SAMSUNG

COLOR TELEVISION

**CT21Z43/21Z45/21Z47/21Z50/
21Z57/21Z58/21AE0/21AF0/
21AJ0/21AM0**

Owner's Instructions

Before operating, please read this manual carefully,
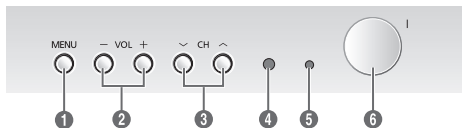and retain it for future reference.

Register your product at www.samsung.com/global/register.
Record your Model and Serial number.
▪ Model _____ ▪ Serial No. _____

Control Panel (depending on the model)

➢ The product color and shape may vary depending on the
model.

Front Panel

❶ On-screen menu display
❷ Volume adjustment
❸ Channel selection
❹ Remote control sensor
❺ Indicator (Standby or Timer)
❻ Power on/off

◆ The ❷ and ❸ buttons also have the same function as the
◄/►/▲/▼ buttons on the remote control.
◆ If the remote control no longer works or you have
misplaced it, you can use the controls on the panel of the
television.

Connection Panel (depending on the model)

➢ The product color and shape may vary depending on the
model.

Rear Jack
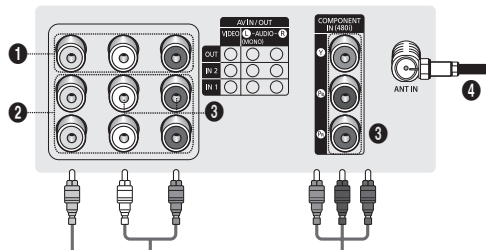
➢ Whenever you connect an audio or video system to your
television, ensure that all elements are switched off.
Please be sure to match the color coded input terminals
and cable jacks.

❶ **Audio/Video Output Jacks**

Connect to the audio/video input jacks of a recording VCR.

❷ **Audio/Video Input Jacks**

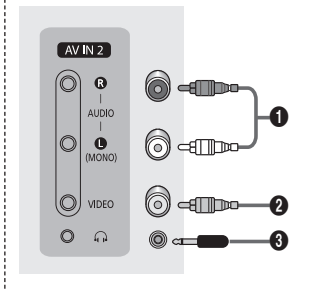Connect to the audio/video output jacks of VCRs, DVD players
and similar devices.

❸ **Component Video Input Jacks (Y, P$_B$, P$_R$)**

Connect to the Component video outputs of a DVD or DTV
set-top box. 480i video signal input is available.
When using the Component Video input, connect audio jacks
to "AV IN 2 (AUDIO-L/R)".

❹ **ANT IN**

Connect to an antenna or to a cable TV system.

Side Jack

➢ Please be sure to match the color coded input terminals
and cable jacks.
When both the side and rear jacks (AV IN 2) are
connected to external equipment, the side receives
priority.

❶ **Audio Input Jacks**

Connect audio signals from a camcorder or video game.

❷ **Video Input Jack**

Connect a video signal from a camcorder or video game.
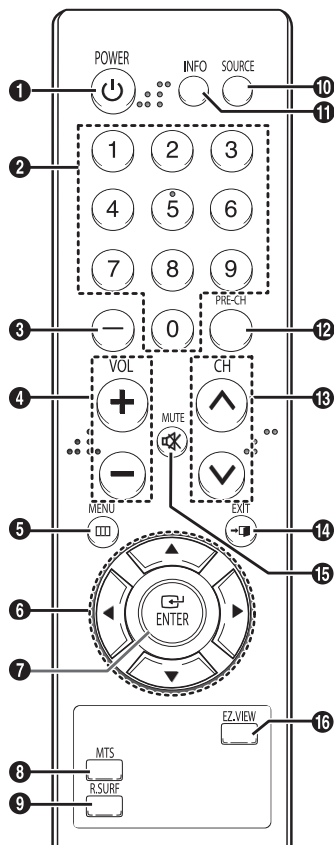
❸ **Headphone Jack**

Connect a set of external headphones to this jack for private
listening.

