Philips
Business
Solutions

Ⓔ **User Manual**
Ⓖ **Benützersanleitung**
Ⓘ **Guida Utente**
Ⓢ **Manual de uso**
Ⓕ **Manuel de l'utilisateur**

TYPE NR. BDH5011

PHILIPS

TABLE OF CONTENTS

1. IMPORTANT SAFETY INSTRUCTIONS

WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN
The lightning flash with arrow-head symbol within a triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shocks to persons.

WARNING

To reduce the risk of electric shock, do not remove the front or back covers.
No user-serviceable parts inside. Refer servicing to qualified service personnel only.

The exclamation point within a triangle is intended to tell the user that important operating and servicing instructions are explained.

WARNINGS & PRECAUTIONS

- To prevent damage which may result in fire or shock hazard, do not expose this product to rain or moisture.
- To prevent electric shock, do not remove cover. No user serviceable parts are inside. Refer servicing to qualified service personnel only.
- Keep display away from excessive dust, high temperatures, moisture or direct sunlight.
- Use in a well-ventilated area and do not cover ventilation openings.
- Unauthorized modification of this equipment or using an unshielded connecting cable may cause excessive interference.
- When the display is not in use for a long period of time, disconnect it from the electric outlet.
- If the picture displayed is in any way abnormal, turn off the unit and disconnect it from the electric outlet. Verify your signal wire connections and reconnect the display to the electric outlet.
- Disconnect from the electric outlet before cleaning. Do not use liquid or aerosol cleaners. Use only a slightly damp cloth for cleaning.
- Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage.

- Do not place the unit on a bed, sofa, rug, or other similar surface. Never place the unit near or over a radiator or heat source.
- Do not install unit in an enclosed area unless proper ventilation is provided.
- The unit should be operated from the type of power source indicated on the label. If the type of available power is unknown, consult your dealer or local power company.
- The unit is equipped with a 3-pin grounded plug. The plug will only fit into a grounded power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician. Do not alter the plug; this will defeat the safety feature.
- Do not rest objects on the power cable and avoid placing power cable near high traffic areas.
- Do not overload wall outlets and extension cables as this can result in a risk of fire or electric shock.
- Disconnect the unit from the mains supply and refer servicing to qualified service personnel under the following conditions:
  - Power cable or plug is damaged or frayed.
  - Liquid has been spilled into the product.
  - Unit has been exposed to water or moisture.
  - Unit does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions, improper adjustment of other controls may result in damage which often requires extensive work by a qualified technician to restore the unit to normal operation.
  - Unit has been dropped or the cabinet has been damaged.
  - Unit exhibits a distinct change in performance, indicating a need for service.

2. FCC STATEMENT

FCC Compliance Statement

The equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in strict accordance with the instruction manual, may cause harmful interference to radio communications.
There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to decrease the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to decrease the interference at the owner's expense.
Shielded interconnected cables and shielded power cords must be used with this equipment to ensure compliance with the pertinent RF emission limits governing this device.
Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment and void the warranty.

Canadian Compliance Statement

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.
Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

3. CLEANING AND MAINTENANCE

Cautions When Using the Plasma Display

- Do not bring your hands, face or objects close to the ventilation holes of the plasma display. Top of plasma display is usually very hot due to the high temperature of exhaust air being released through the ventilation holes. Burns or personal injuries may occur if any body parts are brought too close. Placing any object near the top of the display could also result in heat related damages to the object as well as to the display itself.
- Be sure to disconnect all cables before moving the plasma display. Moving the display with its cables attached may damage the cables, and thus, cause fire or electric shock danger.
- Disconnect the power plug from the wall outlet as a safety precaution before carrying out any type of cleaning or maintenance procedure.

Front Panel Cleaning Instructions

- The front of the display has been specially treated. Wipe the surface gently using only a cleaning cloth or a soft, lint-free cloth.
- If the surface is particularly dirty, soak a soft, lint-free cloth in a mild detergent solution. Wring the cloth to remove excessive liquid. Wipe the surface of the display to remove dirt. Then use a dry cloth of the same type to dry the surface.
- Do not scratch or hit the surface of the panel with fingers or hard objects of any kind.
- Do not use volatile substances such as insect sprays, solvents and thinners.

Cabinet Cleaning Instructions

- If the cabinet becomes dirty, wipe the cabinet with a soft, dry cloth.
- If the cabinet is extremely dirty, soak a lint-free cloth in a mild detergent solution. Wring the cloth to remove as much moisture as possible. Wipe the cabinet. Then use a dry cloth of the same type to dry the surface.
- Do not allow any water or detergent to come into contact with the surface of the display.
  If water or moisture gets inside the unit, operating problems and electrical hazards may occur.
- Do not scratch or hit the cabinet with hard objects of any kind.

- Do not use volatile substances such as insect sprays, solvents and thinners on the cabinet.
- Do not place anything made from rubber or PVC near the cabinet for extended periods of time.

Avoid Still Images

- Do not allow a still picture to be displayed for extended periods of time. This can cause a permanent image to remain on the plasma display. Examples of still images may include: still computer images, still video game images, still logos or pictures, text and images displayed in 4:3 Normal mode.

Contents of this manual is subject to change without notice.

Trademark Credits

- VGA is a trademark of IBM Corporation.
- Macintosh is a registered trademark of Apple Computer Corporation.
- SVGA is a registered trademark of the Video Electronics Standard Association.
- All other trademarks are the properties of their respective owners.

4. PRODUCT FEATURES

- **Advanced Digital Image Processing**
  Advanced digital processor with adaptive motion de-interlacing converts all 15KHz signals into progressive scan for a brighter, flicker free image.

- **Pull-Down for Film Scan Conversion**
  Built-in 3:2 pull-down processing can automatically detect and convert film content to properly display with minimal motion artifacts.

- **3D Comb Filter**
  Built-in 3D comb filter converts analog signal into a digital signal for more accurate processing, eliminating cross-color interference for superior NTSC video performance.

- **Dual HD Component Video Inputs**
  Two high-definition component video inputs with auto-detection capabilities will automatically synchronize the display to match the incoming signal source without manual intervention.

- **Picture-in-Picture (PIP)**
  Watch two programs simultaneously using the display's picture-in-picture with four selectable window position settings.

- **Side-by-Side Picture (POP)**
  Watch two programs simultaneously by splitting the screen in half.

- **HDTV Signal Compatible**
  This display is capable of accepting 1080i and 720p HDTV signals via an external HDTV decoder with RGB or Component Video outputs.

- **Digital Zoom Modes**
  Digital zoom modes gets rid of black bars common to non-16:9 aspect ratio movie content.

- **DVI Digital Video Interface with HDCP *(High-Bandwidth Digital Content Protection Protocol)*** Standard DVI interface supports the lastest in digital video peripherals equipped with DVI HDCP digital video output(s). This means that digital content can now be passed from sources such as a digital DVD player, directly to this display without digital-to-analog conversion that causes loss of video quality. Direct digital-to-digital connection ensures the absolute best in video quality.

- **280x1024 SXGA Support**
  The onboard digital scaling engine can accept various PC and HDTV signals and digitally map the signals to fit within 1366 x 768 pixels.

- **Discrete Power ON/OFF**
  Separate Power ON/OFF buttons on the remote control facilitates the recording of IR macros with advanced system setups.

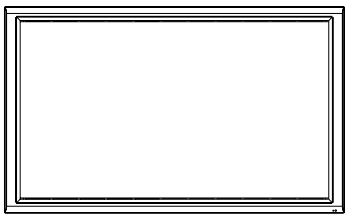
- **Direct Input Selection Buttons**
  Separate input selection keys on the remote control allow quick and easy selection of various inputs.

- **RS-232 Serial Connection**
  The RS-232 command set includes front panel lock, input selection, power on/off, volume and other standard RS-232 command controls.

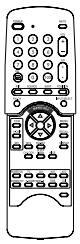
5. PACKAGE CONTENTS

Supplied Accessories

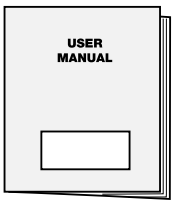
Please verify that you received the following items with your package content:



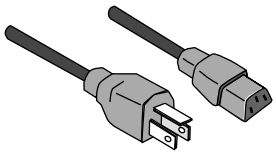
Plasma Display



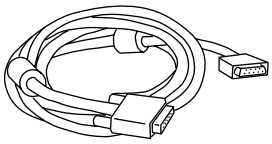
Remote Control



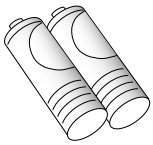
User Manual



Power Cable



VGA Cable



Batteries

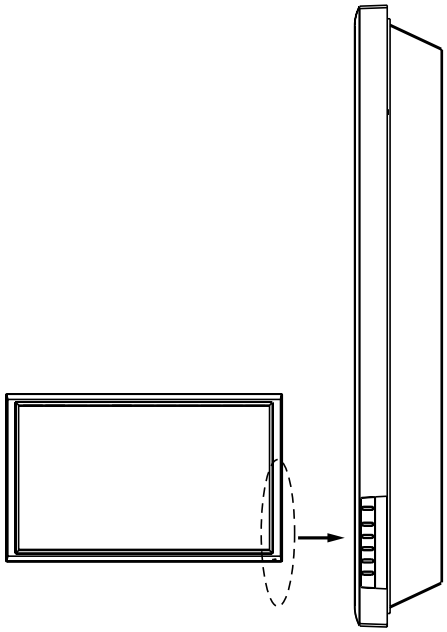
Optional Accessories

The following accessories are available and may be purchased from your local sales representative:

- Wall Mount
- Composite Video Cable (RCA)
- S-Video Cable (Mini-Din)
- Component Video Cable (RCA to RCA)
- Audio Cable (RCA Cable)

6. UNDERSTANDING YOUR DISPLAY

6.1 Front View



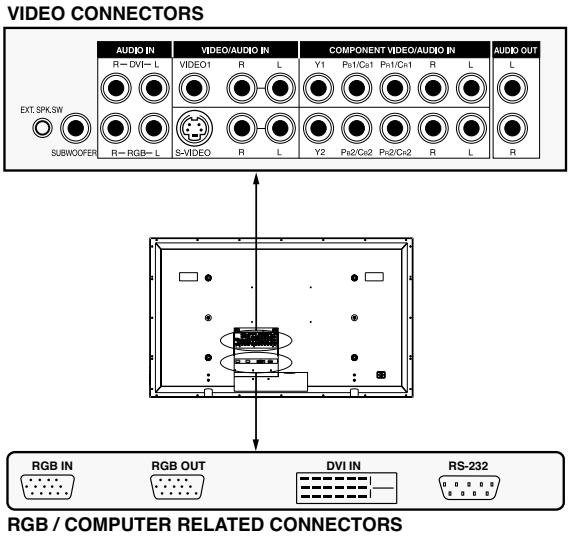
Power (Standby) Button

Turns power **on/off** from standby mode.
There is a 3-second wait between on/off cycles.

