User's Manual

ODS 4000VA
Viaccess CAS Embedded

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Declaration of Conformity

FCC Rule : TESTED TO COMPLY WITH FCC PART 15, CLASS B
OPERATING ENVIRONMENT : FOR HOME OR OFFICE USE.

FCC COMPLIANCE STATEMENT :
This device complies with part 15 of the FCC rules. Operation is subject to
the following conditions :
   1) This device may not cause harmful interference, and
   2) This device must accept any interference received, including interference
      that may cause undesired operation.

INFORMATION TO USER:
This equipment has tested and found to comply with the limits of a Class B
digital device, pursuant to part 15 of the FCC Rules. These limit are designed to
provide reasonable protection against harmful interference in a residential
installation. This equipment generates, user and can radiate radio frequency
energy and, if not installed and used in accordance with the instructions, may
cause harmful interference to radio communications. However, there is no
guarantee that interference will not occur in a particular installation, if this
equipment does cause harmful interference to radio or television reception, which
can be determined by turning the equipment off and on, the user is encouraged
to try to correct the interference by one or more of the following measures:
  1. Reorient / Relocate the receiving antenna.
  2. Increase the separation between the equipment and receiver.
  3. Connect the equipment into an outlet on a circuit difference from that to
     which the receiver is connected.
  4. Consult the dealer or an experience radio / TV technician for help.

CAUTION : Changes or modifications not expressly approved by
              manufacturer responsible for compliance could void the user's
              authority to operate the equipment.

1. SAFETY PRECAUTIONS

This receiver has been manufactured to satisfy the international safety standards.
Please read the following recommended safety precautions carefully.

MAINS SUPPLY : 95∼240V AC 50/60Hz

LOCATION : Locate the receiver indoor.
Locate receiver away from potential hazards such as houseplants, lighting, raining and direct sunlight.

OVERLOADING : Do not overload wall outlets, extension cords or adapters as this can result in fire or electrical shock.

LIQUIDS : Keep liquids away from the receiver.

CLEANING : Before cleaning, disconnect the receiver from the wall socket.
Use a cloth lightly dampened with water (no solvents) to clean the exterior.

VENTILATION : Do not block the receiver ventilation holes. Ensure that free airflow is maintained around the receiver.
Never set the receiver on soft furnishings or carpets. Do not use or store the receiver where it is exposed to direct sunlight, or near heater.
Never stack other electronic equipment on top of the receiver.
Place the receiver at least 30mm from the wall.

ATTACHMENTS : Do not use any attachment that is not recommended by the manufacturer, as it may cause a hazard or damage the equipment.

CONNECTION TO THE SATELLITE DISH LNB : The LNB connector cable has a voltage in its center core. It is therefore recommended that the receiver is disconnected from the mains power before connecting or disconnecting this cable.
FAILURE TO DO SO COULD DAMAGE THE LNB.

SERVICING : Do not attempt to service this product yourself. Any attempt to do so will make the warranty invalid.Refer all servicing to a qualified service agent.

LIGHTNING : If the receiver is installed in an area subject to intense lighting activity, protection devices for the receiver mains connector are essential.
The individual manufacturer's instruction for safeguarding other equipment, such as TV set, Hi-Fi, etc., connected to the receiver, must also be followed during lighting storms.

GROUNDING : The ground of the LNB cable must be directly connected to the system ground for the satellite dish. The grounding system must comply with local regulations.

2. GENERAL FEATURES

- Fully MPEG-2 & DVB Compliant
- Smart Card Interface for Embeded Viaccess
- Input Frequency 950∼2150MHz
- Supports SCPC & MCPC from C / Ku-band
- 1 LNB Input Tuner with Loop Through IF Signal
- Tuner Symbol Rate : 2∼45MS/s
- Fast Booting & Auto Scan
- Quick Channel Changing
- Max. 4000 Channels(TV & Radio) Programmable
- User Friendly 256 Colors OSD & Easy GUI
- A lot of OSD Language supported
- Supports EPG, PIG
- Radio Channel Background Display
- Favorite Channel List Programmable
- Master PIN Code Function & Parental Lock Function
- 20 Steps Volume Control
- Automatic Detection of Forward Error Correction
- Automatic NTSC / PAL Detection and Simple Video Converter (NTSC <-> PAL)
- S/W Upgrade by OTA
- 4:3, 16:9 Letter Box & Teletext using OSD
- 7 Segment-4 Digit Display
- 5 Keys on the Front Panel (Power On/Off, Channel Up/Down, Volume Up/Down)
- Various LNB Polarity Control
- 3 RCA Output for Video, Audio L/R
- NTSC RF Modulator (CH 3/4)
- S/PDIF Output for Digital Audio

3. HOW TO CONNECT YOUR RECEIVER

Please DO NOT plug in the main power supply cord until you have finished all the connections.

