USER MANUAL

DVR-7000 ⬤⊣⊢⬤ Viaccess©
Digital Satellite Receiver

1. DEAR CUSTOMER

Thank you for purchasing an EchoStar satellite receiver. This receiver is of the latest generation for which it is possible to upgrade the software to keep up with the newest developments. Please read this user manual carefully, to be able to safely install, use and maintain the receiver for maximum performance. Keep this user manual next to your receiver for future reference.

Please make a note of the serial number in the space below. This helps to trace and identify the receiver in case of theft. Also questions to our help desk can be answered more accurate if you can provide the details as mentioned on the serial number plate. You find the serial number plate at the rear panel of the receiver.

Type: ....

S/N: ....

Software Version: ....

2. INTENDED USE

This user manual is intended for anyone who uses an EchoStar satellite receiver. It can be used by both first-time and experienced users of satellite receivers who want to install, use and maintain their receiver.

This user manual is applicable for the EchoStar DVR-7000 ⊂**I**⊃ Viaccess Digital Satellite Receiver and the related accessories. This user manual is divided into separate sections and chapters. For easy access to the information, a clear table of content and an index are provided.

3. WARRANTY

COMMON INTERFACE-MODULES AND SMART CARDS

For pay-services, please only use Common Interface (CI) modules and the related smart cards which are approved by the service provider of the encrypted program you want to receive. Only this will enable the receiver to work properly.

Anomalies can occur when unapproved CI-modules and/or smart cards are used. EchoStar can not and will not accept any responsibility for the performance of such CI-modules and/or smart cards. If you use unapproved CI-modules and/or smart cards, EchoStar is no longer able to provide any assistance or support. Use of unapproved CI-modules and/or smart cards will void any warranty claim. If you have any doubt which CI-modules are approved, please ask your service provider for assistance.

4. DISCLAIMER

SATELLITE RECEIVER

EchoStar International Corporation has to the best of her abilities, everything done to supply you with a satellite receiver built to the most up-to-date software and hardware. EchoStar International Corporation makes no warranties with respect to the reception of the channels provided by the broadcast service providers and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose.

EchoStar International Corporation reserves the right, for whatever reason, to revise, change or modify the hard- and software of the satellite receiver without the obligation to notify or warrant any person or organization of such change. Therefore, please visit our website, on a regular basis, for the latest information available.

SOFTWARE DOWNLOADS

EchoStar International Corporation will to the best abilities, do everything possible to supply you with software updates to keep your receiver as up-to-date as technically possible. EchoStar International Corporation makes no warranties with respect to the use of the supplied software downloads and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose.

EchoStar International Corporation reserves the right, for whatever reason, to revise, change or modify the software that can be used by your satellite receiver without the obligation to notify or warrant any person or organization of such change. Therefore, please visit our website, on a regular basis, for the latest software available.

USER MANUAL

EchoStar International Corporation has to the best of her abilities, everything done to supply you with the most up-to-date information. EchoStar International Corporation makes no warranties with respect to the information provided by this user manual and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. The information provided is meant as a guideline for the use and maintenance of the receiver.

EchoStar International Corporation reserves the right to revise, change or translate this user manual without the obligation to notify any person or organization of such change. Therefore, please visit our website, on a regular basis, for the latest information available.

5. COPYRIGHT AND TRADEMARKS

© 2001 EchoStar International Corporation. All rights reserved worldwide. This user manual has been provided pursuant to an agreement containing restrictions on its use. This user manual is also covered by Federal Copyright Law.

No part of this user manual may be copied, distributed, transmitted, stored in a retrieval system or translated into any human or computer language, in any form or by any other means, electronically, mechanically, magnetically, manually or otherwise or disclosure to third parties without the express written permission of EchoStar International Corporation.

EchoStar International Corporation is possibly in the possession of patents, requests for patent approval, trademarks, copyrights and other intellectual property with respect to the contents within this user manual. The submission of this user manual does not imply you have got any license or other legal right for the use of the here above mentioned without the express written permission of EchoStar International Corporation.

