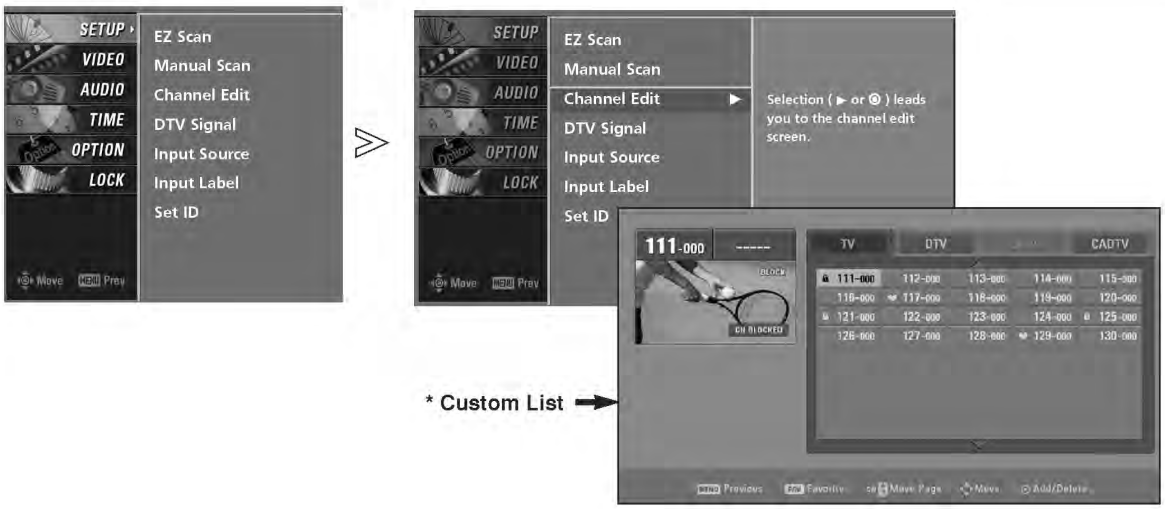
Channel Edit



- *There are two different ways in order to add or delete scanned channels. One is "Custom List" and the other is "Favorite List" in the channel list. Both of them are available after* ***EZ Scan*** *on the* ***SETUP*** *menu.*

- *A Custom List can be created by toggling each channel on or off with* ***ENTER*** *button. The channels in the Custom List are displayed in black color, and the channels deleted from the Custom List are displayed in gray color. Once a channel is highlighted you can add or delete the channel by referring to the small window at the top-left corner of the screen.You can create your own Favorite List. Use the* ***FAV*** *button on the remote control when a channel is highlighted and then you can add or delete the channel to/from the Favorite List.*

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

2 Press the ► button and then use ▲ / ▼ button to select **Channel Edit**.

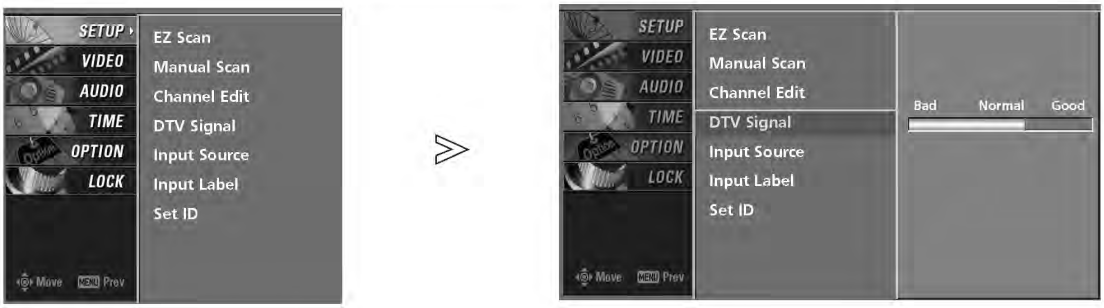
3 Press the ► button. You will now see a screen filled with channel numbers and a preview picture.

4 Use ▲ / ▼ / ◄ / ► button to select a channel and then use the **ENTER** button to add or delete it. Press **FAV** button to add the channel to the Favorite List. The heart-mark will appear in front of that channel number.

5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Setup Menu Options continued

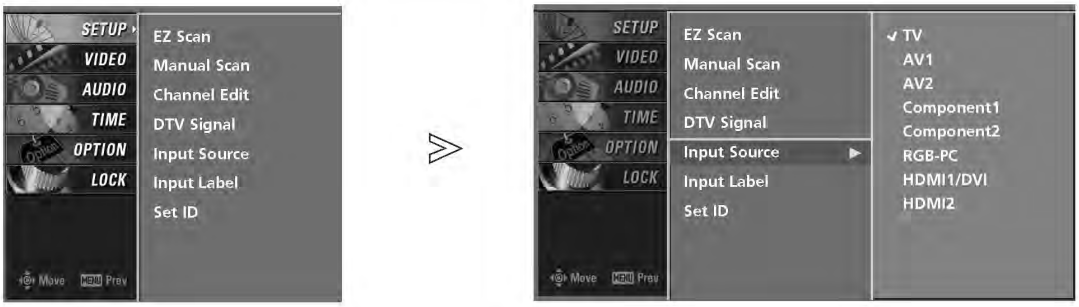
DTV Signal Strength



- *Shows how strong your DTV signal is and whether you need to adjust your antenna or digital cable input. The higher the signal strength, the less likely you are to experience picture degradation.*
- *DTV Signals: Only when the input signal is DTV or CADTV, this function is available.*

1. Press the **MENU** button and then use ▲ / ▼ button to select the **SETUP** menu.
2. Press the ► button and then use ▲ / ▼ button to select **DTV Signal**.
3. View the on-screen signal strength monitor to see the quality of the signal being received.
4. Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

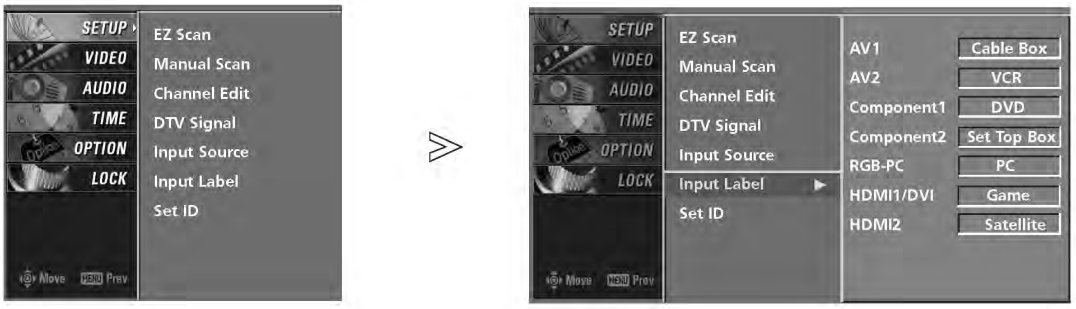
Input Source



- *Changes the picture source so you can watch your TV, cable TV, VCR, DVD, or any other devices that are connected to your TV.*

1. Press the **MENU** button and then use ▲ / ▼ button to select the **SETUP** menu.
2. Press the ► button and then use ▲ / ▼ button to select **Input Source**.
3. Press the ► button and then use ▲ / ▼ button to select the source: TV, AV1, AV2, Component1, Component2, RGB-PC, HDMI1/DVI, or HDMI2.
4. Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Input Label



*- Sets a label to each input source or lets you skip the input source which is not in use when you press **INPUT** button.*

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

2 Press the ► button and then use ▲ / ▼ button to select **Input Label**.

3 Press the ► button and then use ▲ / ▼ button to select the source: AV1-2, Component1-2, RGB-PC, HDMI1/DVI or HDMI2.

4 Press the ◄ / ► button to select the label.

5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Video Menu Options

Auto Picture Control (EZ Picture)

- EZ Picture adjusts the TV for the best picture appearance. Select the preset value in the EZ Picture menu based on the program category.
- **Daylight**, **Normal**, **Night Time** settings are preset for optimum picture quality at the factory and are not adjustable.
- In the **User 1**, and **User 2** modes only, user can directly adjust the contrast, brightness, color, sharpness, tint.

