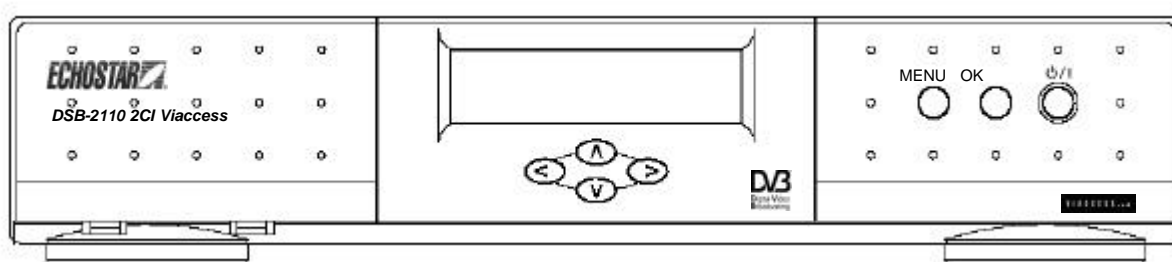

User Manual

EMBEDDED VIACCESS DIGITAL SATELLITE RECEIVER



ECHOSTAR
DSB-2110 2CI VIACCESS

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AC power switch is on the rear panel of the receiver.



Trade Mark of the DVB Digital Video Broadcasting Project (1971)

1. Safety Instructions

WARNING!

Always follow these instructions to avoid the risk of injury to yourself or damage to your equipment.

Unplug the receiver from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the receiver.

Do not use accessories or attachments not recommended by the receiver manufacturer, as they may cause hazards and will void the warranty.

Do not operate the receiver in high-humidity areas, neither expose it to water or moisture.

Do not place the receiver on an unstable cart, stand, tripod, bracket or table. The receiver may fall, causing serious personal injury and damage to the receiver.

Do not block or cover slots and openings in the receiver. These are provided for ventilation and protection from overheating. Never place the receiver near or over a radiator or heat register. Do not place the receiver in an enclosure such as a cabinet without proper ventilation.

Do not stack the receiver on top of or below other electronic devices.

Operate the receiver using only the type of power source indicated on the marking label. Unplug the receiver power cord by gripping the power plug, not the cord.

Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

Use an outlet that contains surge suppression or ground fault protection. For added protection during a lightning storm, or when the receiver is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the lines between the receiver and the antenna. This will provide some protection against damage caused by lightning or power line surges.

Do not attempt to service the receiver yourself, as opening or removing covers may expose you to dangerous voltage, and will void the warranty. Refer all servicing to authorized service personnel.

Unplug the receiver from the wall outlet and refer servicing to authorized service personnel whenever the following occurs:

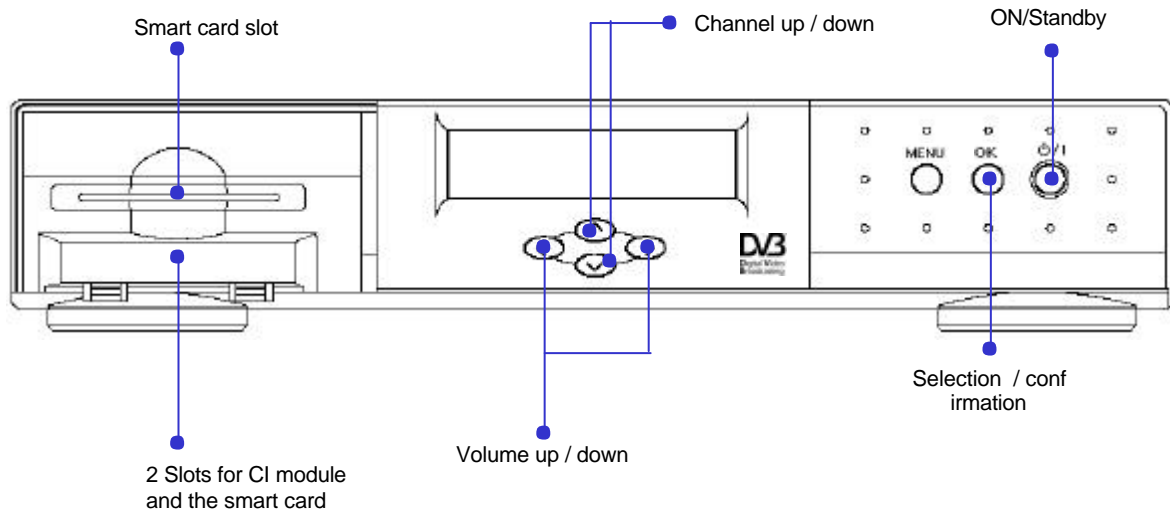
- The power supply cord or plug is damaged;
- Liquid has been spilled, or objects have fallen into the receiver;
- The receiver has been exposed to rain or water;
- The receiver has been dropped or the chassis has been damaged;
- The receiver exhibits a distinct change in performance.

2. Features

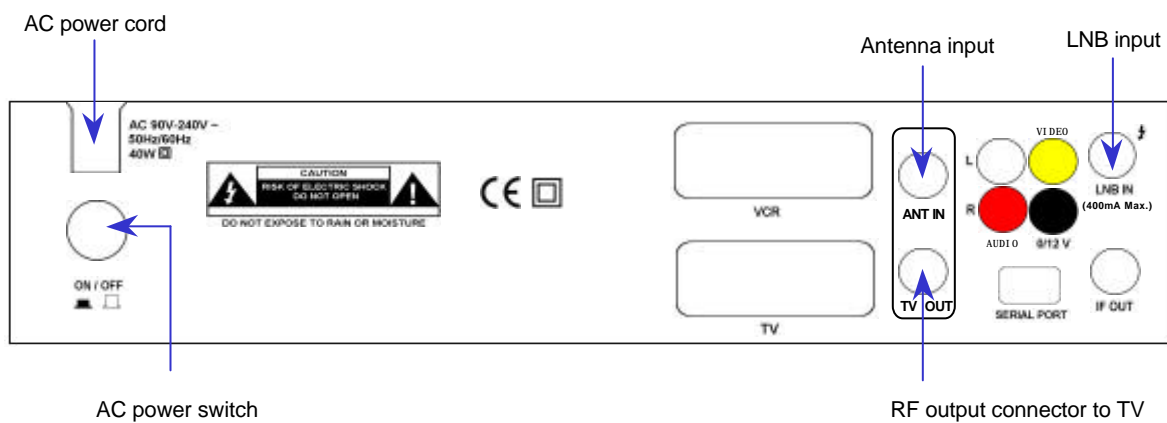
1. MPEG-2 video (MP@ML)
2. MPEG-1 audio layer 1, layer 2
3. MPEG-2 digital & fully DVB compliant
4. Viaccess embedded with 1 smart card
5. Capable of Interfacing the CAM of DVB Common Interface standard
6. Capable of scanning the frequency for SMATV system
7. On-screen display with 256-color full-resolution
8. Plug & Play installing program setup
9. LD quality video, CD quality audio
10. Variety of LNB polarity control
;13/18V, 0/22kHz tone, 0/12V and DiSEqC
11. RS232C port for additional information service and updating IRD control software
12. 4-digit 7-segment LED on the front panel display channel information
13. Displays local time on front panel, when it is on stand-by mode
14. Displays signal level to setup the satellite antenna with ease
15. Power recovery function
16. 64-step volume control
17. Powerful editing facilities
; PIDs, TV or radio channel, Channel name, Satellite name/Transponders
18. Teletext function (Your TV should support Teletext function for this) & Subtitling
19. Favorite channel function
20. SCPC/MCPC receivable from C/Ku-band satellites
21. User-friendly OSG menu with full function
22. Last channel memory function
23. Variable aspect ratio (4:3, 16:9) with pan vector
24. EPG for on screen channel information
25. Parental lock / Installation & Edit lock / Receiver lock
26. Multi-lingual function according to the satellite and program provider
27. Total 2,900 channels programmable (TV: 2,000 CH. & Radio: 900 CH.)
28. DiSEqC 1.2 compatible
29. Channel storing for multi-satellite
30. Ku/C control function
31. Receiver-to-receiver function for program and data transmission

