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1.1 Overview

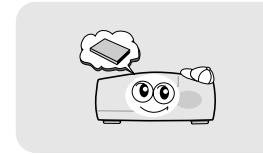
This receiver is designed for DVB-S/S2 and DVB-T signals reception. Enjoy the wide choice of more than 8,000 different channels, broadcasting a large range of culture, sports, cinema, news, events, etc. This receiver is a technical masterpiece, assembled with the high quality electronic parts.

1.2 Main Features

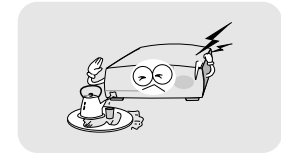
- ▶ Fully compliant with MPEG-2, H.264/AAC and DVB standards
- ▶ Combined Reception for DVB-S/S2 and DVB-T Signals
- ▶ Pre-programmed for Optus D1
- ▶ Integrated common interface
- ▶ Multi-access with twin card reader for CI
- ▶ User friendly operating Menu and On-Screen Graphic Menu. (True color)
- ▶ Easy to use EPG(Electronic Program Guide) on screen
- ▶ Age protection lock function
- ▶ Tele-text encoding
- ▶ Software downloading via USB
- ▶ DiSEqC 1.2 and Usals(1.3)
- ▶ MP3 and JPEG player over USB port.
- ▶ Manufactured under license from Dolby Laboratories "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

2.1 Safety

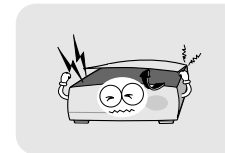
Be sure to read the user's manual before starting the operation of the unit.



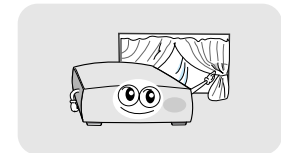
Do not touch the power cord with wet hands as it may cause electric shock.



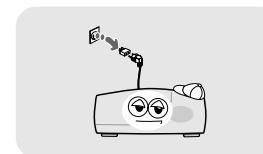
Never open the cover. It is very dangerous to touch inside of the unit due to possible electric shock.



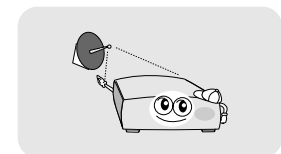
Place the unit in a well ventilated and no-heat environment.



When you do not use this unit for a long time, make sure that power cord is pulled out from the outlet. Also do not use a damaged power cord as it may cause fire or electric shock.



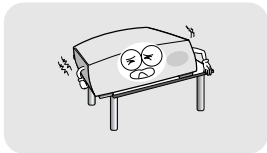
A professional installation is required. If reception is interrupted, contact your local service centre.



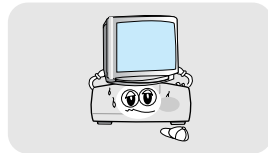
2.2 Precautions

When installing the unit

Install the unit horizontally. Uneven installation may cause the unit to be damaged.

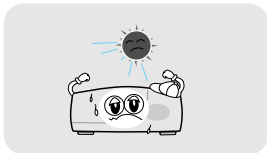


Do not put heavy items such as TV on the unit. This may cause damage to the unit.

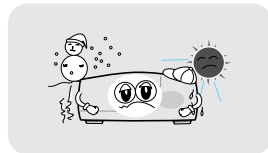


Do not install the unit:

- Where it is subjected to vibrations
- Where it is exposed to direct sunlight
- Where there is humidity
- Where the temperature is too high or too low.
- Where there is no ventilation



Moving the unit to a hot area from a cold one will cause condensation. Do not operate the unit for one or two hours or until it has dried completely.



- ▶ For MAINS powered apparatus and for apparatus producing internal voltages greater than 35V (peak) a.c. or d.c., having no protection against splashing water according to annex A, the instructions for use shall state that the apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

3.1 Accessories

Accessories of the Unit

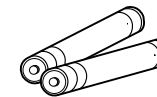
User's manual : 1



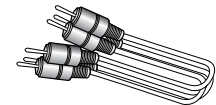
Remote control : 1



Batteries (AAA type) : 2



RCA video/audio cable : 1



Optional accessory

HDMI cable : 1



A HDMI cable an optional extra.

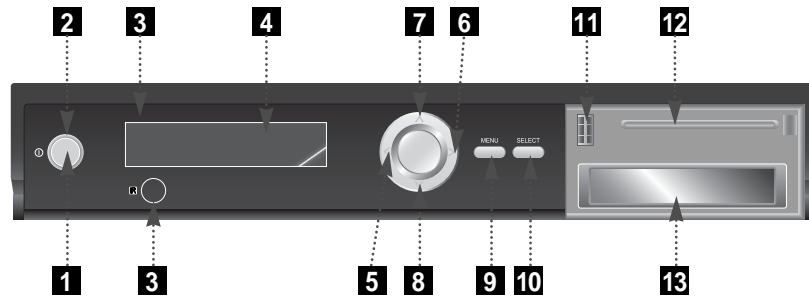
- ▶ If any accessories listed above are missing, contact the sales representative where you purchased this unit.
- ▶ If you need optional accessory you can buy it.

3.2 The Satellite dish

Your dish should be properly installed and azimuth and elevation must be precisely set up.

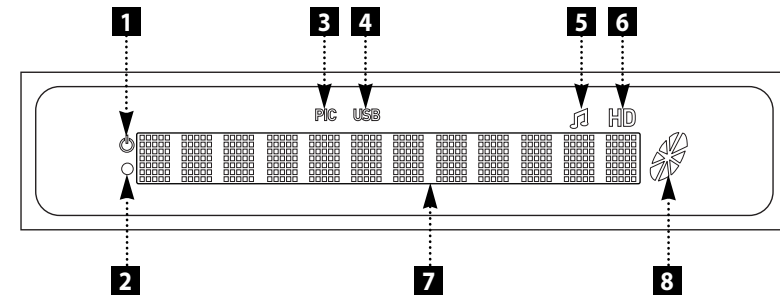
- ▶ This unit is working with DiSEqC on a compatible antenna positioner. Ask your dealer for more information.

4.1 Front Panel



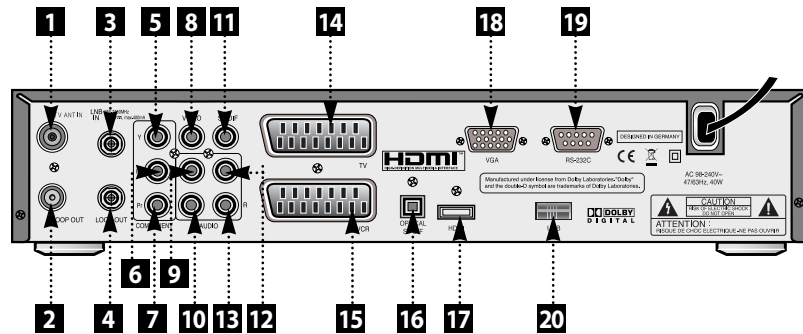
- 1 POWER ON/OFF** : To turn the receiver on/off.
- 2 BLUE LED** : This LED is illuminated blue to indicate that the STB is in standby mode, and off to indicate that the STB is in power on mode.
- 3 REMOTE SENSOR** : Receives signal from remote control.
- 4 VFD Display** : Displays information such as time, program number, name, and etc. For more information refer to page 10.
- 5 - 6 VOLUME** : To adjust the volume level or change the value.
- 7 - 8 CHANNEL** : To change channel or move up & down on the application screen.
- 9 MENU** : To launch or exit menu application.
- 10 SELECT** : To activate a highlighted item or go to next level on hypertext menu or confirm the user's action.
- 11 USB(HOST)** : To update program using USB-Storage.
- 12 Smart Card Reader(OPTION)** : Insert smart card for encrypted channel access.
- 13 PCMCIA** : To receive pay-TV channel, you need a CA-Module and smart card from the service provider.