1 Press the **EZ PIC** button repeatedly to select the picture appearance setup option as shown below:
Daylight, **Normal**, **Night Time**, **User 1** and **User 2**(your own settings).
• You can also use the **VIDEO** menu to adjust **EZ Picture**.

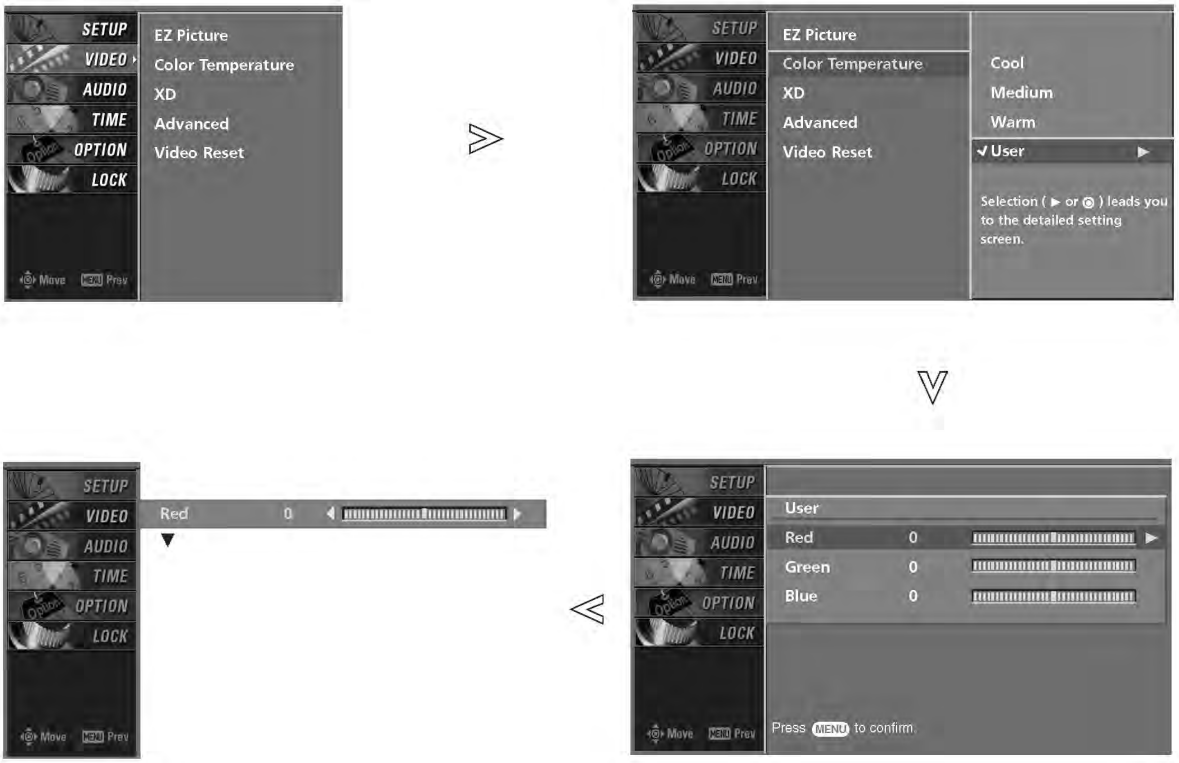
2 Press the **EXIT** button to save and return to TV viewing .

Color Temperature Control

- *Choose one of three automatic color adjustments. Set to warm to enhance hotter colors such as red, or set to cool to see less intense colors with more blue.*

1 Press the **MENU** button and then use ▲/▼ button to select the **VIDEO** menu.
2 Press the ► button and then use ▲/▼button to select **Color Temperature**.
3 Press the ► button and then use ▲ / ▼ button to select either **Cool**, **Medium**, **Warm**, or **User**.
4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Manual Color Temperature Control



- You can also adjust the detailed set tings(Red, Green, Blue) by selecting the **User** menu.

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

2 Press the ▶ button and then use ▲ / ▼ button to select **Color Temperature** .

3 Press the ▶ button and then use ▲ / ▼ button to select **User** .

4 Press the ▶ button and then use ▲ / ▼ button to select **Red, Green** or **Blue** .

5 Press the ▶ button and then use ◀ / ▶ button to make appropriate adjustments.
• The adjustment range of **Red, Green** or **Blue** is -20~ +20.

6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

XD

- XD is LG Electronic's unique picture improving technology to display a real HD source through an advanced dig-ital signal processing algorithm.
- When selecting EZ Picture options (Daylight, Normal and Night time), XD is automatically change to Auto.
- When selecting EZ Picture options (User 1 and User 2), you can choose the Auto / Manual and when selecting Manual, you can adjust the XD Contrast, XD color and XD Noise.

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

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

3 Press the ► button and then use ▲ / ▼ button to select **Auto** or **Manual**.

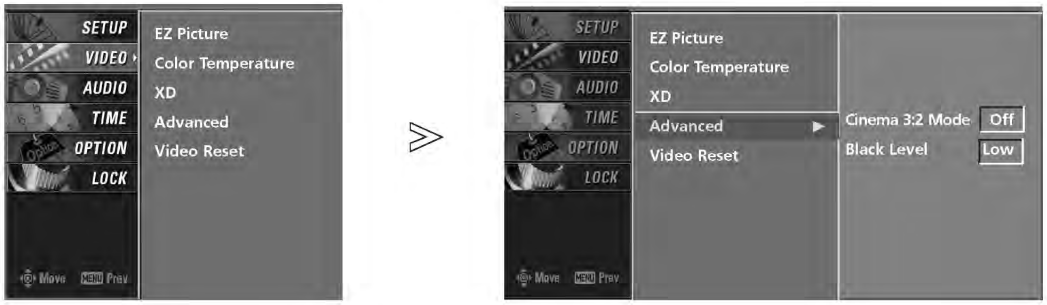
*** Selecting the Manual**

1. Press the ► button and then use ◄ / ► button to select **XD Contrast**, **XD Color** or **XD Noise**.
XD Contrast :Optimizing the contrast automatically according to the brightness of the reflection.
XD Color :Adjusting the colors of the reflection automatically to reproduce as closely as possible to the natural colors.
XD Noise :Removing the noise up to the point where it does not damage the original picture.