Status LED:

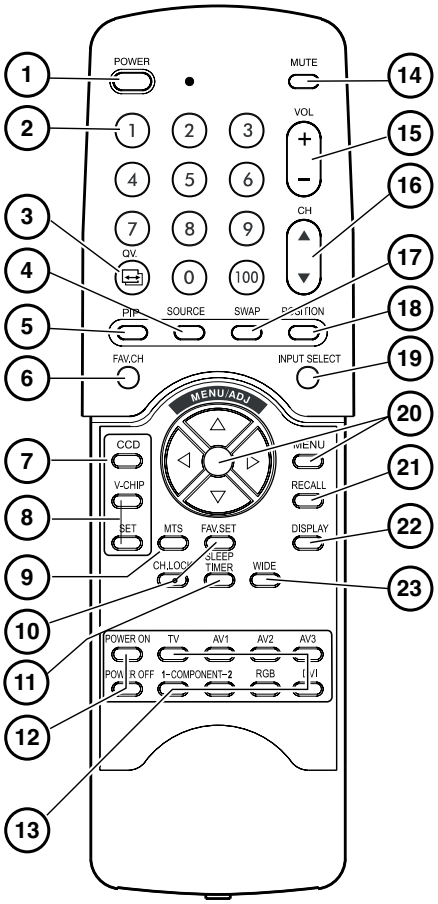
- **Not Illuminated - No AC Power detected**
  If the main power switch (rear of panel) is turned off, this LED will not illuminate.
- **Solid Yellow - Standby (Power OFF) with AC power detected**
  The LED will illuminate in yellow color if the display is shut-off but the main power cord is plugged into the back of the unit.
- **Solid Green -** Power ON
- **Input Button**
  Use this button to switch between available inputs.
- **Menu +/- Buttons**
  Use this menu to engage the On Screen Display menu.
- **Volume Adjustment +/- Buttons**
  Use these buttons to adjust volume up and down.
  These buttons also serve as adjustment buttons when the On Screen Display is engaged.

6.2 Rear View



VIDEO CONNECTORS

RGB / COMPUTER RELATED CONNECTORS



6.3 Remote Control

1. **Standby Power On/Off**
   Push this button to switch on the display from Standby mode. Push it again to switch off to Standby mode.

2. **Number Keypad**
   These buttons are not applicable for this display.

3. **QuickView**
   This button is not applicable for this display.

4. **PIP/POP Source**
   Changes the input source of the PIP or POP sub-window. (See Chapter 10.1)

5. **PIP (Picture-in-Picture Button)**
   Turns on PIP (Picture-in-Picture) mode and POP (Side-by-Side) picture mode.
   (See chapter 10.1).

6. **Favorite Channel**
   This button is not applicable for this display.

7. **Closed Captioning|**
   This button is not applicable for this display.

8. **V-Chip**
   These buttons are not applicable for this display.

9. **MTS Stereo**
   This button is not applicable for this display.

10. **Channel Lock / Fav. Set**
    These buttons are not applicable for this display.

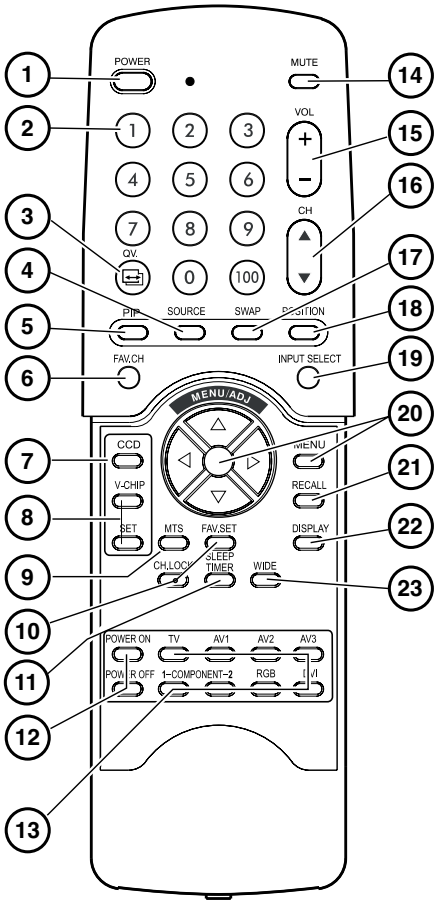
11. **Sleep Timer**
    Engages Sleep Timer Settings.
    (See Chapter 10.4).

12. **Discrete Power ON/OFF**
    Press OFF to switch the display to Standby mode. Press ON to power on from standby mode.

13. **Direct Input Selection Buttons**
    Direct input signal selection by pressing the appropriate button.

14. **Sound Mute On/Off**

15. **Volume** +/-
    Turns volume up or down.



16. Channel Up/Down

These buttons are not applicable to this display.

17. Swap

This button swaps the main and sub picture windows under PIP or POP modes. (See chapter 10.)

18. PIP Position

This button changes the PIP sub-window to 4 different corner locations. (See Chapter 10.)

19. Input Select

Press to select input signal modes sequentially. (See Chapter 8.2.)

20. MENU Adjustment

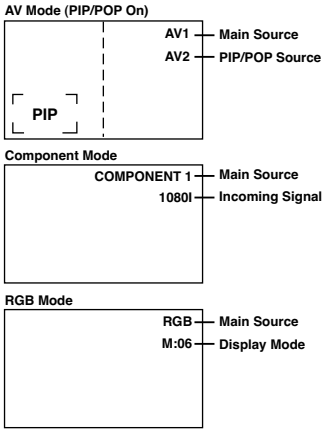
1. Show OSD menu by pressing ◁ or ▷ button or MENU button.
2. Scroll through the major OSD category using △ or ▽ button.
3. Press ◁ or ▷ button again to select sub-options within the category.
4. Press △ or ▽ buttons to change the actual sub-option setting.

21. Recall

Recalls the default picture settings. (See Chapter 11.)

22. Display

Press to show the status of the display.

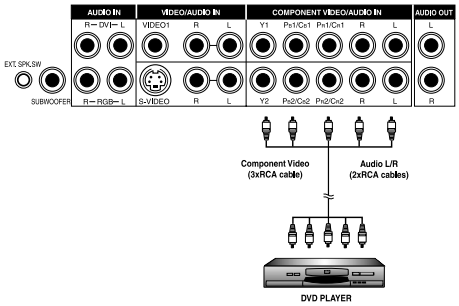


23. Wide

Toggles between various aspect ratio settings. (See Chapter 10.2.)

7. CONNECTING THE DISPLAY

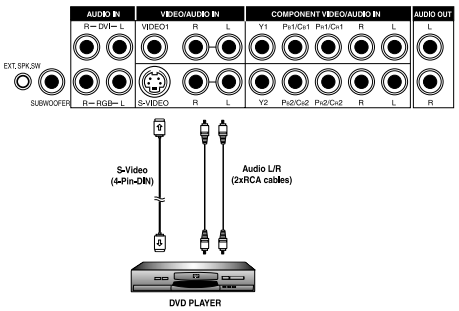
7.1 Connecting a DVD Player



Using Component Video Input

1. Connect the green-colored (labeled as **Y**) jack from the DVD to the green-colored **Y1**-jack of the display.
2. Connect the red-colored (labeled as **PR** or **CR**) jack from the DVD to the red-colored **PR1/CR1** jack of the display.
3. Connect the blue-colored (labeled as **PB** or **CB**) jack from the DVD to the blue-colored **PB1/CB1** jack of the display.
4. Connect the red (R) and white (L) audio jacks from the DVD to the R and L audio-in jacks located next to the **PR1/CR1** connector.

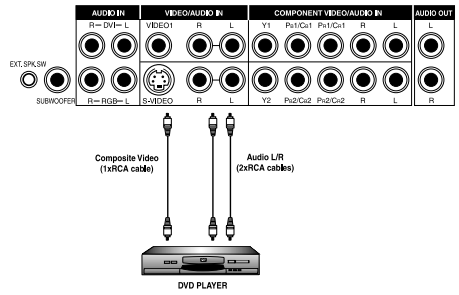
Note:
There are two sets of component inputs provided. You can use either set of component inputs to connect your DVD.



Using S-Video Input

1. Connect the S-Video (4-pin DIN) connector from the DVD to the **S-VIDEO** input on the back of display.

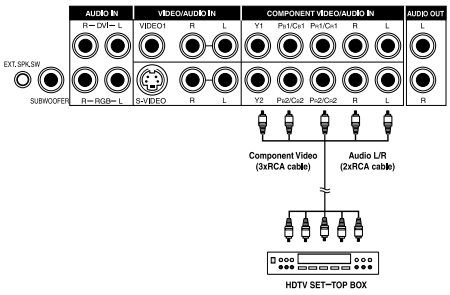
2. Connect the red (R) and white (L) audio jacks from the DVD to the R and L audio-in jacks located next to the **S-VIDEO** connector.



Using Composite (AV) Video Input

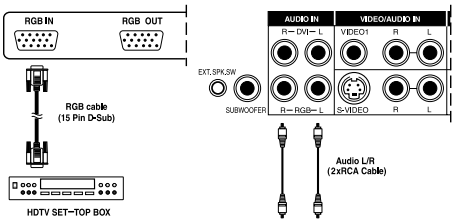
1. Connect the yellow (video) connector from the DVD to the yellow **VIDEO 1** input on the back of display.
2. Connect the red (R) and white (L) audio jacks from the DVD to the R and L audio-in jacks located next to the yellow **VIDEO 1** connector.

7.2 Connecting a HDTV Decoder Set-Top Box



Using Component Video Input

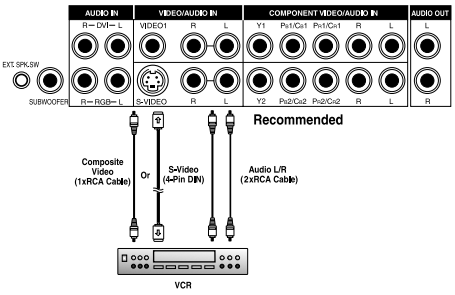
1. Connect the green (labeled as **Y**) jack from the HDTV Set-top box to the green **Y1** jack of the display.
2. Connect the red (labeled as **PR** or **CR**) jack from the HDTV Set-top box to the red **PR1/CR1** jack of the display.
3. Connect the blue (labeled as **PB** or **CB**) jack from the HDTV Set-top box to the blue **PB1/CB** jack of the display.
4. Connect the red (R) and white (L) audio jacks from the HDTV Set-top box to the R and L audio-in jacks located next to the **PR1/CR** connector.



Using RGB Input

1. Connect the 15-pin D-Sub **RGB** connector from the back of the HDTV Set-top box to the **RGB-IN** connector located on the back of the display.
2. Connect the red (R) and white (L) audio-out jacks from the HDTV Set-top box to the R and L audio-in jacks located to the left of the **S-VIDEO** connector.

7.3 Connecting a VCR



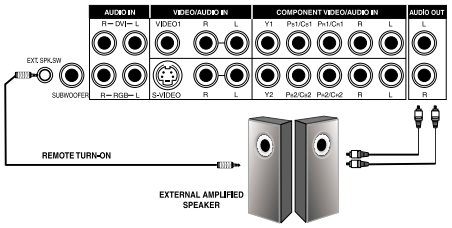
Using S-Video Input

1. Connect the S-Video (4-pin DIN) connector from the VCR to the **S-VIDEO** input on the back of display.
2. Connect the red (R) and white (L) audio jacks from the VCR to the R and L audio-in jacks located next to the **S-VIDEO** connector.

Using Composite Input

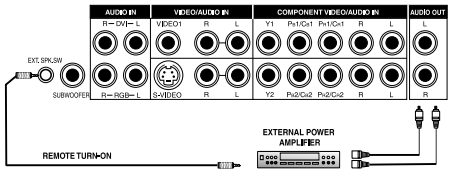
1. Connect the yellow (video) out connector from the VCR to the yellow Video 1 input on the back of the display.
2. Connect the red (R) and white (L) audio-out jacks from the VCR to the R and L audio-in jacks located next to the yellow Video connector.