AA68-04005A-01

Remote Control (depending on the model)

➢ Operation of remote control may be affected by bright artificial light near to the TV.

➢ This is a special remote control for the visually impaired, and has Braille points on the POWER, Channel and Volume buttons.
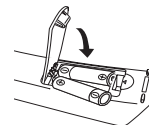

❶ **POWER**
Turns the TV on and off.

❷ **Number buttons**
Press to select channels directly on the TV.

❸ **–**
Press to select channels over 100. For example, for channel 122, press "-", then "2", then "2".

❹ **VOL +**, **VOL -**
Press to increase or decrease the volume.

❺ **MENU**
Displays the main on-screen menu.

❻ **▲/▼/◄/►**
Controls the cursor in the menu.

❼ **ENTER** ⏎
While using the on-screen menus, press **ENTER** to activate (or change) a particular item.

❽ **MTS**
(**M**ulti-channel **T**elevision **S**ound)
Press to choose "Stereo", "Mono", or "SAP" (Secondary Audio Program).

❾ **R.SURF**
Press to automatically return to a preferred channel after a userpreset time delay.

❿ **SOURCE**
Press to display all of the available video sources.

⓫ **INFO**
Press to display information on the TV screen.

⓬ **PRE-CH**
Tunes to the previous channel.

⓭ **CH ∧, CH ∨**
Press to change channels.

⓮ **EXIT**
Press to exit the menu.

⓯ **MUTE**
Press to temporarily cut off the sound.

⓰ **EZ.VIEW**
Used to display Channel Grouping, Channel Minimizer, Channel Schedule, Music Mode, Half Mute menu.

Installing Batteries

Remove the cover. Install two AAA size batteries, then replace the cover. When the remote control does not operate normally, check that the "+" and "–" ends of the batteries are inserted correctly or the batteries are drained.

➢ Do not mix battery types, i.e. alkaline and manganese.

Turning the TV On and Off

Press the **POWER** button on the remote control.
You can also use the **POWER** button on the TV.

➢ Caution: One pole switch is totally not off(one line still live) if power cord is not unplugged.

Viewing the Menus

1 Press the **MENU** button.
The main menu is displayed on the screen. Its left side has five icons: **Input**, **Picture**, **Sound**, **Channel**, and "**Setup**".

2 Press the ▲ or ▼ button to select one of the icons.
Press the **ENTER** button to access the icon's sub-menu.

3 Press the ▲ or ▼ button to move to items in the menu.
Press the **ENTER** button to enter items in the menu.

4 Press the ▲/▼/◄/► button to change the selected items.
Press the **MENU** button to return to the previous menu.

5 Press the **EXIT** button to exit from the menu.

Setup - Plug & Play (depending on the model)

When the TV is initially powered on, several basic customer settings proceed automatically and subsequently. The following settings are available.

1   Press the **POWER** button on the remote control.

The message "Plug & Play" is displayed. It flickers for a little while and then Language menu is automatically displayed.

```
         Plug & Play
     Start Plug & Play
           OK

   Enter              Exit
```

2   Press the ▲ or ▼ button to select the language, then press the **ENTER** button. The message "Check antenna input" is displayed.

➢   If any language is not selected, the language menu will disappear about 30 seconds later.

```
         Plug & Play

   Language

   English
   Español
   Português
   Français

  Move    Enter     Skip
```
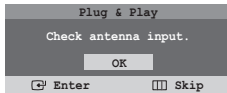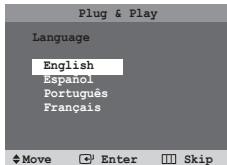
3   Make sure that the antenna is connected to the TV.