3. Front & Rear View

Front Panel



Rear Panel



Note: All the cables used for Input/Output connection for the receiver should be well shielded.

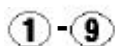
4. Remote Control Unit (RCU)



The **Power** key turns the receiver on and off.



The **Mute** key switches the sound on and off.



Number / Input keys enable direct channel selection command using numeric keys.



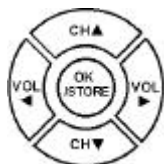
The **TV/RAD(Radio)** key switches between TV and radio mode.



The **MENU** key is used to see main menu or to return to previous menu.



The cursor keys are for channel ? and ? and volume ? and ?.
The **EXIT** key exits to the video viewing mode at any time.



The **Volume** and **Channel** keys control the two most frequently used functions of the receiver. The **OK** key is used to select a program, a highlighted line or parameter value. Also you can see TV/Radio channel list while watching TV or listening to the radio.



The **FAV** key shows a list of your selected favorite channels (To define channels as favorite select the “*Edit TV channel*” menu).



The **SAT** key shows a list of selectable satellite.



The **EPG** key shows program information of the selected channel. (**EPG**; Electronic Program Guide)



The **Information** provides additional information about the current channel and program (only available when provided by the broadcaster). In the menus, pressing this key provides up to four lines of help.



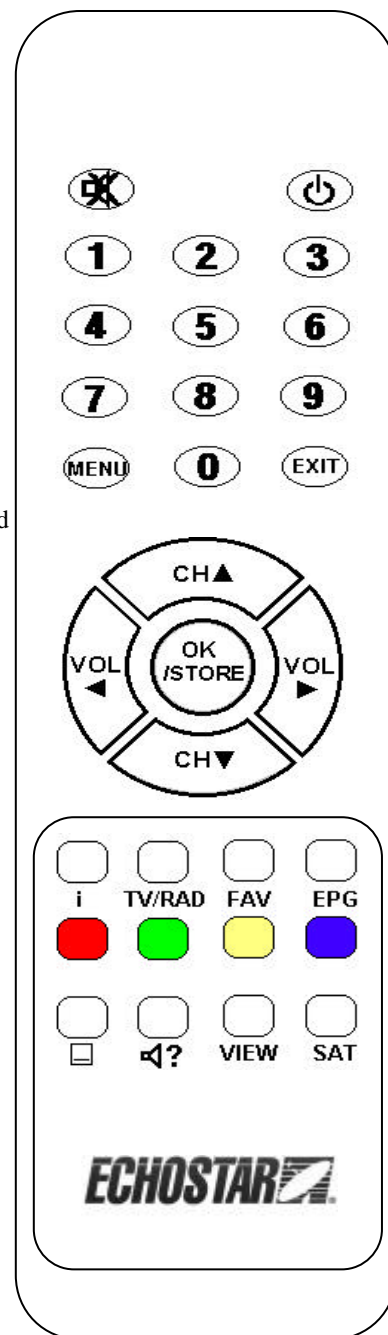
The **Subtitle** key enables subtitling (only when provided by the broadcaster).



Selects the **Audio Language or Soundtrack** from among the data transmitted for the current channel.



Shows a **thumb nail** representation of the current channel in the “*Edit TV Channel*”, “*Parental Lock*” and “*EPG*”.

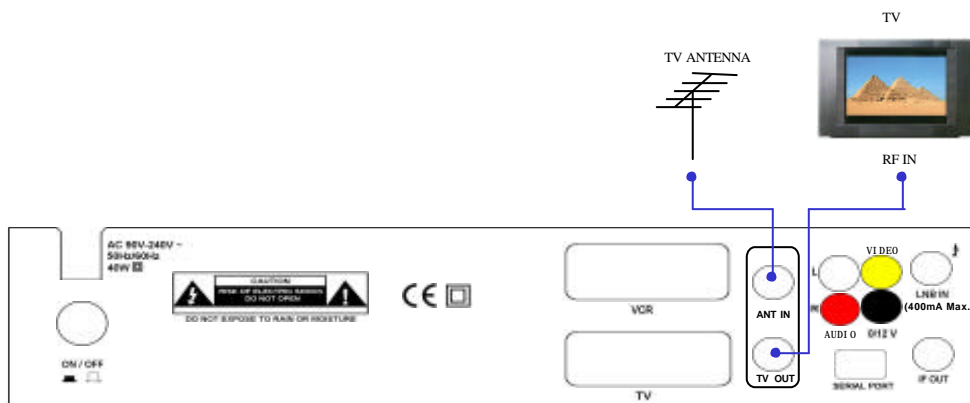


5. Getting Started

DO NOT PLUG the receiver into Main Power Outlet, until you complete all the connections to the receiver.

Receiver to TV with RF

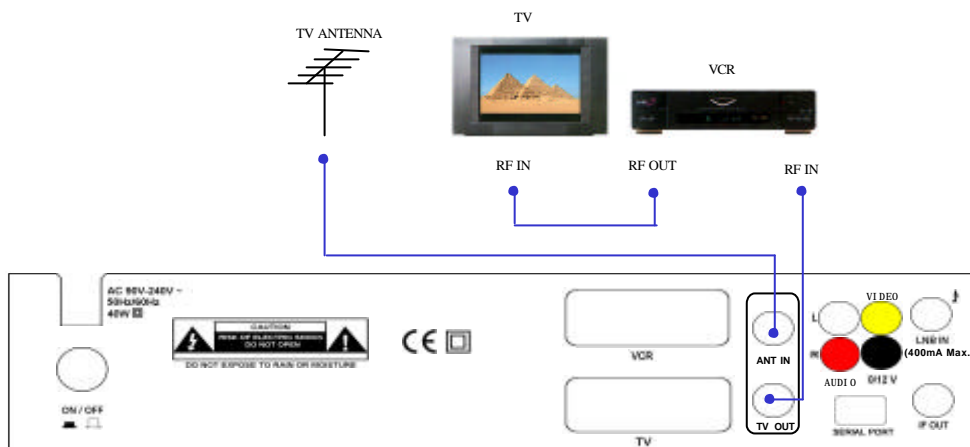
1. Connect the Off-air TV antenna or cable if available to the ANT IN socket of the **EchoStar DSB-2110 2CI DSB-2110 2CI Viaccess**.
2. Connect the TV OUT socket of the **EchoStar DSB-2110 2CI Viaccess** to the RF IN of the TV set.
3. Search on the TV set for UHF channel # 38. This is the default channel where the **EchoStar DSB-2110 2CI Viaccess** is set to.