4.2 VFD Display



- 1 Standby LED** : Flashing red in standby mode and no light in operation mode
- 2 Remote Sensor LED** : Flashing orange when it perceives the infrared signal from the Remote control
- 3 PIC** : Active when searching picture files stored in USB
- 4 USB** : Active when USB connecting
- 5 RADIO / MP3** : Active when listening to Radio channel or playing MP3 file
- 6 HD** : Active when watching HD channel
- 7 Information** : Displays various information including channel Name, Date, Time, etc
- 8 REC** : Active when Recording

4.3 Rear Panel



NO	NAME	CONNECTOR	FUNCTION
1	TV ANT IN	169-2 FEMALE	Terrestrial stream input from aerial antenna to digital tuner
2	LOOP OUT	169-2 MALE	Terrestrial stream loop through out from digital tuner
3	LNB INPUT	169-24 FEMALE	IF input from LNB to digital tuner
4	LOOP OUT	169-24 FEMALE	IF loop through output form digital tuner
5	Component Y	RCA Cinch	Component video Y
6	Component Pb	RCA Cinch	Component video Pb
7	Component Pr	RCA Cinch	Component video Pr
8	Video	RCA Cinch	Composite video output
9	Audio L	RCA Cinch	Composite left audio output
10	Audio R	RCA Cinch	Composite right audio output
11	Digital audio	RCA Cinch	Digital audio output
12	Audio L	RCA Cinch	Composite left audio output
13	Audio R	RCA Cinch	Composite right audio output
14	TV SCART	SCART	SCART output to TV
15	VCR SCART	SCART	SCART output to VCR, analog receiver or Hi-Fi
16	Digital audio	Optical	Digital audio output
17	HDMI	HDMI connector	HDMI video/audio output
18	VGA	D-SUB 15P	VGA video output
19	RS-232C	DB-9	Low speed serial port
20	USB(Host)	USB Connect	USB storage read/write

4.4 Remote Control Unit



- 1 POWER** : To turn the receiver on or standby mode.
- 2 MUTE** : To turn the sound on/off.
- 3 V-FORMAT** : To select the Resolution.
When TV type is PAL, Resolution changes to 1080i/720p /576p/576i. When TV type is NTSC, Resolution changes to 1080i/720p/480p/480i.
- 4 TV/RADIO** : To switch between TV and radio channels.
- 5 TV** : This key is not available.
- 6 STB** : To select the Screen Mode among "PAN AND SCAN", "LETTER BOX" or "IGNORE".
- 7 Numeric Buttons(0 ~ 9)** : To select channels / input channel numbers.
- 8 SLEEP** : To turn off the receiver automatically. (You can select from 5 to 90 minutes)
- 9 AUX** : To select the output mode of SCART connector.
- 10 FAV(red button)** : To display favorite group list
- 11 RECALL(green button)** : To return to the previous channel.
- 12 AUDIO(yellow button)** : To change the audio track.
- 13 RATIO(blue button)** : To change the Aspect Ratio to 4:3 or 16:9.
- 14 TIMER(orange button)** : To turn the power on/off automatically at the set time.
- 15 TEXT(white button)** : To see teletext service data.
- 16 CH+/CH-** : To change the channel.
- 17 VOL+/VOL-** : To adjust the volume.
- 18 EPG(Electronic Program Guide)** : To display Program Guide Menu.
- 19 MENU** : To enter/exit the main menu.

4.4 Remote Control Unit



- 20** : To move the cursor up/down or left/right To change the value of a selected item.
- 21** **OK** : To select an item or to confirm a menu. To choose a channel from the channel list mode.
- 22** **INFO** : To view parameters of current channel.
- 23** **EXIT** : To return to previous status or menu. To exit from the menu.
- 24** **RECORD** () : To start recording on external Hard Disk Drive.
- 25** **STOP** () : To stop playback/to stop recording.
- 26** **PLAY** () : To play the recorded program.
- 27** **PAUSE** () : To pause the playback.
- 28** **REWIND** () : To rewind a recorded program in normal or fast speed (x1, x2, x5, x20, x50, x300 times).
- 29** **FAST-FORWARD** () : To fast forward a recorded program in normal or fast speed (x2, x5, x20, x50, x300 times).
- 30** **SKIP** (/) : To jump forward or backward in recorded program.
- 31** **BOOKMARK** : To set a bookmark position (viewing point) on a recorded programs.
- 32** **REPEAT** : To playback specific part repeatedly.
- 33** **P.LIST** : To show list of recorded programs.
- 34** **JUMP** : To jump to the next bookmark when during playback.)
- 35** **T-SHIFT** : To start/stop time shift function.
- 36** **SUBTITLE** : To enable or disable subtitles.
- 37** **ZOOM** : To enlarge or zoom into the screen.
- 38** **F1** : This key is unavailable.(Reserved key)

5.1 Batteries

► How to insert batteries

- ① Open the cover.
- ② Insert two AAA type batteries(1.5V) to be aligned with appropriate +/- polarity.
- ③ Close the cover completely.

► When to replace batteries

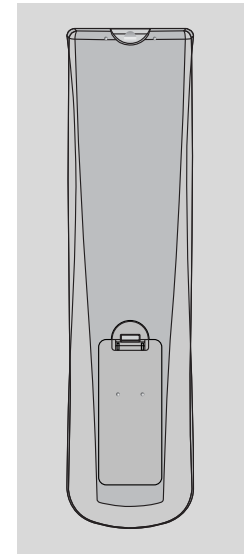
If the Remote control doesn't operate as well, it indicates batteries are almost out.
Replace both batteries.

► How to replace batteries

- ① Check +/- polarities and insert batteries to be aligned with appropriate +/- polarity.
- ② Even if old and new batteries are the same type, do not use batteries from different makers.

► Accident prevention

- ① Do not recharge, heat or disassemble the battery. Do not cross +/- polarities.
- ② If remote controller is not going to be used for a long time, take the batteries out.

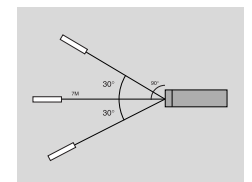
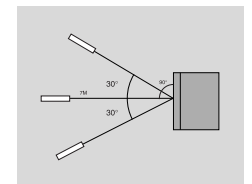


5.2 Range of Operation

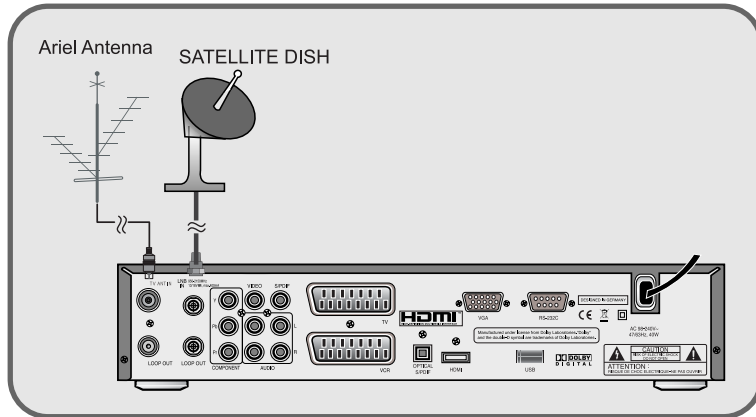
- ① The remote controller can be detected by the receiver within 30 degrees to the left or right.
- ② The transmission distance of the remote control is 7m in direct line of sight.

* Notes :

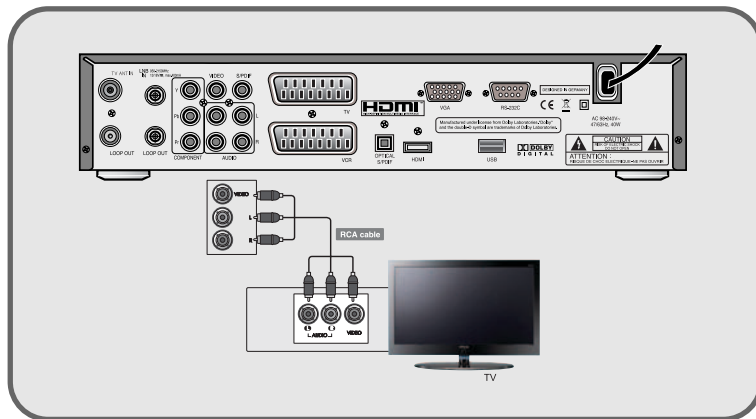
- ① **When the remote control is not operative**
Replace batteries with new ones and check AC power plug on the receiver.
- ② **Abnormal operation**
Ensure that other products which might cause interference are placed further away from the receiver.
- ③ **Notes for handling**
If exposed to heat or water, the main body and the remote control may be damaged, so be careful.