Press the **ENTER** button, then the "Auto Program" is displayed.

```
         Plug & Play

   Check antenna input.

           OK

   Enter             Skip
```

4   Press the **ENTER** button to select "Start". The TV will begin memorizing all of the available channels. Press the **ENTER** button to stop.

```
         Plug & Play

   Auto Program

                        0%

           Start

   Enter             Skip
```

```
         Plug & Play

   Auto Program
   Air 3          102MHz
                      7 %

           Stop

   Enter             Skip
```

5   After all available channels are stored, the "Clock set" is displayed. Press the **ENTER** button. Press the ◄ or ► button to move to the hour or minute. Set the clock by pressing the ▲ or ▼ button.

```
         Plug & Play

   Clock Set      12:00  am

   Move          Enter
   Adjust        Skip
```
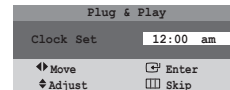
6   When you have finished, press the **MENU** button. The "Enjoy your watching." is displayed and then the channel which has been stored will be activated.
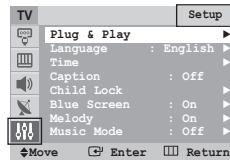
➢   Plug & Play feature doesn't work in the AV mode, and then the channel which has been stored will be activated.

```
   Enjoy your watching.

           OK
```

Re-setting the Plug & Play Method:
MENU ➔ ▲/▼ (Setup) ➔ ENTER ➔ ▲/▼ (Plug & Play) ➔ ENTER

```
   TV                Setup

      Plug & Play          ►
      Language  : English  ►
      Time                 ►
      Caption   : Off
      Child Lock           ►
      Blue Screen : On     ►
      Melody    : On       ►
      Music Mode : Off     ►

   Move      Enter    Return
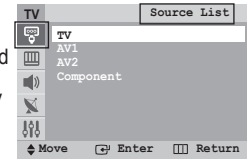```

## Input - Source List

◆   **Source List**
You can switch between viewing signal from connected equipment, such as a VCR, DVD, set-top box, and the TV source (broadcast or cable).

➢   Press the **SOURCE** button on the remote control repeatedly to select the desired signal source.

```
   TV   Source List

      TV
      AV1
      AV2
      Component

   Move   Enter   Return
```
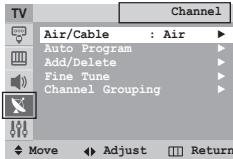
## Channel - Memorizing the Channels

Your TV can memorize and store all of the available channels for both air and cable channels. After the available channels are memorized, use the **CH** ⌃ and **CH** ⌄ buttons to scan through the channels.

This eliminates the need to change channels by entering the channel digits. There are three steps for memorizing channels: "Air/Cable", "Auto Program" and "Add/Delete".

◆ **Air/Cable**
Before your TV can begin memorizing the available channels, you must specify the type of signal source that is connected to the TV (i.e., an antenna or a cable system). Select "Air" or "Cable" by pressing the ◄/► button.

```
TV   Channel
    Air/Cable   : Air   ►
    Auto Program   ►
    Add/Delete   ►
    Fine Tune   ►
    Channel Grouping   ►

  ◆ Move   ◆ Adjust   ▥ Return
```
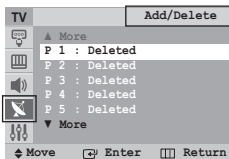
◆ **Auto Program**
All available channels are automatically stored in memory when channels are selected by the direct tuning function.
Press the **ENTER** button at any time to interrupt the memorization process.

```
         Search


                          0%
           Start

  ⊡ Enter        ▥ Return
```
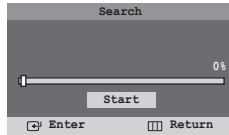
◆ **Add/Delete**
You can add or delete a channel to display the channels you want only. To use the "Add/Delete" function, first run Auto Program. Select "Deleted" or "Added" by pressing the **ENTER** button.