- EchoStar, EchoNAV ⊂HD© and Quality has a Name
  are registered trademarks of EchoStar International Corporation;
- DVB, Digital Video Broadcasting
  is a registered trademark of the The Digital Video Broadcasting Project (1991 to 1996) which is an industry-led consortium of over 300 broadcasters, manufacturers, network operators, software developers, regulatory bodies and others in over 35 countries committed to designing global standards for the delivery of digital television and data services.
- Dolby Digital
  Dolby, Dolby Digital, AC-3 and Dolby Pro Logic are registered trademarks of the Dolby Laboratories Licensing Corporation;
- Viaccess®
  Viaccess is a registered trademark of VIACCESS SA, a France Telecom Group company that delivers end-to-end solutions for digital pay-TV services and multimedia applications, built around our DVB MPEG-2 compatible VIACCESS® Conditional Access System, and interactively engines such as OpenTV.
- All other trademarks are the property of their respective owners or companies.

TABLE OF CONTENTS

Troubleshooting

Glossary

Index

Appendix 1

Appendix 2

EchoStar DVR-7000 🖸🔸 *Viaccess*

1

1. GENERAL SAFETY

Read this manual carefully and make sure you understand the instructions given. For your safety, know what the reaction upon each action will be. Do not perform any actions which are not described in this manual, failing to do so might result in an uncontrolled behavior of the receiver or even in a hazardous situation for persons and/or equipment.

Disconnect the receiver from the mains before you start any maintenance or installation procedures. Do not use alcohol or ammonia based liquids to clean the receiver. If required, clean with a soft lint-free cloth slightly made damp with a mild soap solution.

Consult an authorized service technician if the receiver does not operate normally when the instructions in this user manual are strictly followed. Do not to attempt to open the receiver, as you will be exposed to a shock hazard.

Do not put any objects on top of the receiver which could fall through the ventilation slots or which could cover them and prevent proper cooling of the components inside.

Do not put any (foreign) objects into the ventilation or CI-slots. This can cause fire or an electrical shock by shorting the internal components.

Make sure that nothing rests on the receivers cables and that the cables are not located where they can cause injury to persons and pets (e.g to stumble over, eat the cable).

Do not install the receiver:

- in a closed or poorly ventilated cabinet;
- directly on top of or under another equipment;
- on a surface which will obstruct the ventilation slots.

Do not expose the receiver and it's accessories:

- to rain or excessive moisture to avoid the risk of shock or permanent damage to your receiver;
- to direct sunlight, heaters, stoves or any other heat generating equipment;
- to any magnetic objects, such as speakers, electric motors, transformers, etc.;
- to excessive vibration.

To help avoid possible damage to the receiver's electronics:

- wait 5 seconds after you switched off the receiver before you move the receiver or disconnect any equipment;
- do not touch the components or pins on the CI-module or the smart card and hold the CI-module and the smart card by it's edges.

2. ELECTRICAL SAFETY

When using or connecting electrical equipment always observe the safety regulations applicable in your country to reduce the risk of fire, electrical shock, and personal injury.

Read and comply at least with the given safety instructions.

- Always make sure that the electrical power supply corresponds with the voltage on the electrical identification plate at the rear of the receiver next to the electrical cord.
- Your receiver is double insulated and complies with the EN 50144; therefore no additional earth wire is required, though the use of an earth leak switch and/or over voltage protection switch is recommended.
- Only use an approved extension (convenience) lead suitable for the electrical power consumption of the installed equipment.

3. WARNINGS, CAUTIONS AND NOTES

Throughout this user manual, there may be blocks of text indicated by symbols and printed in a different way then the surrounding text. These blocks of text ask the attention of the reader to avoid hazardous situations. The hazard levels are indicated as:

WARNING
THIS INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN (SERIOUS) INJURY.

CAUTION
This indicates a situation which, if not avoided, could damage the equipment or other properties.

NOTE
This indicates additional information to the user to make the user aware of possible problems and information of any importance to help the user to understand, to use and to maintain the installation.

4. SYMBOLS USED ON THE RECEIVER

The next paragraphs explain the meaning of the symbols, present on the receiver.

4.1. SYMBOLS ON THE FRONT PANEL

The Dolby Digital logo.
This logo tells you that this receiver is compliant with the Dolby Digital standard.