2. Use the ▲ / ▼ button to make appropriate adjustments.

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Advanced-Cinema 3:2 Mode / Black Level



• **Cinema 3:2 Mode**
- Set up the TV for the best picture appearance for viewing movies. When you operate Cinema (3:2 Pull-Down Mode or Cinema Correction Mode),the TV will adjust 24 fps video from movies to 30 fps video for display (This function is only available in Analog, AV1, AV2, Component 480i mode.)

• **Black level**
- Adjusting the contrast and the brightness of the screen using the black level of the screen. This feature operates only in HDMI1/DVI, HDMI2 or AV1, AV2 mode.

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

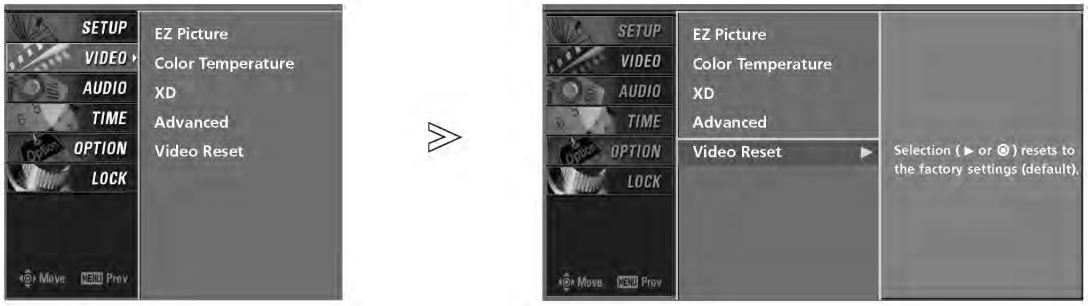
2 Press the ► button and then use ▲ / ▼ button to select **Advanced** .

3 Press the ► button and then use ▲ / ▼ button to select **Cinema 3:2 Mode** or **Black Level**.

* Selecting the **Cinema 3:2 Mode**	* Selecting the **Black Level**
4 Press the ► button and then use ▲ / ▼ button to select **On** or **Off** .	Press the ► button and then use ▲ / ▼ button to select **Low** or **High**. **Low** The reflection of the screen gets darker. **High** The reflection of the screen gets brighter.

5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Video Reset



- *Use to quickly reset all the Video menu options to their original factory preset values.*

1 Press the **MENU** button and then use ▲ / ▼ button to select the **VIDEO** menu.
2 Press the ► button and then use ▲ / ▼ button to select **Video Reset**.
3 Press the ► button to reset the Video menu options to original values.

Audio Menu Options

Audio Language

- *Other languages may be available if a digital signal is provided by the broadcasting station.*

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

2 Press the ► button and then use ▲ / ▼ button to select **Audio Language**.

3 Press the ► button and then use ▲ / ▼ button to select: English, Spanish, or French.

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Auto Sound Control (EZ Sound)

- EZ Sound lets you enjoy the best sound without any special adjustment because the TV sets the appropriate sound options based on the program content.

- Normal, Stadium, News, Music and Theater are preset for good sound quality at the factory and are not adjustable.

- When you select the **Stadium** or **Theater**, the **AUDIO** menu-**Balance** option is disable and the **Balance** option is set to 0 automatically.
  When **SRS** is **On**, the **Balance** option is set to 0 automatically.
  And when you change the other modes, the balance is restored to the original value set the user.

1 Press the **EZ SOUND** button repeatedly to select the appropriate sound setup as shown below :
Normal, **Stadium**, **News**, **Music**, **Theater** and **User** (your own settings) .
• You can also adjust **EZ Sound** in the **AUDIO** menu.

2 Press EXIT button to save and return to TV viewing.

Manual Sound Control (**EZ Sound-User** option)

- *Adjust the sound in your preference and surrounded environment.*

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

2 Press the ▶ button and then use ▲ / ▼ button to select **EZ Sound**.

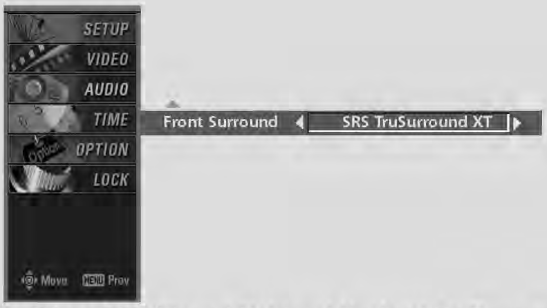
3 Press the ▶ button and then use ▲ / ▼ button to select **User**.

4 Press the ▶ button and then use ▲ / ▼ button to select the desired sound option (**Treble**, **Bass** or **Front Surround**).

5 Press the ▶ button and then use ◀ / ▶ button to make appropriate adjustments.

*** Selecting the Front Surround**

Press the ▶ button and then use ◀ / ▶ button to select **Off** or **SRS** (Sound Retrieval System) **TruSurround XT** .



Note: When **SRS** (Sound Retrieval System) **TruSurround XT** is selected, Audio Balance function is disable and set to 0 .

When **Off** is selected, Audio Balance function is enable and reset the balance as previous.

6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

SRS TruSurround XT

Takes advantage of any multi-channel format without needing to add extra speakers or equipment. Dialog clarity, bass enrichment, and the addition of stereo audio enhancement produces an immersive sound experience from standard stereo material.

Balance

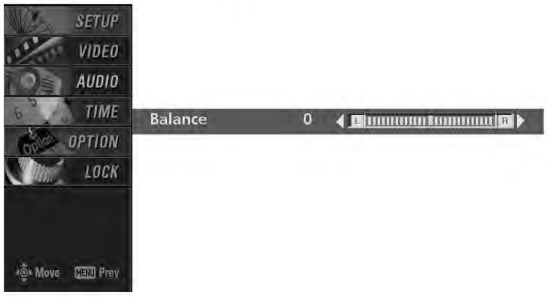
- Adjust the sound in your preference and surrounded environment.

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

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

3 Press the ► button and then use ◄ / ► button to make appropriate adjustments.

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



TV Speakers On/Off Setup

- *Turn TV speakers off if using external audio equipment. Feature turns the TV Speakers option On or Off.*

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

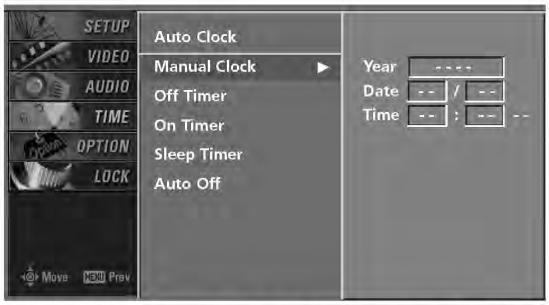
2 Press the ► button and then use ▲ / ▼ button to select **TV Speaker**.

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

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Time Menu Options

Manual Clock Setup



- *If current time setting is wrong, reset the clock manually.*

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

2 Press the ► button and then use ▲ / ▼ button to select **Manual Clock**.

3 Press the ► button and then use ◄ / ► button to select either the year, date, or time option. Once selected, use the ▲ / ▼ button to set the year, date, and time options.