```
TV                  Add/Delete
  ▲ More
  P 1 : Deleted
  P 2 : Deleted
  P 3 : Deleted
  P 4 : Deleted
  P 5 : Deleted
  ▼ More

  ◆ Move    ⊡ Enter   ▥ Return
```

Channel - Fine Tune

If the reception is clear, you do not have to fine-tune the channel, as this is done automatically during the search and store operation. If however the signal is weak or distorted, you may have to fine-tune the channel manually.

Method:

◄/► : You can obtain a sharp and clear picture and good sound quality.
▲/▼ ➔ **ENTER** : You can reset the setting.
ENTER : You can memorise adjusted picture or sound.

```
            Fine Tune

  P1                    0

            Reset

  ◆ Move          ⊡ Save
  ◆ Adjust        ▥ Return
```
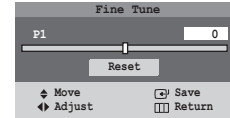
Channel - Channel Grouping

You can choose your category and find your desired channel in a few seconds. You can save a channel under the following categories-Movie, Music, News, Sports, and User.

```
TV              Channel Grouping
    Group Select    : Sport  ►
    Set Channel Group        ►




  ◆ Move   ◆ Adjust   ▥ Return
```

Method:

▲/▼ : Used to select a Programme.
◄/► : Used to select the desired channel group.
▲/▼ : Used to confirm the new choice.
➢ You can press ▼ to select Channel Group(All, Movie, Music, News, Sport, User) directly.
➢ You can also use the EZ.VIEW button to use this function.

```
        Set Channel Group

      Movie Music News Sport User
  P 1   ▢    ▢    ▢    ▢    ▢
  P 2   ▢    ▢    ▢    ▢    ▢
  P 3   ▢    ▢    ▢    ▢    ▢
  P 4   ▢    ▢    ▢    ▢    ▢
  P 5   ▢    ▢    ▢    ▢    ▢
  P 6   ▢    ▢    ▢    ▢    ▢
  P 7   ▢    ▢    ▢    ▢    ▢
  P 8   ▢    ▢    ▢    ▢    ▢

  ◆ Move   ◆ Adjust   ▥ Return
```
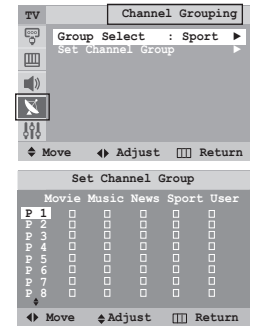
Setup - Time

◆ **Clock**
Setting the clock is necessary in order to use the various timer features of the TV. Also, you can check the time while watching the TV. (Just press the **INFO** button.)

```
TV                          Time
┌──────────────────────────────┐
│ Clock        12:00 am        │
│ Sleep Timer  : Off           │
│ Scheduler               ►    │
│                              │
│                              │
│                              │
└──────────────────────────────┘
 ≑ Move    ⊕ Enter   ▥ Return
```
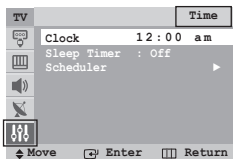
◆ **Sleep Timer**
You can select a time period of between 30 and 180 minutes after which the TV automatically switches to standby mode.

◆ **Scheduler**
You can set the scheduler to make the TV return to a particular channel at a pre-set time.