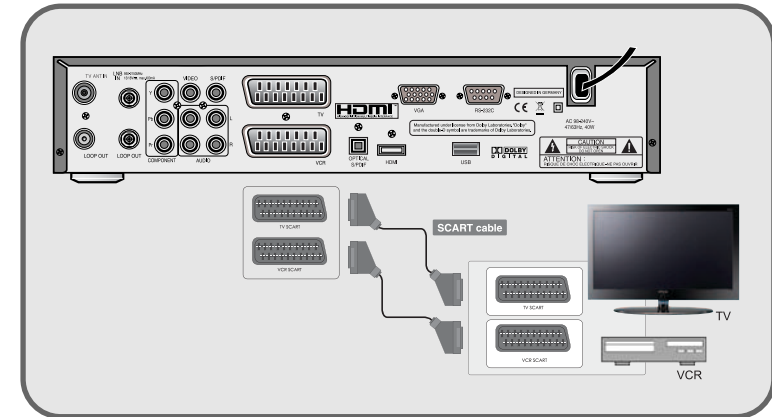
6.1 When Connecting IRD to the Antenna



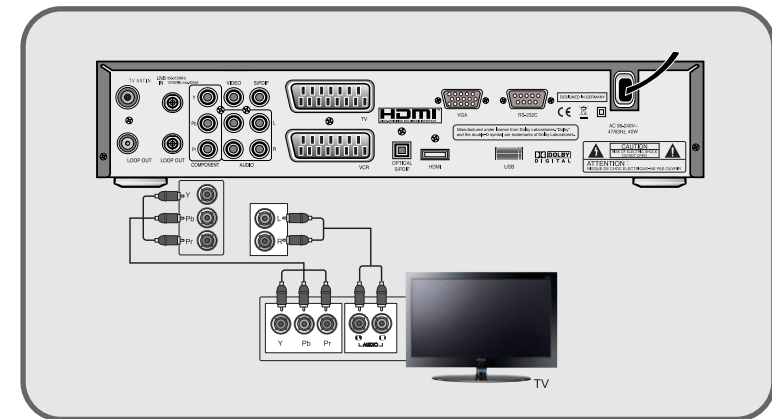
6.2 When Connecting IRD to Digital TV with AV Cable



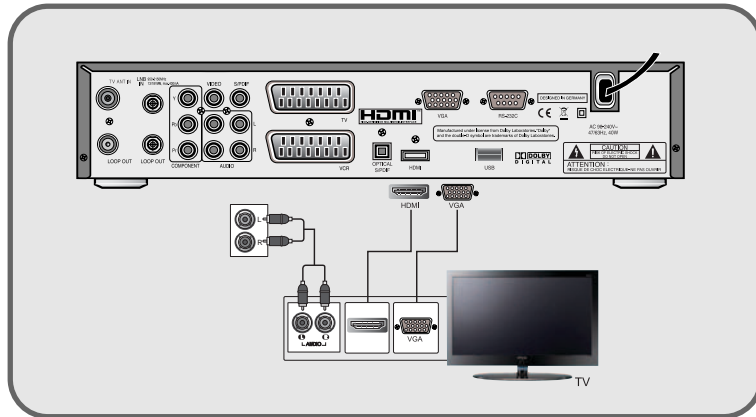
6.3 When Connecting IRD to Digital TV with SCART Cable



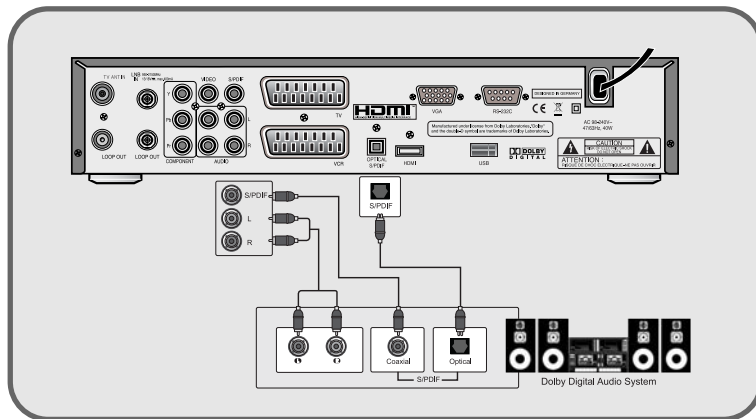
6.4 When Connecting IRD to Digital TV with Component Cable



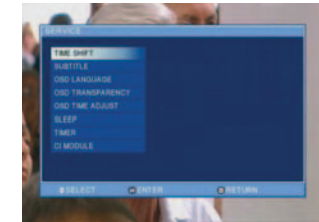
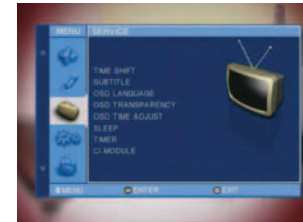
6.5 When Connecting IRD to Digital TV with HDMI or VGA Cable



6.6 When Connecting IRD to Audio System

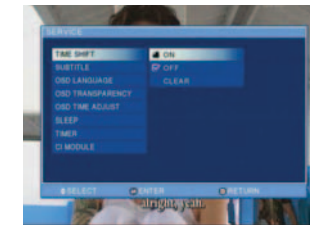


7.1 Service



1. TIME SHIFT

MENU>SERVICE>TIME SHIFT or Press T-SHIFT button.



You can set the Time Shift among "ON", "OFF" or "CLEAR". You can also press T-SHIFT button to turn on/off time shift. "CLEAR" will be initializing to time shift.

Caution

1. In order for time shift function to work properly, current local time should be set correctly.
2. Maximum recording time is 90minutes, so you can record only current 90minutes.
3. Do not remove the USB cable or turn the power off suddenly while HDD (Hard Disk Drive) is running. It might cause wrong operation.

2. SUBTITLE


MENU>SERVICE>SUBTITLE or Press Subtitle button

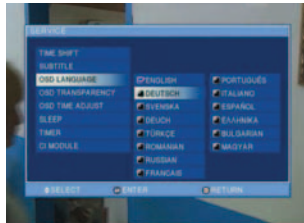
You can set the subtitle among "TXT", "DVB" or "Off". You can also press subtitle button. It is available only if the channel providers support this function.

7.1 Service

3. OSD (On Screen Display) LANGUAGE

MENU>SERVICE>OSD Language

You can change the OSD language. This receiver supports 14 Languages. Press  to confirm.



4. OSD TRANSPARENCY

You can set the transparency of OSD. When you activate this option, menu screen will be transparent.

5. OSD TIME ADJUST

You can set the OSD maintenance time. This option lets you set up how long the information bar will remain on the screen. (3/5/10/30 sec or 5min or never)

6. SLEEP

You can set the sleep timer. you can set your receiver to turn-off automatically at the set time. (5 to 90 min)





7.1 Service

7. TIMER

You can pre-set on/off time of your receiver. You can save 10 different timers.

During your absence, you can record programs on your USB-HDD or VCR. First, select a timer. Then go through these procedures.

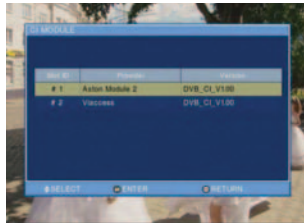


- ❶ **Program** : Press , and "Select Program" window will pop up. Select a channel you want using  /  buttons and press .
 - ❷ **Start/Stop Time** : You can set the start and stop time by pressing numerical buttons. (date/month/year)
 - ❸ **Type** : You can set timer type among **"RECORD (VCR)"**, **"RECORD(USB HDD)"** or **"WAKE UP"**.
When you select the "RECORD(USB HDD)", KEEP TIME option will be activated.
 - ❹ **Keep Time** : You can set the keep time among "24hour", "48hour", "1week", "1month" or "Forever"
It is activated only when TYPE is set to Record (USB HDD)
You can keep programs until the date you set in "Keep time", but the date passes, the programs will be deleted automatically.
 - ❺ **Mode** : You can set timer option among **"ONCE"**, **"DAILY"**, or **"WEEKLY"**.
If you select **"WEEKLY"**, you can select specific days of the week.
- * **Note** : 1. If you haven't set the local time, this function cannot work properly.
2. Even if the receiver is in standby mode, all scheduled timer will proceed. The scheduled timer is done, the receiver will go to standby mode automatically.
3. If you want to record on your VCR, you must set the recording time for the VCR separately.

7.1 Service

8. CI MODULE

You can check the status of CAM and smart card inserted in their slots.



If you want detailed information of the selected **CAM**, select slot number 1 or slot number 2 with or and press button. Proceed with further instructions displayed on the screen, depending on the **CAMs** in use.

1) RECEIVING SCRAMBLE CHANNEL

With a **DVB COMMON INTERFACE** compatible **CAM (Conditional Access Module)** and a Smart card, you can receive relevant scrambled channels and/or encrypted channels.



- ① Insert a **CAM** into one of the slots of your receiver. (You can insert two **CAMs** at the same time)
- ② The message, '**PLUGGED CAM**', will appear on the screen.
- ③ After the message, '**PLUGGED CAM**', has disappeared, you can select the channel you want.

7.1 Service

- * **Note** : 1. Insert the **CAM** fully into the slot so that the arrow marked on the **CAM** faces upwards and inwards.
- 2. Insert the smart card fully into the **CAM** so that the microchip (gold color) faces upwards and inwards.

2) INSERT CA Module(s) and Smartcard(s)


To receive pay-TV channels, you need a CA Module and a Smart card of your preference from the service provider (program distributor). If you receive services from more than one service provider, you need to change to a different smart card or even a different CA Module.

Since smart card is connected to a single service provider, limited channels will be available. Without a CA Module and a smart card, you can only watch '**Free-to-Air**' programs.

* PIN-Code

These cards are loaded with a 4-digit code, or PIN code (Personal Identification Number). Normally PIN code is set to '**0000**' or '**1234**'. PIN code is necessary for the additional service offered by the service provider.

7.2 Setup

When you enter the "SETUP" menu, you will see the picture as illustrated below. You need to type in a password in order to setup. (If you would like to change the password, please refer to 7.4.3. After entering the password, press .