7.4 External Audio Connections



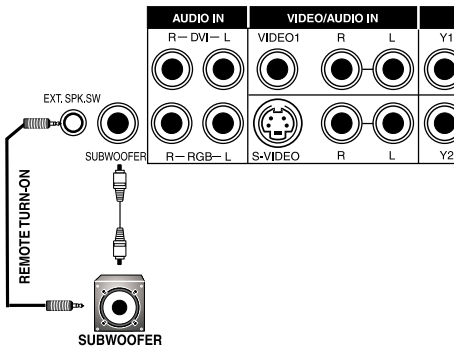
Connecting External Amplified Speakers

1. This display can be connected to an external set of amplified speakers using the AUDIO OUT jacks located on the back of the display. In addition, this display is equipped with a small 3.5 mm phono style plug for remote turn-on applications that will automatically send a remote turn-on/off signal to the external amplified speakers.
2. Connect the red (R) and white (L) AUDIO OUT jacks at the right hand side of the connector panel to the external amplified speaker.
3. As an option, you may use the remote turn-on plug. Please note that not all external amplified speakers can accept remote-turn on signals.



Connecting to an External Amplifier

1. This display can be connected to an external amplifier using the AUDIO OUT jacks located on the back of the display. In addition, this display is equipped with a small 3.5 mm phono style plug for remote turn-on applications that will automatically send a remote turn-on/off signal to the external amplifier.
2. Connect the red (R) and white (L) AUDIO OUT jacks from right side of the connector panel to the external amplifier or receiver.
3. As an option, you may use the remote turn-on plug. Please note that not all external amplifiers can accept remote-turn on signals.



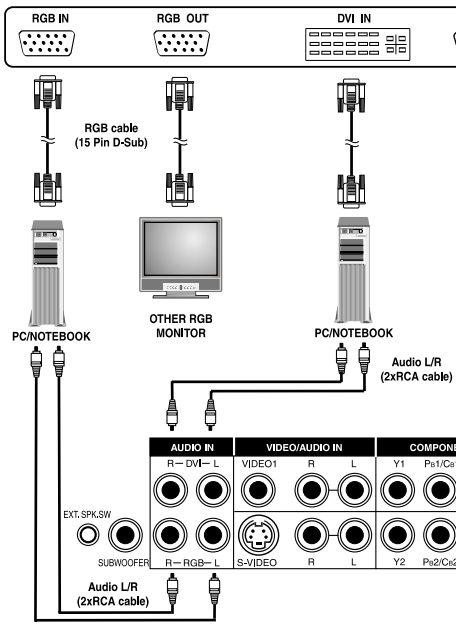
Using the Subwoofer Out (Connecting a Subwoofer)

1. This display is equipped with a subwoofer output for connecting to an external amplified subwoofer.
2. Connect the subwoofer output jack to the external subwoofer using an RCA cable.

Notes:

- The AUDIO OUT RCA jacks can be set to either Fixed or Variable audio output levels. (See Chapter 10.5 for more information).
- The RCA subwoofer outputs frequencies below 120Hz. The subwoofer will use the same Fixed or Variable audio output setting as AUDIO OUT RCA jacks.
- The 3.5mm phono/earphone output level is always used for remote turn on/off applications.

7.5 Connecting a PC Using RGB or DVI Video Input



1. For most PC's, connect the 15-pin D-Sub **RGB** connector from the back of the PC to the **RGB-IN** connector located on the back of the display. If you have a PC that is equipped with a DVI (Digital Visual Interface), you may connect the PC DVI connector from the back of the PC to the DVI-In connector located on the back of the display.
2. Connect the red (R) and white (L) audio jacks from the PC to the R and L jacks located to the left of the **S-VIDEO** connector. If you are using a DVI interface, simply connect the (R) and (L) audio jacks to the R and L jacks located to the left of the **VIDEO 1** connector.

Notes:

- Your PC may have audio jacks in the form of a 3.5mm phono plug. If this is the case, you will need to use a phono-plug to RCA converter cable in order to connect audio.
- A RGB loop-out labeled iaRGB OutIB will allow another RGB display to be connected. The RGB loop-out will display the same signal as the RGB In signal source.
- The physical display resolution is a maximum of 1024x768 dots when aspect ratio is set to **4:3** and 1366x768 dots when set to **16:9.** If the PC's display resolution exceeds these maximums, the display will have to artificially eliminate dots in order to fit within the physical dot capability of the display. Therefore, it is possible that the display may not be able to show details with adequate clarity.

7.6 RS-232 Remote Control Connections

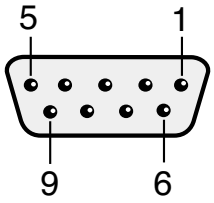
RS-232 Serial Terminal Overview

This display is equipped with an RS-232 serial terminal for using the display with computer controls. The RS-232 serial terminal conforms to the RS-232C interface specification. The computer will require a software application (such as programming language software) which allows the computer to send and receive control data that can support the communications parameters listed below.

Communications Parameters

These parameters are required to setup communications with the display.

Specification:	RS-232C
Sync Method:	Synchronous
Baud Rate:	9600 bps
Parity:	None
Character:	Length 8 Bits
Stop Bit:	1 Bits



RS-232

Pin Layout for RS-232 Terminal

The RS-232C terminal pin layout is as follows:

Pin 1: Received Line Signal Detector (Data Carrier Detect)
Pin 2: Received Data (RXD)
Pin 3: Transmit Data (TXD)
Pin 4: Data Terminal Ready (DTR)
Pin 5: Signal Ground
Pin 6: Data Set Ready (DSR)
Pin 7: Request To Send (RTS)
Pin 8: Clear To Send (CTS)
Pin 9: Ring Indicator

Basic Format for Command Parameters

In order to transmit data from the computer to the display, the data must be sent in 1-byte-hex format.
The command code (see table below) must first be sent to the display, followed by the desired value setting in hexadecimal format.
The following is an example of a sequence to change the displays input to RGB:

Step 1: Send 1-byte for command 91 (input select) to the display in hex format 0x91
Step 2: Send 1-byte for the value of the RGB input. In this example, send 0x06.
Step 3: The display will respond back to the PC with a 1-byte value to confirm the setting.

Notes:

- To connect a PC to the display's RS-232 port, you must use a straight-through RS-232 cable where pins 2 (RX) and 3 (TX) are not reversed at one end.
- If there is no data to be sent, then it is not necessary to send the parameter signal.
- If multiple commands are transmitted, make sure to wait for the response for the first command to come from the display before sending the next command. Normally the sent data byte will be returned as an answer. In case of an error the next signals will be returned:
  RESPONSE: 70h = MODE ERROR
  71h = TEM ERROR
  72h = FORMAT ERROR

Command Parameters

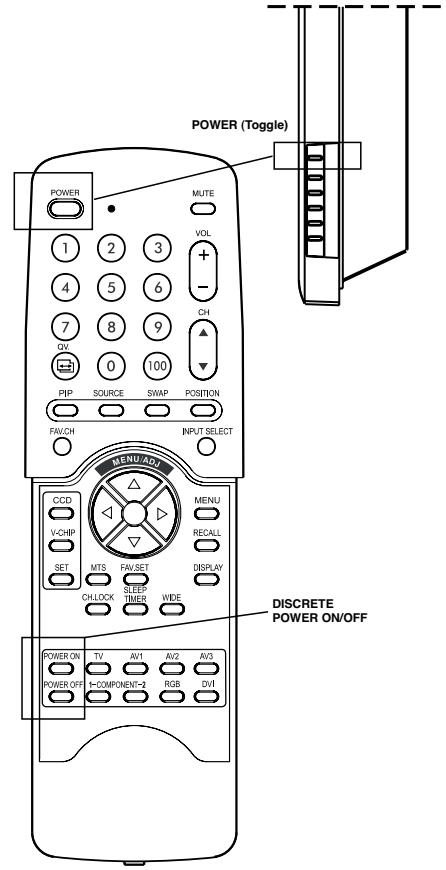
These remote control commands are available to send to the display using RS-232.

Item	Cmd	Data	Details
Read	80	81-A7	Reads the displays current settings for command 81 thru A7
Volume	81	01-64H	Set between 01-64H
Power On/Off	83	00-01	00=Off, 01=On
Brightness	85	01-64H	
Contrast	86	01-64H	
V-Size	87	01-64H	
V-Position	88	01-64H	
H-Size	89	01-64H	
H-Position	8A	01-64H	
Color	8E	01-64H	
Tint	8F	01-64H	
Sharpness	90	01-64H	
Input Select	91	00-07	00=TV, 01=AV1, 02=AV2, 03=AV3, 04=Component 1 05=Component 2 06=RGB, 07=DVI
Recall	92	00	00=Initiate a recall
Mute On/Off	95	00-01	00=Off 01=On
PanelKey Lock	96	00-01	00=Off 01=On
Language	97	00-02	00=English, 01=French, 02=Spanish
Color Temp	98	00-03	00=High, 01=Mid, 02=Low, 03=6500D
Bass	9A	01-64H	
Treble	9B	01-64H	
Balance	9C	01-64H	

Item	Cmd	Data	Details
Woofer	9D	00-01	00=Off, 01=On
BBE	9E	00-01	00=Off, 01=On
Surround	9F	00-02	00=Off, 01=3D Stereo, 02=3D Mono
RF Input	A0	00-01	00=Air, 01=Cable
Full Search	A1	00	00=initiate full search
MTS	A4	00-02	00=Stereo, 01=Mono, 02=SAP
Zoom	A5	00-05	00=16:9, 01=Panorama, 02=4:3, 03=Zoom1, 04=Zoom 2, 05=Zoom3
PIP/POP	A7	00-03	00=Normal, 01=PIP, 02=POP1, 03=POP2 (4:3), 04=POP3 (16:9).

8. USING YOUR DISPLAY - BASICS

8.1 Powering ON / OFF

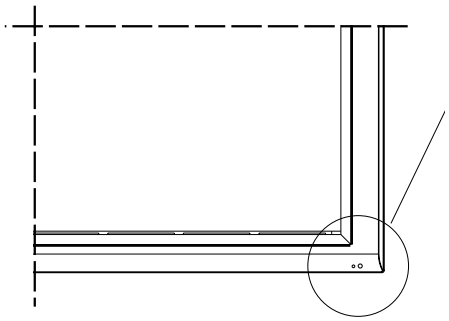


Using Front Panel or Remote Control

1. Make sure the display is plugged into the wall outlet and the main AC switch located at the rear side of the display is switched to ON position. If the power is plugged in and the AC switch is on, the STATUS LED will illuminate solid yellow.
2. Press the POWER button on the front panel or on the remote control.
3. The display will turn on after a brief pause. The STATUS LED will turn green to indicate the power on status.
4. To turn power off, simply press the POWER button on the front panel or on the remote control once again.

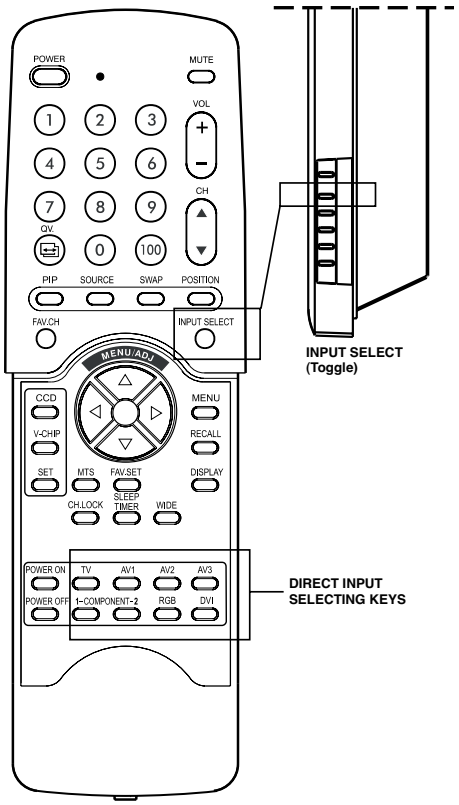
Using Discrete Power ON/OFF Buttons

1. The discrete POWER ON/OFF buttons send two discrete signals to the display.
2. To turn power on, simply press the POWER ON button. If the display is already switched on, pressing this button will have no effect.
3. To turn off power, simply press the POWER OFF button. If the display is already switched off, pressing this button will have no effect.