1) LOCATION OF THE RECEIVER

Your receiver should be placed under proper ventilation.
Don't put in completely enclosed cabinet that will restrict the flow of air, Resulting overheating.
The location should be safeguarded from direct sunlight, excess moisture, rough handling or household pets.
Avoid stacking other electronic components on the top of the receiver.
The location should be safely accessible by the cable from your antenna system.

2) CONNECTING THE RECEIVER WITH DISH SYSTEM

After installing your dish system, connect the coaxial cable from LNB of your dish antenna to "LNB IN" terminal marked at the rear of the receiver.
All cable connectors should be finger tightened ; do not use any kind of wrench on the cable over connectors.
The cable should be 75Ω impedence coaxial twisted at the end with a "F" type connector.

3) CONNECTING THE RECEIVER TO TV

To connect the receiver with your television, you can follow two methods ; through RF cable, and through RCA cable.

Connect the RF cable to the terminal marked "TV OUT" at the rear panel of the receiver and its other end to the TV RF input socket.
In the case of connecting your TV through RCA cable, connect the RCA connector marked VIDEO to respective RCA input port in the TV.

4) CONNECTING YOUR ANALOG RECEIVER

To facilitate the user using analog receiver to view analog channels, the receiver has been provided with a loop through terminal marked as "IF OUT". Connect the coaxial cable from this terminal to the IF input terminal of your analog receiver.
Now by keeping the receiver in standby, you will be able to tune and view analog channels from your analog receiver.

Satellite Antenna

TV Antenna

Analog **SVR**

TV
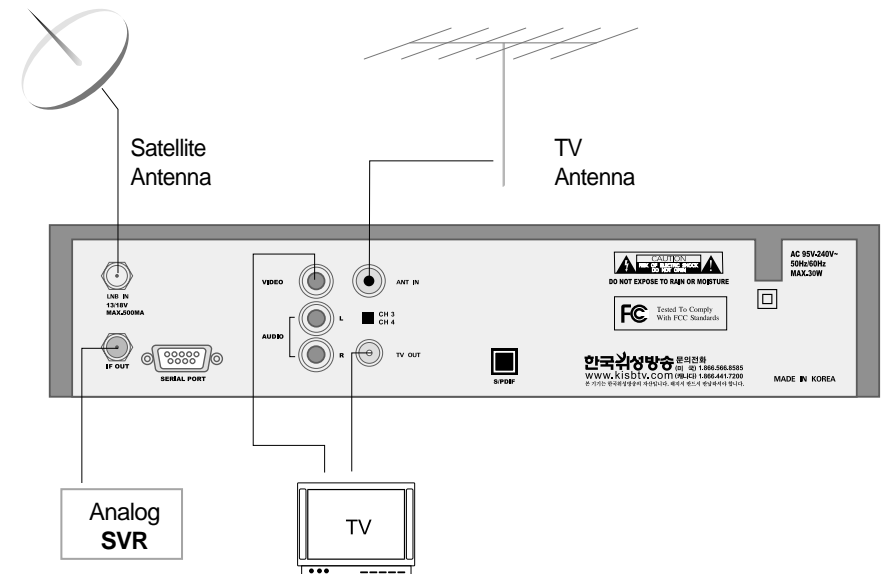
4. HARDWARE DESCRIPTION

4. A. FRONT PANEL

POWER

C H

VOL

INFRARED SENSOR

0000

7 SEGMENT DISPLAY

SMART CARD INTERFACESLOTS

1) POWER : This key is used to turn the receiver on and off (stand by).

2) CH : These keys are used to change the channels.

3) VOL : These keys are used to increase and decrease the volume level manually.

4) INFRARED SENSOR : This is to receive the IR commands from the RCU. Do not block the view of the sensor.