*** Note : Default password is '0000'**






① Press  /  buttons to select Setup options and press  button.

1. VIDEO

MENU > SETUP > VIDEO



1) DISPLAY TYPE

You can set component video output mode. Press  /  buttons to choose between "COMPONENT" or "RGB", and press  button to select.




7.2 Setup

2) DISPLAY MODE

You can change the video resolution. Press  /  buttons to change the display mode, and press  to select.

*** Note : PAL - 1080i/720p/576p/576i, NTSC - 1080i/720p/480p/480i (or press 'V-FORMAT' button while watching the channel)**

3) ASPECT RATIO

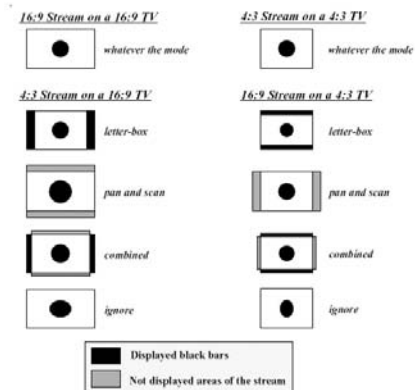
You can change the aspect ratio according to your TV. Press  /  buttons to change among three options and press  button to confirm

4 X 3	When your TV is 4X3
16 X 9	When your TV is 16X9
AUTO	This option automatically sets the aspect ratio

4) SCREEN MODE

You can change the screen mode. Press  /  buttons to move parameter and press  button to select an item.

*** For example:**



7.2 Setup

5) SCART OUT

You can change the Scart video output mode. Press / buttons to select between options below and press .

CVBS	Video out signal from TV, AUX scart will be composite.
Y/C	Video out signal from TV, AUX scart will be Y, C.

6) FRAME RATE

You can change the video type. Press / buttons to select and Press .

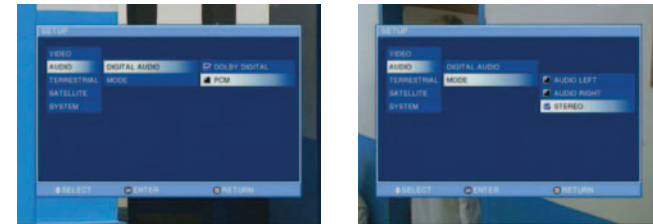
Auto	When your TV is compatible with NTSC/PAL dual mode.
PAL	When your TV is only for PAL reception. Regardless of the satellite signal, it will display in PAL format. The resolution can change 1080i / 720p / 576P/576i
NTSC	When your TV is only for NTSC reception. Regardless of the satellite signal, it will display in NTSC format. The resolution can change 1080i / 720p / 480p/480i

*** Note : If the satellite signal and your TV type are mismatched, the TV picture may be distorted. Even in this case, MENU will be displayed as normal. (e.g. When you receive PAL satellite signal with NTSC TV type setting or vice versa)**

7.2 Setup

2. AUDIO

MENU > SETUP > AUDIO



1) DIGITAL AUDIO

You can enable Dolby Digital Audio. Press / buttons to select and press button.

DOLBY DIGITAL	Dolby digital (AC-3) output enable
PCM	Dolby digital (AC-3) output disable

2) MODE

You can set up Analog Audio. Press / buttons to select and press button.

AUDIO LEFT	Analog audio output is only mono left
AUDIO RIGHT	Analog audio output is only mono right
STEREO	Analog audio output is only stereo mode

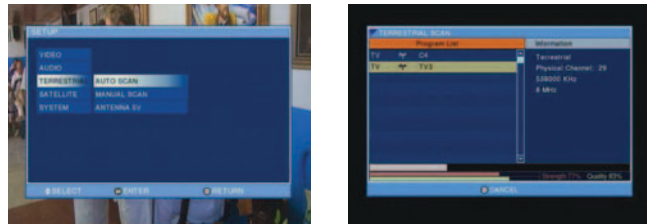
7.2 Setup

3. TERRESTRIAL

MENU > SETUP > TERRESTRIAL

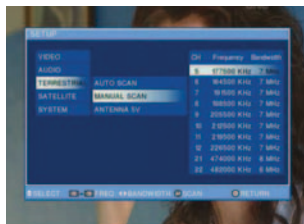
1) AUTO SCAN

You can search all terrestrial channels automatically.



2) MANUAL SCAN

You can search for specific frequency.

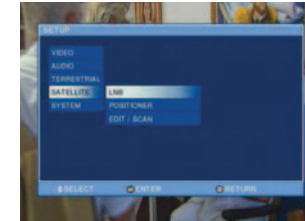


3) ANTENNA 5V

You can supply voltage for an active antenna. Press / buttons to select and press button.

7.2 Setup

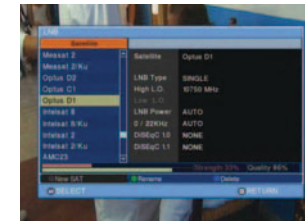
4. SATELLITE



1) LNB

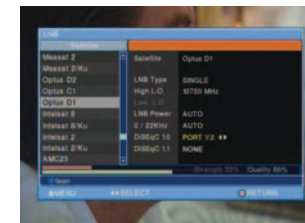
MENU > SETUP > SATELLITE > LNB

Since your receiver has basic data of most satellites and channels, you can receive programs just by plugging in. But depending on the status of your antenna setup, you may have to modify the basic data of the satellites and/or channels.



1 EDIT SATELLITE

If you select a satellite and press button, you can edit the following satellite settings:



7.2 Setup

- **LNB Type** : Switch LNB Type with / buttons.
- **High L.O. / Low L.O.** : Switch LNB oscillator frequency with / buttons.
- **LNB Power** : Switch LNB power with / buttons.
- **0/22KHz** : Set the path of 0/22KHz switch box with / buttons.

*** Note :** When you set the LNB type to "Universal" mode, "0/22KHz" will be set to "Auto" function automatically and can't be revised.

- **DiSEqC 1.0** : Select the DiSEqC box settings with / buttons. You can choose the following options:

NONE: without DiSEqC
 1/2, 2/2: two ports DiSEqC
 1/4, 2/4, 3/4, 4/4: 4 ports DiSEqC
 1/8, 2/8... 8/8: 8 ports DiSEqC
 1/16, 2/16... 16/16: 16 ports DiSEqC

- **DiSEqC 1.1** : Select the DiSEqC box settings with / buttons. You can choose the following options:

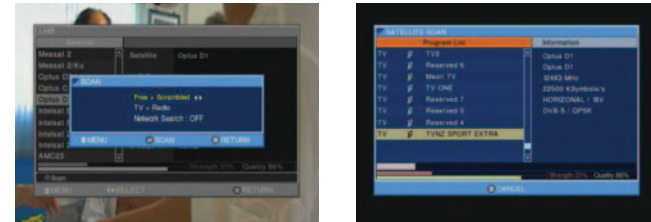
NONE: without DiSEqC
 PORT #1... PORT #16 : 16 ports DiSEqC

*** Notes :** When you change each option, you need to know the exact frequency of LNB to modify L.O. (local oscillator).
 When you change settings for 22KHz and DiSEqC, you need to understand the environment of connecting the receiver and antenna.

7.2 Setup

a. Scan (Press BLUE from LNB window)

You can get all channels in the pre-programmed TPs. This function can also be used to get the latest channel data while receiver is in use. Through this function, the receiver searches for all available channels and saves them.



- **Scan Mode** : Press / buttons to switch **Free** or **Free + Scrambled** channels.
 - a. Free : Searches only **Free Channels**.
 - b. Free+Scrambled : Searches **All Channels**.
- **Scan Channel** : Press / buttons to either search for **TV only/Radio only/TV+ Radio**.
- **Network Search** : You can search for channels with network information table.

When you are finished, press button to start the channel search.

2 New SAT(Press RED)

You can add a new satellite. You have to set up for the new satellite.

3 Rename(Press GREEN)

You can change the name of the selected satellite according to your preference through this option. When you Press Yellow, virtual keyboard will pop up. Use / , / and to type in new name.

4 Delete(Press BLUE)

You can delete a satellite by pressing Green button. There will be a warning message to confirm. If you type in the password correctly, selected satellite will be deleted.

7.2 Setup

2) POSITIONER

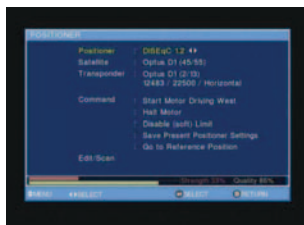
MENU > SETUP > SATELLITE > POSITIONER

If it is necessary, you can set the position for the antenna.



