: -1 32: 0 37: +1 ⋮ 5F: +9 64: +10

14. PIP (Command:n)

► To control the PIP (Picture In picture).
You can also control the PIP using the PIP button on the remote control or in the Special menu.

Transmission

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

Data 0 : PIP off
     1 : PIP on

Acknowledgement

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

Data 0 : PIP off
     1 : PIP on

15. Sound input select (Command:p)

► To select main or sub(inset) sound for PIP picture.
You can also select sound in PIP on the special menu.

Transmission

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

Data 0 : Main picture sound
     1 : Sub picture sound

Acknowledgement

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

Data 0 : Main picture sound
     1 : Sub picture sound

16. PIP position (Command:q)

► To select sub picture position for PIP.
You can also adjust the sub picture position using the POSITION on the remote control or in the Special menu.

Transmission

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

Data 0 : Right down on screen
     1 : Left down on screen
     2 : Left up on screen
     3 : Right up on screen

Acknowledgement

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

Data 0 : Right down on screen
     1 : Left down on screen
     2 : Left up on screen
     3 : Right up on screen

17. Treble (Command:r)

► To adjust treble.
You can also adjust treble in the Audio menu.

Transmission

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

Data   Min : 00 ~ Max : 64
     * Refer to 'Real data mapping1' (See p.24).

Acknowledgement

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

Data   Min : 00 ~ Max : 64

18. Bass (Command:s)

► To adjust bass.
You can also adjust bass in the Audio menu.

Transmission

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

Data   Min : 00 ~ Max : 64
     * Refer to 'Real data mapping1' (See p.24).

Acknowledgement

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

Data   Min : 00 ~ Max : 64

19. Balance (Command:t)

► To adjust balance.
You can also adjust balance in the Audio menu.

Transmission

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

Data   Min : 00 ~ Max : 64
     * Refer to 'Real data mapping1' (See p.24).

Acknowledgement

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

Data   Min : 00 ~ Max : 64

20. Colour temperature (Command:u)

► To adjust colour temperature.
You can also adjust CSM in the video menu.

Transmission

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

Data   o: Normal   1: Cool   2: Warm   3: User

Acknowledgement

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

Data   o: Normal   1: Cool   2: Warm   3: User

21. Red Adjustment (Command:v)

▶ To adjust red in colour temperature.

Transmission

[k][v][ ][Set ID][ ][Data][Cr]

Data   Min : 00 ~ Max : 64
         * Refer to 'Real data mapping 2' (See p.24).

Acknowledgement

[v][ ][Set ID][ ][OK][Data][x]

Data   Min : 00 ~ Max : 64

22. Green Adjustment (Command:w)

▶ To adjust green in green temperature.

Transmission

[k][w][ ][Set ID][ ][Data][Cr]

Data   Min : 00 ~ Max : 64
         * Refer to 'Real data mapping 2' (See p.24).

Acknowledgement

[w][ ][Set ID][ ][OK][Data][x]

Data   Min : 00 ~ Max : 64

23. Blue Adjustment (Command:$)

▶ To adjust blue in green temperature.

Transmission

[k][$][ ][Set ID][ ][Data][Cr]

Data   Min : 00 ~ Max : 64
         * Refer to 'Real data mapping 2' (See p.24).

Acknowledgement

[$][ ][Set ID][ ][OK][Data][x]

Data   Min : 00 ~ Max : 64

24. PIP input select (Command:y)

▶ To select input source for sub picture in PIP mode.

Transmission

[k][y][ ][Set ID][ ][Data][Cr]

Data 1 : Component
        2 : Video
        3 : S-Video

Acknowledgement

[y][ ][Set ID][ ][OK][Data][x]

Data 1 : Component
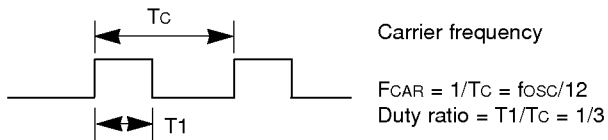   2 : Video
        3 : S-Video

IR CODE (NEC format)

How to connect

► Connect your wired remote control to remote control jack of the monitor.
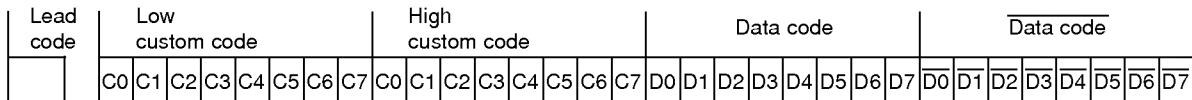
Remote control IR code (NEC format)

► **Output waveform**

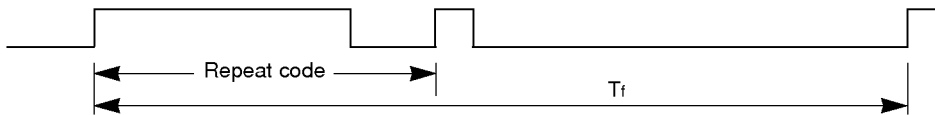Single pulse, modulated with 37.917KHz signal at 455KHz

Carrier frequency

F_{CAR} = 1/T_C = f_{OSC}/12
Duty ratio = T1/T_C = 1/3

► **Configuration of frame**

• 1st frame

Lead code	Low custom code								High custom code								Data code								Data code							
	C0	C1	C2	C3	C4	C5	C6	C7	C0	C1	C2	C3	C4	C5	C6	C7	D0	D1	D2	D3	D4	D5	D6	D7	D0	D1	D2	D3	D4	D5	D6	D7