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Auto Clock Setup

- *The current time will be set automatically from a digital channel signal provided by the broadcasting station.*
- *Set the clock manually, if the current time is set incorrectly by the auto clock function.*
- *The factory default value of the **Auto Clock** is **Off**, because a clock information sent each broadcasting station is different.*

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

2 Press the ► button and then use ▲ / ▼ button to select **Auto Clock**.

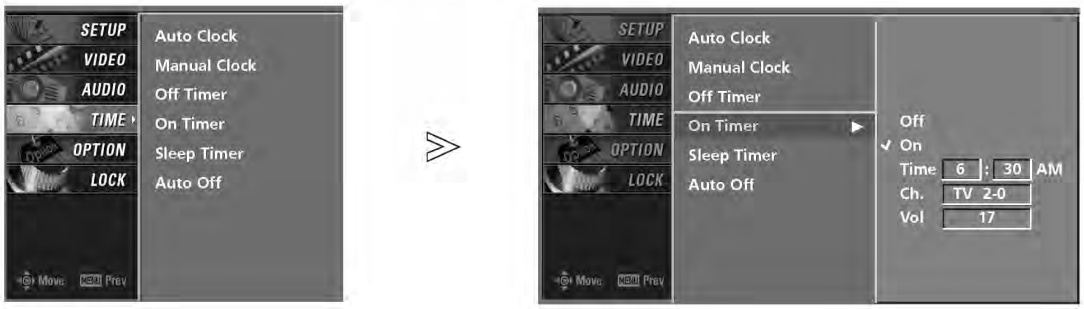
3 Press the ► button and then use ▲ / ▼ button to select **On**.

4 Press the ► button and then use ▲ / ▼ button to select your viewing area time zone.
- U.S.A: **Eastern**, **Central**, **Mountain**, **Pacific**, **Alaska**, or **Hawaii**.
- Canada: **Eastern**, **Central**, **Mountain**, **Pacific**, **New F.land**, or **Atlantic**.

5 Press the ► button and then use ▲ / ▼ button to select **Auto**, **Off**, **On**, depending on whether or not your viewing area observes Daylight Saving time.

6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

On/Off Timer Setup



- *Timer function operates only if current time has been set.*
- *Off-Timer function overrides On-Timer function if they are set both set to the same time.*
- *The TV must be in standby mode for the On-Timer to work.*
- *If you do not press any button within 2 hours after the TV turns on with the On Timer function, the TV will automatically revert to standby mode.*

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

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

3 Press the ► button and then use ▲ / ▼ button to select **On**.
• To cancel **On/Off Timer** function, select **Off**.

4 Press the ► button and then use ▲ / ▼ button to set the hour.

5 Press the ► button and then use ▲ / ▼ button to set the minutes.

6 **For only On Timer function**
Press the ► button and then use ▲ / ▼ button to select the channel at turn-on.
Press the ► button and then use ▲ / ▼ button to set the sound level at turn-on.

7 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Sleep Timer

- *The Sleep Timer turns the TV off at the preset time. Note that this setting is cleared when the TV is turned off.*
- *You can also set up the **Sleep Timer** in the **TIME** menu.*

1 Press the **TIMER** button repeatedly to select the number of minutes. First the **Off** option appears on the screen, followed by the following sleep timer options: 10, 20, 30, 60, 90, 120, 180, and 240 minutes.

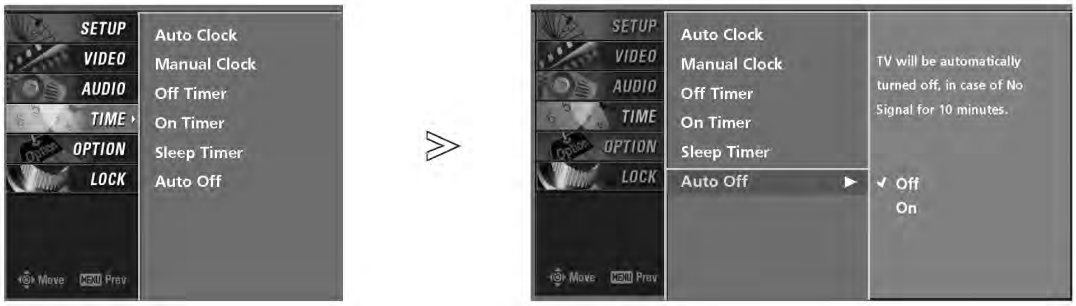
2 When the number of minutes you want is displayed on the screen, press the **TIMER** button. The timer begins to count down from the number of minutes selected.

3 To check the remaining minutes before the TV turns off, press the **TIMER** button once.

4 To cancel the Sleep Timer, press the **TIMER** button repeatedly to select **Off**.

Time Menu Options continued

Auto Off



- *If the TV is on and there is no input signal, the TV turns off automatically after 10 minutes.*

1. Press the **MENU** button and then use ▲ / ▼ button to select the **TIME** menu.
2. Press the ► button and then use ▲ / ▼ button to select **Auto Off**.
3. Press the ► button and then use ▲ / ▼ button to select **Off** or **On**.
4. Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Option Menu Features

Aspect Ratio Control

Set by program

Selects the proper picture proportion to match the source's image.

(4:3→ 4:3) (16:9→ 16:9)

4:3

Choose 4:3 when you want to view a picture with an original 4:3 aspect ratio.

16:9

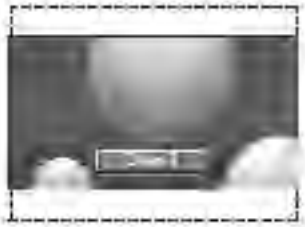
Adjust the picture horizontally, in a linear proportion to fill the entire screen.

Horizon

The screen size is, more enlarged at both sides, to create a spectacular view.

Zoom 1

Choose Zoom 1 when you want to view the picture without any alteration. However, the top and bottom portions of the picture will be cropped.



Zoom 2

Choose Zoom 2 when you want the picture to be altered, both vertically extended and cropped. The picture taking a halfway trade off between alteration and screen coverage.

This feature allow an analog picture with 4:3 aspect ratio to be displayed in a different proportion. When 4:3 analog signal is received on the 16:9 TV, personally preferred aspect ratio needs to be specified.

- RGB-PC/DVI-PC input source use 4:3 or 16:9 aspect ratio.

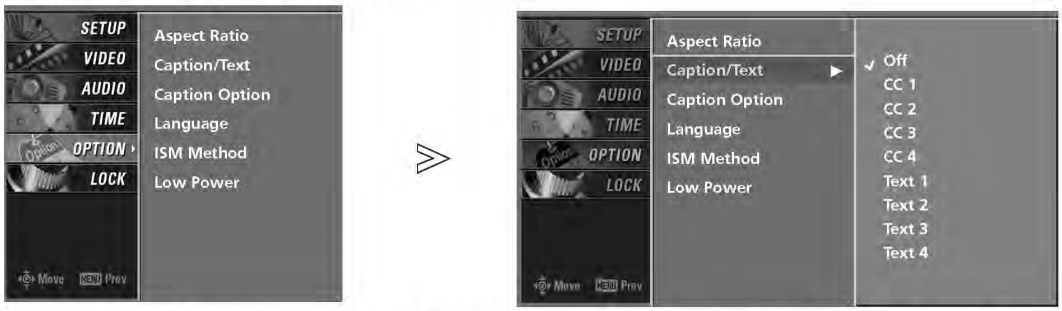
1 Press the RATIO button repeatedly to select the desired picture format.