```
TV                      Scheduler
┌──────────────────────────────┐
│    P On Time  Off Time  Set  │
│ 1.--- --:-- am --:-- am  No  │
│ 2.--- --:-- am --:-- am  No  │
│ 3.--- --:-- am --:-- am  No  │
│ 4.--- --:-- am --:-- am  No  │
│ 5.--- --:-- am --:-- am  No  │
│ On Timer Volume      10      │
└──────────────────────────────┘
 ≑ Move    ⊕ Enter   ▥ Return
```

  ➢ Upto 5 Programmes can be scheduled at a time.
  ➢ If the Clock is not set in the Time menu, a pop-up warning will flash if user tries to enter Scheduler.
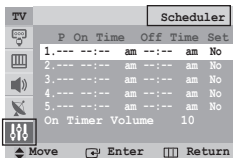
◆ **On Timer Volume**
The preferred volume can be set for when the timer automatically turns on the TV.

Method:

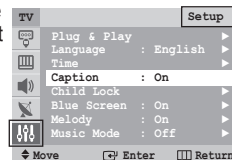◄/► : Move to the programme hour or minute.
▲/▼ : Used to set programme hour or minute.
▲/▼ ➔ **ENTER** : Set option of YES/ON to activate/deactive the operation.

☛ You must set the clock first.
☛ Auto Power Off
When you set the timer "On", the TV will eventually turn off, if no controls are operated for 3 hours after the TV was turned on by timer. This function is only available in timer "On" mode and prevents overheating, which may occur if a TV is on for too long.

Setup - Caption (depending on the model)

Your TV decodes and displays the closed captions that are broadcast with certain TV shows. These captions are usually subtitles for the hearing impaired or foreign-language translations. All VCRs record the closed caption signal from TV programs, so home-recorded video tapes also provide closed captions. Most pre-recorded commercial video tapes provide closed captions as well. Check for the closed caption symbol in your TV schedule and on the tape's packaging: ⌐CC¬.

```
TV                         Setup
┌──────────────────────────────┐
│ Plug & Play              ►   │
│ Language     : English   ►   │
│ Time                     ►   │
│ Caption      : On            │
│ Child Lock               ►   │
│ Blue Screen  : On        ►   │
│ Melody       : On        ►   │
│ Music Mode   : Off       ►   │
└──────────────────────────────┘
 ≑ Move    ⊕ Enter   ▥ Return
```
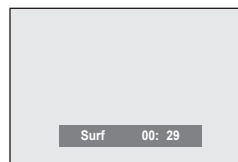
◆ **Caption: On/Off**
You can activate or deactivate the "Caption" function.

R.Surf Feature (depending on the model)

This feature allows you to set the TV to return to a particular channel after a certain amount of time. For example, you may be watching a channel when commercials start. You can set the R.Surf to "5 minutes", then switch channels. After minutes, the TV will return to the original channel.

```
┌──────────────────────────────┐
│                              │
│                              │
│                              │
│                              │
│  ▆▆▆ Surf      00: 29 ▆▆▆    │
│                              │
└──────────────────────────────┘
```
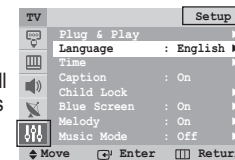
Press the **R.SURF** button on the remote control repeatedly to set the timer in thirty second intervals, up to five minutes.

Setup - Language / Blue Screen / Melody / Music Mode (depending on the model)

◆ **Language**
When you start using the TV for the first time, you must select the language which will be used for displaying menus and indications.

```
TV                         Setup
┌──────────────────────────────┐
│ Plug & Play              ►   │
│ Language     : English   ►   │
│ Time                     ►   │
│ Caption      : On        ►   │
│ Child Lock               ►   │
│ Blue Screen  : On        ►   │
│ Melody       : On        ►   │
│ Music Mode   : Off       ►   │
└──────────────────────────────┘
 ≑ Move    ⊕ Enter   ▥ Return
```

◆ **Blue Screen**
If no signal is being received or the signal is very weak, a blue screen automatically replaces the noisy picture background. If you wish to continue viewing the poor picture, you must set the "Blue Screen" to "Off".

◆ **Melody**
You can hear melody sound when the TV is powered on or off.

◆ **Music Mode**
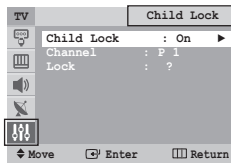You can listen to the music/audio with no video or visual distraction.
  ➢ When Music Mode is selected, only music is audible and no picture is visible. You can see music mode icon (🔊) on screen.
  ➢ You can also use the EZ.VIEW button to use this function.

Method:

ENTER : On/Off

Setup - Child Lock (depending on the model)

This feature allows you to prevent unauthorized users, such as children, from watching unsuitable programs by muting out video and audio. Child Lock cannot be released using front panel buttons. Only remote control can release the Child Lock setting, so keep the remote control away from children.
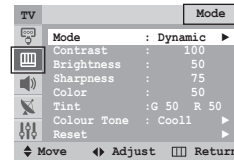
```
TV                    Child Lock
      Child Lock      : On      ►
      Channel         : P 1
      Lock            : ?