Receiver to VCR and then to TV with RF

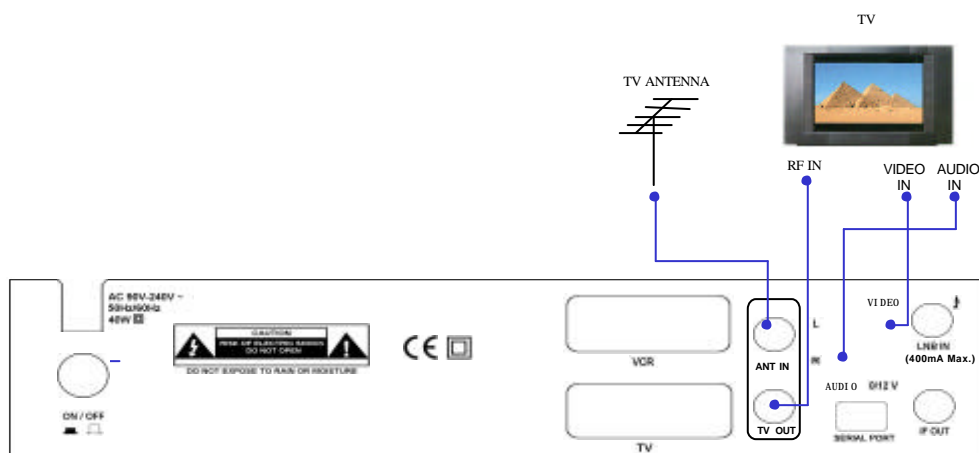
1. Connect the Off-air TV antenna or cable if available to the ANT IN socket of the **EchoStar DSB-2110 2CI Viaccess**.
2. Connect the TV OUT socket of the **EchoStar DSB-2110 2CI Viaccess** with the RF IN of the VCR.
3. Connect the RF OUT of the VCR to the RF IN of the TV set.
4. Search on the TV set and the VCR for UHF channel # 38. This is the default channel where the **EchoStar DSB-2110 2CI Viaccess** is programmed to.

Note : Use different UHF channels for VCR and **EchoStar DSB-2110 2CI Viaccess.**



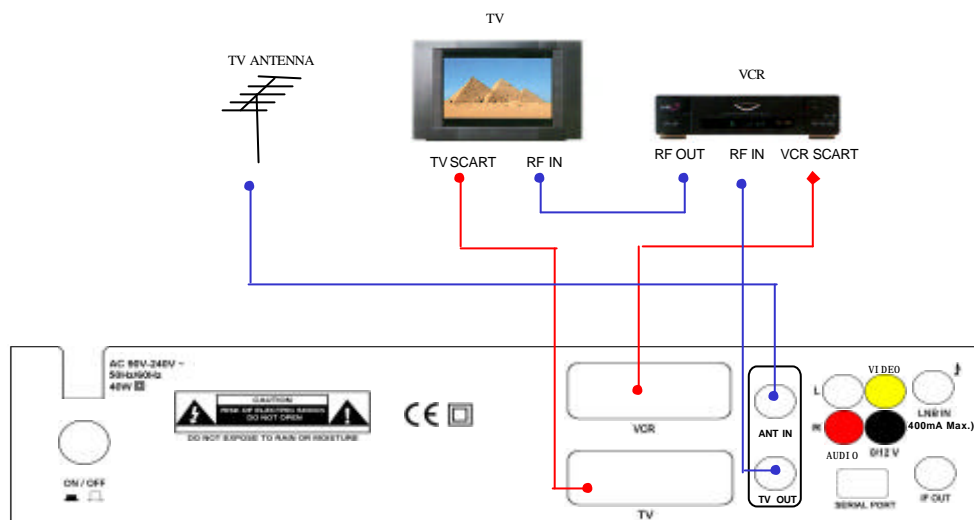
Receiver to TV with Audio and Video RCAs

1. Connect the Off-air TV antenna or cable if available to the ANT IN socket of the **EchoStar DSB-2110 2CI Viaccess**.
2. Connect the TV OUT socket of the **EchoStar DSB-2110 2CI Viaccess** with the RF IN of the TV set.
3. Connect the Video and Audio RCAs of the **EchoStar DSB-2110 2CI Viaccess** to the Video and Audio RCAs of the TV set.



Receiver to TV and VCR with SCART Cables



1. Connect the Off-air TV antenna or cable if available to the ANT IN socket of the **EchoStar DSB-2110 2CI Viaccess**.
 2. Connect the TV OUT socket of the **EchoStar DSB-2110 2CI Viaccess** with the RF IN of the VCR.
 3. Connect the RF OUT of the VCR to the RF IN of the TV set.
 4. Search on the VCR for UHF channel # 38. This is the default channel where the **EchoStar DSB-2110 2CI Viaccess** is programmed to.
 5. Connect the SCART cable from the TV SCART of the **EchoStar DSB-2110 2CI Viaccess** to the SCART of the TV set.
 6. Connect the SCART cable from the VCR SCART of the **EchoStar DSB-2110 2CI Viaccess** to the SCART of the VCR.
 7. When the **EchoStar DSB-2110 2CI Viaccess** is switched on the TV set, it will automatically switch to the SCART input of the TV.
- Note : Use different UHF channels for VCR and **EchoStar DSB-2110 2CI Viaccess**.



5. Operation and Menu Program

A. Receiver and TV set-up

Check the Installation

To get the most out of the **EchoStar DSB-2110 2CI Viaccess** it should be correctly installed, the dish should be optimally aligned and the mechanical limit switched on the dish should be set properly. Press **/I** on the remote control unit (RCU)  press  on the front panel of the **EchoStar DSB-2110 2CI Viaccess**.

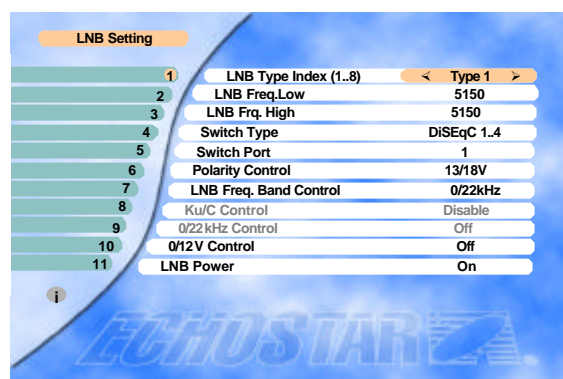
The receiver is supplied with factory setting and will start up with the “*Language Setting*” menu. For more information on the “*Language Setting*” menu, please see page 9. Please follow the steps outlined below to properly install the **EchoStar DSB-2110 2CI Viaccess**.