The Digital Video Broadcasting logo.
This logo tells you that this receiver is compliant with the DVB standards as registered under registration number 2365.

The Digital Recording logo.
This logo tells you that this receiver has a hard disk drive which gives you the capability to record TV and radio programs digitally.

The MP3 logo.
This logo tells you that this receiver has a MP3 player inside.

The Viaccess logo.
This logo tells you that this receiver has an embedded Viaccess smart card reader. The required smart card has to be obtained from a service provider who scrambles the programs according the Viaccess encryption method.

4.2. SYMBOLS ON THE REAR PANEL

The caution 'risk of electrical shock - do not open' symbol
This symbol tells you that you are not allowed to open the receiver. Only authorized (service) technicians are allowed to open the box.

The CE mark.
This mark tells you that the receiver is following the provisions of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to the electromagnetic compatibility and the provisions of Council Directive 73/23/EEC and 93/68/EEC on the approximation of the laws of the Member States relating to low voltage and electrical safety.

The double insulation symbol.
This symbol tells you that the receiver is electrically safe within the normal use of the receiver as stated in the safety chapter.

1. STORAGE AND TRANSPORT

The receiver and it's accessories are delivered in a protective packaging. This packaging is designed to protect against excessive shocks and not against ingress of moisture.

1.1. STORAGE

If necessary:

■ store the receiver in it's original protective packaging;
■ in a room with the ambient conditions as stated in the technical specifications.

1.2. TRANSPORT

Pack the receiver preferably in the original packaging or in an equally protective packaging. This is to help avoid possible damage to the receiver's electronics.

2. TO UNPACK YOUR RECEIVER

> ⚠ **DANGER**
> KEEP AWAY THE PLASTIC PACKAGING FROM CHILDREN. THE PLASTIC PACKAGING MAY CLING TO NOSE AND MOUTH AND PREVENT BREATHING.

When you unpack the contents of the box, confirm that all the parts are included. Refer to Chapter 3. The contents of the box.

Unpack the contents of the box carefully. Electronic equipment as satellite receivers are easily damaged when you handle it roughly. Examine all parts for damage that may have occurred during shipment. If you find any damage, stop to unpack the box and call the retail seller where you bought the receiver.

To help avoid possible damage to the receiver's electronics, allow the receiver to adapt to the ambient temperature and humidity level. This to avoid condensation caused by a sudden change in temperature (e.g from a hot car into a cool room).

3. THE CONTENTS OF THE BOX

The box contains:

■ A receiver;
■ A remote control unit;
■ A pair of batteries (for the remote control unit);
■ A loop through cable;
■ A set of documentation.

4. THE DISPOSAL OF YOUR PACKING MATERIALS

> ❗ CAUTION
> It is recommended to keep the packaging materials for a period of time. In case of warranty claims, we can request to return the receiver in the original packaging to protect the electronics and hard disk drive. Failing to do so might void the warranty.

Most of the packaging materials can be recycled. Please discard these materials in an environmental safe manner

> ♺ ENVIRONMENTAL REMARK
> Dispose the packaging in an environmental safe manner. Please inform yourself on local regulations with respect to the disposal of reusable materials.

5.   TO SETUP YOUR PERIPHERAL EQUIPMENT

Please refer to the user manuals of your terrestrial antenna, dish, TV, video recorder and/or audio equipment to make sure this equipment is properly installed and configured before you install the receiver.

EchoStar recommends that you follow at least the following instructions:

5.1.   THE TERRESTRIAL ANTENNA

1. Make sure:
    - The terrestrial antenna is in good condition and well aligned for the best reception (avoid corroded contacts);
    - The UHF coaxial cable is in a good condition (no excessive bends or damaged insulation);
    - The UHF coaxial cable connections are well shielded (metal connectors).
2. If necessary, do any work.

5.2.   THE DISH

1. Make sure:
    - The outdoor components of the dish are good condition;
    - The dish is well aligned for the best reception;
    - The dish is connected with the correct RF coaxial cable (75 Ohm) and connectors;
    - The cables from the dish are in a good condition (no excessive bends or damaged insulation).
2. If necessary, do any work.

