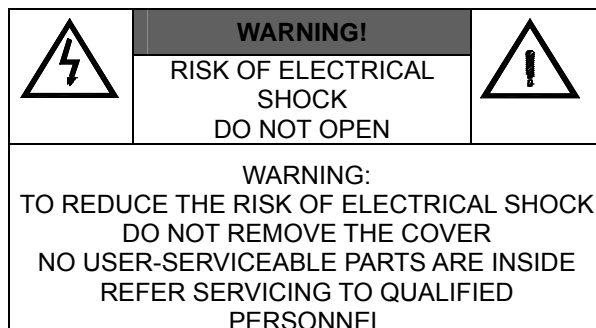


Safety First

Please review the following safety precautions. If this is the first time to use a satellite receiver, then read this manual before installing or using this receiver. If the receiver is not functioning properly, please contact your local distributor or system installer.



The lightning symbol in a triangle is used to alert you to the presence of dangerous voltages inside the receiver that may be sufficient to constitute a risk of electric shock to anyone opening the case. It is also used to indicate improper installation or handling of the receiver that could damage the electrical system in the receiver or in other equipment attached to the receiver.



The exclamation point in a triangle is used to alert you to important operating and maintenance instructions. Failure to follow these instructions could result in injury to you or damage to the receiver.



Be careful with electricity:

- **Power outlet:** To prevent electric shock, make sure the electrical plug used on the receiver's power cord matches the electrical outlet used to supply power to the receiver. Connect the power cord only to a power source that operates at 100~240 Volts AC, 50/60 Hz.
- **Power plug:** If a three-prong power plug is provided with the receiver, make sure it is used with a properly grounded three-wire power socket.
- **Power cord:** Make sure the power cord is routed so that it will not be stepped on or pinched by heavy items.
- **Power overloading:** Avoid overloading electrical outlets or extension cords, which otherwise could result in electric shock or fire.
- **Lightening:** For protection from lightening, or when the receiver is left unattended for a long period, disconnect it from the power source.
- **Protect other equipment:** Unplug the receiver before connecting any other equipment, especially the dish antenna. Connect all equipment to the receiver before plugging any power cords to the power source.



Also follow these precautions:

- **Ventilation:** Do not block the ventilation slots on the receiver, or place any heavy object on top of it. Blocking the airflow could damage the receiver. Arrange components so that air can flow freely around the receiver. Ensure that there is adequate ventilation if the receiver is placed in a stand. Put the receiver in a properly ventilated area, away from direct sunlight or any source of heat.
- **Overheating:** Avoid stacking the receiver on top of a hot component such as a power amplifier.



- **Risk of Fire:** Do not place the receiver on top of any easily combustible material, such as carpet or fabric.
- **Proper Connections:** Make sure all cables and equipment are connected to the receiver as described in this manual.
- **Object Entry:** To avoid electric shock, never stick anything in the slots on the case or remove the cover.
- **Water Exposure:** To reduce the risk of fire or electric shock, do not expose the receiver to rain or moisture.

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Receiver Features

ZMT-620HD receiver is a MPEG-4 and MPEG-2 compliant High Definition receiver with MHEG-5 interactivity and Regional Service Selective through the Regional Services Function RSF[©] Software. It's capable of receiving terrestrial high definition and standard definition TV program from terrestrial broadcast. The friendly On-Screen-Display (OSD) guides you to configure your receiver, and then you may enjoy all the high and standard definition channels with crystal clear picture and stereo sound quality.

The key features of the ZMT-620HD receiver series are as below.

Front Panel The front panel of the receiver includes the standby, CH+, CH-, and video format keys. You can operate the receiver directly by using these buttons on the front panel.

Remote Control The remote control provides access to full range of system features. In addition to providing access to Standard Definition TV programs with channel and volume controls, it can be used to operate all the system menus. When provided by Broadcasters you can follow the color keys to view MHEG-5 interactive applications.

System Menus All the receiver's features can be accessed through the system menus. These menus can be used simply by pointing and clicking; you can navigate through all the options in the menu by pressing the "Menu" button on the remote control.

Video Options The receiver supports image resolution up to 1080i to fulfill full HD picture. With the compatibility to decode MPEG-4 and MPEG-2 programs, you may easily access HD programs to enjoy cinemas, performances or sport events with high quality image.

Audio Options The receiver includes standard audio options and Dolby digital audio to match the broadcast signal or your home entertainment stereo system. Other audio options may be supported by your service provider, such as selecting alternate languages, or different commentators for sports events.

Set Up Reception System

If your service provider or system installer has already set up the antenna and connected it to the receiver, then you may want to skip this section. However, if you are setting up the system by yourself, please read this section through to "Connecting to Audio & Video Devices", and make sure you follow all the precautions listed under "Safety First".

Note: Installation procedures for antenna and related equipments are not covered in this manual

Package Contents

Unpack the receiver and verify that all of the following items are included. Remember to keep the packaging in case you need to return the receiver for repair or upgrade. Examine all the items to ensure that nothing has been damaged during shipment. If any of the items is damaged, please contact your service provider or local distributor before continuing with installation.

- ZMT-620HD High Definition MHEG-5 Terrestrial Receiver
- Remote Control Unit (with 2x AAA batteries)
- User's manual
- A/C Cord
- RCA Cable / YP_BP_R Cable

Description of Equipment

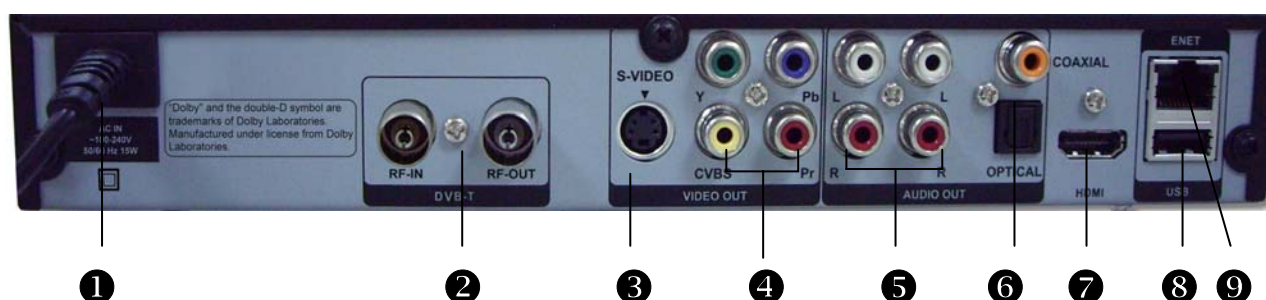
ZINWELL High Definition MHEG-5 Terrestrial receiver series are designed to receive free-to-air or encrypted programs with the use of Conditional Access Modules and smartcards. The receiver can be operated via remote control or directly from front panel as indicated in the following pages. The receiver also provides a wide variety of options for connecting it to your TV and other home entertainment equipment such as Video (RCA), YP_BP_R and optical SPDIF connectors.