Status LED

- Not Illuminated - No AC Power detected. If the main power switch (rear of panel) is switched off, this LED will not illuminate.
- Solid Yellow - Standby (Power OFF) with AC power detected. The LED will illuminate yellow if the display is switched off while the main power cord is plugged in.
- Solid Green - Power ON



8.2 Selecting Signal Source

Using Front Panel or Remote Control

1. Press the INPUT button on the front panel or the INPUT SELECT button on the remote control.
2. Pressing the INPUT button will cycle the display through all available input signal sources in the following order:

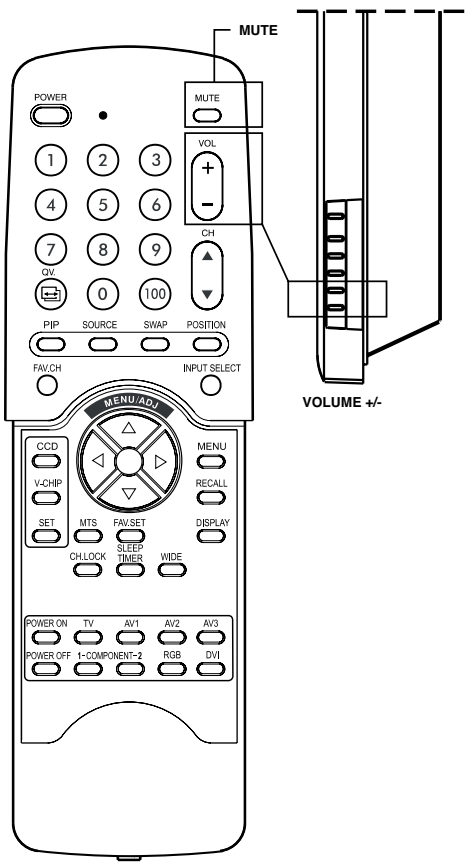
AV → S-VIDEO → COMPONENT1
DVI ← RGB ← COMPONENT2

Using Direct Input Selection Buttons

1. If you prefer not to cycle through all available inputs, you can use the Direct Input Selection buttons located at the bottom of the remote control.
2. Simply select the input that you would like to switch to and press the Direct Input Selection button for that input.

Notes:

- Some of the Direct Input Selection buttons will not be applicable for this display.
  For AV mode, use AV1.
  For S-Video, use AV2.



8.3 Adjusting Sound Volume

Using Front Panel or Remote Control

1. To increase the sound volume, press VOLUME + on either the front panel of display or on the remote control.
2. To decrease the sound volume, press VOLUME - On either the front panel of display or on the remote control.

Using MUTE

1. If you temporarily would like to have no sound, simply press the MUTE button to silence the volume.
2. When the display's volume is muted, the display will show MUTE on the upper right corner of the screen.
3. To disengage the mute mode, simply press the MUTE button or the VOLUME +/- button again.

Notes:

- If the display's built-in speakers are turned off using the OSD, then volume controls will not affect volume generated by the built-in speaker.
- Volume controls are valid when audio output is set to VARIABLE. (See Chapter 10.5.)

9. USING WITH HDTV

9.1 Understanding HDTV

What is Digital Television or DTV?

Digital TVs are able to receive and display digital television broadcasts, sent using one of the three following categories: HDTV (High Definition TV), EDTV (Enhanced Digital TV), and SDTV (Standard Definition TV).

What is the Difference Between HDTV, EDTV, and SDTV?

HDTV, EDTV and SDTV are three types of television or displays. They reference the maximum resolution capability of a digital television or display to fully display digital broadcasts without having to 'down-convert' the actual signal content to fit the display's limitations. The resolution requirements for each of the three DTV classifications and an explanation of the specifications are described below:

HIGH DEFINITION TELEVISION

HDTV Interlaced scan method[1]

Vertical Res [2] : 1080 lines
Horizontal Res.[3] : 1920 dots
Aspect Ratio [4] : 16:9 Wide

HDTV Progressive scan method[1]

Vertical Res.[2] : 720 lines
Horizontal Res.[3] : 1280 dots
Aspect Ratio [4] : 16:9 Wide

HDTV grade televisions and displays are capable of displaying a maximum of either 1080 lines using interlaced scan method or 720 lines using progressive scan method.

ENHANCED DEFINITION TELEVISION

EDTV Progressive scan method[1]

Vertical Res.[2] : 480 lines
Horizontal Res.[3] : 640 dots
Aspect Ratio [4] : 4:3 Wide

EDTV grade televisions and displays are capable of displaying a maximum of 480 lines using progressive scan method. All resolutions higher than 480 lines must be reduced to 480 lines in order to be displayed. Progressive scan method reduces flicker; however, picture quality may not necessarily outperform 480 interlaced when viewed at normal viewing distances.

SDTV Interlaced scan method[1]

Vertical Res.[2] : 480 lines
Horizontal Res.[3] : 640 dots
Aspect Ratio [4] : 4:3 Wide

SDTV grade televisions and displays are capable of displaying a maximum of 480 lines using interlaced scan method. All resolutions higher than 480 lines must be reduced to 480 lines in order to be displayed.

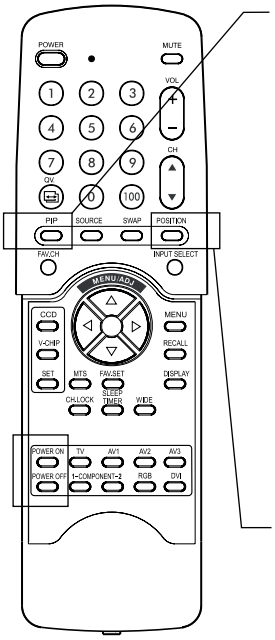
1 ***Scan Mode***
Interlaced scanning is a method that creates a TV picture with alternating lines of information and is the cause of flickering. Progressive scanning is a method that creates a TV picture with consecutive lines of information that results in flicker-free picture quality.

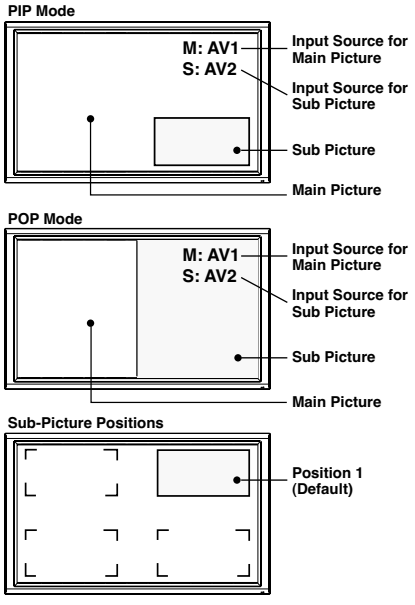
2 ***Vertical Resolution (Scan Lines)***
Vertical scan lines refer to the number of horizontal lines a TV or display can show to create an image.
As the number of lines increase, more information is displayed, resulting in better picture quality.

3 ***Horizontal Resolution***
Each horizontal line in a TV or display is made up of individual dots (pixels). The higher the number of pixels, the finer the TV picture becomes. Horizontal pixel measurements using today's technology can range from 250 for a VCR to as much as 500 for a DVD player.

4 ***Aspect Ratio***
Aspect ratio identifies the ratio of the TV screen's width over its height. A 16:9 aspect ratio refers to a wide-screen picture format, while a 4:3 refers to a standard TV format.

10. ADVANCED FUNCTIONS





10.1 Picture-In-Picture (PIP) / Side-by-Side Picture (POP)

Switch On PIP or POP Mode

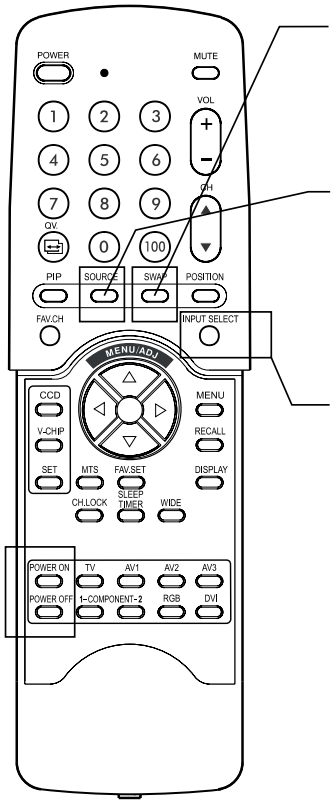
1. Press the PIP button once on the remote control to enable PIP mode. Pressing the PIP again will switch to POP mode. Pressing the PIP button sequentially will cycle between:

   PIP → POP → POP (4:3)
   OFF ← POP (16:9) ←

2. When PIP mode is enabled, a small window is displayed in one of the four corners. The OSD on the upper right corner will display the input selected for the main picture (large screen) and the sub-picture (small screen).
3. When POP mode is enabled, the screen will be split in half. The screen on the left side is the main picture and the screen on the right is the sub-picture. The OSD on the upper right corner will display the input signal source for both the main and sub-pictures.

Changing the Sub-Picture Position in PIP Mode

1. Once the PIP mode is enabled, you can switch the PIP sub-picture position to any one of the four corners of the screen.
2. Press the POSITION button to switch position. Pressing the POSITION button repeatedly will cycle through all four corners of the screen.
3. This function is not available for POP mode.



Switching Main and Sub-Pictures (SWAP)

1. You can switch between the main picture and the sub picture using the **SWAP** button.

Changing the Input Source for Sub-Picture

1. Once **PIP** or **POP** mode is enabled, you can change the sub-picture's input source by pressing the **SOURCE** button.
2. Pressing the **SOURCE** button repeatedly will cycle through all available inputs for the sub- picture.

Changing the Input Source for Main Picture

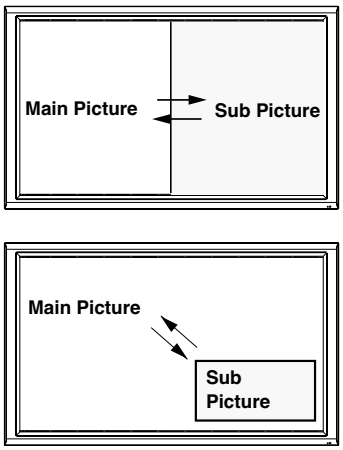
1. Once PIP or POP mode is enabled, you can change the main picture's input source by pressing the **INPUT SELECT** button or any one of the DIRECT INPUT BUTTONS.

Notes:

1. **POP (4:3) Mode** will preserve 4:3 aspect ratio for both images displayed in the POP windows.
2. **POP (16:9) Mode** will preserve 16:9 aspect ratio for both images displayed in the POP windows.

All PIP and POP related settings are also accessible using the on-screen Menu display. Please read the next pages for details.

Swapping



Picture-In-Picture (PIP) / Side-by-Side Picture (POP) / Contd.

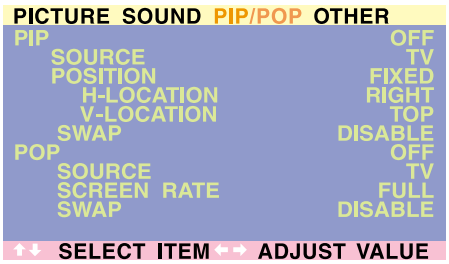
Notes:

- PIP mode can only be enabled if the display's input is set to: AV, S-Video, Component 1 or 2. If the displays main input is set to RGB or DVI, PIP, and POP will not function.
- If the displays input is set to Component 1 or Component 2, PIP mode will only be available when the input signal source is compatible with 15KHz signals such as 480i and Y/CB/CR signals.
- When the input source for sub-pictures is changed to Component 1 or Component 2, only 15KHz compatible signals such as 480i and Y/CB/CR will result in a video picture display. The input source selection will not be available if a signal other than 480i or Y/CB/CR is detected.
- Once PIP mode is disabled, the next time you enable PIP mode, the position of the sub-window will start at the default position.