- ❶ **Positioner** : Press / buttons to switch to “None / DiSEqC 1.2 / USALS.” If you have a DiSEqC Motor System, then you can use the DiSEqC 1.2/USALS functions.
- ❷ **Satellite** : Press / buttons to switch to different satellites (if there are more than one).
- ❸ **Transponder** : Press / buttons to switch transponder of a selected satellite.
- ❹ **Command** : If you select DiSEqC 1.2 or USALS, you have following options:

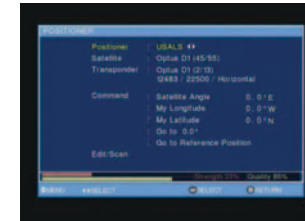
a. DiSEqC 1.2



- I. **Start Motor Driving West/East** : Select either East/West, and Press button to change the direction of a selected antenna.
- II. **Halt Motor** : Press to stop the antenna movement.
- III. **Disable, West/East Limit** : Limit the movement of your antenna to East/West and press button.
- IV. **Save Present Positioner Settings** : Save the current position as the reference position.
- V. **Go to Reference Position** : If you press button, Antenna will move to the reference position.

7.2 Setup

b. USALS



- I. **Satellite Angle** : Enter the angle using the numerical buttons and set the direction to East/West by using / buttons.
- II. **My Longitude** : Enter the longitude using the numerical buttons and set direction to East/West by using / buttons.
- III. **My Latitude** : Enter the latitude using the numerical buttons and set direction to North/South by using / buttons.
- IV. **Go to 0° Clockwise/Counterclockwise** : If you press button, the antenna will move to the set position.
* **Note** : Angle & direction automatically change according to setting value.
- V. **Go to Reference Position** : If you press button, The antenna will move back to the reference position.

❺ **Edit/Scan** : You can edit the current transponder settings and you can search for channels.

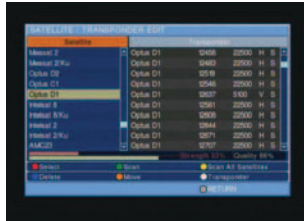
* **Note** : After setting all positioner menu, be sure that Quality bar is green color. If Quality bar is not green, you have to adjust antenna setting again.

7.2 Setup

3) EDIT/SCAN

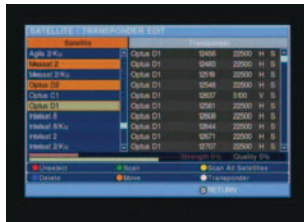
MENU > SETUP > SATELLITE > EDIT/SCAN

After setting up LNB and POSITIONER, you can edit and/or add certain TPs.



1 Select(Press RED)

You can select satellites you want. If you want to execute group scan/move/delete function, you can select more than one satellite by pressing Red.



2 Scan(Press GREEN)

You can search channels from currently saved satellite/TP by pressing Green button.

Please refer to **7.2.4 SATELLITE** → **1. LNB** → **1 EDIT SATELLITE** → **a.Scan**

3 Scan All Satellites(Press YELLOW)

Press **"YELLOW"** button to search channels from all satellites.

4 Delete (Press BLUE)

You can delete a Satellite. If you enter the password correctly, the transponder will be deleted.

7.2 Setup

5 Move (Press RED AND ORANGE)

You can change satellite search order by this function. Firstly, press "RED" button to select a satellite that you want to move (the selected satellite is shadowed) and secondly, locate the cursor where you want to put the selected satellite. Lastly press "ORANGE" button, then the satellite will be relocated.

6 Transponder(Press WHITE)

Press **"WHITE"** button to edit a transponder.

If you want to change the satellite's TP information, you should select a satellite and perform the following functions:



a. Select(Press RED)

You can select transponders you want. If you want to execute group scan/delete function, you can select more than one transponder by pressing Red button.

b. Scan(Press GREEN)

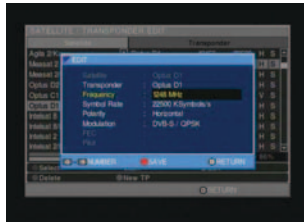
You can search channels from selected TP by pressing Green button.

Please refer to **7.2.4 SATELLITE** → **1. LNB** → **1 EDIT SATELLITE** → **a.Scan**

7.2 Setup

c. Edit (Press YELLOW)

You can search channels from selected TP and you can edit transponder's settings.



I. Transponder : This is the name of the transponder. Press button to change the name.

II. Frequency : Enter the frequency by using the numerical button.

III. Symbol Rate : Enter the symbol rate by using the numerical button.

IV. Polarity : Press / buttons to switch the signal polarity (horizontal or vertical).

V. Modulation : Press / buttons to switch among DVB-S, DVB-S2/QPSK, DVB-S2/8PSK.

When you select the DVB-S2, you can set FEC or Pilot.

- **Scan** : Press **"GREEN"** button to go to the scan menu.

Please refer to **7.2.4 SATELLITE** → **1. LNB** → **EDIT SATELLITE** → **a.Scan**

- **Return** : Press **"MENU"** button to go to the previous menu.

*** Note : When you select DVB-S2, you must enter the FEC correctly**

If the scanning process fails, please check whether your entered values are correct or signal reception is good or bad.

The Frequency, Symbol Rate, Polarity, Modulation(FEC, Pilot) mentioned above are very important for optimal satellite signal reception. We recommend you to get professional advice available.

D. Delete (Press BLUE)

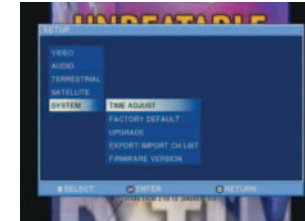
You can delete a transponder. If you enter the password correctly, the transponder will be deleted.

E. New TP (Press ORANGE)

You can add a new transponder. Press "ORANGE" button, Edit window will pop up. After you put transponder information, press "RED" button to save it.

7.2 Setup

5. SYSTEM



1) TIME ADJUST

MENU > SETUP > SYSTEM > TIME ADJUST

You can change the settings for the time.



① SET : You can see the current time.

② Reference Program : You can set the receiver's time to particular channel by pressing . The time on your receiver depends on the channel's time if you set this option.

③ GMT OFFSET : You can press / buttons to switch "GMT Offset" value. The range is **"-12:00 ~ +12:00"**, increase each half hour progressively.

④ DAYLIGHT SAVING : You can adjust daylight saving time when summer time is applicable by pressing .

*** Note : It is very important that you have to set reference program. local time base on reference program.**

Whenever you turn the AC power off/on, system received the time information from reference program.

7.2 Setup

2) FACTORY DEFAULT

MENU > SETUP > SYSTEM > FACTORY DEFAULT

You can reset all settings of the receiver to the factory settings.

Press  button. You need to enter the password. The default password is "0000."

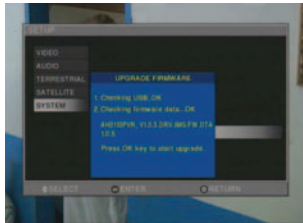
After you type in the password correctly, all settings of the receiver will return to initial settings.

You will see installation wizard after factory default. Since you cannot restore the previous settings, be careful when you are setting it back to factory default.

3) UPGRADE

MENU > SETUP > SYSTEM > UPGRADE > USB

You can upgrade System Firmware by USB.



- First, you have to copy the new firmware in a USB memory stick.
- Insert the USB memory to front panel USB port.
- A pop up will appear showing the new F/W version.
- Press OK button. You will need to enter the password to confirm.
- Upgrade will start soon after you enter the password.
- After finishing the upgrade, receiver will be restarted.

*** Note : 1. Updated firmware is available website below.**

UltraPower Technology website (<http://ultrapower.co.nz>) or HDT website (<http://www.hdt.co.kr>)

2. Download AH-3110 firmware in your USB memory.

Caution

Never turn the power off during the system upgrade. It brings about system fault. If there is unexpected power off during upgrade. You will see "check USB" message front display. The system will automatically be restored if you connect USB memory stick where Updated F/W is.

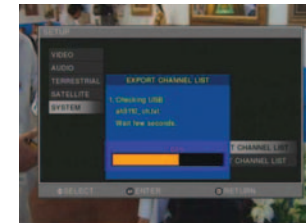
7.2 Setup


4) EXPORT/IMPORT CH LIST

MENU > SETUP > SYSTEM > EXPORT/IMPORT CH LIST

1) EXPORT CHANNEL LIST

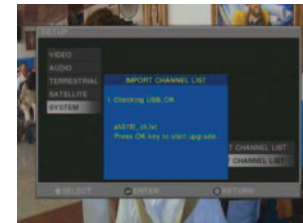
Export the channel list to USB memory.



- Insert USB memory to front panel USB port.
- Select "EXPORT CHANNEL LIST," and pop up message will appear.
- Press  button to start the export of all channel list. (File name : ah-3100_ch.txt)
- You can edit the channel list file using your PC. (delete, change channel order, etc..)

2) IMPORT CHANNEL LIST

Import the channel list from USB memory.



- First, copy the new channel list in USB memory
- Insert USB memory to front panel USB port.
- Select "IMPORT CHANNEL LIST," and pop up message will appear.
- Enter the password to start the channel list import.
- After finishing the channel list import, receiver will be restarted.

5) FIRMWARE VERSION

MENU > SETUP > SYSTEM > FIRMWARE VERSION

You can check the current F/W version.