Front Panel



- 1 Standby button**
Toggles the recorder between power-on and standby modes.
- 2 CH+ button**
Switch to the next channel.
- 3 CH- button**
Switch to the previous channel.
- 4 Video Format button**
Toggles between the video output formats.

Rear Panel



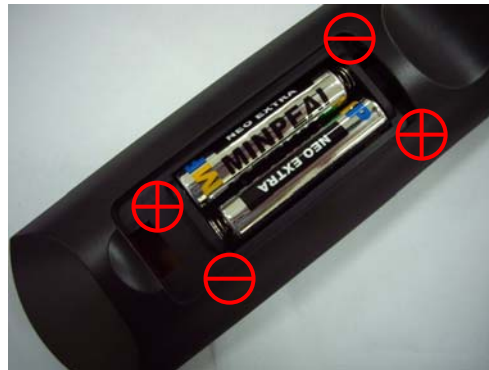
- 1 AC Supply**
100~240 VAC, 50~60MHz.
- 2 RF In/Out**
For connection to your antenna installation.
- 3 S-Video**
For connection to TV's S-Video input.
- 4 Composite Video/Y/P_B/P_R**
For connection to external A/V equipment with component video outputs.
- 5 L/R**
For connection to external A/V equipment with composite audio outputs.
- 6 SPDIF Coaxial/ Optical**
For connection to an amplifier equipped with a Dolby Digital decoder.
- 7 HDMI**
For connection to TV's HDMI input.
- 8 USB**
For connection to USB memory stick for software upgrade or to other external USB devices.
- 9 Ethernet**
For connection to PC.

Remote Control

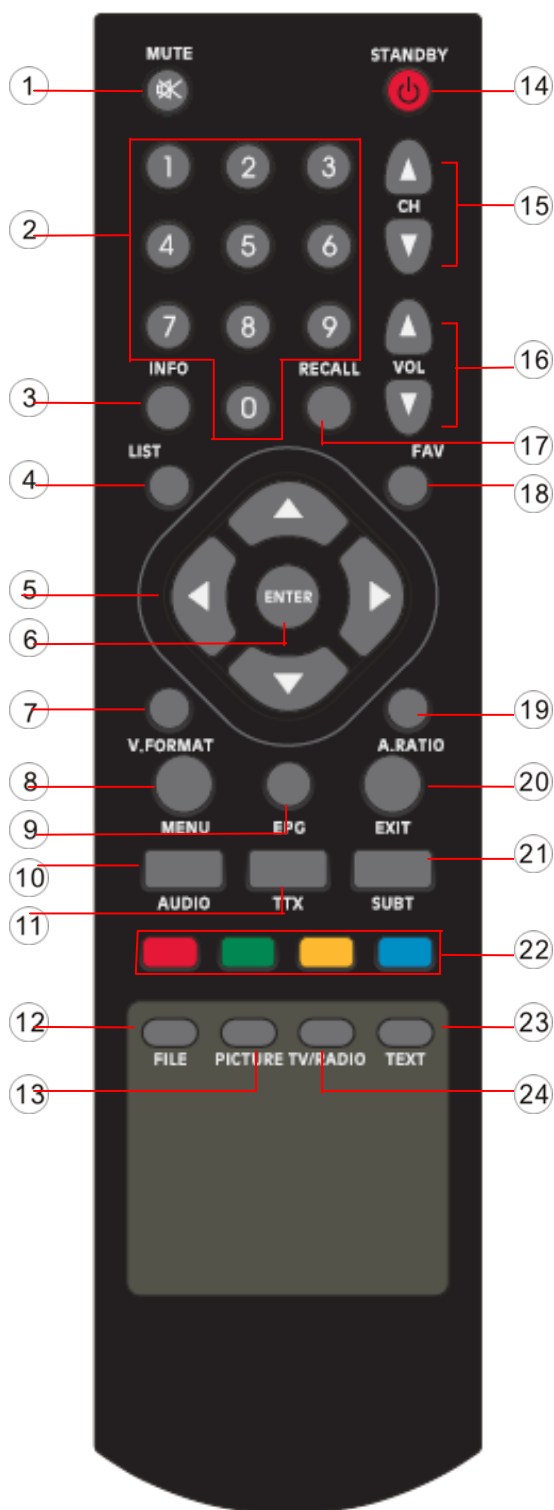
The remote control provides easy access to all of the receiver's functions, including selecting channels and using the menus. It uses infrared signals, and must be operated within seven meters from the receiver.

When using the remote control, make sure there is a direct line of sight to the receiver. Also note that although the receiver can be operated from the buttons on the front panel, some of the receiver's functions can only be accessed using the remote control.

The batteries for remote control are packaged separately; please install these batteries in the remote control before using the receiver. Note the +/- signs on the batteries to ensure that the batteries are inserted with the correct polarity into the remote control. To avoid damage to the remote control, discard any depleted or old batteries.



The buttons on the remote control have the following functions:



1. **Mute:** To disable and enable MUTE on current program
2. **Numeric:** For entering channel number or password
3. **Info:** To open I-PLATE / Now / Next Information
4. **List:** To open Program List window
5. **Directional buttons:** Move the cursor or field in the ▲▼◀▶ direction
6. **Enter:** Selects the highlighted menu to submenu item
7. **V.Format:** To switch among AUTO / 1080i / 720p / 576p / 576i
8. **Menu:** To open MAIN MENU window
9. **EPG:** Display the EPG (Electronic Program Guide)
10. **Audio:** To switch among different language or audio types (MPEG / Ac3)
11. **TTX:** To switch OFF/ON Teletext on-screen
12. **File:** You can review all the files on the screen after inserting USB memory devise into the receiver
13. **Picture:** You can setup the features for the screen (brightness. Contrast. Saturation and so on)
14. **Standby:** To switch OFF/ON Set-Top Box
15. **CH:** Channel controls previous and next
16. **Vol:** Audio volume increase or decrease
17. **Recall:** To toggle between current and previous channels
18. **Fav:** To open Favorite Channel List window
19. **A. Ratio:** To switch among Pillar Box / Letter Box / Crop
20. **Exit:** To exit specific function and close window
21. **SUBT:** For DVB subtitle
22. **Color buttons:** Can perform various functions which are shown in the menu
23. **Text:** enable MHEG5 function
24. **TV/Radio:** To change between TV and radio channels



Physical Installation

Please always remember to disconnect the terrestrial decoder from the power source before connecting or disconnecting the cable to the antenna.