Accessing PIP and POP Modes using OSD

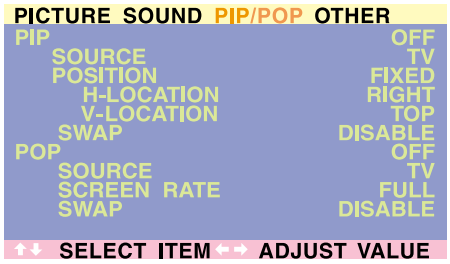
You can also use the OSD menu to access PIP and POP mode functions:

1. Press the MENU +/- buttons on the remote control or the front control panel.
2. Use the ADJ +/- buttons to select the 'PIP/POP' menu.
3. Make sure that the OSD menu below is displayed.
4. Use the MENU +/- buttons to move up and down to select the sub-category you wish to change.
5. Use the ADJ +/- buttons to change the setting.



PIP Window Position

1. Choose between FIXED or VARIABLE windows position.
2. If set to FIXED, the PIP window can be set in any one of the four corners of the screen. Use H-LOCATION and V-LOCATION to select the position of the window.
3. If set to VARIABLE, the PIP window can be positioned anywhere on the screen using H-LOCATION and V-LOCATION.



PIP Window SWAP

1. By default, the OSD will always display DISABLE. To swap the main and sub windows, use the ADJ +/- button to select ENABLE.
   Once the swap is complete, the OSD will return to display DISABLE.

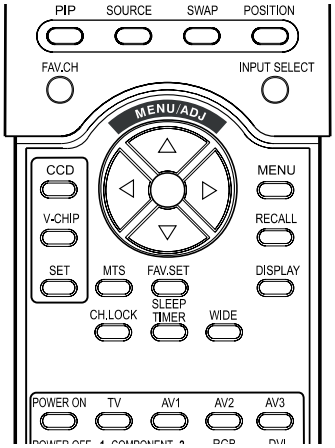
Screen Rate (Aspect Ratio Control)

1. When POP (Side-by-side) picture is enabled, you can change the aspect ratio for the image displayed.
2. Choose FULL to show a full screen image. The displayed image will be distorted because the display has to manipulate the image so that it fits within the smaller window.
3. Choose 4:3 to show an image in 4:3 aspect ratio within the POP windows. Small black bars are added in order to obtain a 4:3 aspect ratio.
4. Choose 16:9 to show an image in wide-screen aspect ratio within the POP windows. Small black bars are added in order to obtain a 16:9 aspect ratio.

POP Window SWAP

1. By default, the OSD will always display DISABLE. To swap the main (left) and sub (right) windows, use the ADJ +/- button to switch to ENABLE. Once the swap is complete, the OSD will return to display DISABLE.

10.2 Widescreen (16:9 Aspect Ratio) Viewing Modes



Understanding Widescreen Modes

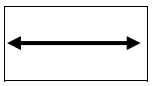
This plasma display is capable of displaying a widescreen image on the native 16:9 aspect ratio screen. However, not all available broadcast or video content fits perfectly in a widescreen (16:9) format, resulting in unused screen space. Use the following guidelines to determine an avaible and suitable widescreen viewing mode that best supports the type of broadcast / video content you wish to display. All widescreen viewing modes are available by pressing the WIDE button. Pressing the WIDE button will repeatedly cycle through:

4:3 → PANORAMA → 16:9 ZOOM1 → 16:9 ZOOM2 → 16:9 ZOOM3 → 16:9 →

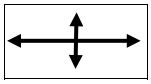
For 4:3 Aspect Ratio (Square) Content
Content from VCR and some DVD's are formatted using a quare 4:3 format.

We recommend the following three viewing options:

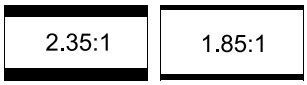
4:3 (NORMAL)
In 4:3 mode, the original 4:3 image is preserved but black bars are added to fill the remaining space on the left and right.



16:9 (FULL)
The original 4:3 image is proportionally stretched to fill the entire screen.



PANORAMA
The original 4:3 image is expanded in both the horizontal and vertical directions. The center of the picture is almost normal while the edges are considerably expanded.



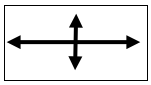
For Widescreen Content

Many popular DVD titles are 'Anamorphic' (widescreen); however, there are two predominant 'Anamorphic' (widescreen) aspect ratios: 2.35:1 and 1.85:1. When 2.35:1 content is displayed on this 16:9 widescreen display, you will notice smaller black bars on top or bottom of the screen. When a 1.85:1 content is displayed, you will still see black bars, but not as large as 2.35:1.

If you do not want to see the black bars whenplaying back a widescreen movie, you can useZOOM 2 or ZOOM 3 to fully stretch the image.

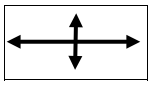
ZOOM: 1

Zoom1 shifts the image up to facilitate the display of sub- titles.



ZOOM: 2

Zoom 2 is used to stretch 1.85:1 content to full screen, eliminating the black bars.



ZOOM: 3

Zoom 3 is used to stretch 2.35:1 content to full screen, eliminating the black bars.

Notes:

1. 4:3 and Panorama modes are not available when zoom mode is enabled.
2. When using Component 1 or Component 2 inputs to display 480p, 1080i or 720p, Panorama mode is not available.
3. When using RGB or DVI inputs, only 4:3, 16:9 and an additional 4:3 Zoom modes are available. In this 4:3 Zoom mode, the original 4:3 image is preserved but is stretched to full screen in both horizontal and vertical directions, so the top and bottom of the image will not be visible.
4. Avoid displaying in 4:3 mode for an extensive time, This may cause a permanent after-image remaining on the screen.

Accessing Widescreen Viewing Modes using OSD

You can also use the OSD menu to access the same widescreen and zoom mode functions:

1. Press the MENU +/- buttons on the remote control or the front control panel.
2. Make sure that the PICTURE menu is displayed.
3. Use the MENU **+/-** buttons to navigate to SCREEN WIDTH and use the ADJ **+/-** buttons to switch between **4:3**, **16:9** or **PANORAMA**.
4. Use the MENU **+/-** buttons to navigate to ZOOM and use the ADJ **+/-** buttons to switch between zoom **1, 2 or 3**. Please note that this function is not accessible unless the SCREEN WIDTH is set to **16:9**.

10.3 On-Screen Display (OSD) Settings

Accessing OSD Settings Menu

You can set various OSD display settings from the OSD menu:

1. Press the MENU **+/-** buttons on the remote control or the front control panel.
2. Use the ADJ **+/-** buttons to navigate to OTHER OSD Sub-menu as displayed below.

OSD Timeout

Initiates the OSD timer when set to ON. When set to ON, the OSD will automatically disappear from the display if no button action is detected for the set number of seconds. If set to OFF, then the OSD will remain on the screen.

OSD Time Setting

Sets the number of seconds the OSD will remain active on the display before switching itself off. OSD TIMEOUT must be set to ON for this setting to function.

OSD Brightness

Sets the brightness level of the OSD screen between 1 and 10.

OSD Background

You can set the OSD menu's background to transparent or to blue. Set to OFF if you want a transparent setting. Set to ON if you want a blue background.

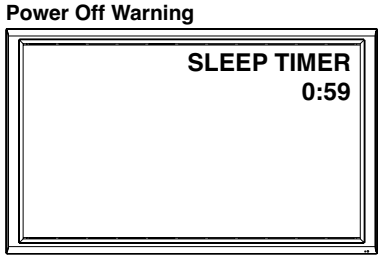
OSD Language

You can set the OSD language to English, French or Spanish.

Note: To prevent a permanent after-image, we strongly suggest setting the OSD TIMEOUT to **ON**.

10.4 Sleep Timer Settings

Power Off Warning



Setting Sleep Timer Using OSD

To set the sleep timer using the OSD screen:

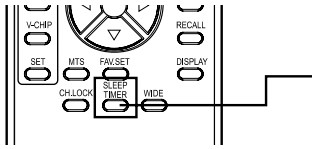
1. Press the MENU +/- buttons on the remote control or the front control panel.
2. Use the ADJ +/- buttons to navigate to OTHER OSD sub-menu as displayed below.
3. Use the MENU +/- buttons to navigate to SLEEP function.
4. Use the ADJ +/- buttons to set to ON.
5. The display will function normally until the 1-minute mark. At the 1-minute mark, the sleep timer will display a second by second coundown clock to notify you that the display is about to switch off.

Sleep Timer On/Off

Switches the sleep timer ON or OFF.

Timer Setting

You can set the timer from 1 to 120 minutes. Use the ADJ +/- buttons to set any number between 1 and 120.

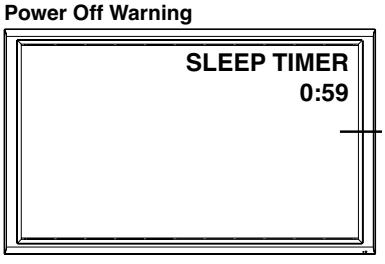


Setting Sleep Timer Using Remote Control

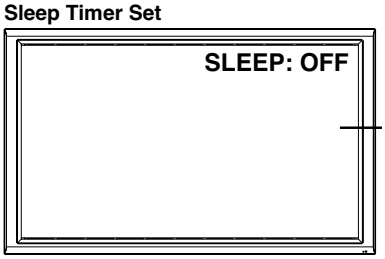
To set the sleep timer using the remote control:

1. Press the SLEEP TIMER button on the remote control. The sleep timer will be displayed at the upper right corner of the screen.
2. Pressing the SLEEP TIMER button again will cycle the sleep timer through all the preset times.
3. When setting is complete, simply press the DISPLAY button to hide the sleep timer display. The sleep timer is running in the background.
4. The display will function normally until the 1-minute mark. At the 1-minute mark, the sleep timer will display a second by second countdown clock to notify you that the display is about to switch off.
5. If you wish to switch the sleep timer OFF before the display switches off, simply press the SLEEP TIMER button again and cycle through all the preset times until **SLEEP: OFF** is displayed.

Power Off Warning



Sleep Timer Set



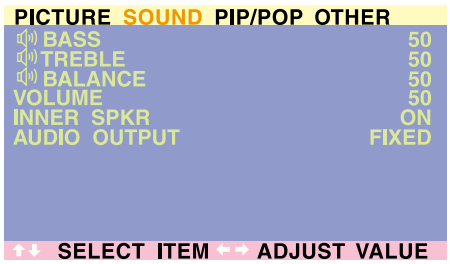
10.5 Variable and Fixed Audio Output

Setting Output Using OSD

You can set the type of output sent from the audio output jack, located on the rear side of the display. By using an OSD based switch, you can easily choose between variable or fixed audio outputs.

To set the audio output setting:

1. Press the MENU **+/-** buttons on the remote control or the front control panel.
2. Use the ADJ **+/-** buttons to navigate to SOUND OSD sub-menu.
3. Use the MENU **+/-** buttons to select the AUDIO OUTPUT option.
4. Use the ADJ **+/-** buttons to change setting between FIXED or VARIABLE.



AUDIO OUTPUT

Sets the type of audio output sent from the audio output jacks located on the rear side of display.