5) 7 SEGMENT DISPLAY : This SEGMENT display will show the current channel number.While the receiver is in stand by mode, the display will show the current time.

6) SMART CARD INTERFACESLOTS : To watch scrambled channels you should insert a smart card into Smart Card Interface issued the service provider whom you subscribes to. Therefore you can watch only a specific range of channels with entitlements in smart card. The smart card includes information to decipher parameters necessary for descrambling the program. Please note that the gold chip on the smart card should face download and inward when you insert when you insert it into Smart Card Interface.

4. B. REAR PANEL

1) LNB IN : This port is to connect the coaxial cable from LNB of your Dish. The IF input is provided through this port and the input frequency range is 950〜2150MHz. Also the voltage switching 13V and 18V is passed through this port.

2) IF OUT : To enable the connection of an analog receiver, The receiver is provided with this port. Connect this port to LNB IN port of the other receiver via RF Cable.

3) SERIAL PORT : This is used to connect your receiver with computer through a serial cable. This port can be used for upgrading software.

**4) VIDEO, AUDIO R/L** : These RCA connectors are used to connect any external video and audio.

5) ANT IN : This is used to connect your local RF channels to your TV through Loop.

**6) TV OUT** : This is used to connect your TV through RF cable.

7) S/PDIF DIGITAL OUTPUT : This port is for the connection to the exterual Hifi system which has a optical S/PDIF input interface.

8) POWER INPUT : This is to plug in the AC mains power cord. The input AC volts range is 95V to 240V, 50Hz/60Hz supply.

9) CH 3,4 : The switch select RF 3,4 channel number
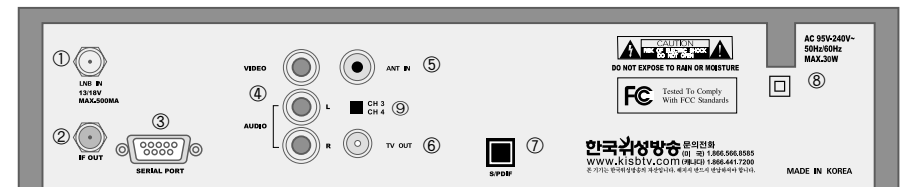
4. C. REMOTE CONTROL UNIT

1) POWER : This is used to switch the receiver to ON/STANDBY mode.

2) MUTE : This key is used to toggle between normal and muted audio.

0 ~ 9 3) 0-9 NUMERIC KEYS : These keys are used to enter numeric values and to select the channel directly by entering its number.

4) CH ▲ · CH ▼ : These keys are used to change channels and to browse the menu.

5) VOL ▶ · VOL ◀ : These keys are used to vary the volume level and to change the cursor options in the menu.

6) MENU : This key is used to open up the menu.

7) EXIT : This key is used to exit from any menus.

8) OK : This key is used to enter and confirm any data to the receiver in the menu systems. The Channel list can be accessed directly by pressing this Key in the normal view mode.

9) Page Up : This key is used to page up the menu.

10) Page Down : This key is used to page down the menu.

11) FAV : This key is used to switch between favorite lists.

12) GUIDE : This key is used to open up the Electronic Program Guide.

13) i : This key is used to view the channel information.

14) ♪ : This key is used to toggle between the TV channel and the radio channel.

15) **LAST** : This key is used to return to the previous channel.

16) **AUDIO** : This key is used to select the soundtrack list for the current service and also used to select audio mode.

17) **PAUSE** : This key is used to pause the screen.

18) **NTSC/PAL** : This key is used to convert video mode.

19) **SAT** : This key is used to select the satellite.

20) **F1, F2, F3, F4** : Function Keys.

21) **TEXT** : This key is for Teletext.

5. SYSTEM SET-UP

5.A. Automatic channel search for a satellite

*You can automatically detect and save all TV and Radio channels
of a satellite as follows :*

System Connection	■ Connect the receiver to all peripheral devices.
⬇	
Power On	■ Turn on the power of the receiver and other devices.
⬇	
Main Menu / Installation / Automatic Channel Search	■ Select Main Menu/Installation / Automatic Channel. Search using CH ▲ · ▼ & OK keys. ■ Select the satellite which you want to search using VOL ◀ · ▶ keys.
⬇	
Antenna Configuration Setting	■ Insert all information of your antenna.
⬇	
Automatic Channel Search	■ Press OK key, and the receiver will automatically search for all TV/Radio channels from a satellite.