Connecting To Audio & Video Devices

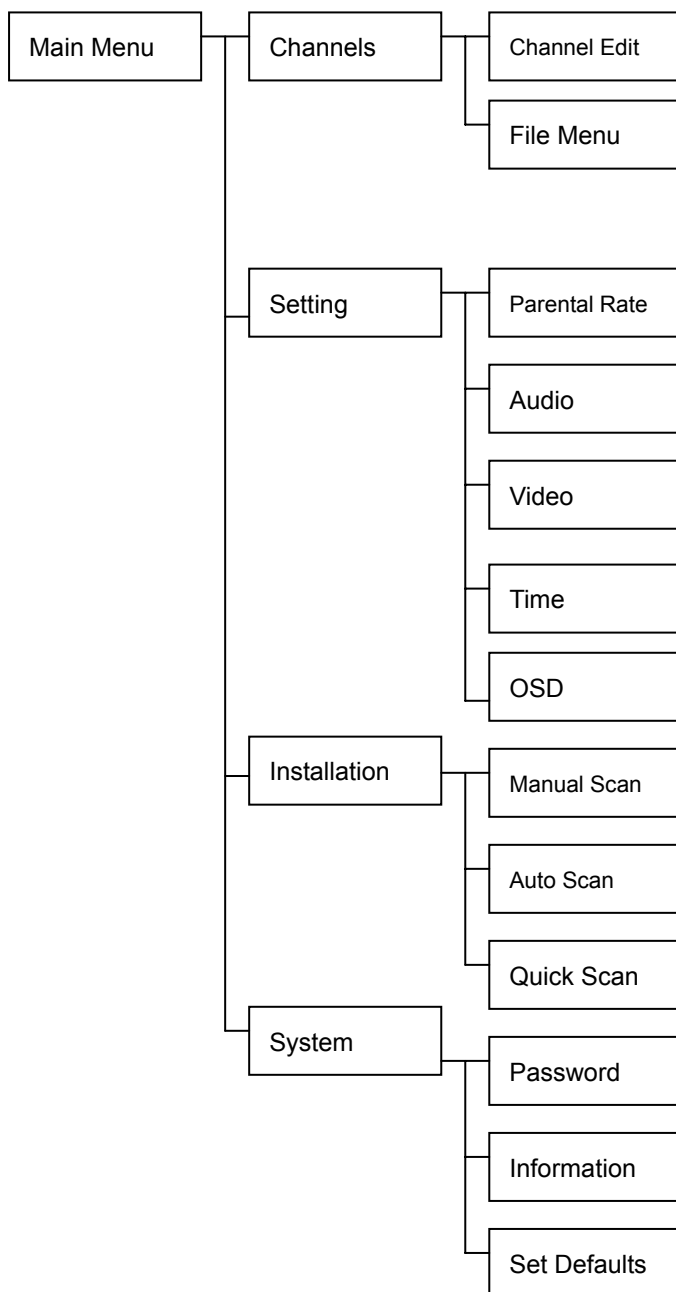
There are many ways to connect the terrestrial receiver to your home entertainment system, depending on the equipment and connection types you have.

However, for the best video/audio quality, use HDMI, YP_BP_R and SPDIF/ Coaxial connections to obtain higher video and audio quality

On Screen Display

If the receiver has not been installed prior, the channel database will be empty. During the first time installation you will see the message "No data", press menu for installation. Please press menu on your remote control.

Menu Map



Main Menu

Press “MENU” key to display the Main Menu screen. Use the cursor keys ▲ ▼ ◀ and ▶ to move through the menu, the “Enter” button to choose your option, and “EXIT” or “MENU” button to return to the previous Menu.



You may conduct the following operation on the Main Menu:

- Channels
- Settings
- Installation
- System

Note: You may either move your cursor to highlight the option or press the numeric key to access the options directly.

Channels



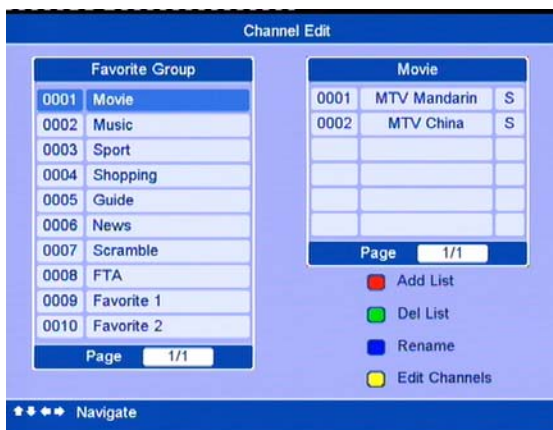
In the **Channels** menu, you may conduct the following functions:

- Channel Edit
- File Menu



Channel Edit : Channel Edit allows you to manage favorite channels. Channel List is shown on the left column while the favorite list is on the right. Use the cursor keys ▲ ▼ ◀ and ▶ to highlight options, “ENTER” button to assign channels to the favorite list or cancel your selections.

- Red key: Allows you to change transponders lists or the favorite groups.
- Green key: Allows you to sort lists according to alphabetical, frequency or network sequences.
- Blue key: Allows you to edit favorite channels, rename channels, lock channels and delete channels. To rename channels, you may use the Virtual Keyboard described in the later column.
- Yellow key: Switch between channel list or Favorite list.



Edit Favorite :

After pressing the yellow key in Channel Edit, you may edit favorite groups. All favorite groups are on the left column while channels in each group are on the right. You may edit favorite groups upon pressing the yellow key in Channel Edit menu. Use the cursor keys ▲ ▼ ◀ ▶ to highlight your selection and press the "ENTER" button to display assigned channels on the right column.

- Red key: Allows you to add a favorite group.
- Green key: Allows you to delete a favorite group.
- Blue key: Allows you to rename a favorite group by using a virtual keyboard.
- Yellow key: Allows you to switch back to Channel Edit.



If you highlight the items on the right column, you may change channel sequences in each favorite group.