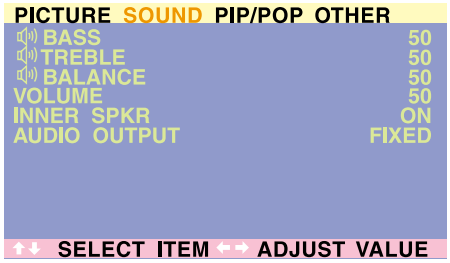
- **VARIABLE**
  When set to Variable, audio output is affected by the display's internal audio controls including bass, treble, surround, BBE, bass extension, and volume.
- **FIXED**
  When set to Fixed, the audio output bypasses the display's internal audio control so that functions such as bass, treble, surround, BBE, bass extension, and volume controls have no effect.

10.6 Sound Adjustments

Sound Adjustments Using OSD

Sound adjustments are available to enhance the sound performance of the display. These adjustments will affect the display's built-in speakers and the AUDIO OUTPUT jacks when set to 'Variable' (see above section). To access sound adjustments:

1. Press the MENU **+/-** buttons on the remote control or the front control panel.
2. Use the ADJ **+/-** buttons to navigate to SOUND OSD sub-menu.
3. Use the MENU **+/-** buttons to select the various options described in this section.

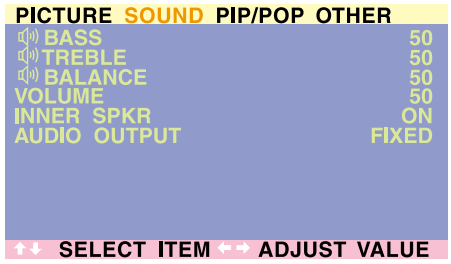


BASS
Adjusts the BASS level of the sound. For more bass response, increase the BASS level.

TREBLE
Adjusts the TREBLE level of the sound. For more vocal and high frequency response, increase the TREBLE level.

BALANCE
Adjusts the BALANCE level between LEFT and RIGHT channels. A value of 50 is the center point between LEFT and RIGHT. To shift the sound to the RIGHT, increase the value towards 100. To shift the sound to the LEFT, reduce the value towards 1.

10.7 Inner speaker ON/OFF



Switching OFF Built-In Speakers

This display is equipped with built-in speakers. You can switch the internal speakers ON or OFF using the OSD. Because these speakers are general purpose, you may consider switching them OFF during hi-fidelity playback of movies or other content.

Switch the internal speakers of the display ON or OFF. This setting will not affect AUDIO OUTPUT connections.

10.8 Signal Frequency Information Display

Displaying Frequency of Signal

This display is capable of displaying the frequency level of the signal being displayed. To see signal frequency information:

1. Press the MENU +/- buttons on the remote control or the front control panel.
2. Use the ADJ **+/-** buttons to navigate to the OTHER OSD sub-menu.

INPUT H-FREQ (KHZ)

Displays the horizontal signal frequency of the signal currently displayed. Use the frequency cross reference tables below to see which type of signal is being displayed under various input modes.

INPUT V-FREQ (HZ)

Displays the vertical signal frequency of the signal currently displayed. Use the frequency cross reference tables below to see which type of signal is being displayed under various input modes.

When Using AV1 and AV2 Inputs

Horizontal	Vertical	Format
15.7	60	NTSC Video
15.6	50	PAL Video

When Using Component 1 & 2 Inputs

Horizontal	Vertical	Format
15.7	60	NTSC Video
15.6	50	PAL Video
15.7	60	480i (SDTV)
31.5	60	480p (EDTV)
33.0	60	1080i (HDTV)
45.0	60	720p (HDTV)

When Using RGB & DVI Inputs

Mode	Hor.	Vertical	Format	Refresh
1	31.469	59.940	640•480 (VGA)	60
2	37.861	72.809	640•480 (VGA)	72
3	37.500	75.000	640•480 (VGA)	75
4	43.269	85.008	640•480 (VGA)	85
5	35.156	56.250	800x600 (SVGA)	56
6	37.879	60.317	800x600 (SVGA)	60
7	48.077	72.188	800x600 (SVGA)	72
8	46.875	75.000	800x600 (SVGA)	75
9	53.674	85.061	800x600 (SVGA)	85
10	48.364	60.004	1024x768 (XGA)	60
11	56.476	70.069	1024x768 (XGA)	70
12	60.023	75.029	1024x768 (XGA)	75
13	68.677	84.997	1024x768 (XGA)	85
14	63.981	60.020	1280x1024 (SXGA)	60
15*	79.976	75.025	1280x1024 (SXGA)	75
16*	91.146	85.024	1280x1024 (SXGA)	85
18	31.469	70.087	720x400 (DOS)	70
19	31.469	50.030	640x480 (VGA)	50
20*	45.000	60.000	1280x720p (HDTV)	60
21*	33.750	60.000	1920x1080i (HDTV)	60i
22	31.469	70.087	640x350 (VGA)	70
23	31.413	59.835	852x480 (WVGA)	60
24	35.000	66.667	640x480 (Apple)	67
25	49.725	74.550	832x624 (Apple)	75
26	68.681	75.062	1152x870 (Apple)	75
27	47.400	60.000	1366x768	60
28	47.368	59.960	1360x768	60
29	29.640	60.000	848x480	60
30	60.000	60.000	1280x960	60
31*	85.938	85.002	1280x960	85

Notes:

- When using RGB mode, the OSD will display a mode number that references the table above.
- Modes 15, 16, 20, 21, 31 under RGB mode are not available when using DVI input.
- Modes 24-26 are for use with Apple Macintosh computers.

*These modes are not supported in DVI mode.

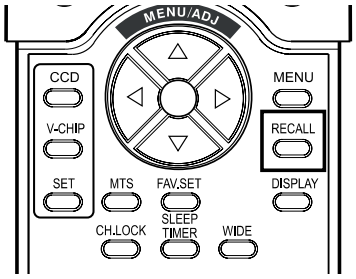
11. PICTURE ADJUSTMENT

11.1 For AV/Component Video (480i signal)

Accessing Picture Adjustment Mode

Various picture adjustments can be set using the Picture Adjustment OSD menu. To access the OSD menu:

1. Press the MENU **+/-** buttons on the remote control or the front control panel.
2. The first menu displayed is the PICTURE menu. Make sure that the PICTURE OSD menu is displayed.
3. Use the MENU **+/-** buttons to move up and down to select the option you wish to adjust. An explanation of each adjustment is listed below.
4. Use the ADJ **+/-** buttons to change the setting.



Notes:

- These controls are available when input selection is set to: AV1, AV2 (S), Component 1 or Component 2 (when the input signal is 480i) inputs.
- To restore picture settings to the factory defaults, simply press the RECALL button from the remote control.

CONTRAST
Adjust Contrast to increase the level of 'white' in the video picture.
Increasing contrast will make white areas of the video picture brighter. Contrast works in conjunction with BRIGHTNESS.

BRIGHTNESS
Adjust brightness to enhance the level of dark areas in the video picture such as night scenes and shadow scenes. Increasing brightness will make dark areas more visible.

COLOR
Use color to adjust the color saturation of the video picture. Increasing color will make the color more intense. Reducing color setting will make the color less intense.

TINT
Use tint to adjust fleshtone colors. Increasing the tint setting will add more cyan to the picture (more green appearance). Decreasing the setting will add more magenta to the picture (more red appearance).

SHARPNESS
Use sharpness to adjust the amount of detail enhancement to the video picture. Increasing the setting will enhance the edges of objects in the video picture.
Decreasing the setting will reduce enhancement.

COLOR TEMPERATURE
Select the color temperature for white balance. There are five settings to choose from:
(1) 6500D - sets the white balance to 6500D;
(2) LOW - sets to 5400K;
(3) MID - sets to 9300K;
(4) HIGH - sets to 13800K.

Note: Each of the (4) color temperature settings may vary a little from the temperature defined settings.

CLOCK PHASE
This function is not available for this picture adjustment mode.

SCREEN WIDTH
Use to change various screen width modes.
For more information see Chapter 10.

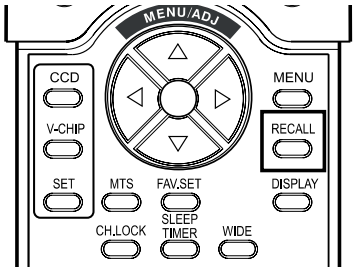
ZOOM
Use to change various digital zoom modes.
For more information see Chapter 10.

11.2 For Component Video (480p, 720p and 1080i signal)

Accessing Picture Adjustment Mode

Various picture adjustments can be set using the Picture Adjustment OSD menu. To access the OSD menu:

1. Press the MENU **+/-** buttons on the remote or the front control panel.
2. The first menu displayed is the PICTURE menu. Make sure that the PICTURE OSD menu is displayed.
3. Use the MENU **+/-** buttons to move up and down to select the option you wish to adjust. An explanation of each adjustment is listed below.
4. Use the ADJ **+/-** buttons to change the setting.



Notes:

- These controls are available when input selection is set to: Component 1 and Component 2 (when the input signal is 480p, 780p or 1080i) inputs.
- To restore picture settings to the factory defaults, simply press the RECALL button from the remote control.

CONTRAST
Adjust Contrast to increase the level of 'white' in the video picture.
Increasing contrast will make white areas of the video picture brighter. Contrast works in conjunction with BRIGHTNESS.

BRIGHTNESS
Adjust brightness to enhance the level of dark areas in the video picture such as night scenes and shadow scenes. Increasing brightness will make dark areas more visible.

COLOR
Use color to adjust the color saturation of the video picture. Increasing color will make the color more intense. Reducing color setting will make the color less intense.

TINT
Use tint to adjust fleshtone colors. Increasing the tint setting will add more cyan to the picture (more green appearance). Decreasing the setting will add more magenta to the picture (more red appearance).

SHARPNESS
Use sharpness to adjust the amount of detail enhancement to the video picture. Increasing the setting will enhance the edges of objects in the video picture.
Decreasing the setting will reduce enhancement.

COLOR TEMPERATURE
Select the color temperature for white balance. There are five settings to choose from:
(1) 6500D - sets the white balance to 6500D;
(2) LOW - sets to 5400K;
(3) MID - sets to 9300K;
(4) HIGH - sets to 13800K.

Note: Each of the (4) color temperature settings may vary a little from the temperature defined settings.

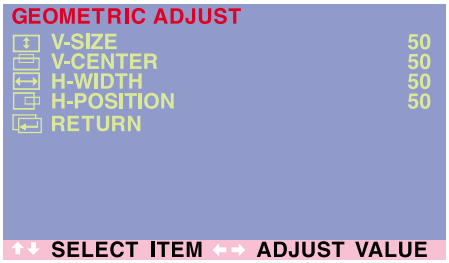
CLOCK PHASE
This function is not available for this picture adjustment mode mode.

SCREEN WIDTH
Use to change various screen width modes. For more information see Chapter 10.

ZOOM
Use to change various digital zoom modes. See For more information see Chapter 10.

GEOMETRIC ADJUST
Use to access Geometric Adjust sub-menu. For more information see Chapter 11.3.

11.2 For Component Video (480p, 720p and 1080i signal) - Contd.



Accessing Geometric Adjustment Mode

Various geometric adjustments can be set using the Geometric Adjustment OSD menu. To access the Geometric Adjust sub-menu:

1 Press the MENU **+/-** buttons on the remote control or the front control panel.
2 The First menu displayed is the PICTURE Menu. Make sure that the PICTURE OSD Menu is displayed.
3 Use the MENU **+/-** buttons to set the selection to ON. As soon as you press the button, the Geometric Adjust sub-menu will be displayed.
4 Press the ADJ **+/-** buttons to move up and down to select the option you wish to adjust. An explanation of each adjustment is listed below.
5 Use the ADJ **+/-** buttons to change the setting.

V-SIZE
Adjusts the vertical size of the picture. Increase to enlarge the vertical picture size.
Decrease to reduce the vertical picture size.

V-CENTER
Adjusts the vertical position of the picture. Increase to shift the picture up. Decrease to shift the picture down.