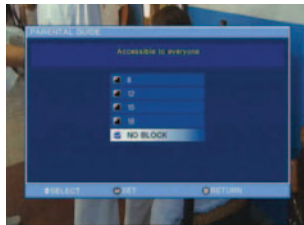
7.3 Parental Guide

You can set the parental lock to protect your children from watching unsuitable channels. When you select "PARENTAL GUIDE" function, pop up will appear, and you will need to enter the password to proceed. If you type in the correct password, you will see the following page:



1. DVB AGE - BASED RATING

Protect children from watching unsuitable programs. There are five check boxes.



- ① Press / buttons to select age you want.
- ② Press button to check and Press "Menu" to return.

NO BLOCK	No age limit
8	Without entering the password, programs are restricted to those who are over 8 years old.
12	over 12 years old.
15	over 15years old.
18	over 18years old.

*** Note : 'Age Limit' can be applicable only for the signal which carries age limit information.**

7.3 Parental Guide

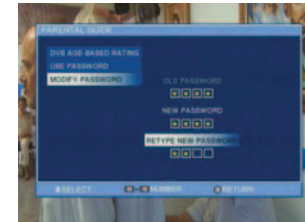
2. USE PASSWORD

This option enables you to lock "Setup menu" or "Lock Program." Press to enable the lock.

- ① If you check "SETUP," you will need to type in the password before entering the setup menu.
- ② If you check "LOCK PROGRAM," you will need to type in the password before locking the channel.

3. MODIFY PASSWORD

Change the current password into a new one.

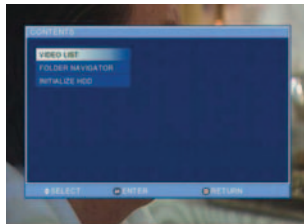


- ① If you select "MODIFY PASSWORD" function, popup window will appear to change the password.
- ② When you type in "OLD PASSWORD" correctly, you will need to enter "NEW PASSWORD."
- ③ After typing in 4 digit numbers, you will need to confirm by retyping the new password.
- ④ If you have done everything correctly, there will be a popup window, "Password updated successfully." If you enter the wrong password, popup window will say "Passwords do not match."
- ⑤ Press "EXIT" button, and popup will disappear.

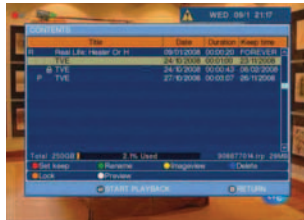
7.4 Contents

If you want to use this menu, an external hard disk or a USB memory must be connected to your receiver first.

*** Note : The receiver may not recognize unauthorized or uncertified USB storage. Manufacturer recommends you to use well-known USB storage brand.**



1. VIDEO LIST



Press "P.LIST" to see the recorded program list. "R" mark means a current recording program, and "P" mark means a current playback program.

1) Set keep(Press RED)

Press "RED" button to change the keep time among "24hour, 48hour, 1week, 1month, Forever".

You can keep programs until the date you set in "Keep time", but the date passes, the programs will be deleted automatically.

2) Rename(Press GREEN)

You can change program names using the virtual keyboard that appears on the screen when you press "GREEN".

7.4 Contents

3) Imageview/Listview(Press YELLOW)

Press "YELLOW" button to switch to "Imageview / Listview".

- **Imageview** : Program title will be shown with thumbnail image.

*** Note : For a file that hasn't been played before, only question mark is shown instead of thumbnail image.**

- **Listview** : Program title will be shown without thumbnail image.

4) Delete(Press BLUE)

Press "BLUE" button to delete a selected program.

5) Lock(Press ORANGE)

① Press "ORANGE" button to make a "padlock" on the left side of the selected program.

② After setting this option, you will need to type in the password in order to watch the locked program.

6) Preview(Press WHITE)



It will be shown preview of the selected program. The preview shows thumbnail image every 5 minute of the selected program.

① **Select** : Press / , / buttons to select image.

② **Play** : Press button to start playback from selected image.

③ **Return** : Press "MENU" button to return to the list.

7.4 Contents



1. **Program Title** : a recorded program name.
(You have to type in the program name when you record. If you don't, it is set up to name it "channel name" as default.)
2. **Status** : Current playback status.
 - **Playback** (▶) : Normal mode(x1) playback.
 - **FastForward** (⏩) : x2, x5, x20, x50, x300 times.
 - **Rewind** (⏪) : x1, x2, x5, x20, x50, x300 times.
3. **Playing time** : Current playback time.
4. **Progress bar** : Current playback position.
5. **Preview time** : Selected thumbnail image time.
6. **Recorded time** : Total recorded time.
7. **Scroll bar** : Up/Down scroll bar.

7) Start Playback(Press OK)

Start playback.

8) Return(Press MENU)

Return to previous status.

7.4 Contents

2. FOLDER NAVIGATOR

MENU > CONTENTS > FOLDER NAVIGATOR

When USB Memory/HDD is connected, you can explore the disk/memory.

If you want to make a new folder, locate cursor on [..]. Then press Red button to create a new folder. You can name the new folder using virtual keyboard that appears when you press RED button.



1) Sort(Press RED)

Press "RED" button to change the order of the contents. Press "RED" in order to sort by:

- a. **Date** : Sorting in order of date.
- b. **Size** : Sorting in order of file size
- c. **Name** : Sorting in order of name.

2) Rename(Press GREEN)

Press "GREEN" button to display the virtual keyboard and change channel/folder name according to your preference.

7.4 Contents

3) Send(Press YELLOW)



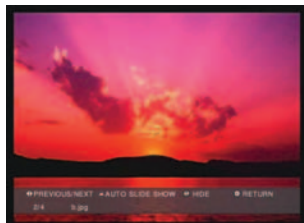
- ① Press "YELLOW" button to send to selected location.
- ② If you have selected the location, press "YELLOW" button to send.

4) Delete(Press BLUE)

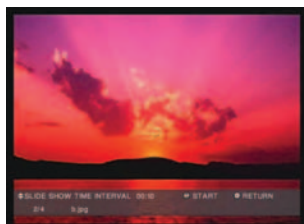
Press "BLUE" button to delete a selected file/folder.

5) Picture

When you select JPEG file, you will see a picture as shown below.



- ① Press ⏪ / ⏩ buttons to see PREVIOUS/NEXT picture.
- ② Press 🔄 button to activate AUTO SLIDE SHOW.
- ③ AUTO SLIDE SHOW



7.4 Contents

a. Press ⏪ / ⏩ buttons to set the TIME INTERVAL of the SLIDE SHOW.

*** Note : Time interval will be increased/decreased by 5 seconds press ⏪ / ⏩ buttons.**

b. Press 🔄 button to start the AUTO SLIDE SHOW.

c. Press ⏪ button to stop the slide show.

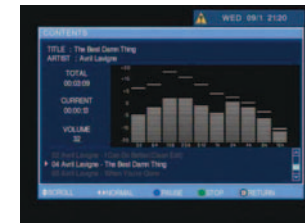
d. Press "MENU" button to exit the slide show.

④ Press 🔄 button to hide menu bar.

⑤ Press "MENU" button to return to file explorer.

6) Music

When you select MP3 file, you will see a picture as shown below.



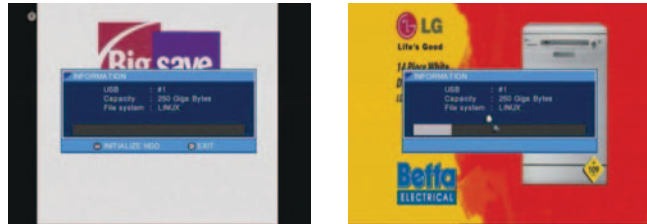
- ① Press ⏪ / ⏩ buttons to go through the mp3 list.
- ② Press 🔄 / 🔄 buttons to change the play type(repeat/normal).
- ③ Press "BLUE" button to pause the music.
- ④ Press "GREEN" button to stop the music.
- ⑤ Press "YELLOW" button to play the music.
- ⑥ Press "MENU" button to return to the file explorer.

7.4 Contents

3. HDD INITIALIZATION

You can initialize an external Hard Disk.

You must make sure that the receiver is connected to the external HDD.

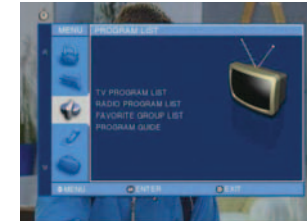


*** Note : 1. If you initialize HDD, all of the stored data will be erased, and recovering those data will be impossible.**

- 2. Initializing HDD by receiver is in accordance with EXT-3 (Linux) file system. This file system is not supported MS windows. If you want to playback recorded program on your PC, you have to format NTFS file system by your PC. But manufacturer recommends EXT-3 file system. We cannot guarantee stability for NTFS file system.**
- 3. If you want to use 2.5" external hard disk, manufacturer recommends that you connect the power adapter to the hard disk for the stable power supply.**

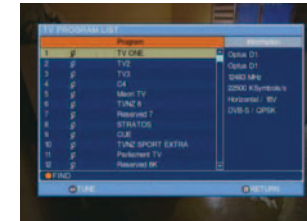
7.5 Program List

You can see the "TV/RADIO/FAVORITE PROGRAM" and "PROGRAM GUIDE".