LNB Setting

Select the “LNB Setting” menu in the “Installation” menu using the **..** keys.

Select the LNB type which conforms to your LNB using the **..** keys.

Other parameter values should be changed manually according to your LNB type.
Press the **OK** key to confirm your selection.

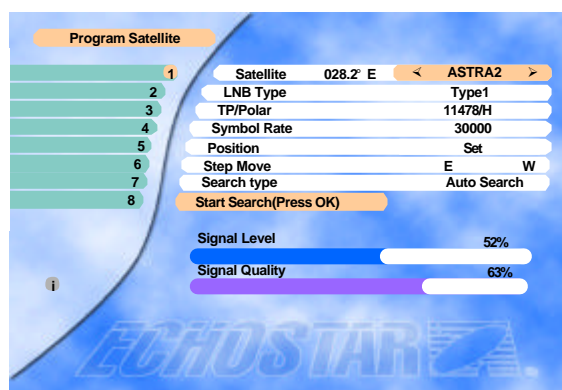


Program Satellites

Refer to the Signal Quality bar and the Signal Level bar at the bottom of the screen. It is recommended that the signal is at the Medium level or higher. If it is not, please adjust your satellite dish.

This menu is to align your dish to the selected satellite.

After setting the parameters, press the **OK** key to store the parameter values. And Start Search(Press **OK**) to search the channels of transponder you want.



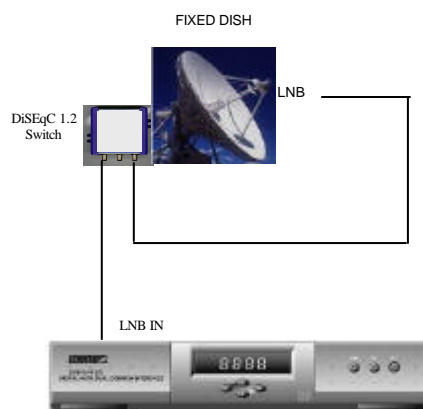
If you are unable to get any signal quality, please check the LNB Setting to ensure you have selected the correct LNB and switch settings.

DiSEqC 1.2 Mount

In case you are using the DiSEqC positioner, you should set the most east satellite and most west satellite you want on the “Position” bar.

- Most East satellite : change the satellite name into you want by the most east satellite on the “Satellite” bar and move to “Position” bar and press the Volume down key(◀) until the Signal Level is at the medium level or higher. And press the OK key to store this satellite as the most east satellite.

- Most West satellite : change the satellite name into you want by the most west satellite on the “Satellite” bar and move to “Position” bar and press the Volume up key(▶) until the Signal Level is at the medium level or higher. And press the OK key to store this satellite as the most west satellite.

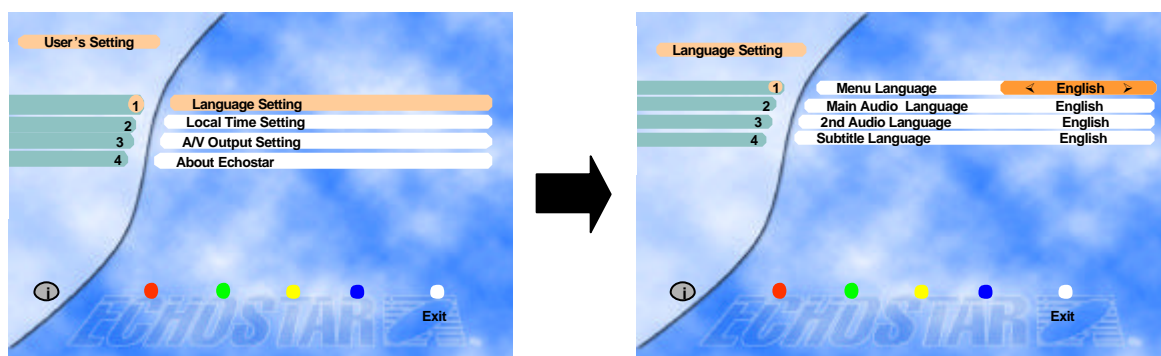


Then, start the “Auto Search” to search and store the TV channels and Radio channels of the satellite automatically.

User's Setting

User's Settings are only accessible via the Installation screen.


Language Setting



You can select the desired language for the OSG (On-Screen Graphics) display using the ., . keys when the “Menu Language” option is selected. Similarly you can select a different audio channel when the “Audio Language” option is selected. This option allows you to select a different language to listen to if supported.

Subtitle

Select the “Subtitle Language” in the “**Language Setting**” menu. While viewing a channel, the subtitling option is available only when the selected subtitling language is provided by the broadcaster.

To check if the subtitling language is available, press “” key on the remote control unit, to show a list with all available subtitling languages.

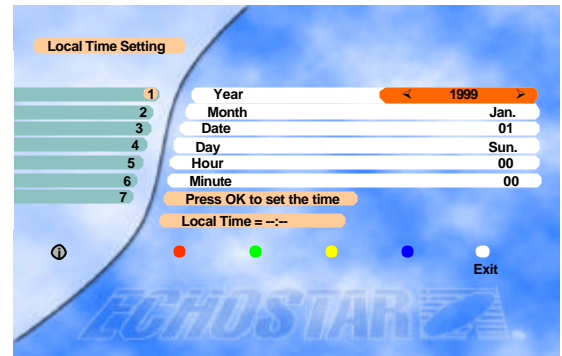


Local Time Setting

To set your local time, input all the required data for the time and date. This information has to be entered to enable recording of the programs of your choice.

After entering the correct data for year, month, date, day, hour, minute, select option 7 (Press the **OK** key to set the time) and press the **OK** key to save the data. It is recommended that the time and date set in this menu be the same as that of your VCR.

Now that the date and time has been set you could edit the VCR timer settings.



A/V Output Setting

Aspect

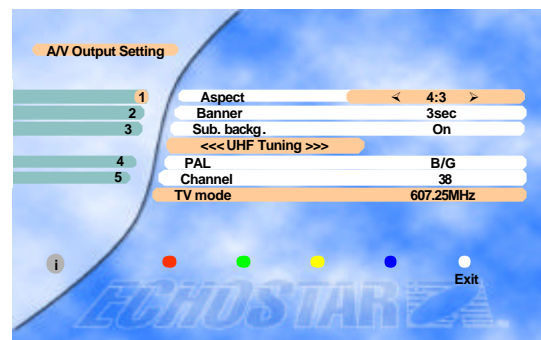
Please select your TV format.

4:3 for normal screen TV

16:9 for wide screen TV

Banner

You can select the time out time(2,3,4,5,8,10 secs) of the banner information about the current channel and program using the ., . keys.



Sub.backg.

Select 'On' for Subtitle background on TV (Subtitle background).

UHF Tuning

.You can select the type of Video standard by using the ., . keys.