H-WIDTH
Adjusts the horizontal size of the picture. Increase to enlarge the horizontal picture size. Decrease to reduce the horizontal picture size.

H-POSITION
Adjusts the horizontal position of the picture. Increase to shift the picture to the right. Decrease to shift the picture to the left.

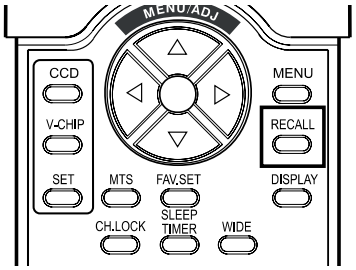
RETURN
Return to PICTURE OSD Menu.

11.3 For RGB / DVI

Accessing Picture Adjustment Mode

Various picture adjustments can be set using the Picture Adjustment OSD menu. To access the OSD menu:

1. Press the MENU **+/-** buttons on the remote or the front control panel.
2. The first menu displayed is the PICTURE menu. Make sure that the PICTURE OSD Menu is displayed.
3. Use the MENU **+/-** buttons to move up and down to select the option you wish to adjust. An explanation of each adjustment is listed below.
4. Use the ADJ **+/-** buttons to change the setting.



Notes:

- These controls are available when input selection is set to: RGB or DVI inputs.
- To restore picture settings to the factory defaults, simply press the RECALL button from the remote control.

CONTRAST

Adjust Contrast to increase the white level in the video picture.
Increasing contrast will make white areas of the video picture brighter.
Contrast works in conjunction with BRIGHTNESS.

BRIGHTNESS

Adjust brightness to enhance the level of dark areas in the video picture such as night scenes and shadow scenes. Increasing brightness will make dark areas more visible.

COLOR TEMPERATURE

Select the color temperature for white balance. There are several settings to choose from:
(1) 6500D - sets the white balance to 6500D;
(2) LOW - sets to 5400K;
(3) MID - sets to 9300K;
(4) HIGH - sets to 13800K.

Note: Each of the (4) color temperature settings may vary a little from the temperature defined settings.

CLOCK PHASE
Use clock phase to fine-tune the display to perfectly synchronize the video's signal source.

SCREEN WIDTH
Use to change the screen width mode. There are two selections available: 16:9 and 4:3.
See Chapter 10..2 for more information.

V-SIZE
Adjusts the vertical size of the picture. Increase to enlarge the vertical picture size.
Decrease to reduce the vertical picture size.

V-CENTER
Adjusts the vertical position of the picture. Increase to shift the picture up. Decrease to shift the picture down.

H-WIDTH
Adjusts the horizontal size of the picture. Increase to enlarge the horizontal picture. Decrease to reduce the horizontal picture size.

H-POSITION
Adjusts the horizontal position of the picture. Increase to shift the picture to the right. Decrease to shift the picture to the left.

12. TROUBLESHOOTING

Troubleshoot Common Conditions

The following list represents possible anomalies that you may encounter and methods for remedy. Please refer to this checklist prior to contacting a service representative.

Symptom	Possible Cause	Remedy
No picture displayed	1. The power cord is disconnected. 2. The main power switch on the back of the display is not switched on. 3. The selected input has no connection. 4. The display is in standby mode in RGB mode.	1. Plug in the power cord. 2. Make sure the power switch is switched on. 3. Connect a signal connection to the display. 4. Press any key on your keyboard.
Interference displayed on the display or audible noise is heard	1. Caused by surrounding electrical appliances, cars/motorcycles or fluorescent lights.	1. Move the display to another location to see if the interference is reduced.
Color is abnormal	1. The signal cable is not connected properly.	1. Make sure that the signal cable is attached firmly to the back of the display.
Picture is distorted with abnormal patterns	1. The signal cable is not connected properly. 2. The input signal is beyond the capabilities of the display.	1. Make sure that the signal cable is attached firmly. 2. Check the video signal source to see if it is beyond the range of the display. Please verify its specifications with this display's specification section.
Display image doesn't fill up the full size of the screen	1. If under RGB mode, the H-Size and V-Size is incorrectly set. 2. If under AV1, AV2, or Component with 480i input, the 4:3 WIDE mode is switched on.	1. Use H-Size and V-Size to adjust the size of the video. 2. Use the WIDE key to scroll through various full screen modes.
Can hear sound, but no picture	1. Improperly connected source signal cable.	1. Make sure that both video inputs and sound inputs are correctly connected.
Can see picture but no sound is heard	1. Improperly connected source signal cable. 2. Volume is turned all the way down. 3. MUTE is switched on.	1. Make sure that both video inputs and sound inputs are correctly connected. 2. Use VOLUME +/- to hear sound. 3. Switch MUTE off by using the MUTE button.
Some picture elements do not light up	1. Some pixels of the plasma display may not display.	1. This display is manufactured using an extremely high level of precision technology; however, sometimes some pixels of the display may not display. This is not a malfunction. Please see the enclosed warranty card for more information.
After-Images can still be seen on the display after the display is powered off. (Examples of still pictures include logos, video games, computer images, and images displayed in 4:3 normal mode)	11. A still picture is displayed for an over extended period of time.	1. Do not allow a still image to be displayed for an extended period of time as this can cause a permanent after-image to remain on the display.

13. SPECIFICATIONS

Display Panel

Screen size:	Diagonal 50 inch
Aspect ratio:	16:9 wide
Number of pixels:	1366(Horizontal, RGB Trio) x 768(Vertical)pixels
Pixel Pitch:	0.81mm x 0.81mm
Luminance:	1000 cd/m 2 , at 1% white window pattern

Power Source

Input voltage:	100 ~ 240 Vac , 50 / 60 Hz
Input current:	4A
Inrush current:	60 A p-p/20ms Max.
Power consumption:	470±10% Watts (at 110Vac/color bar pattern)
Stand-by & Power Save:	10 Watts Max. (at 110Vac)

Connection

Connector Types:	RCA Jacks for audio, video, Y/CB/CR and Y/PB/PR
	6 pin Din S-terminal for S-Video
	9 pin D-SUB for RS-232
	15 pin D-SUB for RGB
	24 pin DVI

Video/S-Video Signal

Type:	Analog
Polarity:	Positive
Amplitude:	AV: 1Vp-p (with sync),
	S-Video: Y=1Vp-p (with
	sync) C=0.286Vp-p
Frequency:	H: 15.734KHz V: 60Hz(NTSC)
	H: 15.625KHz V: 50Hz(PAL)
Input impedance:	75 ohms

Y/CB/CR or Y/PB/PR Signal (Component 1 & 2)

Type:	Analog
Polarity:	Positive
Amplitude:	Y: 1Vp-p (with sync)
	CB/PB: 0.286Vp-p
	CR/PR: 0.286Vp-p

Frequency

Y/CB/CR:	H: 15.734KHz V: 60Hz (NTSC)
Y/PB/PR:	HDTV H: 15.625KHz V: 50Hz (PAL)
	H: 31KHz V: 60Hz (480p)
	H: 45KHz V: 60Hz (720p)
	H: 33KHz V: 60Hz(1080i)

RGB Signal

Type:	TTL
Polarity:	Positive or Negative
Amplitude:	RGB: 0.7Vp-p
Frequency:	H: support to 31K~91KHz
	V: support to 50~85Hz

DVI Signal

Type:	Digital
Polarity:	Positive or Negative Frequency H: support to 31K~68KHz V: support to 50~85Hz
Audio Signal:	Analog 500mV rms /more than 22Kohm.

Pin Assignments For D-SUB Connector (In/Loop Out)

Pin	Signal Assignment				
1	RED	6	RED GND	11	GND
2	GREEN	7	GREEN GND	12	SDA
3	BLUE	8	BLUE GND	13	H-SYNC
4	GND	9	NC	14	V-SYNC
5	GND	10	GND	15	SCL

Pin Assignments For 24 Pin DVI Connector (Digital Only)

Pin	Signal Assignment				
1	TMDS Data 2-	9	TMDS Data 1-	17	TMDS Data 0-
2	TMDS Data 2+	10	TMDS Data 1+	18	TMDS Data 0+
3	TMDS Data 2/4 Shield	11	TMDS Data 1/3 Shield	19	TMDS Data 0/5 Shield
4	TMDS Data 4-	12	TMDS Data 3-	20	TMDS Data 5-
5	TMDS Data 4+	13	TMDS Data 3+	21	TMDS Data 5+
6	DDC Clock	14	+5V Power	22	TMDS Clock Shield
7	DDC Data	15	Ground (For +5V)	23	TMDS Clock +
8	No Connect	16	Hot Plug Detect	24	TMDS Clock -

RGB/DVI

Mode No	Resolution	Refr. Rate (Hz)	Hor.. Freq. (K Hz)	Vert. Freq. (Hz)	V-Sync Polariy (TTL)	H-Sync Polarity (TTL)	Dot rate (MHz)
1	640(VGA)x480	60	31.469	59.940	-	-	25.175
2	640(VGA)x480	72	37.861	72.809	-	-	31.500
3	640(VGA)x480	75	37.500	75.000	-	-	31.500
4	640(VGA)x480	85	43.269	85.008	-	-	36.000
5	800(SVGA)x600	56	35.156	56.250	+	+	36.000
6	800(SVGA)x600	60	37.879	60.317	+	+	40.000
7	800(SVGA)x600	72	48.077	72.188	+	+	50.000
8	800(SVGA)x600	75	46.875	75.000	+	+	49.500
9	800(SVGA)x600	85	53.674	85.061	+	+	56.250
10	1024(XGA)x768	60	48.364	60.004	-	-	65.000
11	1024(XGA)x768	70	56.476	70.069	-	-	75.000
12	1024(XGA)x768	75	60.023	75.029	+	+	78.750
13	1024(XGA)x768	85	68.677	84.997	+	+	94.500
14	1280(SXGA)x1024	60	63.981	60.020	+	+	108.000
15*	1280(SXGA)x1024	75	79.976	75.025	+	+	135.000
16*	1280(SXGA)x1024	85	91.146	85.024	+	+	157.500
18	720(DOS)x400	70	31.469	70.087	+	-	28.322
19	640(VGA)x480	50	31.469	50.030	-	-	25.175
20*	1280(HDTV)x720p	60	45.000	60.000	+	+	74.250
21*	1920(HDTV)x1080i	60(i)	33.750	60.000	+	+	74.250
22	640(VGA)x350	70	31.469	70.087	-	+	25.175
23	852(WGA)x480	60	31.413	59.835	-	-	30.000
24	640x480	67	35.000	66.667	-	-	30.240
25	832x624	75	49.725	74.550	-	-	57.283
26	1152x870	75	68.681	75.062	-	-	100.000
27	1366x768	60	47.700	60.000	-	-	85.383
28	1360x768	60	47.368	59.960	-	+	72.000
29	848x480	60	29.640	60.000	-	+	29.875
30	1280x960	60	60.000	60.000	+	+	108.000
31*	1280x960	85	85.938	85.002	+	+	148.500

Notes:

- * These modes are not supported in DVI mode.
- Modes 24-26 are for use with Apple Macintosh computers.

Y/PB/PR For Component 1 and 2

Mode	Resolution	Rate
1	640 x 480p	60
2	1920 x1080i	60
3	1280 x 720p	60

Maximum Resolution: Up to 1280 x 1024 (VGA Mode)

Dimensions:	Without/Stand	With/Stand
Width:	1256 mm	1256 mm
Height:	762 mm	810 mm
Depth:	107.5 mm	300 mm

Package Dimensions

Width:	1436 mm
Height:	1125 mm
Depth:	470 mm

Weight

Net weight:	108.00 lbs/49 kgs (w/ stand)
Gross weight:	132.24 lbs/60 kgs

Operating

Temperature:	0~40 Degrees C (32~104 degrees F)
Relative humidity:	20~80%
Pressure:	800~1100hpa

Non-Operating

Temperature:	20~60 Degrees C (-4~140 Degrees F)
Relative humidity:	00~90%
Pressure:	700~1100hpa
Vibration:	X/Y/Z, 0.5G/10~55Hz (sweep), 10 minutes

Acoustics

(IHF A-weighted 1 meter):	40dB Max.