1. TV PROGRAM LIST

MENU > PROGRAM LIST > TV PROGRAM LIST or Press button in full screen





- 1** Press / buttons to select, and information of the selected channel will display on the right side of the screen.
- 2** You can select/find a channel.

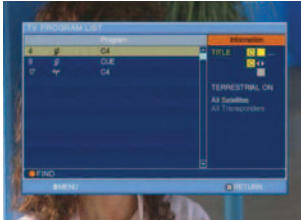
1) TUNE












Press button to watch the channel.

7.5 Program List

2) FIND

- ① Press **"ORANGE"** button to find a channel you want.
- ② There are three ways of sorting. You can press  /  buttons to select in the sorting method.
- ③ Press  /  buttons to change the settings.



- a. **TITLE** : Channel will be searched alphabetically.
 - I. Choose the first or second letter using  /  buttons.
 - II. You can change the letter using  /  buttons.
Then all the channels with these alphabets will appear.
 - b. **TERRESTRIAL** : You can include or exclude by setting this option. Use  /  button to change the settings. If you set it to "On," terrestrial channels will appear as well.
 - c. **SATELLITE** : You can select a satellite to search through channel list.
 - I. Select among **"all satellites/one satellite/satellite off"** using  /  buttons.
 - II. If you select one satellite, you will be selecting **all transponders/each transponder** using  /  buttons.
- ④ When you find the channel you want, press  button to go to the channel list.

3) RETURN

Press **"MENU"** button to Return to previous status.

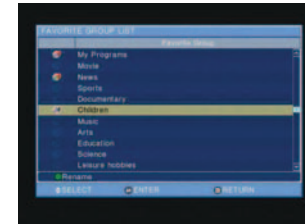
2. RADIO PROGRAM LIST





Please refer to "7.5.1 TV PROGRAM LIST."

7.5 Program List

3. FAVORITE PROGRAM LIST

MENU > PROGRAM LIST > FAVORITE GROUP LIST or Press **"FAV"** button
You can see the channel of **"FAVORITE GROUP"**.



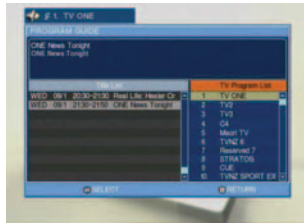
- ① Press **"GREEN"** button to change the name of the selected favorite group.
 - ② Press  /  buttons to select and press  button. You can see all channel lists in the selected group. Press  button to watch the channel.
- * When favorite group has channels, favorite mark will be shown on the left of group name.**
- * To set favorite group, please refer to \$7.6.1 Edit TV Program.**
If you watch a channel using this option, when you change the channel, you will tune to the next channel of the Favorite Group.
- ③ After selecting "FAVORITE GROUP", please refer to "7.5.1 TV PROGRAM LIST" for detail use.

7.5 Program List

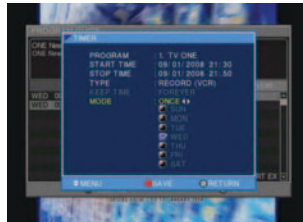
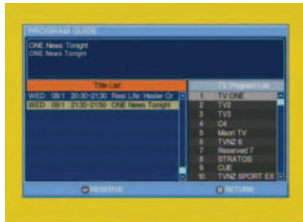
4. PROGRAM GUIDE

MENU > PROGRAM LIST > PROGRAM GUIDE or press **"GUIDE"** button

The Program Guide shows the program schedule and information. This is only supported if the service provider provides the signal.



- 1 Press / buttons to select channels and each program schedule will be shown.
- 2 Press button to move to Schedule List and Press **"MENU"** button to move to TV Program List.

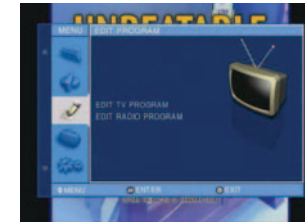


- 3 In the Schedule List, Press / buttons to select and program information of each program will be shown.
- 4 If you press button in the schedule list, you can reserve automatic timer of the receiver.

*** Note Please refer to "7.1.7 TIMER."**

7.6 Edit Program

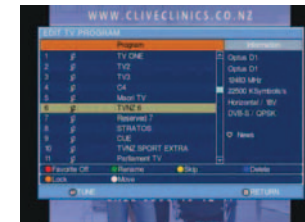
You can edit "TV/RADIO PROGRAM LIST".



1. EDIT TV PROGRAM

MENU > EDIT PROGRAM > EDIT TV PROGRAM

You can edit "TV PROGRAM LIST".






1) Favorite(Press RED)



- 1 Press **"RED"** button to set your Favorite Group.
- 2 Press / buttons to select a program you want, and press button to make **"Favorite mark(♥)"** in the left side of the channel name.

7.6 Edit Program

- ③ Then you will select your favorite group. Sort the channel into the favorite group folder that you prefer using  /  and .
- ④ Press **"RED"** button again under the favorite channel to cancel the mark.

2) Rename(Press GREEN)

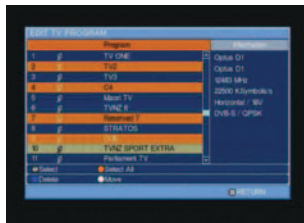
Press **"GREEN"** button to display the virtual keyboard. You can change the channel name according to your preference.



3) Skip(Press YELLOW)

- ① Press **"YELLOW"** button to make a **"skip mark"** in the left side of the highlighted channel.
- ② After exiting the "EDIT TV PROGRAM" menu, the channel will be skipped while user change the channel in the full screen.



4) Delete(Press BLUE)

- ① Press "BLUE" button to go to the delete menu.



- ② You can select channels by using  button. And select all channel by using "ORANGE" button.
- ③ If you have selected channels, you can see the following options:
 - a. Unselect : Under the selected channel, Press  button to unselect the selected channel.

7.6 Edit Program

- b. Move
 - i . Press  /  buttons to move up and down.
 - ii . Press "WHITE" button. Selected channels will move to the chosen location.
 - iii. After moving, the selected channels will be unselected.
 - c. Delete : If you Press "BLUE" button, the selected channel will be deleted.

Once you delete the channel, you cannot restore the channel unless you perform a channel search again.
- ④ Press "MENU" button to go back to the previous menu.



5) Lock(Press ORANGE)

- ① Press **"ORANGE"** button to make a **"lock mark"** on the left side of the selected channel name.
- ② After setting this option, you will need to type in the password in order to watch the locked channels.

6) Move(Press WHITE)



- ① Press "WHITE" button to go to the move menu.



- ② You can select channels by using  button. And select all channel by using "ORANGE" button.
- ③ If you have selected channels, you can see the following options:
 - A. **Unselect** : Under the selected channel, Press  button to unselect the selected channel.

7.6 Edit Program


B. Move

- i. Press  /  buttons to move up and down.
- ii. Press **"WHITE"** button. Selected channels will move to the chosen location.
- iii. After moving, the selected channels will be unselected.

C. **Delete** : If you Press **"BLUE"** button, the selected channel will be deleted.

④ Press **"MENU"** button to go back to the previous menu.

7) Tune(Press button)

Press  button to watch the channel.

8) Return(Press MENU button)

Press **"MENU"** button to Return to the previous status.

2. EDIT RADIO PROGRAM

Please refer to "7.7.1 EDIT TV PROGRAM LIST".

7.7 PVR(Personal Video Record)

You can record/playback a program you want to watch by using PVR function.

Caution

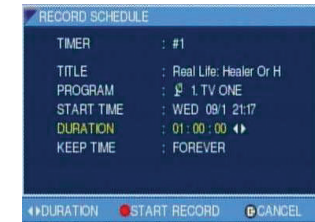
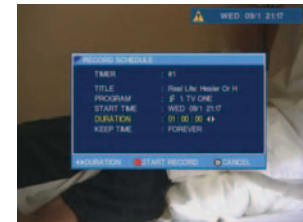
1. In order for PVR function to work properly, current local time should be set correctly.
2. Do not remove the USB cable or turn the power off suddenly while HDD (Hard Disk Drive) is running. It might cause wrong operation.
3. The manufacturer shall not be liable for any corruption or data loss of External HDD caused by the carelessness of users or durability of HDD.









1. RECORD

1) Record()

You can reserve a recording by using record schedule.

Press  button, you will see a picture as shown below.