5.3.   THE TV, VIDEO RECORDER AND AUDIO EQUIPMENT

1. Make sure:
    - Safe access to the connections is available;
    - The equipment is switched off;
    - It is safe to remove and install the cables.
2. If necessary, do any work.

6.   TO SETUP THE RECEIVER

You can install the receiver safely in a convenient location if you adhere to the warning:

⚠️ WARNING
DO NOT INSTALL THE RECEIVER:
- in a closed or poorly ventilated cabinet;
- directly on top of or under another equipment;
- on a surface which will obstruct the ventilation slots.

DO NOT EXPOSE THE RECEIVER AND IT'S ACCESSORIES:
- to rain or excessive moisture to avoid the risk of shock or permanent damage to your receiver;
- to direct sunlight, heaters, stoves or any other heat generating equipment;
- to any magnetic objects, such as speakers, electric motors, transformers, etc.;
- to excessive vibration.

1.   CONNECT YOUR EQUIPMENT

It is possible to connect the different equipment with the use of UHF coaxial cables, SCART cables, and/or so called audio/video cables with RCA connectors.

⚠ WARNING

ALL EQUIPMENT INVOLVED IN THE INSTALLATION TASK MUST BE INSTALLED CORRECTLY AND SWITCHED OFF. MAKE SURE THAT IT IS SAFE TO PROCEED WITH THE INSTALLATION TASK. UNSAFE CIRCUITS AND INSTALLATIONS CAN CAUSE (SERIOUS) INJURY OR DAMAGE TO EQUIPMENT.

CONNECTION WITH UHF COAXIAL CABLES

1. On the TV, find the UHF-coaxial cable that is connected to the terrestrial antenna or cable network.
2. Remove the UHF-coaxial cable from the TV and make sure the cable condition is OK.
3. On the rear panel of the receiver find the **TV OUT** connector.
4. Install an UHF-coaxial cable between the **TV OUT** connector (receiver) and the antenna connector (TV).
5. On the rear panel of the receiver find the **ANT IN** connector.
6. Install the UHF-connector (terrestrial antenna) to the **ANT IN** connector (receiver).

CONNECTION WITH SCART CABLES

1. On the TV find the SCART cable that is connected to the VCR.
2. Remove the SCART connector that is connected to the VCR from the TV.
3. On the rear panel of the receiver find the **DECODER**, **TV** and **VCR** SCART connectors.
4. Install a full featured SCART cable between the decoder and the **DECODER** SCART connector (receiver).
5. Install a full featured SCART cable between the VCR and the **VIDEO** SCART connector (receiver).
6. Install a full featured SCART cable between the **TV** SCART connector (receiver) and the SCART connector on the TV (old SCART connection to the VCR).

CONNECTION With Audio/video cable (RCA-CONNECTORS)

1. On the rear panel of the receiver find the **VIDEO, AUDIO L** and **AUDIO R** connectors.
2. Install an audio/video cable between:
   a.   the **VIDEO** connector of the receiver and TV (yellow);
   b.   the **AUDIO L** connector of the receiver and TV (white);
   c.   the **AUDIO R** connector of the receiver and TV (red).

### CONNECTION WITH DOLBY DIGITAL AUDIO CABLE (RCA-CONNECTORS)

1. On the rear panel of the receiver find the **S/PDIF** connector.
2. Install an audio/video cable (black) between:
   a.   the **S/PDIF** connector (receiver) and Dolby Digital connection of the Dolby digital compatible installation.

CONNECTION WITH SERIAL CABLE (0-MODEM CABLE)

1. On the rear panel of the receiver find the **SERIAL PORT** connector.
2. Install a serial cable between the **SERIAL PORT** connector (receiver) and the serial port connection of the PC.