+ You can also adjust the **Aspect Ratio** in the **OPTION** menu.

Option Menu Features continued

Caption/Text

* Analog Broadcasting System Captions



- *Select a caption mode for displaying captioning information if provided on a program.*
- *Analog caption displays information at any position on the screen.*
- *Text displays information, usually at the bottom position and is used for a data service.*
- *Caption/Text, if provided by the broadcaster, would be available for both digital and analog channels on the Antenna/Cable.*
- *This TV is programmed to remember the caption/text mode it was last set to, when you turn the power off.*
- *Whe you select the **CC1~Text4**, Caption Option must be disabled.*

1. Use the **CC** button repeatedly to select Caption **Off**, **CC1**, **CC2**, **CC3**, **CC4**, **Text1**, **Text2**, **Text3**, or **Text4**.
2. Press **EXIT** button to save and return to TV viewing.

---

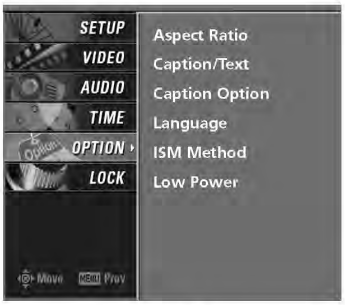
1. Press the **MENU** button and then use ▲ / ▼ button to select the **OPTION** menu.
2. Press the ► button and then use ▲ / ▼ button to select **Caption/Text**.
3. Press the ► button and then use ▲ / ▼ button to select caption: **CC1**, **CC2**, **CC3**, **CC4**, **Text1**, **Text2**, **Text3**, or **Text4**.
   • **CAPTION**
   The term for the words that scroll across the bottom of the TV screen.
   • **TEXT**
   The term for the words that appear in a large black frame and almost cover the entire screen; usually messages provided by the broadcaster.
4. Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

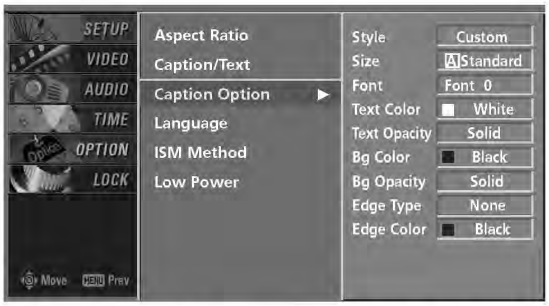
* Digital Broadcasting System Captions

- *Choose the language you want the DTV/CADTV Captions to appear in.*
- *Other languages can be chosen for digital sources only if they are included on the program.*
- *Caption may not be available depends if the service is not provided by the digital broadcaster.*

1. Press the **MENU** button and then use ▲ / ▼ button to select the **OPTION** menu.
2. Press the ► button and then use ▲ / ▼ button to select **Caption/Text**.
3. Press the ► button and then use ▲ / ▼ button to select available caption languages: **English**, **Spanish**, or **French**.
4. Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Caption Option





- *Customize the DTV/CADTV captions that appear on your screen.*

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

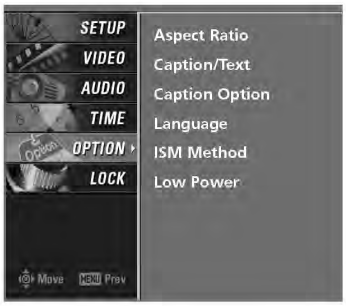
2 Press the ► button and then use ▲ / ▼ button to select **Caption Option**.

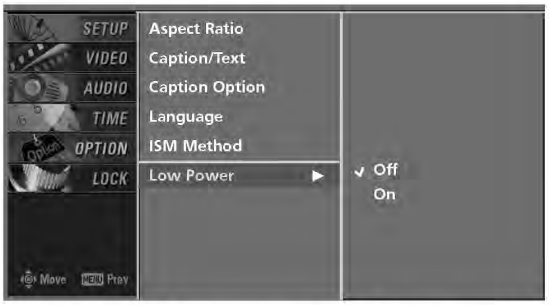
3 Press the ► button and then use ◄ / ► button to select **Custom**.

4 Use ▲ / ▼ button to customize the Style, Font, etc., to your preference. A preview icon is provided at the bottom of the screen, use it to see the caption language.
- **Size**: Set the size the words will appear in.
- **Font**: Select a typeface for the words.
- **Text Color**: Choose a color for the text.
- **Text Opacity**: Specify the opacity for the text color.
- **Bg (Background) Color**: Select a background color.
- **Bg (Background) Opacity**: Select the opacity for the background color.
- **Edge Type**: Select an edge type.
- **Edge Color**: Select a color for the edges.

5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Low Power (42PC3D/3DC/3DV, 50PC3D, 60PC1D only)





- *Low power reduces the power consumption of plasma display.*

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

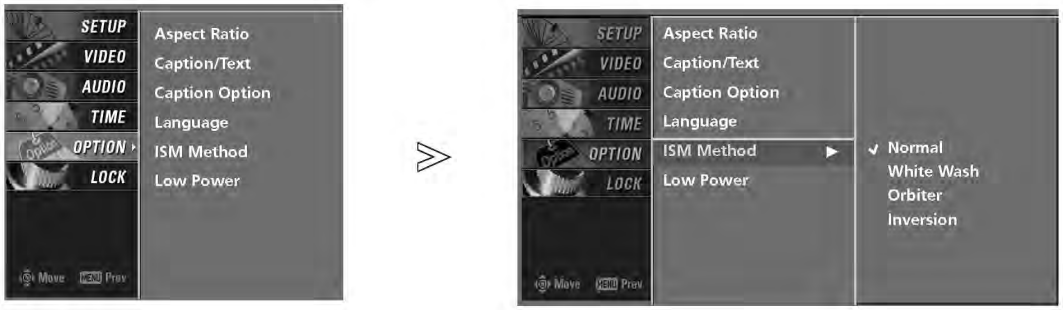
2 Press the ► button and then use ▲ / ▼ button to select **Low Power**.

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

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Option Menu Features continued

ISM (Image Sticking Minimization) Method (42PC3D/3DC/3DV, 50PC3D, 60PC1D only)



- *A frozen still picture from a PC/video game displayed on the screen for prolonged periods will result in a ghost image ; even though the image is changed. Use our unique method to minimize any fixed image on the screen.*

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

2 Press the ► button and then use ▲ / ▼ button to select **ISM Method**.

3 Press the ► button and then use ▲ / ▼ button to select **Normal**, **White Wash**, **Orbiter** or **Inversion**.

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

• **White Wash**
White Wash removes permanent images from the screen.
Note: An excessive permanent image may be impossible to clear entirely with White Wash. To return to normal viewing, press the any button.