• Repeat frame

Repeat code

T_f

► **Lead code**

9 ms

4.5 ms

► **Repeat code**

0.55 ms

9 ms

2.25 ms
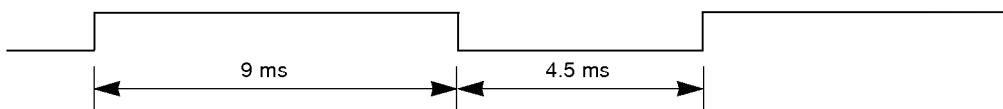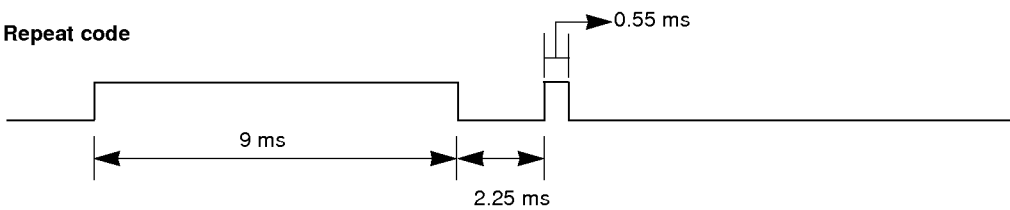
IR CODE (NEC format)

▶ **Bit description**

• Bit "0"

| 0.56 ms |
| 1.12 ms |

• Bit "1"

| 0.56 ms |
| 2.24 ms |
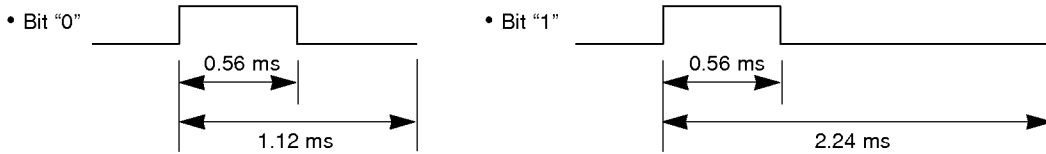
▶ **Frame interval : Tf**

The transmitted waveform as long as a key is depressed.

| Tf | Tf |

Tf=108ms @455KHz
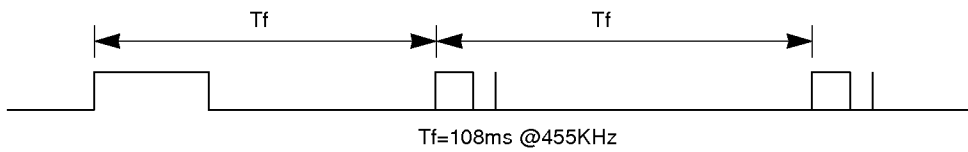
Code (Hexa)	Function	Note
00H	UP (▲)	R/C Button
01H	DOWN (▼)	R/C Button
02H	VOL+ (▶)	R/C Button
03H	VOL- (◀)	R/C Button
08H	POWER	R/C Button (Power On/Off)
C4H	POWER ON	Discrete (Only Power On)
C5H	SYSTEM OFF	Discrete (Only System Off)
09H	MUTE	R/C Button
0BH	INPUT SELECT	R/C Button
98H	RGB	Discrete (Input RGB & Power On)
5AH	VIDEO	Discrete (Input VIDEO & Power On)
51H	S-VIDEO	Discrete (Input S-VIDEO & Power On)
BFH	COMPONENT	Discrete (Input COMPONENT & Power On)
0EH	SLEEP	R/C Button
1BH or 44H	OK (■)	R/C Button
43H	MENU	R/C Button
47H	SSM	R/C Button
4DH	PSM	R/C Button
60H	PIP	R/C Button
61H	PIP INPUT	R/C Button
62H	(PIP)POSITION	R/C Button
65H or BCH	STILL	R/C Button
79H	ARC	R/C Button
77H	ARC (16: 9)	Discrete (Only 16:9 mode)
76H	ARC (4 : 3)	Discrete (Only 4:3 mode)
AFH	ARC (ZOOM)	Discrete (Only ZOOM mode)

NOTES

Troubleshooting check list

No picture & No sound	• Check whether the Monitor is turned on. • Is power cord inserted into wall outlet? • Plug another product's power cord into the wall outlet where the Monitor's power cord was plugged in to test the outlet.

Picture okay but & No sound	• Press the **VOLUME (▶)** button. • Sound muted? Press **MUTE** button.

The remote control doesn't work	• Check to see if there is any object between the Plasma Display and the remote control causing obstruction. • Check to see if the batteries are installed with the correct polarities. (Refer to p.10) • Install new batteries. (Refer to p.10)

No or poor colour or poor picture	• Select *Colour* in the VIDEO menu and press the **VOLUME (▶)** button. (Refer to p.15) • Keep a certain distance between the Monitor and the VCR. • Activate any function to restore the brightness of the picture. (If still picture is on the screen for more than 5 minutes, the screen gets dark.)

No output from one of the speakers	• Adjust *Balance* in the AUDIO menu. (Refer to p.16)

Strange sound from the Monitor	• Typical sound due to normal Monitor operation, Monitor is not faulty.

Product Specifications

MODEL	MZ-40PA17/B/G/K/S MT-40PA15/B/G/K/S
Width (inches)	36.6
Height (inches)	28
Depth (inches)	3.1
Weight (pounds)	71.8
Power Requirements	AC 110-240V~ 50/60Hz
Resolution	640 x 480 (Dot)
Colour	16,770,000 (256 steps of each R, G and B)

• The specifications above may be changed without notice for quality improvement.