CONNECTION WITH USB CABLE

1. On the rear panel of the receiver find the **USB** connector.
2. Install a serial cable between the **USB** connector (receiver) and the USB connection of the PC.
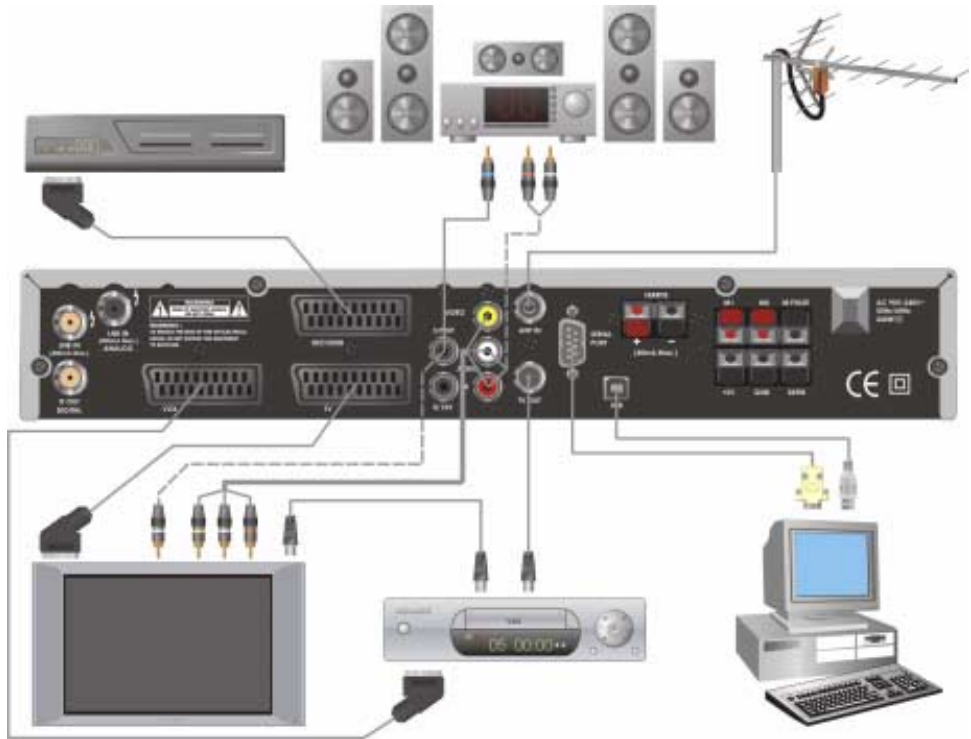
2.   CONNECT A DISH

It is possible to connect the different dish configurations with the use of RF coaxial cables. Only the most common configurations are discussed. If in doubt, please ask the EchoStar service department for advice.

⚠ WARNING

ALL EQUIPMENT INVOLVED IN THE INSTALLATION TASK MUST BE INSTALLED CORRECTLY AND SWITCHED OFF. MAKE SURE THAT IT IS SAFE TO PROCEED WITH THE INSTALLATION TASK. UNSAFE CIRCUITS AND INSTALLATIONS CAN CAUSE (SERIOUS) INJURY OR DAMAGE TO EQUIPMENT.

❗ CAUTION

Tighten the cable connectors only by hand. Do not use any tools. You will damage the connector pins if you overtighten the connector. This will result in loss of signal quality, or even total loss of reception.

1. On the dish installation, connect a RF cable (for detailed instructions, refer to the manufacturer's instructions).
2. On the rear panel of the receiver find the **LNB IN** (digital), the **IF OUT** and the **LNB IN ANALOG** connectors.

FIXED DISH INSTALLATION WITH LNB(F)

3. Install the F-connector (dish) to the **LNB IN** connector (receiver).
4. Install the delivered loop through cable between the **IF OUT** connector (receiver) to the **LNB IN ANALOG** connector (receiver).

FIXED DISH INSTALLATION WITH DISEqC SWITCH

3. Install the F-connector (DiSEqC switch) to the **LNB IN** connector (receiver).
4. Install the delivered loop through cable between the **IF OUT** connector (receiver) to the **LNB IN ANALOG** connector (receiver).