- Red key: Allows you to move a highlighted channel upwards.
- Green key: Allows you to move a highlighted channel downwards.



Virtual Keyboard:

Virtual keyboard is used in renaming channels or favorite groups. After the Keyboard is displayed, simply use the cursor keys ▲ ▼ ◀ ▶ and "ENTER" button on the remote controller to input the editing on the keypad.

- Input alphabets and space by selecting on the keypad.
- Use the numeric keys on the RCU to input numbers.
- Select "BPSK" to erase one character and "Clear" to erase all characters.
- Press the red key to save your edit and the green key to cancel the edit.



File Menu :

This menu supports multi-media function for your USB memory storage.

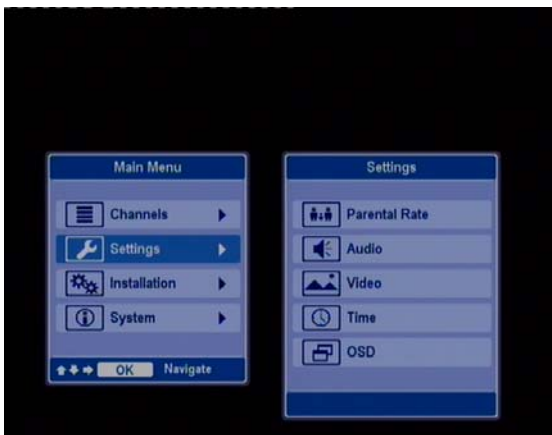


Select Slot:

After connecting the USB memory device to the receiver. Wait until reading is completed showing PORT1 on the slot. Select a USB slot which your USB drive is connected.

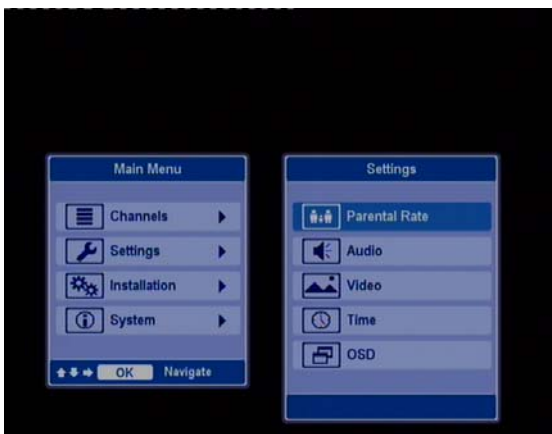
Note: Only USB 2.0 hard disks or USB 2.0 thumb drives are supported. NO USB multi-card readers

Settings



In the Settings menu, you may conduct the following functions:

- Parental Rate
- Audio
- Video
- Time
- OSD



Parental Rate :

It allows you to prevent your children from viewing sensitive channels. Once you set the parental rating for the particular channel, the parental rating transmitted with the channel will verify if the received rating is higher than the parental lock rating. A pop-up message will show that the channel is locked. To see the channel, you have to enter the password before viewing the channel.



Audio :

The Audio menu allows you to setup the following format:

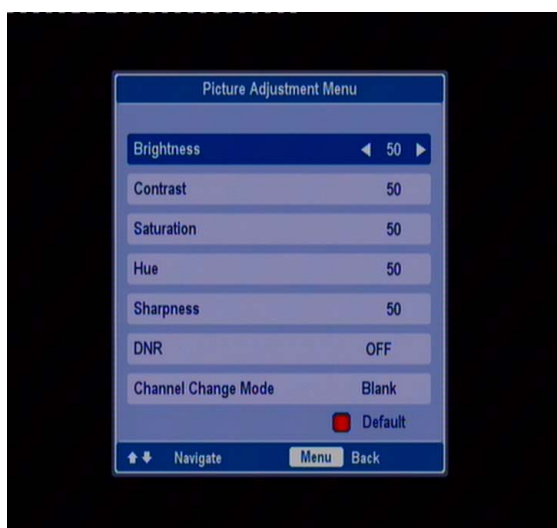
- Audio Language: You may choose between the languages preferred.
- Audio Output: Allows you to choose between PCM or Dolby output to other devices.
- Audio Preference: Allows you to choose between Mpeg and Dolby as preference format for current viewing.
- Default Volume: You may adjust the volume you wanted.



Video :

The Video menu allows you to setup the following format:

- HD Video Format: You may choose between video resolutions in progressive or interlaced format for high definition video.
- SD Video Format: You may choose between PAL, PAL-M and NTSC format for standard definition video.
- HD Aspect Ratio: You may choose between letter box, Crop, Pillar Box, Bypass, AFD as the aspect ratio for high definition video.
- Picture Setup: You may adjust Brightness, Contrast, Saturation, Hue, Sharpness, DNR (D N Reduction)



Picture Adjustment Menu:

The menu allows you to setup the following feature for the screen displayed:

- Brightness
- Contrast
- Saturation
- Hue
- Sharpness
- DNR: For reducing mosaic in the picture.
- Channel Change Mode: Blank or Freeze current screen in the moment of channel changing.

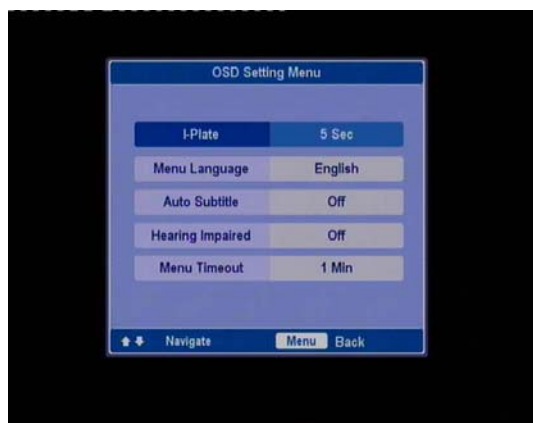
Press Select to adjust the item. Use the cursor keys ◀ and ▶ to decrease or increase the value. You may press the red key to restore to default value.



Time:

The Local Time Setup menu allows you to setup the following local time format:

- Time Zone: You may adjust local time base on GMT.
- Time Format: You may choose between 24HR or AM/PM.