• **Orbiter**
Orbiter may help prevent ghost images. However, it is best not to allow any fixed image to remain on the screen. To avoid a permanent image on the screen, the image will move once per 2 minutes: Left → Right → Upside → Downside → Right → Left → Downside → Upside.

• **Inversion**
Inversion will automatically invert the plasma display panel color every 30 minutes.

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Lock Menu Options

Parental Control can be used to block specific channels, ratings and other viewing sources.

The Parental Control Function (V-Chip) is used to block program viewing based on the ratings sent by the broadcasting station. The default setting is to allow all programs to be viewed. Viewing can be blocked by the type of program and by the categories chosen to be blocked. It is also possible to block all program viewing for a time period. To use this function, the following must be done :

1. Set ratings and categories to be blocked.
2. Specify a password
3. Enable the lock

V-Chip rating and categories

Rating guidelines are provided by broadcasting stations. Most television programs and television movies can be blocked by TV Rating and/or Individual Categories. Movies that have been shown at the theaters or direct-to-video movies use the Movie Rating System (MPAA) only.

For USA

Ratings for Movies previously shown in theaters:

Movie Ratings :

- Blocking Off (Permits all programs)
- G (General audience)
- PG (Parental guidance suggested)
- PG-13 (Parents strongly cautioned)
- R (Restricted)
- NC-17 (No one 17 and under admitted)
- X (Adult only)

If you set PG-13 : G and PG movies will be available, PG-13, R, NC-17 and X will be blocked.

Ratings for Television programs including made-for-TV movies :

- TV-G (General audience)
- TV-PG (Parental guidance suggested)
- TV-14 (Parents strongly cautioned)
- TV-MA (Mature audience only)
- TV-Y (All children)
- TV-Y7 (Children 7 years and older)

TV Rating-Children:

- Age (applies to TV-Y, TV-Y7)
- Fantasy Violence (applies to TV-Y7)

TV Rating-General:

- Age (applies to TV-G, TV-PG, TV-14, TV-MA)
- Dialogue- sexual dialogue (applies to TV-PG, TV-14)
- Language- adult language (applies to TV-PG, TV-14, TV-MA)
- Sex- sexual situations (applies to TV-PG, TV-14, TV-MA)
- Violence (applies to TV-PG, TV-14, TV-MA)

Input Block

- AV1, 2 (On, Off)
- Component 1, 2 (On, Off)
- RGB-PC, HDMI1/DVI and HDMI2 (On, Off)

For Canada

TV Rating-English:

- E (Exempt)
- C (Children)
- C8+ (8 years and up)
- G (General programming. Suitable for all audiences)
- PG (Parental guidance suggested)
- 14+ (Viewers 14 years and up)
- 18+ (Adult programming)
- Blocking off (Permits all programming)

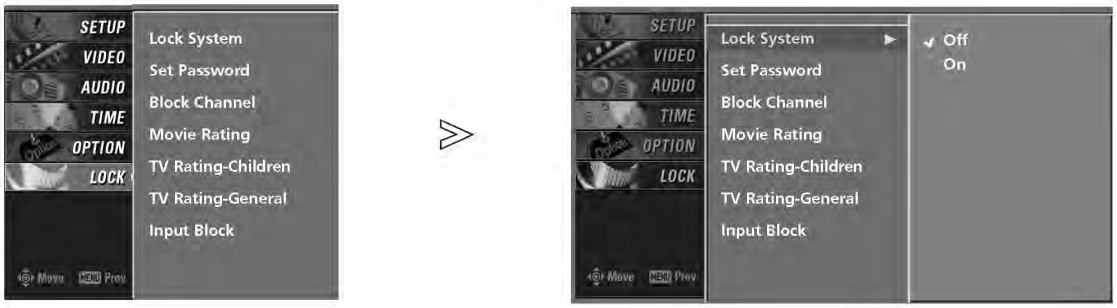
TV Rating-French:

- E (Exempt)
- G (General)
- 8 ans+ (8 years and up)
- 13 ans+ (13 years and up)
- 16 ans+ (16 years and up)
- 18 ans+ (Adults only)
- Blocking off (Permits all programming)

Input Block

- AV 1, 2 (On, Off)
- Component 1, 2 (On, Off)
- RGB-PC, HDMI1/DVI and HDMI2 (On, Off)

Parental Lock Setup



- *Set up blocking schemes to block specific channels, ratings, and external viewing sources.*
- *A password is required to gain access to this menu if the Lock System is turned on.*

• If you ever forget your password, key in '7', '7', '7', '7' on the remote control.

1 Press the **MENU** button and then use ▲ / ▼ button to select the **LOCK** menu. Then, press the ▶ button
- If **Lock** is already set, enter the password as requested.
- The TV is set up with the initial password "0-0-0-0".

2 Use the ▲ / ▼ button to choose from the following Lock Menu options. Once the option is selected, change the settings to your preference.
- **Lock System:** Activates or disables the blocking scheme you set up previously.
- **Set Password**: Change the password by inputting a new password twice.
- **Block Channel**: Select a channel number that you wish to block.
- **Input block:** Enables you to select a source to block from the external source devices you have hooked up.

◆ *For USA*
- **Movie Rating (MPPA):** Blocks movies according to the movie ratings limits specified, so children cannot view certain movies. You can set the ratings limit by blocking out all the movies with the ratings above a specified level. Keep in mind that the movie ratings limit only applies to movies shown on TV, not TV programs, such as soap operas.
- **TV Rating-Children:** Prevents children from watching certain children's TV programs, according to the ratings limit set. The children rating does not apply to other TV programs. Unless you block certain TV programs intended for mature audiences in the TV Rating - sub menu, your children can view those programs.
- **TV Rating-General:** Based on the ratings, blocks certain TV programs that you and your family do not want to view.

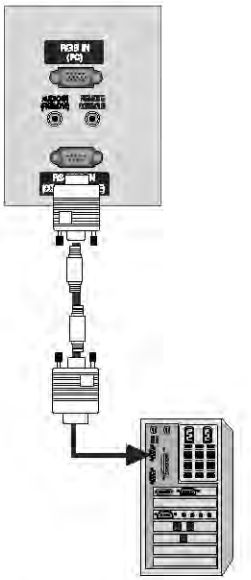
◆ *For Canada*
- **TV Rating-English / TV Rating-French:** Selecting canadian English /French language rating system.

3 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

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 TV back panel.
- RS-232C connection cables are not supplied with the TV.