6. MENU OPERATION

The main menu is classified into six sub menus which will carry out the various operation individually.

MAIN MENU

After installing your dish system and receiver with appropriate connectors, plug in the AC main power and turn on the receiver.

Press the MENU key of the RCU. You will see the "Main Menu" on the TV screen as follow.
You can move into the desired submenu using the "up/down" keys(▲ · ▼) or nemeric keys.
Press "OK" key to confirm your selection. If the "Main Menu" is locked, note that you should enter the PIN code in order to move into the corresponding submenu in case of "Edit Channels" menu, "Edit Favorites" menu and "Installation" menu.
The default factory PIN code is "0000".
Press the "menu" key or "exit" key to return to previous menu.

1. EDIT CHANNELS

You can edit channels on various channel lists - channel lock, delete channel, move channel, edit the name of a channel, and sort the channel list.
Select "Edit Channels" menu in main menu, and you will be asked to enteryour PIN code. You can find the following "Edit Channels" screen by entering it.

1. A. CHANNEL LOCK

Select the "Channel Lock" icon using the left / right keys (◀ · ▶). Select the channel that you want to lock or unlock from the channel list using the "up/down" keys
(▲ · ▼) and the page "up/down"

keys(⬆ ⬇). Press the "OK" key to confirm your selection.
Also, you can use the " ♫ " key to select either TV channel list or Radio channel list.
Once the channel is locked, every time you try to watch the program, you will be asked to enter PIN code. Press the "menu" key or "exit" key to return to previous menu.

1. B. DELETE CHANNEL

Select the "Delete Channel" icon using the "left/right" keys(◄ · ►). Select the channel that you want to delete from the channel list using the "up/down" keys(▲ · ▼) and the "page up/down" keys(⬆ ⬇). Press the "OK" key to confirm your selection. Also, you can use the " ♫ " key to select either TV channel list or Radio channel list.
Press the "menu" key or "exit" key to return to previous menu.

1. C. MOVE CHANNEL

Select the "Move Channel" icon using the "left/right" keys(◄ · ►). Select the channel that you want to move from the channel list using the "up/down" keys(▲ · ▼) and the "page up/down" keys(⬆ ⬇). Press "OK" key to confirm your selection.
Move it to the position where you want to place it using the "up/down" keys(▲ · ▼) and the "page up/down" keys(⬆ ⬇). Press the "OK" key to confirm. Also, you can use the " ♫ " key to select either TV channel list or Radio channel list.
Press the "menu" key or "exit" key to return to previous menu.

1. D. EDIT CHANNEL NAME

Select the "Edit Channel Name" icon using the "left/right" keys(◄ · ►). Select the channel that you want to edit from the channel list using the "up/down" keys(▲ · ▼) and the "page up/down" keys(⬆ ⬇). Press "OK" key to confirm your selection.
Select the character which you want to edit using the browse keys(▲ · ▼,◄ · ►). Press "OK" key to confirm.Save the character currently selected using the "F2" key. Also, you can use the " ♫ " key to select either TV channel list or Radio channel list. Press the "menu" key or "exit" key to return to previous menu.

1. E. SORT CHANNEL LIST

Select the "Sort Channel List" icon using the "left/right" keys(◄ · ►). Press "OK" key to confirm.
Select the sort type which you want to sort using the "up/down" keys(▲ · ▼). Press the "OK" key to confirm.Also, you can use the " ♫ " key to select either TV channel list or Radio channel list.
Press the "menu" key or "exit" key to return to previous menu.

2. EDIT FAVORITES

You can edit the favorite channel list, such as add/delete a channel or move its position, which facilitates you to easily find your favorite channel from the favorite channel list.
The favorite channel is classified into one of 8 favorite categories depending on its genre.

Select "Edit Favorite" menu in main menu, and you will be asked to enter your PIN code.
You can find the following "Edit Favorite" screen by entering it.