- ① Press  button again to start record.
(If you press "info" button while recording a program, information window will pop up along with recording status.)
- ② Press **"MENU"** buttons to return to the previous status.
- ③ Timer : Timer will automatically be set up which is not using.
- ④ TITLE : You can change the channel name according to you preference using virtual keyboard which appeared when you press  button.
- ⑤ PROGRAM : Press  or  and "Select Program" window will pop up. Select a channel you want using  /  buttons and press .
- ⑥ START TIME : Press  button to set start time.

7.7 PVR(Personal Video Record)

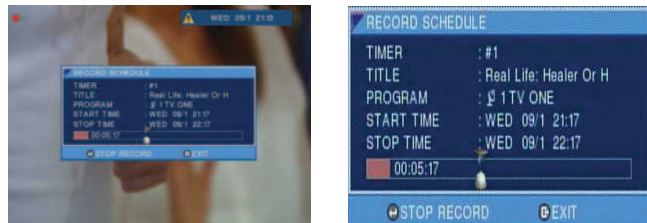
- ⑦ DURATION : Press / button to set the duration time for record. You can change the duration time for 10 minute interval.
- ⑧ KEEP TIME : Press / button to set keep time among "24hour, 48hour, 1week, 1month, forever".
You can keep programs until the date you set in "Keep time", but the date passes, the programs will be deleted automatically.
*** Keep time is set to "forever" as default.**

If you press menu or other functions alike, icon will appear on upper left corner to remind you recording is in progress.

*** Note : If you want to watch another channel while recording, you can watch it but it has to be in the same TP as the program you are recording. (You can see the channels you can watch in pop up message).**

2) Stop()

During recording, Press button, you will see a picture as shown below.



This pop up message is shown the record information.

- ① Press "ENTER" button to stop recording.
- ② Press "EXIT" buttons to return to the previous status.

7.7 PVR(Personal Video Record)

2. TIME SHIFT

MENU>SERVICE>TIME SHIFT or Press "T-SHIFT" button to start/stop time shift.

While watching the channel, you can reverse or pause it by pressing trick buttons as if playing back a recorded program.

When you are using the time shift feature, the channel you are watching is being recorded temporarily, and user use trick play to pause, rewind, fast forward, and etc.
(If you press info button during timeshift function, timeshift window will appear.)



- ① Status : current playback status.
 - Playback() : Normal mode(x1) playback.
 - FastForward() : x2, x5, x20, x50, x300 times.
 - Rewind() : x1, x2, x5, x20, x50, x300 times.
- ② Play time : Current playback time.
(-00:10:00 means you watching the scene which falls 10 minutes behind from the live channel.)
Press / buttons to jump backward or forward by about 3 ~ 10s.
Press / buttons to jump backward or forward by about 1min.
- ③ Record time : Up to now, total recorded time of time shift.
- ④ Total recorded position of time shift.
- ⑤ Current playback position.
- ⑥ Live channel position.

If you press menu or other functions alike, icon will appear on upper left corner to remind you timeshift is in progress.

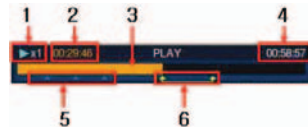
7.7 PVR(Personal Video Record)

3. PLAYBACK




MENU>CONTENTS>VIDEO LIST or Press "P.LIST" button to see the recorded program list.

During the playback, press  button to stop the playback.

(If you press  button while watching a recorded program, as below window will pop up.)



① Status : Current playback status.

- Playback() : Normal mode(x1) playback.
- FastForward() : x2, x5, x20, x50, x300 times.
- Rewind() : x1, x2, x5, x20, x50, x300 times.

② Play time : Current playback time.

Press  /  buttons to jump backward or forward by about 3 ~ 10s.

Press  /  buttons to jump backward or forward by about 1min.

By using numeric key(0~9), you can start the program at 0/10 ~ 9/10 point of recorded program.

Ex) You can play the program from 4/10 point of recorded program by pressing "4" button.

③ Progress bar : Current playback position.

④ Record time : Total recorded time.


⑤ Bookmark Icon : Blue icon is a bookmark.

- a. While watching the recorded program, press "BOOKMARK" button at a desired scene to add a bookmark. Then you will see a small blue mark at the bottom of progress bar.
- b. You can see book marked image and 2second later playback position will jump to the selected bookmark by pressing "JUMP" button.

c. If you want to remove the book mark, press "JUMP" button to the book mark you want to remove. Press "BOOKMARK" button again. Then selected bookmark will be removed.

⑥ Repeat : You can playback repeatedly a certain part that you want.

- a. Move to the beginning scene you want to play repeatedly.
- b. Press "REPEAT" button, then you can see a yellow mark.
- c. Move to the end of scene you want to play repeatedly.
- d. Press "REPEAT" button, then make a yellow mark and you can see a repeat section.
- e. Press "REPEAT" button again, canceling a repeat section.

If you press menu or other functions alike,  icon will appear on upper left corner to remind you playing is in progress.

There may be various reasons for the abnormal operation of the unit. Therefore, if the unit does not work properly, check it according to the procedures shown in the table below :

Problem	Possible causes	Remedy
LED or VFD on front panel does not light and display	AC power cord disconnected.	Connect power cord properly into the power socket.
No Picture or sound.	Wrong connection of the video/audio output to TV input terminal. Wrong connection of satellite antenna cable. Wrong direction of satellite antenna. No signal or weak signal.	Connect two terminals correctly with scart cable or RCA cable. Connect the antenna cable correctly. Adjust the direction of antenna. Check the cable connections, LNB and other equipment connected between the LNB and the receiver or adjust the antenna. Type the setting value correctly.
Black-and-white screen or V-Hold.	Your TV mode is different from satellite broadcasting mode.	Use TV of same mode. Use the NTSC/PAL converter connected to the receiver and TV.
The remote control is not working.	Battery exhausted. Fluorescent light interfering with the remote control. Remote controller is incorrectly aimed.	Change the batteries. Switch off the light. Aim the remote control at the receiver.
Indicate "check usb" in front panel.	You must re-download main Firmware	Connect to UltraPower Technology website. (http://ultrapower.co.nz) or HDT website (http://hdt.co.kr) Download AH-3110 Firmware in your memory. Insert the USB memory to front panel USB port.

System capabilities	Fully DVB compliant		
RF Front End for Satellite	Connector	IEC169-24, female	
	Frequency range	950 ~ 2150 MHz	
	Signal level	-65dBm ~ -25dBm	
	LNB supply	13/18V, max 400mA	
	LNB switch control	22KHz	
	DiSEqC	VER 1.3(USALS) and below	
	Demodulation	DVB-S QPSK, DVB-S2 QPSK/8PSK	
	Symbol rate	DVB-S : 1 ~ 45 Msps	
		DVB-S2 QPSK/LDPC/BCH : 20 ~ 30 Msps	
		DVB-S2 8PSK/LDPC/BCH : 10 ~ 30 Msps	
SMPC and MCPC Capable			
Spectral Inversion	Auto conversion		
RF Front End for Terrestrial	Connector	IEC 169-2 female	
	Frequency range	VHF(174 ~ 230 MHz),	
		UHF(470 ~ 862 MHz)	
	Signal level	-75dBm ~ -20dBm	
	Demodulation	DVB-T COFDM	
	Channel bandwidth	7MHz, 8MHz	
	Transfer mode	2K, 8K, Auto	
Guard interval	1/4, 1/8, 1/16, 1/32		
System resource	Processor	32bit processor(266MHz)	
	DDR	192MByte	
	FLASH	16MByte	
	EEPROM	2KByte	
Video Decoder	MPEG - 4	H.264/AVC, MPEG - 2	
	Data Rate	Up to 15Mbps	
	Resolution	1080i/ 720p/ 576p / 480p	
	Video Format	NTSC, PAL	
Aspect Ratio	4:3, 16:9		

Specifications

Teletext	DVB compliant	
MPEG Audio	MPEG 1 layer I & II	
	MPEG 2 layer II	
	Dolby Digital	
	Sampling rates	32KHz, 44.1KHz and 48KHz
Serial data interface	Connector	9pin D-sub mail, Max 115bps
Remote control	CODE	NEC-IR
	Operation condition	Up to 7Meter
Power supply	Power Consumption	Max 40W
	Supply Voltage	AC 98 ~ 240V
	Supply Frequency	47 ~ 63 Hz
Rear panel Connectors	Video out	1 x RCA cinch for CVBS
		3 x RCA cinch for Component
		15p D-sub female for VGA
	Audio out	4 x RCA cinch
	Digital audio out	1 x RCA cinch (coaxial)
		1 x Optical
	Digital multimedia out	1 x HDMI
	Serial data	9pin D-sub
	Terrestrial ant input	IEC 169-2 type, female
	Loop out	IEC 169-2 type, mail
	LNB input	IEC 169-24 type, female
	Loop out	IEC 169-24 type, female
	TV SCART	CVBS,Y/C,Audio L/R
	VCR SCART	CVBS,Y/C,Audio L/R(fixed)
USB Storage read/write	1 x USB	
Physical Specifications	Size (W x H x D)	335x267x58.5(mm)
	Weight (net)	2.42Kg