 ♦ Move    ⏎ Enter   ▥ Return
```

◆ **Child Lock: On/Off**
You can activate or deactivate the Child Lock function.

◆ **Channel:** Channel number to be locked.

◆ **Lock:** When press the **ENTER** button, the Locked is displayed.

➢ If any channel is locked, you can not access to the "Channel" and "Child Lock" menu by using the control buttons on the TV panel (the "Not Available" is displayed in the "Child Lock" menu). You can access by using the remote control only.

Picture - Mode
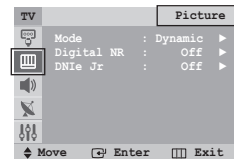
◆ **Mode:**
Dynamic / Standard / Movie / Custom
You can select the type of picture which best corresponds to your viewing requirements.

```
TV                           Mode
      Mode          : Dynamic  ►
      Contrast      :    100
      Brightness    :    50
      Sharpness     :    75
      Color         :    50
      Tint          :G 50  R 50
      Colour Tone   : Cool1   ►
      Reset                   ►

 ♦ Move    ◄► Adjust   ▥ Return
```

◆ **Contrast / Brightness / Sharpness / Color / Tint (NTSC only)**
The TV has several settings which allow you to control the picture quality.

◆ **Color Tone: Cool2 / Cool1 / Normal / Warm1 / Warm2**
You can change the color of the entire screen according to your preference.

◆ **Reset**
You can return to the factory defaults.
The reset function is set for each mode (**Dynamic**, **Standard**, **Movie**, or **Custom**).

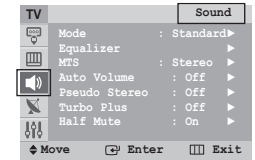## Picture - Digital NR / DNIe Jr
(depending on the model)

◆ **Digital NR**
If the signal received by the television is weak, you can activate this feature to reduce any static and ghosting that may appear on the screen.

```
TV                        Picture
      Mode        : Dynamic  ►
      Digital NR  :   Off    ►
      DNIe Jr     :   Off    ►




 ♦ Move    ⏎ Enter    ▥ Exit
```

◆ **DNIe Jr**
If the signal received by the television is weak, you can activate this feature to reduce any static and ghosting that may appear on the screen.

Sound -
Mode / Equalizer / MTS / Auto Volume / Pseudo Stereo /Turbo Plus / Half Mute

◆ **Mode: Standard/Music/ Movie/Speech/Custom**
You can select the type of special sound effect to be used when watching a given broadcast.

```
TV                          Sound
      Mode            : Standard►
      Equalizer             ►
      MTS             : Stereo ►
      Auto Volume     : Off    ►
      Pseudo Stereo   : Off    ►
      Turbo Plus      : Off    ►
      Half Mute       : On     ►