OSD:

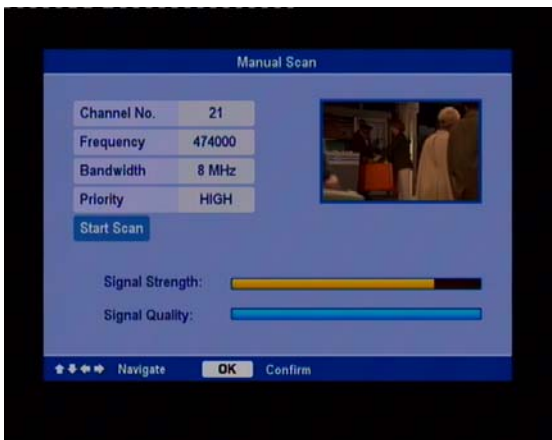
The OSD Setting Menu allows you to adjust the features of menus and I-Plate on the screen under the following options:

- I-Plate: The I-Plate is shown every time the channel changes or after pressing the information button. You may adjust its timeout period.
- Menu Language: You may choose languages for the OSD menu.
- Auto Subtitle: It allows the subtitle to show in programs automatically.
- Hearing Impaired: It shows sound subtitle to provide hearing impaired assistance.
- Menu Timeout: Timeout interval for OSD menus.

Installation



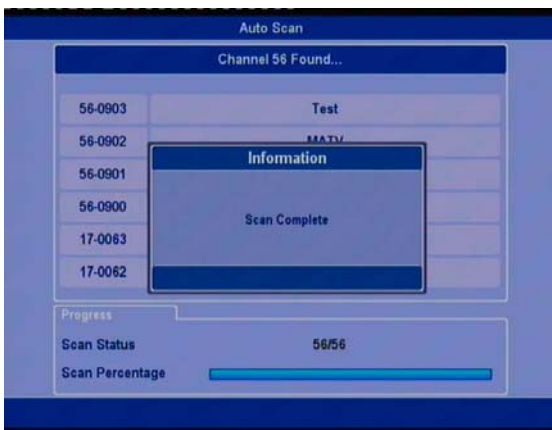
In the Installation menu, you may conduct Manual, Auto and Quick Scan to search the available terrestrial channels.



Manual Scan:

To conduct Manual Scan, you should input Channel No. and Frequency, and select Start Scan to scan a specific channel. "Scan Complete" shows after scanning is finished.

Note: These parameters are various from different regions. Please refer to the details provided by local operators.

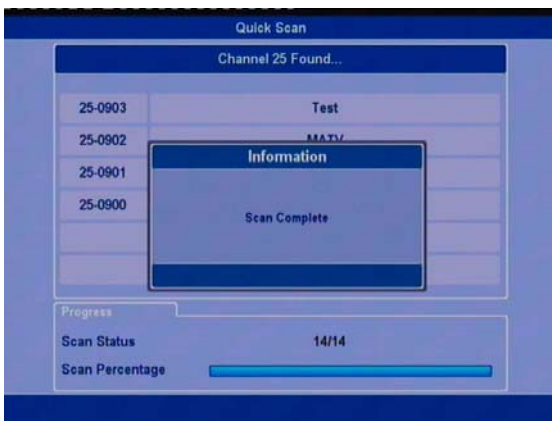


Auto Scan:

On the installation page, highlight "AUTO SCAN" and press the "ENTER" button to start channel search.

Once a digital TV/Radio channel is found, the channel number and the program name will be displayed.

"Scan Complete" shows after scanning is finished.



Quick Scan:

On the installation page, highlight "QUICK SCAN" and press the "ENTER" button.

Once a digital TV/Radio channel is found, the channel number and the program name will be displayed.

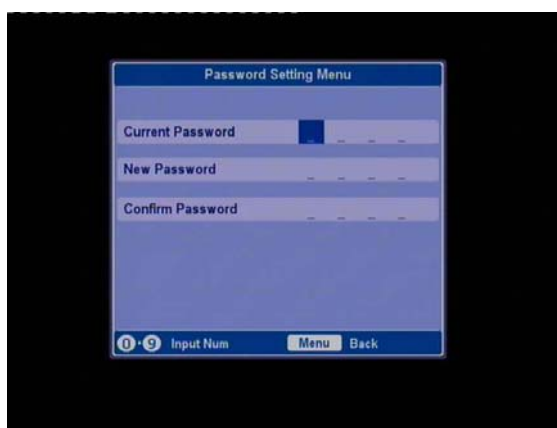
"Scan Complete" shows after scanning is finished.

System



The System menu allows you to conduct the following options:

- Password
- Information
- Set Defaults



Password: Password Setting Menu allows you to change the password for the receiver using the numeric keys.

- Enter the Current Password.
- Enter the New Password.
- Confirm the new password.

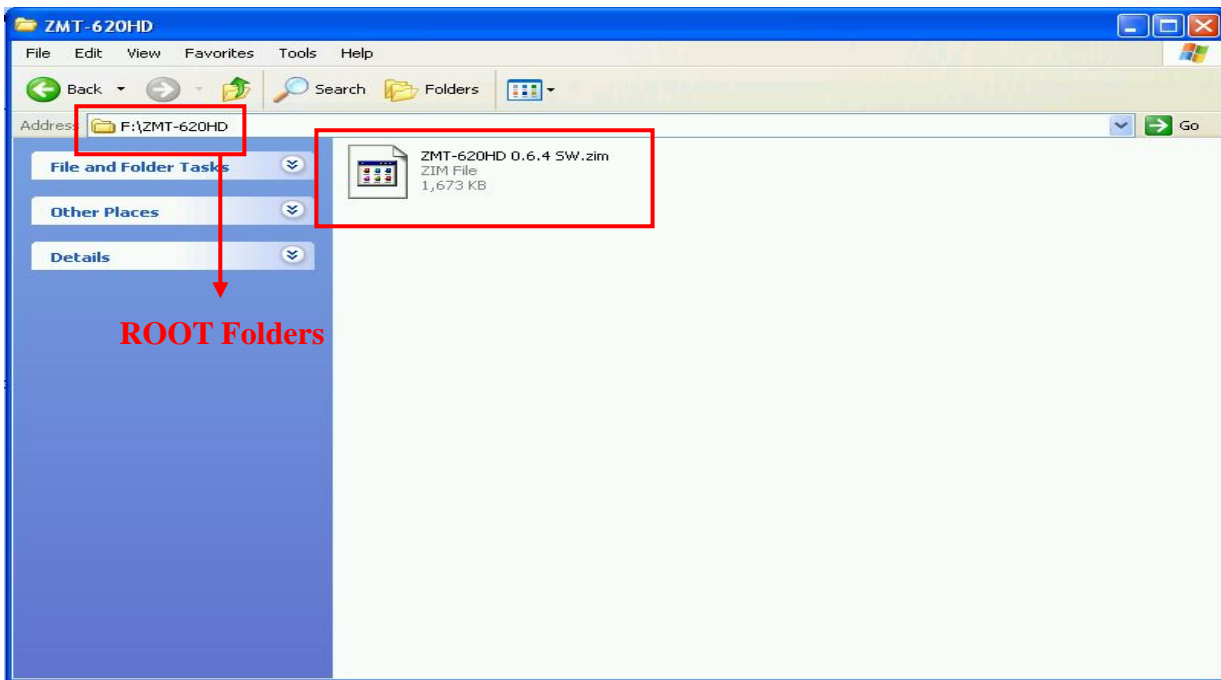
Note: The default password of this receiver is 0000