2. A. ADD FAVORITE CHANNEL

You can choose TV channel list or Radio channel list in an alternative way by pressing the " ♫ " key on the RCU.
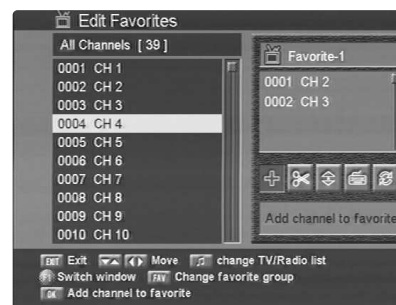
By pressing "FAV" key on the RCU, you can choose your favorite channel group out of 8 favorite groups. Select the "Add Channel" icon using the "left/right" keys(◄ · ►). Select a channel that you want to add into the favorite channel list using the "up/down" keys(▲ · ▼) and the "page up/down " keys (⬆ ⬇). Press the "OK" key, and the selected channel will be added to the favoritechannel list. Press the "menu" key or "exit" key to return to previous menu.

2. B. DELETE FAVORITE CHANNEL

You can choose TV channel list or Radio channal list in an alternative way by pressing the " ♫ " key on the RCU.
By pressing "FAV" key on the RCU, you can choose your favorite channel group out of 8 favorite groups.
Select the "Delete Channel" icon using the "left/right" keys(◄ · ►).
Select a channel that you want to delete from the favorite channel list using the "up/down" keys(▲ · ▼) and the "page up/down" keys(⬆ ⬇). Press the "OK" key, and the selected channel will disappear from the favorite channel list.
Press the "menu" key or "exit" key to return to previous menu.

2. C. MOVE FAVORITE CHANNEL

You can choose TV channel list or Radio channel list in an alternative way by pressing the "♫" key on the RCU.
By pressing "FAV" key on the RCU, you can choose your favorite channel group out of 8 favorite groups.
Select the "Move Channel" icon using the "left/right" keys(◀ · ▶).
Select a channel that you want to move using the "up/down" keys(▲ · ▼). and the "page up/down" keys(▲ ▼). Press "OK" key to confirm your selection.Move it to the position where you want to place it using the "up/down" keys(▲ · ▼). and the "page up/down keys(▲ ▼).
Press the "OK" key to confirm.
Press the "menu" key or "exit" key to return to previous menu.

2. D. RENAME FAVORITE GROUP

You can choose TV channel list or Radio channel list in an alternative way by pressing the "♫" key on the RCU.
By pressing "FAV" key on the RCU, you can choose your favorite channel group out of 8 favorite groups.
Select the "Rename Favorite Group" icon using the "left/right" keys(◀ · ▶).
Press the "OK" key and select the character which you want to edit using the browse keys(◀ · ▶, ▲ · ▼).
Press the "OK" key to confirm.
Save the character currently renamed using the "F2" key.
Press the "menu" key or "exit" key to return to previous menu.

2. E.   SORT CHANNEL LIST.

You can choose TV Channel list or Radio channel list in an alternative way by pressing the "♫" key on the RCU.
By pressing "FAV" key on the RCU, you can choose your favorite channel group out of 8 favorite groups.
Select the "Sort Favorite List" icon using the "left/right" keys(◀ · ▶). Press "OK" key to confirm.
Select the sort type which you want to sort using the "up/down" keys(▲ · ▼).
Press the "OK" key to confirm.
Press the "menu" key or "exit" key to return to previous menu.

3. INSTALLATION

"Installation" menu helps you to setup a variety of parameters necessary for receiving signal, add new service, upgrade the new software and reset the channel data.

Select "Installation" menu in main menu, and you will be asked to enter your PIN code.
You can find the following "Installation" screen by entering it.

3. A. AUTOMATIC CHANNEL SEARCH

Your receiver includes the preprogrammed information of transponders contained in various satellites.
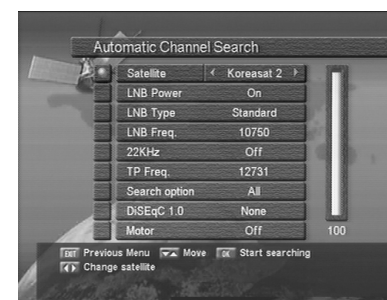
You can update the transponder list preprogrammed for a satellite by adding a new transponder to it or modifying the information of the existing transponder. (Refer to the Manual Channel Search described in section 3.B) Select "Automatic Channel Search" menu in "Installation" menu and the following screen will be displayed.

Select the desired satellite using the "left/right" keys(◀ · ▶).Set "LNB Power", "LNB Type", "LNB Freq", "22KHz", "Search Option", and "DiSEqC Type" fields to the appropriate value using the left/right keys(◀ · ▶) at each field.