 ♦ Move    ⏎ Enter    ▥ Exit
```

◆ **Equalizer**
The television has several settings which allow you to control the sound quality.
➢ If you make any changes to these settings, the sound mode is automatically switched to Custom.

◆ **MTS** (**M**ulti-channel **T**elevision **S**ound)
Depending on the particular program being broadcast, you can listen to Mono, Stereo, or SAP.
➢ Press the **MTS** button on the remote control repeatedly to select "Stereo", "Mono", or "SAP" (Secondary Audio Program).

◆ **Auto Volume**
Each broadcasting station has its own signal conditions, and so it is not easy to adjust the volume every time the channel is changed. This feature lets you automatically adjust the volume of the desired channel by lowering the sound output when the modulation signal is high or by raising the sound output when the modulation signal is low.

◆ **Pseudo Stereo**
This feature converts a monaural sound signal into two identical left and right channels. Once the "Pseudo Stereo" is set to "On" or "Off", the setting applies to the sound effects such as "Standard", "Music", "Movie" and "Speech".

◆ **Turbo Plus**
This feature suitably emphasizes both higher and lower bands of sound (and includes other effects). You can enjoy more magnificent and dynamic sound when watching music, movie, or other channels.

◆ **Half Mute**
You can reduce volume to half and control volume even in the mute mode.
➢ When you click the "mute" button once to activate Half Mute see half mute (🔇) on screen, twice for Full Mute see full mute icon (🔇) on screen.
➢ You can also use the EZ.VIEW button to use this function.

Method:

ENTER : On/Off

Easy View - Channel Minimizer

Easy view is a combination of Video&Audio features that make TV viewing much easier.

Channel minimizer is a feature that offers freedom in the number of channels that you can watch at any time!

To add a Channel
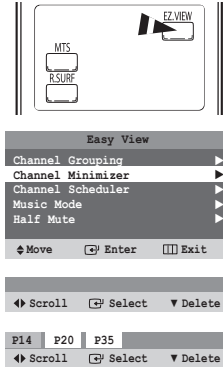You can go to your favorite channel you wish to add to Channel Minimizer.

Method:
▲ : Add the present channel to Channel Minimizer.

➢ Repeat the process to add upto six channels.

To delete a Channel
You can delete the channel in Channel Minimizer by pressing▼ button.
➢ You can display Channel Minimizer menu by pressing ◄/►/▲ button.
➢ You cannot display Channel Minimizer menu by pressing ▲ button when six channels are added.
➢ Channel Minimizer is always activated hence you don't need to press Easy view button.

```
            Easy View
Channel Grouping        ►
Channel Minimizer       ►
Channel Scheduler       ►
Music Mode              ►
Half Mute               ►