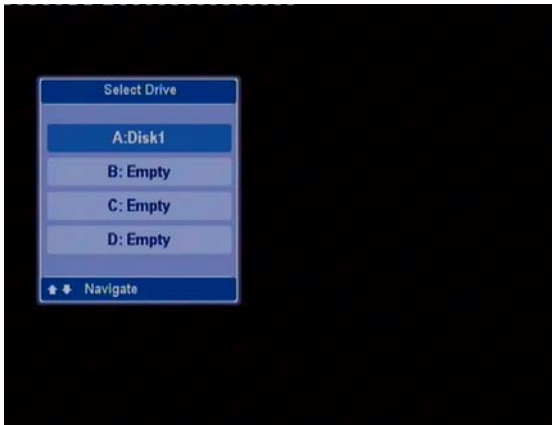
Information: The System Information menu shows current H/W version S/W version related to the receiver. The red key is for S/W upgrades.

-

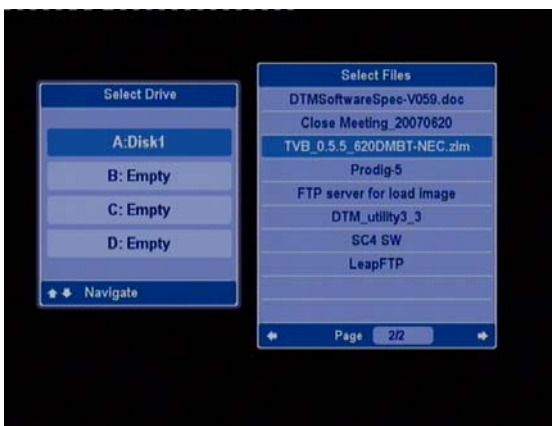
Note: S/W Upgrade: S/W Upgrade is enabled in the Information menu:



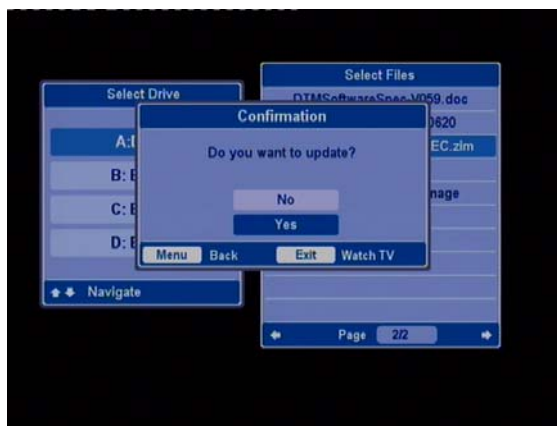
1. Copy the software file to the root folder of a USB Disk (Only USB hard disks or USB thumb drives are supported. NO USB multi-card readers)
2. Insert the USB disk into any of the two USB ports.



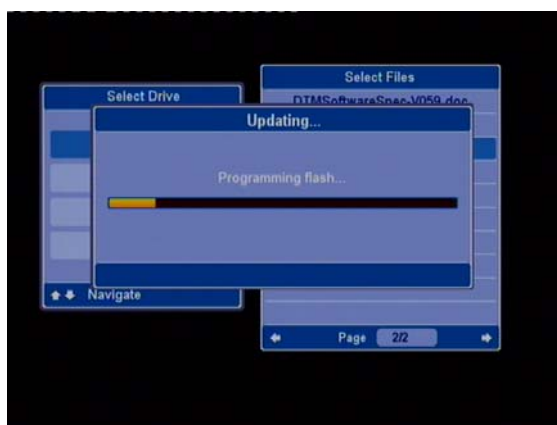
3. In the System Information screen, press the red key on the remote control.
4. Select the Disk (currently only the first partition of the disk is supported)



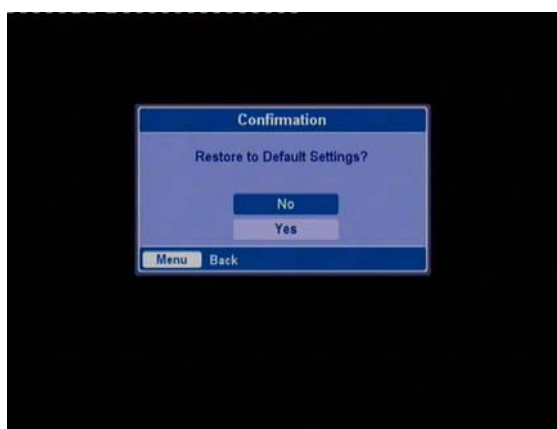
5. Select the file from the disk.



6. Wait until reading of the file is done and when the message "Do you want to update?" appears, select "yes".



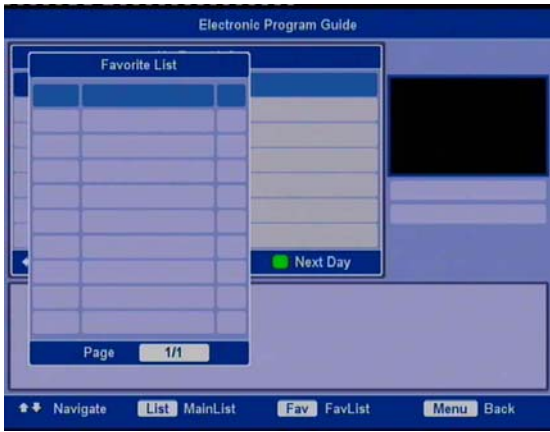
7. Please wait until "Erasing Flash" and "Programming Flash" is completed (do not switch off the power or remove the USB device during this process)
8. Reset to default in the Set Defaults menu.
9. Remove the power cord from the set-top box, and insert it again to reboot the receiver.



Set Defaults: You may restore to system default settings in this menu. If you select Yes, the system will restore to factory default and all current settings and data will be eliminated.