* Video standard : PAL B/G,I , D/K

.Select the vacant channel considering your local channels and preset channels below.

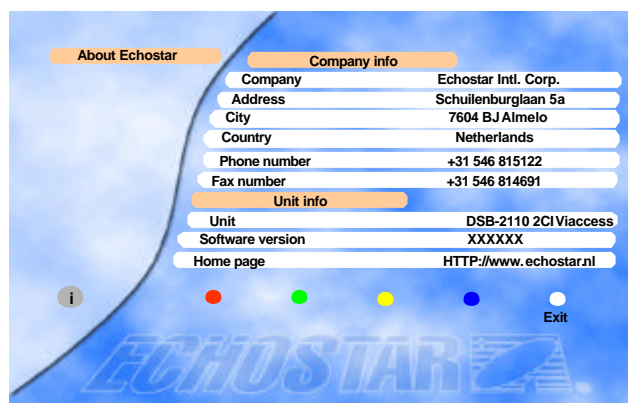
* Pre-set : Ch 38 for PAL B/G, I Ch 40 for PAL D/K

.UHF frequency is set automatically according to the channel selection.

About EchoStar

You can see the details of the company information.

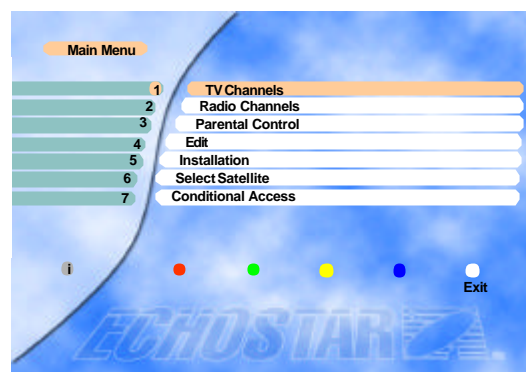
If you have any questions about the **EchoStar DSB-2110 2CI Viaccess**, firstly contact your local dealer.



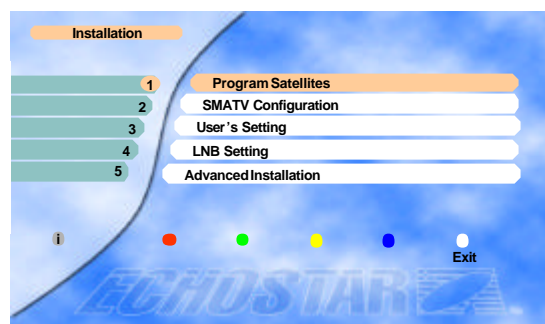
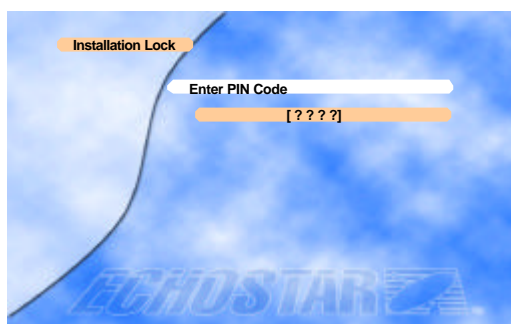
B. Main menu and Installation

Main Menu

Press the **MENU** key to display the “*Main Menu*” on the screen.
Select a sub-menu using the **., .** keys or the numeric keys. Please note that the **OK** key is always a confirmation of your selection. To go back to the previous menu, press the **MENU** key.



Installation

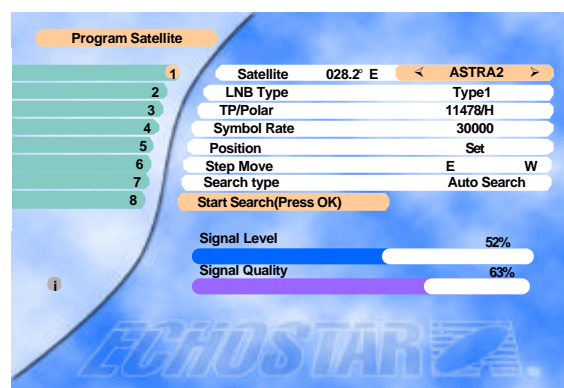


The Installation, “Enter PIN code” Menu is displayed only when the Installation Lock is set as [ON].
The initial code is set as [0000] but you can change it (See “Change PIN code” on page 13).

Program Satellites

Refer to the Signal Quality bar and the Signal Level bar at the bottom of the screen. It is recommended that the signal is at the Medium level or higher. If it is not, please adjust your satellite dish.


This menu is to align your dish to the selected satellite.
After setting the parameters, press the **OK** key to store the parameter values. And Start Search(Press **OK**) to search the channels of transponder you want.

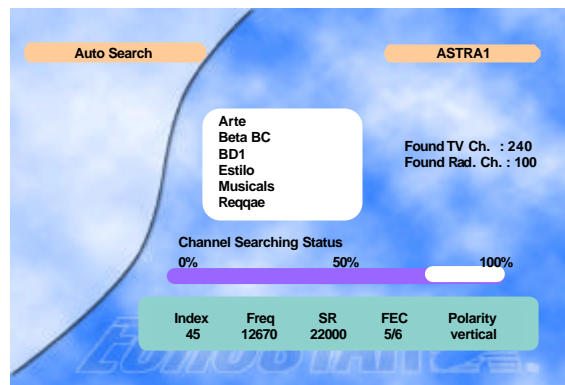


If you are unable to get any signal quality, please check the LNB Setting to ensure you have selected the correct LNB and switch settings.

Auto Search

Using the Auto Search option, the **EchoStar DSB-211 0 2CI Viaccess** searches for all available channels (Radio and TV) on the currently selected satellite. The names of the found TV channels are shown on the left and the total number of found TV and Radio channels are mentioned on the right.

Note: To stop searching press the  key on the remote control or on the front panel. This cancels the searches and the found channels will be discarded. All other keys of the remote are disabled during searching.



SMATV Configuration

A Satellite Master Antenna Television (SMATV) system which is intended for the distribution of television and sound signals to household in one or 6 more adjacent buildings.

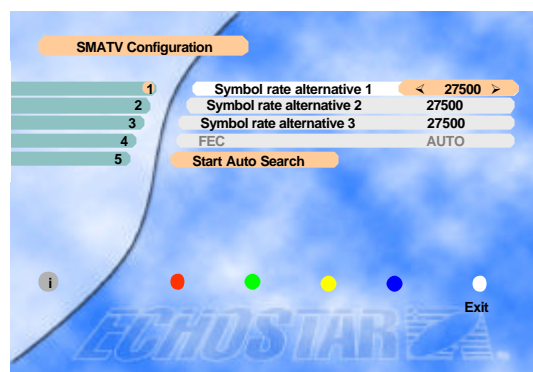
A SMATV System represents a means for sharing the same resources among several users for satellite and terrestrial reception, and it is designed to perform the adaptation of the satellite TV signals to the SMATV channel characteristics.

This receiver has a SMATV-IF facility to operate with SMATV. This configuration allows the direct distribution of the QPSK signal received from the satellite to the SMATV-IF distribution network in the extended IF band (above 950 MHz).