MOTORIZED DISH INSTALLATION WITH LNB(F)

1. On the dish installation (for detailed instructions refer to the manufacturer's instructions):
    a. connect a RF cable;
    b. connect the power and sensor cables;
    c. if present, set the East and West limit switches to prevent dish damage.
2. On the rear panel of the receiver find:
    a. the **LNB IN** (digital), the **IF OUT** and the **LNB IN ANALOG,** connectors;
    b. the **M.PULSE**, the **GND**, the **M1** and the **M2** connectors.
3. Install the F-connector (dish) to the **LNB IN** connector (receiver).
4. Install the delivered loop through cable between the **IF OUT** connector (receiver) to the **LNB IN ANALOG** connector (receiver).
5. On the rear panel of the receiver find the **M.PULSE**, the **GND**, the **M1** and **M2** connectors.
6. First install the motor sensor cables to the **M.PULSE** and **GND** connector (receiver).
7. Install the motor power cable to the **M1** and **M2** connectors (receiver).

DISH INSTALLATION WITH FERRITE FEED

1. On the dish installation, connect the ferrite cables (for detailed instructions refer to the manufacturer's instructions).
2. On the rear panel of the receiver find the **Ferrite +** and the **Ferrite -** connectors.
3. Install the ferrite power cable to the **Ferrite +** and **Ferrite -** connectors (receiver).

DISH INSTALLATION WITH POLAROTOR

1. On the dish installation, connect the polarotor cables (for detailed instructions refer to the manufacturer's instructions).
2. On the rear panel of the receiver find the **+ 5V**, the **GND** and the **SKEW** connectors.

❗ CAUTION
It is possible that the **GND** connector is already occupied by the motor sensor cable. If you need to connect the GND for the polarotor as well, please use the appropriate connection materials to connect both cables. Failing to do so can cause damage to the equipment.

---

3. Install the polarotor power cable to the **+ 5V** and **GND** connectors (receiver).
4. Install the polarotor skew cable to the **SKEW** connector (receiver).

3
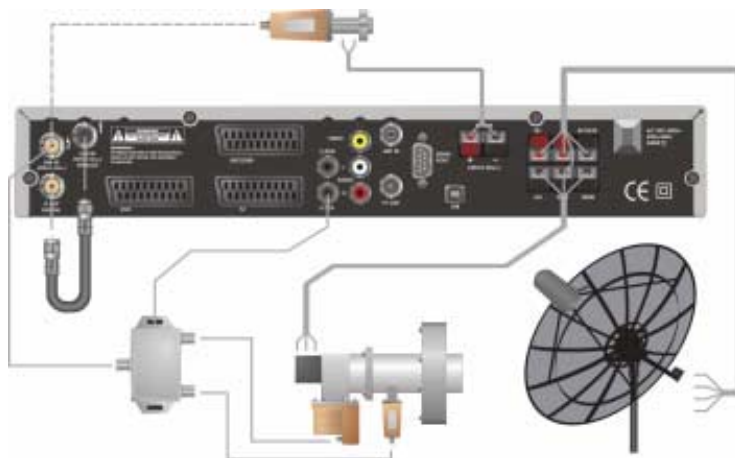
3. TO SETUP YOUR RECEIVER FOR THE FIRST TIME

This procedures will guide you step-by-step through the initial setup of the receiver. After you have finished the initial installation, these pages are accessible through the icons in the menu bar which is in the initial setup not shown.

☞ **NOTE**

Unless otherwise specified; This note explains the way you can navigate through the pages of the EchoNAV initial setup menu.

1. Use the OK key to pull down the menu selection fields.
2. Use the ▲ ▼ arrow keys to go through the selectable menu items.
3. In a pull-down menu, use the OK key to confirm the selection.
4. Use the ◀ ▶ arrow keys to navigate between the left and right column of selectable menu items.
5. Use the EXIT key to leave the menu and return to the live mode.

---

1. Switch on the TV.
2. On the receiver, press the on/standby button.
	■ The receiver display shows:
	  - first a moving dot;
	  - then it shows - - - -
	■ The TV shows the first page.

3. Make the required selections. 4. Read the available help text for information. 5. Go to the Continue field. 6. On the RCU, press the OK key to advance.	
7. Make the required selections. 8. Read the available help text for information. Note that only the white fields are selectable, other fields show reference information. 9. Go to the Continue field. 10. On the RCU, press the OK key to advance.	
11. Make the required selections. 12. Read the available help text for information. 13. Go to the Continue field. 14. On the RCU, press the OK key to advance.	