LNB Power	: Depending on the user's antenna LNB, you can supply either LNB power by setting "ON" or not by setting "OFF". Normally set this to "ON".
LNB Type	: You can select the LNB type.
LNB Freq.	: You can select the predefined LNB frequency or manually enter a specific frequency in MHz unit by pressing numeric keys.
22KHz	: In case you are using two antennas connected to a 22KHz tone switch box, you can supply either 22KHz by setting "ON" or off by setting "OFF" to select antenna.
Search option	: You can search all the free channels & scramble channels or only free channels or onlyscramble channels by setting the search option.
DiSEqC Type	: If you have DiSEqC box, you can choose port by selecting port number. Otherwise, choose "none". If you have a DiSEqC 1.2 motorised system, then you can takeadvantage of the DiSEqC 1.2 functions available. Choose "Motor" as DiSEqC type and press "F1" key. After that, adjust antenna direction using browse keys.

Check the signal strength. Press "OK" key to start the "Automatic Channel Search" procedure.
You can see the progressive status of channel searching.
Please note that the "Automatic Channel Search" procedure may take a few minutes.
Press the "menu" key or "exit" key to return to previous menu.

3. B. PARENT CONTROL

This function prevents children or unauthorized persons from watching programs.

Also you can change PIN(Personal Identification Number) code.
Select "Parental Control" menu in "Installation" menu, and the following screen will be displayed.

3.B.1 Receiver Lock

To lock receiver, select "Receiver Lock" in the "Parental Control" menu and change it to "On" mode using the "left/right" keys(◄ · ►).

3.B.2 Menu Lock

To lock the Main Menu, select "Menu Lock" in the "Parental Control" menu andchange it to "On" mode using the "left/right" keys(◄ · ►).

3.B.3 Change PIN Code

You can change your PIN code from factory default value "0000" as follow:
Select "Change PIN Code" in the "Parental Control" menu using the "left/right" keys(◄ · ►).
Press "OK" key. Then you will be asked for a new PIN code.
Once you enter a new PIN code, the receiver will ask you to enter it in again.
After you enter a new PIN code twice, the PIN code is changed permanently.
If you forget the PIN code, you have to contact the distributor to find out it.

3. C. FACTORY DEFAULT

This is to restore the factory set values in case the user has encountered some problems after changing any new values of channel data and others which may be in error.
Select "Factory Default" menu in "Installation" menu and press "OK" key.
If you want to continue, select "Yes" cell.
The receiver will be reset to settings automatically.
Please note that the "Factory Default" procedure may take a few minutes.
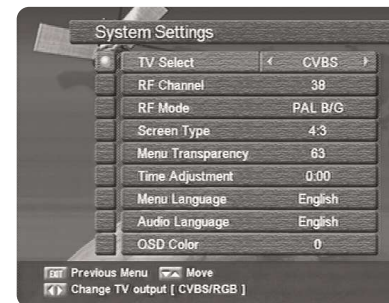
4. SYSTEM SETTINGS

This menu helps you to Set up video output mode,language, time, screen type and parameters related with RF modulator.

Select "System Settings" menu in main menu, and the following screen will be displayed.

TV Select	: Select video output mode - CVBS or RGB
RF Channel	: Select or change RF channel number when your receiver is connectedto TV by RF connector. The factory preset value is channel 38.
RF Mode	: In the above case, you can choose PAL B/G mode or PAL I mode or PAL D/K mode.
Screen Type	: You can choose either 4:3 or 16:9 according to the TV type.
Menu Transparency	: You can select the transparency of the menu.
Time Adjustment	: Adjust the clock.
Menu Language	: You can select the menu language.
Audio Language	: You can select the audio language.
OSD Color	: You can choose the OSD color.

Press the "menu" key or "exit" key to return to previous menu.

5. CHANNEL LIST

This menu helps you to easily select the channel that you want to watch.
The channel list is separately constructed for each satellite. Press "OK" key, and the following

screen will be displayed. You can get the information of channel number, channel name, and whether the program is scrambled or locked.

To watch a specific channel, first select it by pressing the "up/down" keys (▲,▼) and the page "up/down" keys (⬆,⬇). Then, press "OK" key. This enables you to move into that specific channel.
You can also select a specific satellite using the "SAT" key. When you press the "♫" key, you can alternatively select TV or radio channel list. When you press "F1" key
you can see all channel list or FTA channel or favorite channel list.
Press the "menu" key or "exit" key to return to previous menu.