Before you start, you have to check your condition whether it is possible to use this facility or not in your households. (You can ask your household supervisor.)

If this receiver is connected to a SMATV network, select “**SMATV Configuration**”. The most common alternatives for “Symbol rate” and “FEC” are already preprogrammed. (When you need to change the “Symbol rate” for the exceptional frequency, select as you know.) Move to “Start Auto Search” and just press the **OK** key. Then, the “**Auto Search**” procedure will start.

To cancel the processing while the “**Auto Search**” is proceeding, press the **MENU** key.



TV Channels

You can select the channel you would like to watch either by pressing the numeric keys for the channel number or by moving the highlighted bar to the channel of your choice using the **.,.** keys. Press the **OK** key to select the channel.

* Press the **.,.** keys to move one page up or down.

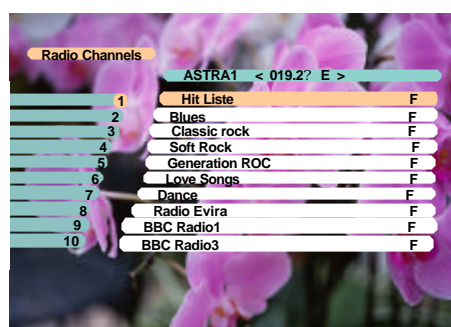


Radio Channels

You can select the channel you would like to watch either by pressing the numeric keys for the channel number or by moving the highlighted bar to the channel of your choice using the **.,.** keys. Press the **OK** key to select the channel.

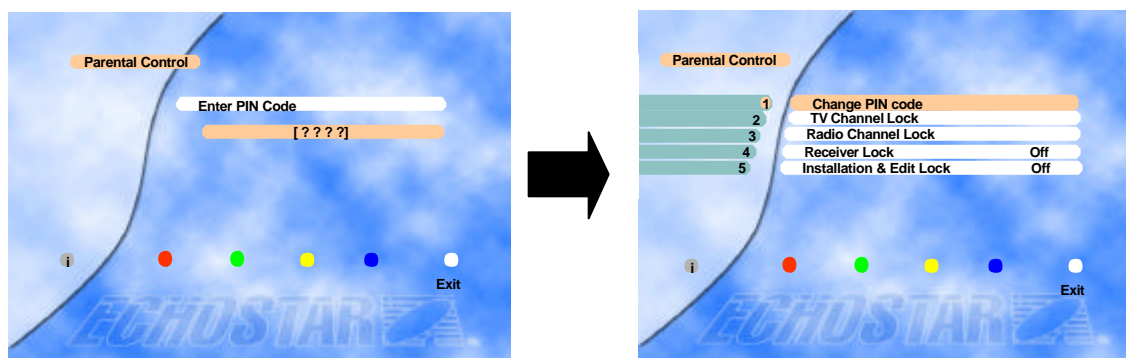
* Press the **.,.** keys to move one page up or down.

After selecting your wanting radio channel, the picture of the last TV channel is displayed.



Parental Control

With parental control it can be prevented that a TV channel can be watched, a Radio Channel can be heard, the receiver settings can be changed or an unauthorized change in the installation is performed.



Change PIN Code

The pre-programmed PIN (Personal Identification Number) code is set as [0000]. If you want to change it, please follow the procedure shown as before.

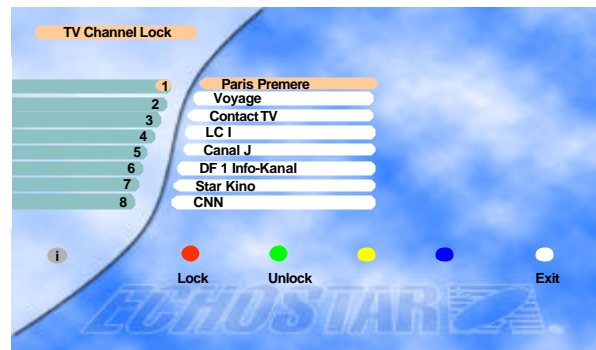
TV Channel Lock

Press the **OK** key to lock / unlock the selected channel.

The letter color of the locked channels will be changed into Grey color on the “TV Channels” menu.

Press the **VIEW** key to see a thumb nail of the current channel in this menu.

Note) The color of the highlighted bar turns to red when it is on a locked channel.



Receiver Lock

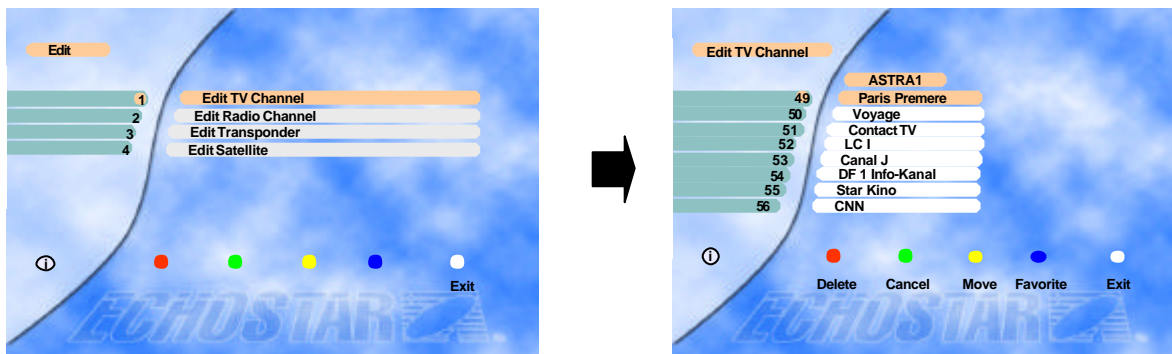
If the Receiver Lock is set as [ON], you have to input the correct code to operate the receiver.

Installation&edit Lock

If the Installation & Edit Lock is [ON], you have to input the correct code to enter directly into the Installation and Edit menu.

Edit TV Channel

The “Enter PIN code” Menu is displayed only when the Installation&Edit Lock is set as [ON]. The initial code is set as [0000] but you can change it (See “Change PIN code” on page 13).



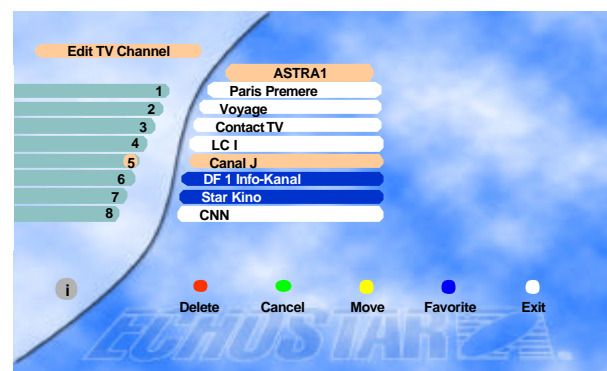
You can move to the channel that you want to edit by using **.,.** keys.

Also you can move to the highlighted bar directly by inputting the channel number.