EPG : Electronic Program Guide

This application replaces the native 7-day Electronic Programme Guide (EPG) found in nearly all DVB compliant Receivers. It is broadcast to the Receiver as an MHEG-5 interacting private data stream and decoded by the Receiver API / MHEG-5 stack.



Select EPG on the Main Menu or press the “EPG” button on the remote control to start the Electronic Program Guide.

- Use the cursor ▼▲ keys to select a program.
- Press the “ENTER” button to tune the program and see the program details in the below window.
- Press the red button to show the information of the Previous Day program and the green button to show the Next Day program information.
- Use “List” and “FAV” button on the remote controller to display channel list and favorite list. You may switch to the selected channel by pressing “ENTER” to browse its EPG information.

MHEG-5 Interactive Applications

The receiver has been enabled to receive and display interactive applications that Broadcasters may from time to time create. Such applications will be accessed via the RED BUTTON.

One exception is Digital Text which (when available) can be accessed via the TEXT button.



Figure1: EPG Listings Display

Select EPG on the Main Menu or press the “EPG” button on the remote control to start the Electronic Program Guide.

- Use the cursor ▼▲ keys to select a program.
- Press the “ENTER” button to tune the program and see the program details in the below window.
- Press the red button to show the information of the Previous Day program and the green button to show the Next Day program information.

Use “List” and “FAV” button on the remote controller to display channel list and favorite list. You may switch to the selected channel by pressing “ENTER” to browse its EPG information.

Browse Listings

Launch EPG Listings Screen

- Press [EPG] to launch the EPG application; a ‘Loading...’ message appears until the application launches (approximately 2 seconds).
- The channel listings initially displayed default to the channel from which the EPG application is launched. The focus will default to the current programme on the channel listing from which the Now/Next screen was launched.
- The audio visual (A/V) screen for the ‘launched from’ channel is displayed in the top right of the screen showing the current programme being broadcast for that channel.

Exit EPG

- Press [EXIT] to return to watching the channel from which the EPG was launched.

- If the user has browsed to another channel's listings and wants to watch that channel on TV, press [OK] to tune to that channel.

MHEG-5 EPG Applications

Browse Listings

- Press the [Up] / [Down] keys to scroll through the programme listings for that channel. Scrolling past midnight will take you to the next/previous day's listings.
- Press the [Left] / [Right] keys to scroll through channels. This will loop backwards and forwards through all available channels.
- Press [YELLOW] to go to the previous day's listings; if the user is on the current day it will loop to the EPGs last day of data, i.e. 7 days ahead.
- Press [BLUE] to go to the next day; if the user is on the last day of listings data (day 8) it will loop back to the current day.
- Press [OK] to watch the TV channel for the currently browsed listings.
- Press [EXIT] to return to TV; it will return to the channel from which the EPG was launched.
- The remote control number buttons can be used to move within the application to a channel's listings (e.g. for Logical Channel Number (LCN) 3' s listings, press [3]); will allow 2-digit entry, e.g. 99.

EPG Listings Screen: Fields and Display

- The listings screen displays the channel logo at the top left of the screen.
- The day and date of the listings being browsed are displayed beside the channel logo.
- A ¼ screen audio visual display of the channel the EPG was launched from is displayed top right of the screen.
- Current time and channel name (of the launch channel programme displayed in A/V screen) are displayed below the ¼ screen A/V display.
- Programme start time is displayed to the left of the programme name, with a scroll icon prompt ([Up] / [Down] RCU buttons) to assist user in navigation.
- Programme titles (two lines displayed).
- The programme synopsis is displayed bottom right (for the programme currently highlighted).
- Classification / Parental Rating is displayed within the last line of the synopsis area, e.g. PG.
- Captioned indicator (if applicable) is displayed as an 'EAR' icon within the last line of the synopsis area.
- General Navigation prompts are displayed in the bottom banner area.

What's on Now/Next.		5.23pm Tue 16 Oct	
1 ONE	Now 5.00pm	Studio 2	
	Next 5.30pm	Neighbours	
2 TV 2	Now 6.00am	My Resteraunt Rules	
	Next 12.30am	Friends	
3 TV 3	Now 3.30am	Shortland Street	
	Next 10.00pm	My House, My Castle	
4 C4	Now 10.30pm	Desperate Housewives	
	Next 12:30pm	Gordon Ramsay's Passion for Flaour...	
5 Māori Television	Now 1.00am	Who Wants to be a Millionaire?	
	Next 1.30am	Grey's anatomy	

Chnl OK Watch TV EPG Listings 

Figure2: EPG Now/Next Display

- Launch EPG Now/Next Screen
- Exit EPG Now/Next Screen

Launch EPG Now/Next Screen

- Press [EPG] from within the EPG Listings screen to launch the EPG Now/Next screen. The focus will default to the channel listing from which the Now/Next screen was launched.

Exit EPG Now/Next Screen

- Press [EPG] from within the EPG Now/Next screen to return to the EPG Listings screen.
 - Note:** Pressing [EPG] will toggle between screens.
- Press [EXIT] to return to watching the channel from which the EPG was launched.
- If the user has browsed to another channel's listings within the Now/Next screen and wants to watch that channel, press [OK] to tune to that channel.

Browse Listings

- Press the [Up] / [Down] keys to scroll through the channels' Now and Next listings; will loop from last to first channel pressing [Down] and from first to last pressing [Up].
- Press [OK] to watch the channel for the highlighted listing.
- Press [EXIT] to return to the channel from which the EPG was launched.
- The remote control number buttons can be used to move within the application to a channel's listings (e.g. for LCN 3' s listings, press [3]); will allow 2-digit entry, e.g. 99.

EPG Now/Next Screen: Fields and Display

- The Now/Next screen displays the screen name (TBC) at the top left.
- The time at which the Now/Next screen was launched is displayed top right, along with the current day and date. **Note:** the Now/Next screen is not dynamically updated. The data is refreshed in the background every five minutes and updated on screen after launch.
- The LCNs and channel names are displayed on the left of the screen.
- There are two lines for each channel; the first line displays the text 'Now', with the Start Time and Programme Name for the programme currently showing. The second line displays the text 'Next', with the Start Time and Programme name for the programme to be broadcast following the current programme.
- The browse focus is displayed using a black border to highlight the listings, with a scroll icon prompt ([Up] / [Down] buttons) to assist the user in navigation.

- General Navigation prompts are displayed in the bottom banner area, along with the FreeView logo. (Note: FreeView logo and colour branding TBC).