6. CHANNEL GUIDE

Press "GUIDE" key, and the following screen will be displayed.It will give the titles of the current and next programmes on different channels.
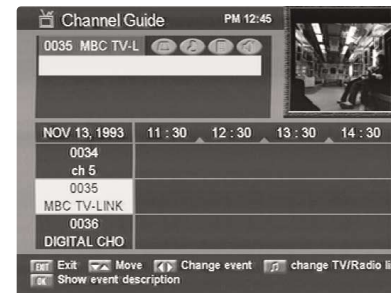
The information may include : current time / channel name, name of the current and next programme, the start and total time of the current programme, the start and total time of the next programme.
Programme information will be available only when it is included in the transmission.
When you press the "♫" key, you can alternatively select TV or radio channel guide.
Press the "menu" key or "exit" key to return to previous menu.

7. AUDIO

Press "AUDIO" key.
Select the audio mode which you want using the "left / right" keys(◄,►).
Some programs are broadcasted with one or more alternative language soundtracks.
You can select the preferred audio language for soundtrack using the "up/down" keys (▲,▼).

7. TROUBLE SHOOTING

Problem	Solution
About the Receiver	
Does not display LED on the front panel or the receiver has no power.	- Connect the power cord to the power outlet properly.
No pictures on the screen	- Check if the receiver is in standby mode. - Check if the video output port is firmly connected to the Tv. - Check if you have selected the correct channel or video output on your TV.
No sound	- Connect the audio cords properly. - Check the volume level of the TV. - Press "MUTE" key.
Remote Control does not operate	- Point remote control directly towards the receiver. - Check and replace batteries.
Poor picture quality	- Check the signal strength in the "Automatic Channel Search" menu. - If this is low, try adjusting the alignment of your dish.
On - Screen Error Messages	
Searching Signal	- Connect the antenna cable properly. - Check the LNB. Please replace LNB if necessary. - Check the position of the dish. Please realign dish if necessary. - Check the signal strength in the "Automatic Channel Search" menu.
Unrecognized smartcard	- Check the smartcard.
Please insert your smartcard	- Insert the smartcard.

8. TECHNICAL SPECIFICATIONS

1. Power Supply

Type	: SMPS
Input Voltage	: 95~240VAC 50/60 Hz
Fuse Rating	: 250V/2A

2. Tuner

Input Frequency	: 950~2150MHz
Input Signal Level	: -65~-25dBm
Input Impedance	: 75Ω Unbalanced
Connector Type	: 'F' Type Female
LNB Power Supply	: 13V/18V, Max 500mA with Short Circuit Protection
22KHz Tone	: Frequency 22± 4KHz, Amplitude 0.6±0.2Vpp
DiSEqC	: 1.0 & 1.2 Version Compatible
Channel Selection	: PLL Frequency Synthesizer

3. Demodulator

Type	: QPSK Demodulation(DVB-S)
Symbol Rate	: 2~45 MS/s
Inner FEC	: Viterbi Convolutional Coding Rate 1/2, 2/3, 3/4, 5/6, 7/8
Outer FEC	: Reed Solomon Coding(204,188) with T=8

4. Video Decoder

System Decoding	: MPEG-2 ISO/IEC 13818-2
Profile and Level	: MPEG-2 MP@ML
Data Rate	: 1~15 MB/s
Video Formats	: 4:3(Normal) & 16:9(Widescreen)

5. Audio Decoder

System Decoding : MPEG-1 ISO/IEC 11172-3
Layer I & II

Audio Mode : Mono, Dual, Stereo, Joint Stero

Sampling Frequency : 32, 44.1, 48 KHz

6. Audio/Video Output

RCA Jack : CVBS, Audio L/R

S/PDIF : Digital Audio

7. RF Modulator

Modulator Output : CH 3/4

Video Type : NTSC.M

UHF Output Level : 71±4 dBμV

Output Connector : "F" Female

Ant. IN Connector : "F" Female

Tuning Method : PLL Frequency Synthesizer

8. Serial Data Interface

Signal : RS-232, Max. 115200bps

Connector Type : 9 Pin D-Sub(male)

9. Conditional Access System

Viaccess CAS Embedded