FAV Channels

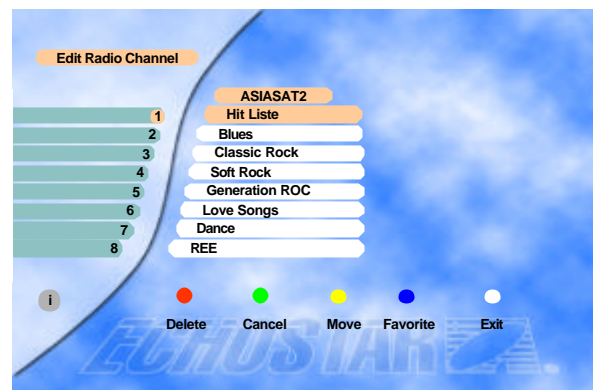
You can create a group of up to 96 channels in the “**Edit TV Channel**” or “**Edit Radio Channel**” menu. To include a channel in the FAV list, select a channel and press the **blue** key on the remote control. To select a favorite channel from the FAV list, press the **FAV** key.

To view a thumb nail representation of the currently selected channel, press the **VIEW** key on the remote control.



Edit Radio Channel

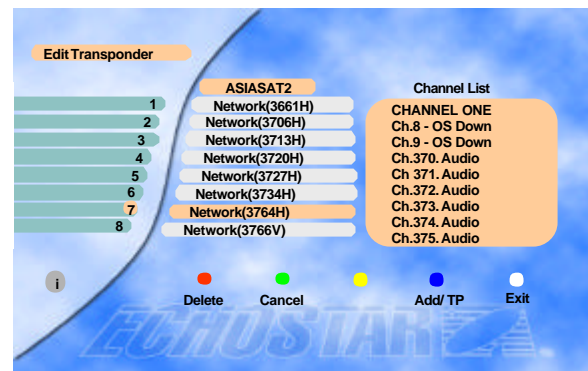
Use the same procedure for the Radio Channels as used for editing the TV Channels as above.



Edit Transponder

To delete a transponder, press the **red** key when the highlighted bar is located at the transponder you want to delete.

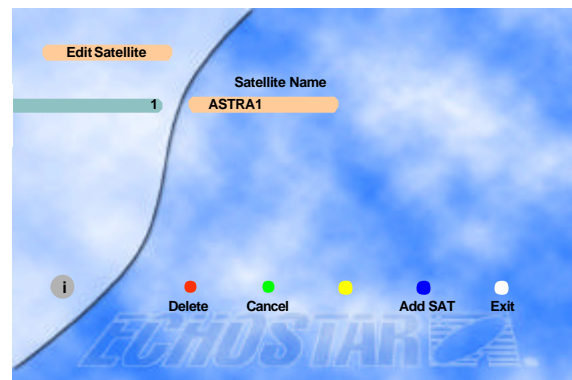
To add a transponder, press the **blue** key. And then, “*Edit/Add SAT or TP*” menu will be displayed, and you can add a transponder in that menu.



Edit Satellite

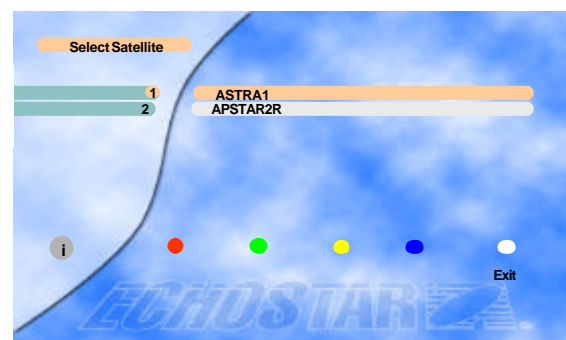
To delete a satellite, press the **red** key when the highlighted bar is located at the transponder you want to delete.

To add a satellite, press the **blue** key. And then, “*Edit/Add SAT or TP*” menu will be displayed, and you can add a satellite in that menu.



Select Satellite

To move to another satellite you want to watch, press the **SAT** key or select in the menu on the remote control and choose the proper satellite with ., . keys. Press the **OK** key to confirm.

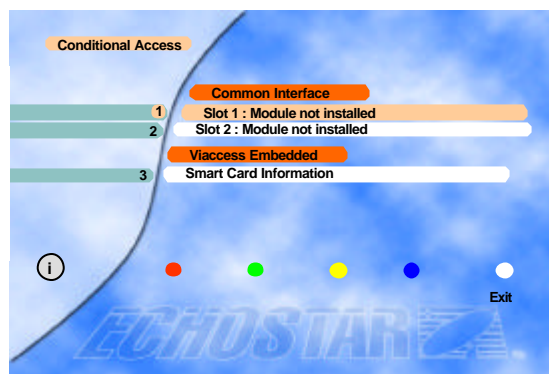


Conditional Access

< Common Interface >

From here you will get access to information and menus from the CI module(Irdeto, Conax, Cryptowork, Nagravision and Viaccess encryption). This information may vary depending on the module. Please see the documentation delivered together with your CI module.

< Viaccess Embedded >



Insert the Viaccess smart card into the Smart Card slot on the Front Panel. The chip should be faced upwards.

ALT Audio

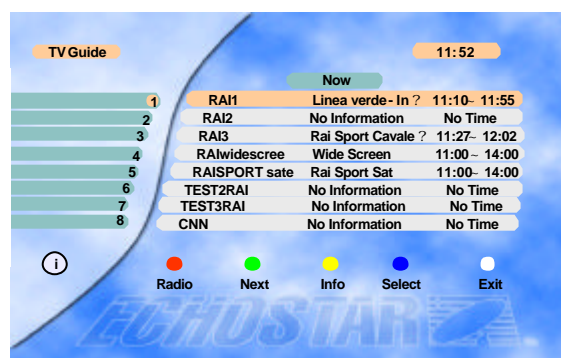
If more than one audio channel is provided by the broadcaster on a specific channel, you can activate the audio mode display by pressing the **ALT** key.



Guide

While watching or listening to any channel and you want to know more information regarding the program shown, press the **EPG** key on the remote control to display the “TV Guide” or the “Radio Guide”. This information may be provided by the broadcaster. You can move to another channel by pressing the **Left** keys or the **Right** keys.

Please refer to the function of the keys belows.



- 1) **Red(TV/Radio)** key : Switches the “TV Guide” and the “Radio Guide” by pressing this key.
- 2) **Green(Now/Next)** key : Switches the program guides of “Now” and “Next”
- 3) **Yellow(Info)** key : Shows detailed information of the selected channel.
- 4) **Blue(Select)** key : Goes to the viewing mode of the selected channel.
- 5) **White(Exit)** key : Exits the *TV/Radio Guide*

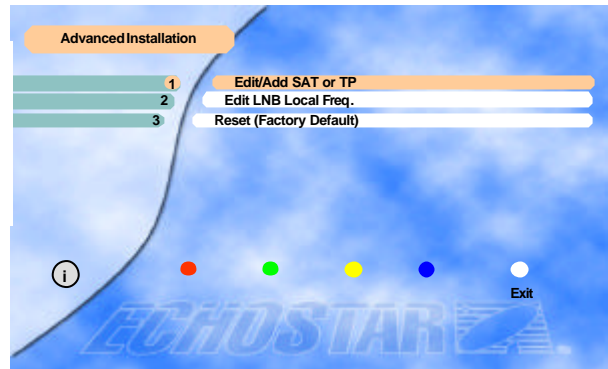
Pressing the **Yellow(Info)** key shows the detailed information of the program and thumbnail of the current channel.