Information Plate (or ' I-Plate ')



- While navigating between the services the I-Plate will be displayed for the selected service. In the channel I-Plate, information's such as current date & time, service name... will be displayed as above.
- If the selected service supports special features like TTXT, SUBT, Audio mode... it could be identified by seeing the display in the I-Plate
- Also the signal quality of the selected service will be displayed.

APPENDIX 1 Trouble Shooting

Problem	Solution
(1) The receiver front panel power indicator doesn't light up, and no message appears on the front panel	(a) Check the main lead and make sure the power plug is well plugged into a stable power outlet (b) Press "Power" button on the front panel to see if the green light (power indicator) is on. (c) Check the set top box is in "Standby" mode or not by pressing "Standby" button on the remote control
(2) Some indication on the front panel but no picture on your TV screen	(a) Press button "Menu" on the remote control or front panel to call up On Screen Display (b) Make sure the connection between set top box and your TV matches the mode your TV should be set to. (c) Check the brightness level of your TV is high enough (d) Connect first via the composite video output and check if the selected video output matches the output connected to your screen.
(3) Poor picture quality	(a) Check the antenna and make sure it is aligned to the correct direction.
(4) No audio	(a) Check the receiver and your TV's volume are properly set and not in "mute" mode. (b) Check the audio connectors are correctly and firmly connected (c) Make sure the receiver is switched to the correct Audio mode.
(5) No video	(a) Check the receiver if the video connectors are correctly and firmly connected (b) Try different video formats by pressing the V-format button on the remote control.
(6) No teletext	(a) Make sure the channel you are watching carries teletext information. (b) Check your TV and make sure it is teletext capable. (c) Check your teletext capable TV is in teletext mode (d) Select teletext page number, for instance 601
(7) Cannot lock signal	(a) Make sure your reception systems are correctly installed and connected correctly to the receiver. (b) Check whether the parameters you enter is exactly the center frequency of the wanted channel. Some parameters can be changed by operators. Make sure you have the most updated ones.

*Note: Please contact your local distributor for any technical problems

* **Weather related Signal problems**

Natural calamities may affect signal reception. If the terrestrial programming is severely affected by bad weather conditions, there are a few basic steps you can take to improve reception:

1. Make sure your antenna is aimed to receive the strongest possible signal.
2. If this does not solve the problem, you may consider installing a larger antenna. This can help to gather more of the signal transmission.
3. If you live in an area subject to frequent snow or freezing rain, you may need to install a deicing system to eliminate the accumulation of unwanted ice, snow or moisture from the surface of your antenna.
4. If the program reception is adversely affected by heavy winds, you can stabilize the antenna mount with cables.

APPENDIX 2 Glossary

*** Aspect Ratio:**

It is the ratio of the width of the screen to the height. The two relevant digital TV formats are 16:9 (wide screen) or 4:3 (the traditional screen ratio). 16:9 is ergonomically more suitable for human's eye.

*** Coaxial Cable:**

A type of cable used to transmit high frequency signals e.g. from the antenna to the Standard Definition receiver.

*** Composite Video:**

There are three elements of the video system : First - the " active video" which means the picture to be displayed on the screen and its associated colors. Second - the " sync" decides where to place each pixel on the screen. Third - the " blanking" tells the display when to turn off the electron beam so no retrace across the screen. These three elements combined together is called " composite video" when connecting to a display through connectors.

*** DVB:**

Abbreviation for "Digital Video Broadcasting". An international organization created in October 1993, whose primary objective is to achieve a common framework for all technical platforms of digital broadcasting systems including DVB-C (cable), DVB-S (satellite), DVB-T (terrestrial), DVB-MC (MMDS), DVB- CS (SMATV).

*** EPG:**

Abbreviation for "Electronic Program Guide". A software that enable viewers to navigate through the large number of channels offered by digital TV broadcaster and select the desired services.

*** Frequency:**

The property of a signal which is measured in cycles per second(=Hertz).

*** Letterbox:**

The picture with aspect ratio 16:9 in a 4:3 TV screen with blank lines on top and bottom. It is the means to watch a wide screen TV program on a 4:3 TV screen.

*** Megahertz (MHz):**

Millions of cycles per second, which describes frequencies of radio wave or electric current.

*** OSD:**

Abbreviation of "On Screen Display", used in digital set top box. OSD is comprised of a main menu and many submenu with lots of options of functions inside.

*** PAL:**

Stands for "Phase Alternating Line", the European video standard which has the image format of 4 by 3, 625 horizontal lines, 50 Hz and a total 8 MHz of video channel width.

*** Y/Pb/Pr:**

Component Video. It is better than S-Video and Composite Video in terms of picture quality.

APPENDIX 3 ZMT-620HD Product Specification

※Mechanical

Size (W * H * D) mm	265mm x 40mm x 163mm
Weight	T.B.D
PCB Construction	4 Layers

※Power

Input Voltage	100~240 VAC, 50/60 Hz
Consumption	15W exclude USB device, Less 3 W than Standby Mode

※Front End

Input Frequency / Connector Type	49 ~ 861 MHz / IEC-Female
Channel Bandwidth	6 / 7 / 8MHz
Standard / Demodulation	DVB-T / COFDM
Constellation	QPSK, 16QAM, 64QAM
FFT	2K, 8K
Guard Interval	1/4, 1/8, 1/16, 1/32
Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
Loop Through Frequency / Connector Type	49 ~ 861 MHz / IEC-male

※System

CPU	450 DMIPS
Flash Memory	8MB
RAM	128MB DDR

※Video

Format	MPEG2 Main Profile@Main Level MPEG4 Main Profile@Level 4.1
Picture Resolution	720 x 576i, 720 x 576p, 1280 x 720p, 1920 x 1080i
Video Signal/ Connector	S-Video x 1 Composite: CVBS x 1 Component: YPbPr x 1 HDMI x 1

※ **Audio**

Formats	MPEG1 Layer I, II, Dolby Digital
Analog Audio Output	RCA Jack L/R x 2
Digital (SPDIF)	Optical, Coaxial

※ **SW Upload**

Connector	USB x 1
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※ **OSD**

Number of Color	16 bit color
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※ **Front Panel**

Button Key (MAX 4 Keys)	4 keys (Standby/On, CH+, CH-, Video Format)
Front Panel Display	Standby RED LED
Remote Control	45 Keys(NEC Code)

※ **General Data**

Operating Temperature	5°C ~ 40°C
Storage Temperature	-40°C ~ 65°C