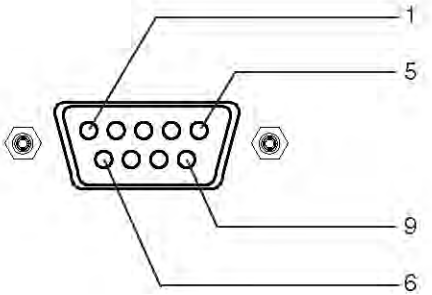
RS-232C Setup



PC

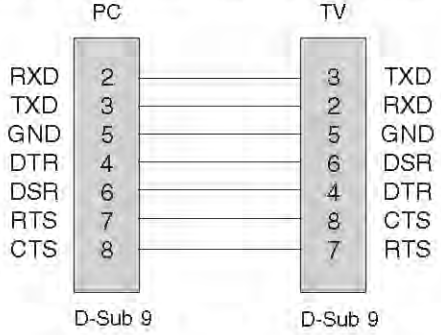
Type of Connector; D-Sub 9-Pin Male

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

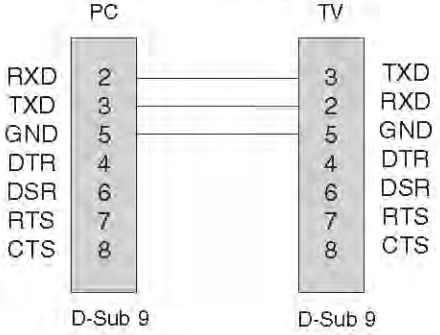


RS-232C Configurations

7-Wire Configurations
(Serial female-female NULL modem cable)



3-Wire Configurations
(Not standard)



Set ID

- Use this function to specify a TV ID number.
- Refer to 'Real Data Mapping'. See page 55.

1. Press the **MENU** button and then use ▲ / ▼ button to select the **SETUP** menu.
2. Press the ▶ button and then use ▲ / ▼ button to select **Set ID**.
3. Press the ▶ button and then use ▲ / ▼ button to adjust **Set ID** to choose the desired TV ID number. The adjustment range of **Set ID** is 1 ~ 99.
4. Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

Communication Parameters

- Baud rate : 9600 bps (UART)
- Data length : 8 bits
- Parity : None
- Stop bit : 1 bit
- Communication code : ASCII code

* Use a crossed (reverse) cable.

Command Reference List

	COMMAND 1	COMMAND 2	DATA (Hexadecimal)
01. Power	k	a	0 ~ 1
02. Input Select	k	b	* (Refer to p.55)
03. Aspect Ratio	k	c	* (Refer to p.55)
04. Screen Mute	k	d	0 ~ 1
05. Volume Mute	k	e	0 ~ 1
06. Volume Control	k	f	0 ~ 64
07. Contrast	k	g	0 ~ 64
08. Brightness	k	h	0 ~ 64
09. Color	k	i	0 ~ 64
10. Tint	k	j	0 ~ 64
11. Sharpness	k	k	0 ~ 64
12. OSD Select	k	l	0 ~ 1
13. Remote Control Lock Mode	k	m	0 ~ 1
14. Treble	k	r	0 ~ 64
15. Bass	k	s	0 ~ 64
16. Balance	k	t	0 ~ 64
17. Color Temperature	k	u	0 ~ 3
18. ISM Method	j	p	* (Refer to p.57)
19. Low Power	j	q	0 ~ 1

Transmission / Receiving Protocol

Transmission

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

* [Command 1]: First command to control the set.(j,k,m or x)
* [Command 2]: Second command to control the set.
* [Set ID]: You can adjust the set ID to choose desired monitor ID number in Setup menu. Adjustment range is 1 ~ 99. When selecting Set ID '0', every connected the TV is controlled. Set ID is indicated as decimal (1~99) on menu and as Hexa decimal (0x0~0x63) on transmission/receiving protocol.
* [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.

Data 1: Illegal Code
2: Not supported function
3: Wait more time

	COM-MAND 1	COM-MAND 2	DATA 0 (Hexadecimal)	DATA 1 (Hexadecimal)	DATA 2 (Hexadecimal)	DATA 3 (Hexadecimal)	DATA 4 (Hexadecimal)	DATA 5 (Hexadecimal)
20. Channel Tuning	m	a	physical/program high	major/program low	major low	minor high	minor low	attribute
21. Channel Add/Del	m	b	00 ~ 01					
22. Key	m	c	key code					
23. Input Select	x	b	*(Refer to p.58)					

01. Power (Command2:a)

▶ To control Power On/Off of the TV.

Transmission

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

Data 0 : Power Off 1 : Power On

Acknowledgement

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

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

02. Input Select (Command2:b) (Main Picture Input)

▶ To select input source for the TV.

Transmission

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

Data 0: DTV
1: Analog
2: AV1
3: AV2
4: Component 1
5: Component 2
7: RGB-PC
8: HDMI1/DVI
9: HDMI2

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

Acknowledgement

03. Aspect Ratio (Command2:c) (Main picture format)

▶ To adjust the screen format.
You can also adjust the screen format using the RATIO button on remote control or in the Option menu.

Transmission

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

Date 1: 4:3
2: 16:9
3: Horizon
4: Zoom 1
5: Zoom 2
6: Set by program

Acknowledgement

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

04. Screen Mute (Command2: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]

05. Volume Mute (Command2: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]

06. Volume Control (Command2: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 : 0 ~ Max : 64
• Refer to 'Real data mapping' as shown below.

Acknowledgement

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

07. Contrast (Command2:g)

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

Transmission

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

Data Min : 0 ~ Max : 64
• Refer to 'Real data mapping' as shown below.

Acknowledgement

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

08. Brightness (Command2:h)

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

Transmission

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

Data Min : 0 ~ Max : 64
• Refer to 'Real data mapping' as shown below.

Acknowledgement

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

*** Real data mapping**

0 : Step 0
⋮
A : Step 10 (SET ID 10)
⋮
F : Step 15 (SET ID 15)
10 : Step 16 (SET ID 16)
⋮
63 : Step 99 (SET ID 99)
64 : Step 100

* Tint : R50 ~ G50
* Balance : L50 ~ R50

09. Color (Command2:i)

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

Transmission

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

Data Min : 0 ~ Max : 64

• Refer to 'Real data mapping'. See page 55.

Acknowledgement

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

10. Tint (Command2:j)

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

Transmission

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

Data Red : 0 ~ Green : 64

• Refer to 'Real data mapping'. See page 55.

Acknowledgement

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

11. Sharpness (Command2:k)

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

Transmission

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

Data Min: 0 ~ Max: 64

• Refer to 'Real data mapping'. See page 55.

Acknowledgement

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

12. OSD Select (Command2: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]

13. Remote Control Lock Mode (Command2:m)

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

Transmission

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

Data 0: Lock off 1: Lock on

Acknowledgement

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

14. Treble (Command2:r)

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

Transmission

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

Data Min: 0 ~ Max: 64

• Refer to 'Real data mapping'. See page 55.

Acknowledgement

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

15. Bass (Command2:s)

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

Transmission

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

Data Min: 0 ~ Max: 64

• Refer to 'Real data mapping'. See page 55.

Acknowledgement

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

16. Balance (Command2:t)

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

Transmission

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

Data Min: 0 ~ Max: 64

• Refer to 'Real data mapping'. See page 55.

Acknowledgement

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

17. Color Temperature (Command2:u)

▶ To adjust color temperature.
You can also adjust color temperature in the Video menu.

Transmission

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

Data 0: Medium 1: Cool 2: Warm 3: User

Acknowledgement

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

These functions are available in 42PC3D/3DC/3DV, 50PC3D, 60PC1D model only.

18. ISM Method (Command2:p)

▶ To avoid having a fixed image remain on screen.