C. Advanced Installation

Advanced Installation

You can select the “*Advanced Installation*” menu on the “*Installation*” menu of Main menu by using the Channel up/down keys (▲,▼).



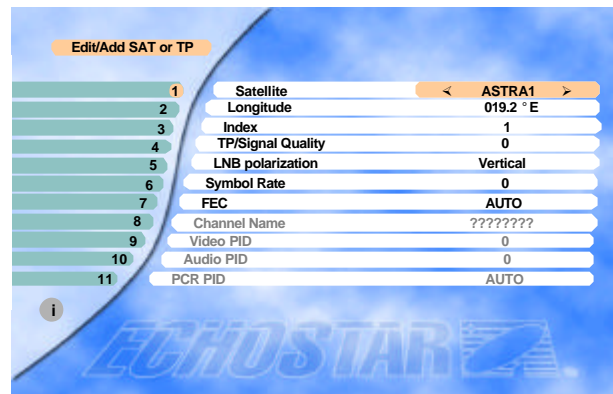
Edit/Add SAT or TP

You can edit a pre-programmed satellite name and add a new one in this menu.

Also you can edit and add Transponder Frequency parameter by using the ◀, ▶ keys.

To add a new satellite name, press **OK** after moving to [???????] mode for satellite, then the graphic keyboard will be activated. After entering a new satellite name, press **OK** after selecting “Save” on the keyboard.

And then, you can set each parameters by giving the data for Transponder Freq., LNB Polarization, Symbol Rate.



To edit an additional transponder on a pre-programmed satellite, you should input all the required data after moving to the satellite you want to edit.

Note 1) You should execute “Auto Search” after editing the satellite or the transponder.

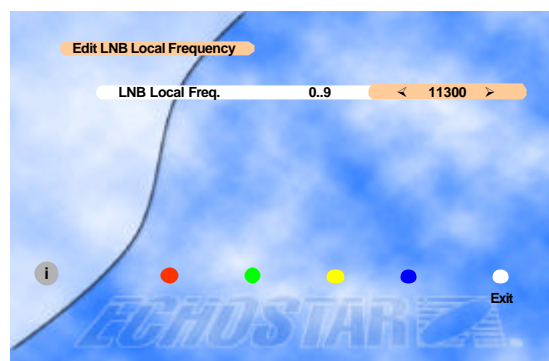
If Auto Search is executed after adding the new transponder, all channels of the added Transponder will be searched and stored automatically.

CAUTION) By doing an Auto Search you will lose all the data (ex. FAV, Lock...) which you have edited.

Note 2) You can add or edit totally **50 satellites**. This includes the pre-programmed satellites. The receiver has the capability to store up to **999 transponders** and **2000 channels**.

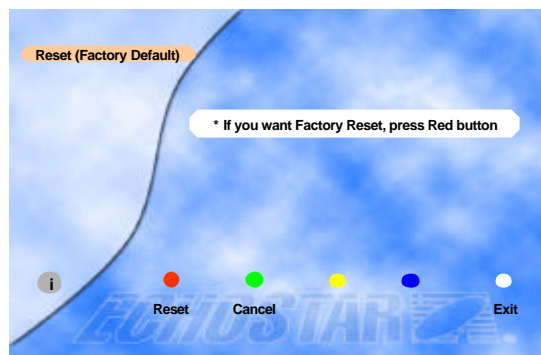
Edit LNB Local Frequency

You can edit up to 8 local frequencies by using numeric keys.
And if you want to save newly edited frequency, press the **OK** key.



Reset (Factory Default)

If you want to reset all the data edited, press the **red** key twice.



6. Specifications

1. Tuner & Channel

Input Connector	1 x F type with Loop through
Output Connector	1 x F type 75 Ohm
Frequency Range	950MHz to 2150MHz
Input Impedance	75 Ohm
Signal Level	-25 to -65dBm
IF Frequency	480MHz
IF Bandwidth	36MHz
LNB Power & Polarity control	Vertical +13.5V - +14.5V Horizontal +17.5V - +18.5V
22KHz Tone	Frequency 22kHz \pm 2kHz Amplitude 0.6Vp-p \pm 0.2Vp-p
Demodulation	QPSK
Input Symbol Rate	2-32Msps
FEC Decoder	Convolutional Code Rate 1/2, 2/3, 3/4, 5/6 and 7/8 with Constraint Length K=7

2. MPEG Transport Stream A/V Decoding

Transport Stream	MPEG-2 ISO/IEC 13818 Transport Stream Specification
Profile & Level	MPEG-2 MP@ML
Input T/S Data Rate	90Mbit/S max.
Aspect Ratio	4:3, 16:9 with pan vector
Video Resolution	720 x 576(PAL), 720 x 480(NTSC)
Audio Decoding	MPEG-1 Audio Layer 1,2, musicam
Audio Mode	Stereo, Dual Channel, Joint Stereo, Mono
Sampling Rate	32, 44.1, and 48kHz

3. Memory

Flash Memory	up to 2 Mbytes
Program DRAM	up to 8 Mbytes
EEPROM	2 Kbytes

4. A/V & Data In/Out

SCART	TV x 1, VCR x 1
RGB Video Out	TV SCART x 1
0/12V Out	RCA x 1
CVBS Video Out	RCA x 1, SCART (TV, VCR)
Analog Audio Out	RCA x 2 (L-CH x 1, R-CH x 1)
	SCART (TV, VCR)
	Resolution 16bit DAC
	Output Level 2Vrms Max.
	Volume & Mute Control
Data Interface	RS232C, Baud Rate 9600 ~ 115200, 9 Pin D-Sub

5. PCMCIA

Number of Slot	2
Type	I, II DVB Common Interface Standard

6. Conditional Access

Embedded Viaccess	1 Smart Card Reader
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7. RF-Modulator

RF-Connect	75Ohm, IEC169-2, Male/Female
Output Frequency	470MHz to 860MHz
Output Channel	CH21 - 69
TV Standard	PAL D/K, PAL B/G, PAL I

8. Power Supply

AC Power Switch	Push lock type (toggle)
Input Voltage	AC90 – 240V, 50/60Hz
Type	Linear PWM
Power Consumption	40W Max. (Below 7W Max. for stand-by mode)
Protection	Separate Internal Fuse and Chassis Grounding The Input shall have lightning or Electric Shock Protection.

9. Physical Specification

Size (W x H x D)	320mm x 60mm x 240mm
Weight	about 2 Kg

10. Environment

Operating Temperature	+ 5 °C ~ + 55 °C
Storage Temperature	- 40 °C ~ + 65 °C