Sound

Residual hum (at volume max):	500µW Max.
Practical max. Audio output (at 10% THD max.):	1.0vp-p 1K Hz input 5W +5W Max. /12 ohm
Sound distortion (at 250 mw 1K Hz):	1% Max.
Audio output (input at 1.4V p-p):	>=1.0 V P-P

Reliability Requirement

The MTBF is 20,000 hrs under operation 25±5 C°
(Half luminosity, motion picture).

Emission Requirement

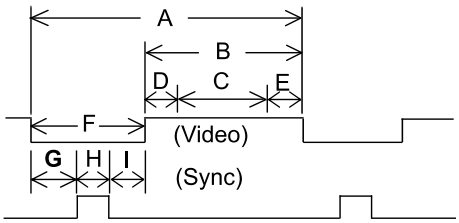
This unit meets the EMI limits in all screen modes as qualified by FCC Class B part 15.

Power Management

Mode	H-sync	V-sync	Video	Power dissipation
Normal	Pulse	Pulse	Active	Normal power
Standby	No pulse	No pulse	No video	Power off
Power saving	Pulse	No pulse	blanked	Less than 6 watts
	No pulse	Pulse		

Note: This Plasma display is Energy star compliant when used with a computer equipped with DPMS.

Preset Timing Chart



Item Description:

A : Total time
B : Active display area including borders
C : Active display area excluding borders
D : Left/Top border
E : Right/bottom border
F : Blanking time
G : Front porch
H : Sync-width
I : Back porch.

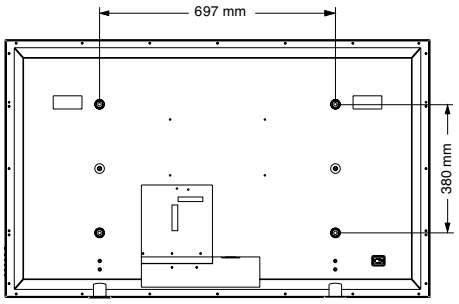
Mode No. :	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
H Resolution:	640	640	640	640	800	800	800	800	800	
V Resolution:	480	480	480	480	600	600	600	600	600	
Refresh Rate:	60	72	75	85	56	60	72	75	85	Hz
Pixel Clock:	25.175	31.500	31.500	36.000	36.000	40.000	50.000	49.500	56.250	MHz
Horizontal visible:	640	640	640	640	800	800	800	800	800	Dots
Horizontal total:	800	832	840	832	1024	1056	1040	1056	1048	Dots
Horizontal front porch:	16	24	16	56	24	40	56	16	32	Dots
Horizontal sync:	96	40	64	56	72	128	120	80	64	Dots
Horizontal back porch:	48	128	120	80	128	88	64	160	152	Dots
Horiz blanking time:	160	192	200	192	224	256	240	256	248	Dots
Vertical visible:	480	480	480	480	600	600	600	600	600	Lines
Vertical total:	525	520	500	509	625	628	666	625	631	Lines
Vertical front porch:	10	9	1	1	1	1	37	1	1	Lines
Vertical sync:	2	3	3	3	2	4	6	3	3	Lines
Vertical back porch:	33	28	16	25	22	23	23	21	27	Lines
Vertical blanking time:	45	40	20	29	25	28	66	25	31	Lines
Horizontal frequency:	31.469	37.861	37.500	43.269	35.156	37.879	48.077	46.875	53.674	KHz
Vertical frequency:	59.940	72.809	75.000	85.008	56.250	60.317	72.188	75.000	85.061	Hz
Vertical sync polarity:	-	-	-	-	+	+	+	+	+	TTL
Horiz sync polarity:	-	-	-	-	+	+	+	+	+	TTL

Mode No	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**18**	**19**	
H Resolution	1024	1024	1024	1024	1280	1280	1280	720	640	
V Resolution	768	768	768	768	1024	1024	1024	400	480	
Refresh Rate	60	70	75	85	60	75	85	70	50	Hz
Pixel Clock	65.000	75.000	78.750	94.500	108.000	135.000	157.500	28.322	25.175	MHz
Horizontal visible	1024	1024	1024	1024	1280	1280	1280	720	640	Dots
Horizontal total	1344	1328	1312	1376	1688	1688	1728	900	800	Dots
Horizontal front porch	24	24	16	48	48	16	64	18	16	Dots
Horizontal sync	136	136	96	96	112	144	160	108	96	Dots
Horizontal back porch	160	144	176	208	248	248	224	54	48	Dots
Horiz blanking time	320	304	288	352	408	408	448	180	160	Dots
Vertical visible	768	768	768	768	1024	1024	1024	400	480	Lines
Vertical total	806	806	800	808	1066	1066	1072	449	629	Lines
Vertical front porch	3	3	1	1	1	1	1	12	62	Lines
Vertical sync:	6	6	3	3	3	3	3	2	2	Lines
Vertical back porch:	29	29	28	36	38	38	44	35	85	Lines
Vertical blanking time:	38	38	32	40	42	42	48	49	149	Lines
Horizontal frequency:	48.364	56.476	60.023	68.677	63.981	79.976	91.146	31.469	31.469	KHz
Vertical frequency:	60.004	70.069	75.029	84.997	60.020	75.025	85.024	70.087	50.030	Hz
Vertical sync polarity:	-	-	+	+	+	+	+	+	-	TTL
Horiz sync polarity:	-	-	+	+	+	+	+	-	-	TTL

Mode No	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	
H Resolution:	1280	1920	640	852	640	832	1152	1366	1360	
V Resolution:	720p	1080i	350	480	480	624	870	768	768	
Refresh Rate:	60	60i	70	60	67	75	75	60	60	Hz
Pixel Clock:	74.250	74.250	25.175	30.000	30.240	57.283	100.000	85.383	72.000	MHz
Horizontal visible:	1280	1920	640	852	640	832	1152	1366	1360	Dots
Horizontal total:	1650	2200	800	955	864	1152	1456	1790	1520	Dots
Horizontal front porch:	110	88	16	19	64	32	32	100	48	Dots
Horizontal sync:	40	44	96	48	64	64	128	112	32	Dots
Horizontal back porch:	220	148	48	36	96	224	144	212	80	Dots
Horiz blanking time:	370	280	160	103	224	320	304	424	160	Dots
Vertical visible:	720	540	350	480	480	624	870	768	768	Lines
Vertical total:	750	562.5	449	525	525	667	915	795	790	Lines
Vertical front porch:	5	3	37	10	3	1	3	1	2	Lines
Vertical sync:	5	5	2	2	3	3	3	3	5	Lines
Vertical back porch:	20	15	60	33	39	39	39	23	15	Lines
Vertical blanking time:	30	23	99	45	45	43	45	27	22	Lines
Horizontal frequency:	45.000	33.750	31.469	31.413	35.000	49.725	68.681	47.700	47.368	KHz
Vertical frequency:	60.000	60.000	70.087	59.835	66.667	74.550	75.062	60.000	59.960	Hz
Vertical sync polarity:	+	+	-	-	-	-	-	-	-	TTL
Horiz sync polarity:	+	+	+	-	-	-	-	-	+	TTL

Mode No	**29**	**30**	**31**	
H Resolution:	848	1280	1280	
V Resolution:	480	960	960	
Refresh Rate:	60	60	85	Hz
Pixel Clock:	29.875	108.000	148.500	MHz
Horizontal visible:	848	1280	1280	Dots
Horizontal total:	1008	1800	1728	Dots
Horizontal front porch	48	96	64	Dots
Horizontal sync:	32	112	160	Dots
Horizontal back porch:	80	312 2	24	Dots
Horiz blanking time:	160	520	448	Dots
Vertical visible:	480	960	960	Lines
Vertical total:	494	1000	1011	Lines
Vertical front porch:	2	1	1	Lines
Vertical sync:	5	3	3	Lines
Vertical back porch:	7	36	47	Lines
Vertical blanking time:	14	40	51	Lines
Horizontal frequency:	29.640	60.000	85.938	KHz
Vertical frequency:	60.000	60.000	85.002	Hz
Vertical sync polarity:	-	+	+	TTL
Horiz sync polarity:	+	+	+	TTL

14. WALL MOUNT (OPTION)



Rear View

Notes:

- Follow mount bracket instruction included in the mounting kit.
- This type of equipment is to be installed by qualified installers, please contact an authorized dealer for installation.

15. LIMITED WARRANTY

One Year Free Labor

One Year Free Parts

WHO IS COVERED?

You must have proof of the date purchased to receive warranty service. A sales receipt or other document showing the date that you purchased the product is considered proof of purchase.

WHAT IS COVERED?

Warranty coverage begins the day you buy your product. For one year thereafter, all defective parts will be repaired or replaced and labor is free. After one year from the day of purchase, you pay for the replacement or repair of all parts, and for all labor charges.
All parts, including repaired and replaced parts, are covered only for the original warranty period. When the warranty on the product expires, the warranty on all replaced and repaired parts also expires.

WHAT IS EXCLUDED?

Your warranty does not cover:

- labor charges for removal, installation or setup of the product, adjustment of customer controls on the product, and installation or repair of antenna systems outside of the product.
- product repair and/or part replacement because of misuse, accident, unauthorized repair or other cause not within the control of Philips Consumer Electronics North America.
- reception problems caused by signal conditions or cable or antenna systems outside the unit.
- modifications or adaptations to enable the product to operate in any country other than the country for which it was designed, manufactured, approved and/or authorized, or the repair of products damaged by these modifications.

- incidental or consequential damages resulting from the product. (Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you. This includes, but is not limited to, prerecorded material, whether copyrighted or not copyrighted.)
- normal wear and tear (decreased light output of PDP module) over the product's lifetime.
- phosphor burn. Do not display static images for prolonged periods, otherwise phosphor burn might appear on part of the panel.
- limited quantity of cells (fine pixel elements) that do not produce light, or that remain lit after they should have turned off.

WHERE IS SERVICE AVAILABLE?

Warranty service is available in all countries where the product is officially distributed by Philips Consumers Electronics North America. In countries where Philips Consumers Electronics North America does not distribute the product, the local Philips service organization will attempt to provide service (although there may be a delay if the appropriate spare parts and technical manual(s) are not readily available).

MAKE SURE YOU KEEP ...

Please keep your sales receipt or other document showing proof of purchase. Attach it to this owner's manual and keep both nearby. Also keep the original box and packing material in case you need to return your product.

BEFORE REQUESTING SERVICE...

Please check your owner's manual before requesting service. Adjustments of the controls discussed there may save you a service call.

TO GET WARRANTY SERVICE....

Please contact Philips at: 1-877-835-1838. Repair must be performed by an authorized service center or a factory service center. If you do not live near a factory service center, contact your dealer. If your dealer is an authorized service center, he will arrange repair. If your dealer is not an authorized service center he will direct you to the authorized service center engaged by him to service the products he sells. (In U.S.A., Puerto Rico and U.S.Virgin Islands, all implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the duration of this express warranty. But, because some states do not allow limitations on how long an implied warranty may last, this limitation may not apply to you.)

IF YOU HAVE QUESTIONS

Please contact Philips at:
1-877-835-1838

REMEMBER...

Please record the model and serial numbers found on the product below. Also, please fill out and mail your warranty registration card promptly. It will be easier for us to notify you if necessary.

MODEL # _

SERIAL # _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _wo_ _ _