Transmission

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

Data 1: Inversion
2: Orbiter
4: White Wash
8: Normal

Acknowledgement

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

19. Low Power (Command2:q)

▶ To control the Low Power function on/off.
You can also adjust Low Power in Option menu.

Transmission

[j][q][ ][Set ID][ ][Data][Cr]

Data 0: Low Power off
1: Low Power on

Acknowledgement

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

20. Tune Command (Command: m a)

▶ To tune channel to following physical/major/minor number

Transmission

[m][a][ ][Set ID][ ][Data0][ ][Data1][ ][Data2][ ][Data3][ ][Data4][ ][Data5][Cr]

Data 0: Physical Channel Number(Transmit by Hexadecimal code)
NTSC air:02~45
NTSC cable: 01~87
ATSC air:02~45
ATSC cable:01~87

Data 1,Data 2: Major Channel Number(two part) or Channel Number(One part)
Data1: High byte
Data2: Low byte
Two part channel number: Major number-Minor number
One part channel number: If the channel band is ATSC digital cable, it can be used. In case of using one part channel number, minor channel does not need.

Data 3, Data 4: Minor Channel Number Data3: High byte Data4: Low byte

Data 5:

7	Main Picture	6	Two/One Part Channel	5	Using Physical Channel	4 Reserved	3	2	1	0	Step
0	Main	0	Two	0	Use	x	0	0	0	0	NTSC Air
1		1	One	1	No Use	x	0	0	0	1	NTSC Cable
						x	0	0	1	0	ATSC Air
						x	0	0	1	1	ATSC Cable_std
						x	0	1	0	0	ATSC Cable_hrc
						x	0	1	0	1	ATSC Cable_irc
						x	0	1	1	0	ATSC cable_auto
						x	0	1	1	1	Reserved
						x	x	x	x	x	...
						x	1	1	1	1	Reserved

* All data are transmitted by Hexadecimal code

***Two/One part Channel: 6th bit**

This bit is used in a cable-ready system.

***Using physical channel: 5th bit**

If the channel band is NTSC air or NTSC cable, channel tuning can be done by only physical channel. In this case, using physical channel bit must be low(0).

But if the channel band is ATSC air or ATSC cable, there are two cases that physical channel enable or disable.

If the physical channel sending is meaningful, you should set this bit low(0). If the physical channel sending is meaningless, you should set this bit high(1).

Example)

1. Analog channel: NTSC cable, channel number(35), main picture Command: ma 00 23 xx xx xx xx 01attribute(0x01): main picture, two part(it's not mandatory), using physical channel, NTSC cable 'xx' data: don't care major and minor channel number in case analog channel tuning.
2. Digital channel: ATSC air, channel number(don't know physical channel, major(30), minor(3)), main picture
   Command: ma 00 xx 00 1E 00 03 22 attribute(0x22): main picture, two part, not using physical channel, ATSC air 'xx' data: don't care analog channel number in case digital channel tuning.
3. Digital channel: ATSC air, channel number (physical(20), major (30), minor (5)), main picture
   Command: ma 00 14 00 1E 00 05 02 attribute(0x02): main picture, two part, using physical channel, ATSC air.

Acknowledgement

[a][ ][Set ID][ ][OK][Data0][Data1][Data2][Data3][Data4][Data5][x]
[a][ ][Set ID][ ][NG][Data0][x]

21. Channel Add/Del (Command: m b)

► To add and delete the channels

Transmission

[m][b][ ][Set ID][ ][Data][Cr]

Data 0: Channel Delete
1: Channel Add

Acknowledgement

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

22. Key (Command: m c)

► To send IR remote key code

Transmission

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

Data Key code: Refer to page 60.

Acknowledgement

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

23. Input select(Command: x b) (Main Picture Input)

► To select input source for TV.

Transmission

[x][b][][Set ID][][Data][Cr]

Data Structure

DATA(Hex)	INPUT
00	DTV (Antenna)
01	DTV (Cable)
10	Analog (Antenna)
11	Analog (Cable)
20	AV1
21	AV2
40	Component 1
41	Component 2
60	RGB PC
90	HDMI1/DVI
91	HDMI2

Acknowledgement

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

IR Codes

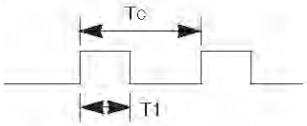
How to Connect

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

Remote Control IR Codes

▶ **Output waveform**

Single pulse, modulated with 37.917KHz signal at 455KHz



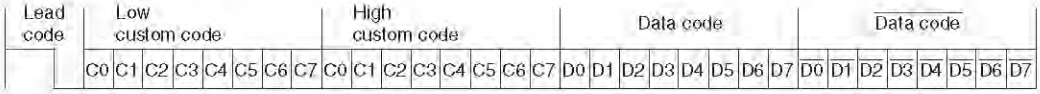
Carrier frequency

$F_{CAR} = 1/T_C = f_{OSC}/12$

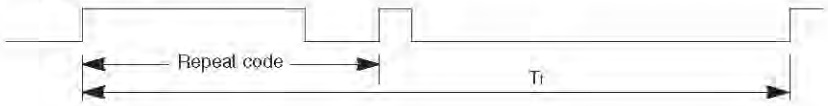
Duty ratio = $T1/T_C = 1/3$

▶ **Configuration of frame**

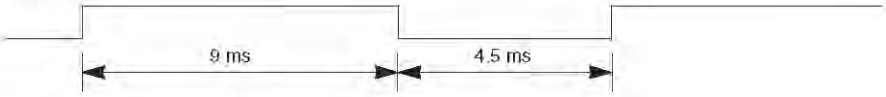
• 1st frame



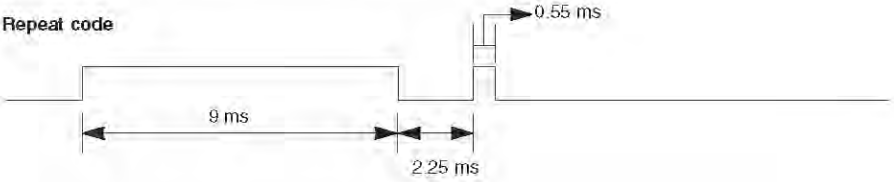
• Repeat frame



▶ **Lead code**

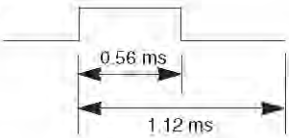


▶ **Repeat code**

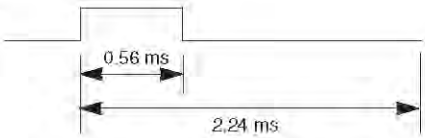


▶ **Bit description**

• Bit "0"

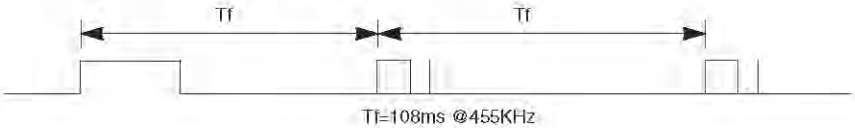


• Bit "1"



▶ **Frame interval : Tf**

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



Tf=108ms @455KHz