 ♦Move    ⬡ Enter   ⫿⫿ Exit
```

```
 ◄► Scroll  ⬡ Select   ▼ Delete
```

```
 P14   P20   P35
 ◄► Scroll  ⬡ Select   ▼ Delete
```

Troubleshooting

If the TV seems to have a problem, first try this list of possible problems and solutions. If none of these troubleshooting tips apply, then call your nearest Samsung authorized service center.

Poor picture.
◆ Try another channel.
◆ Adjust the antenna.
◆ Check all wire connections.

Poor sound quality.
◆ Try another channel.
◆ Adjust the antenna.

No picture or sound.
◆ Try another channel.
◆ Press the **SOURCE** button.
◆ Make sure the TV is plugged in.
◆ Check the antenna connections.
◆ Make sure the **MUTE** button is off.

No color, wrong colors or tints.
◆ Make sure the program is broadcast in color.
◆ Adjust the picture settings.

Picture rolls vertically.
◆ Adjust the antenna.
◆ Check all wire connections.
◆ If you are using a VCR, check the tracking.

The TV operates erratically.
◆ Unplug the TV for 30 seconds, then try operating it again.

Your remote control does not operate your TV.
◆ Make sure the remote has batteries.
◆ Check that the "+" and "-" ends of the batteries are inserted correctly.
◆ Check that the batteries are drained.

The TV won't turn on.
◆ Make sure the wall outlet is working.
◆ Make sure the TV is plugged in.
◆ Make sure the remote has batteries.

Remote control malfunctions
◆ Replace the remote control batteries.
◆ Clean the upper edge of the remote control (transmission window).
◆ Check that the "+" and "-" ends of the batteries are inserted correctly.
◆ Check that the batteries are drained.

Cleaning and Maintaining Your TV

Please follow the guidelines to get the maximum performance from your TV.

Placement
◆ Do not Place the TV near extremely hot, cold, humid or dusty places.
◆ Do not place TV near appliances with electric motor that create magnetic fields, such as vacuum cleaners.
◆ Keep the ventilation openings clear; do not place TV on a soft surface, such as cloth or paper.
◆ Place the TV in a vertical position only.

Liquids
◆ Do not handle liquids near or on the TV. Liquid that spills into it can cause serious damage.

Cabinet
◆ Never open the cabinet or touch the parts inside.
◆ Wipe your TV with a clean, dry cloth. Never use water, cleaning fluids, wax or chemicals.
◆ Do not put heavy objects on top of the cabinet.

Temperature
◆ If your TV suddenly move from a cold to a warm place, unplug the power cord and allow at least two hours for moisture that may have formed inside the unit to dry completely.

Using Your TV in Another Country
◆ If you plan to take the TV with you to a foreign country please be aware of a different television systems that are in use around the world. A TV designed for one system may not work properly with another system due to differences in the TV channel frequencies.

➢ Note: Main plug serves as the disconnect device during servicing and shall be readily operable.

OSD Map

: It is variable depending on the model.

Input	– Source List	– TV / AV1 / AV2 / Component
Picture	– Mode	– Dynamic / Standard / Movie / Custom
		Contrast
		Brightness
		Sharpness
		Color
		Tint (NTSC only)
		Color Tone – Cool2 / Cool1 / Normal / Warm1 / Warm2
		Reset
	– Digital NR	– Off / On
	– DNIe Jr ✻	– Off / On
Sound	– Mode	– Standard / Music / Movie / Speech / Custom
	– Equalizer	
	– MTS	– Mono / Stereo / SAP
	– Auto Volume	– Off / On
	– Pseudo Stereo	– Off / On
	– Turbo Plus	– Off / On
	– Half Mute	– Off / On
Channel	– Air/Cable	– Air / Cable
	– Auto Program	
	– Add/Delete	– Deleted / Added
	– Fine Tune	
	– Channel Grouping	
Setup	– Plug & Play	
	– Language ✻	– English / Español / Português / Français
	– Time	– Clock
		– Sleep Timer
		– Scheduler
	– Caption	– Off / On
	– Child Lock	– Child Lock
		– Channel
		– Lock
	– Blue Screen	– Off / On
	– Melody	– Off / On
	– Music Mode	– Off / On

Important Warranty Information Regarding Television Format Viewing

Standard screen format televisions (4:3, the aspect ratio of the screen width to height) are primarily designed to view standard format full-motion video. The images displayed on them should primarily be in the standard 4:3 ratio format and constantly moving. Displaying stationary graphics and images on screen, such as the dark top and bottom letterbox bars (wide screen pictures), should be limited to no more than 15% of the total television viewing per week.

Wide screen format televisions (16:9, the aspect ratio of the screen width to height) are primarily designed to view wide screen format full-motion video. The images displayed on them should primarily be in the wide screen 16:9 ratio format, or expanded to fill the screen if your model offers this feature, and constantly moving. Displaying stationary graphics and images on screen, such as the dark side-bars on non-expanded standard format television video and programming, should be limited to no more than 15% of the total television viewing per week.

Additionally, viewing other stationary images and text such as stock market reports, video game displays, station logos, web sites or computer graphics and patterns, should be limited as described above for all televisions. *Displaying any stationary images that exceed the above guidelines can cause uneven aging of picture tubes (CRTs) that leave subtle, but permanent burned-in ghost images in the television picture. To avoid this, vary the programming and images, and primarily display full screen moving images, not stationary patterns or dark bars.* On television models that offer picture sizing features, use these controls to view the different formats as a full screen picture.

Be careful in the selection and duration of television formats used for viewing. Uneven CRT aging as a result of format selection and use, as well as other burned-in images, is not covered by your Samsung limited warranty.