☞ NOTE

The receiver needs the correct local time to collect and show the EPG (Electronic Program Guide). An incorrectly entered local time will result in no EPG information.

15. Make the required selections.	
16. Read the available help text for information.	
17. On the RCU, use the ◀ ▶ keys to select.	
18. Go to the Press OK to set the time. Note that the local time is shown correctly.	
19. On the RCU, press the OK key to advance.	
20. Go to the Continue field.	
21. On the RCU, press the OK key to advance.	

3

☞ NOTE

From the next step onwards, the procedure is divided in different configurations. The configurations are; Fixed, Motorized and SMATV.

■ Fixed means set up either a single dish, multiple dishes with DiSEqC switch;

■ Motorized means set up a moveable dish (motor/actuator by positioner);

■ SMATV means set up for television distribution (cable network in buildings).

FOR FIXED AND DISEQC 1..4 SWITCH INSTALLATIONS

22. Make the required selections.	
23. Read the available help text for information. Note that only the white fields are selectable, other fields show reference information.	
24. Go to the Check Signal field.	
25. On the RCU, press the OK key to advance.	
26. Wait for the Checking Configuration to complete.	
27. Make the required selections.	
28. Read the available help text for information.	
29. If the red dot in the transponder field stays:	
a. select another transponder;	
b. go to the check signal field;	
c. on the RCU, press the OK key.	
30. Go to the Search Channels field.	
31. On the RCU, press the OK key to advance.	

32. Wait for the search to complete:
    a. the receiver display shows a moving dot;
    b. the search completed popup menu appears.
33. On the RCU, press the OK key. to end the initial setup procedure.

### FOR MOTORIZED INSTALLATIONS - AUTOSAT

> **!**　CAUTION
> On the motorized dish, set the physical East and West limit switches first. Failing to do so might cause damage to your motorized dish installation or other properties.

22. Make the required selections.
23. Read the available help text for information. Note that only the white fields are selectable, other fields show reference information.
24. Go to the Autosat field.
25. On the RCU, press the OK key to advance.

26. On the RCU:
    a. press the ◀ key to set the East limit;
    b. at the motor error, press the ▶ key once;
    c. press the OK key.
27. On the RCU, press the OK key.
28. Select a Eastern satellite which you can receive.
29. When in the location field:
    a. press and hold the ▶ key and watch the signal indicator for an indication;
    b. in the signal indicator, make sure a network name is shown;
    c. press the ▲ key to select another transponder for signal verification;
    d. use the ◀ ▶ key to fine tune for the best signal level and quality;
    e. press the ▼ key to select the location bar;
    f. press the OK key, note that the saved position of the satellite is shown.
30. Repeat the procedure for the middle and Western Satellite.
31. Set the West limit (▶ key), refer to step 26.
32. Go to the Autosat field.
33. On the RCU, press the OK key to advance.

34. Make the required selections.
35. Read the available help text for information.
36. Go to the Search Channels field.
37. On the RCU, press the OK key to advance.

38. Wait for the search to complete:
    a. the receiver display shows a moving dot;
    b. the search completed popup menu appears.
39. On the RCU, press the OK key. to end the initial
    setup procedure.

FOR MOTORIZED INSTALLATIONS - MANUAL SELECTION

!   CAUTION
    On the motorized dish, set the physical East and West limit switches first. Failing to
    do so might cause damage to your motorized dish installation or other properties.

22. Make the required selections.
23. Read the available help text for information.
    Note that only the white fields are selectable,
    other fields show reference information.
24. Go to the Set Limits field.
25. On the RCU, press the OK key to advance.

26. On the RCU:
    a. press the ◀ key to set the East limit;
    b. at the motor error, press the ▶ key once;
    c. press the OK key.
27. On the RCU:
    a. press the ▶ key to set the West limit;
    b. at the motor error, press the ◀ key once;
    c. press the OK key.
28. Go to the Program Satellites field.
29. On the RCU, press the OK key to advance.

30. Make the required selections. 31. Read the available help text for information. 32. Go to the Search Channels field. 33. On the RCU, press the OK key to advance.	

34. Wait for the search to complete:
    a. the receiver display shows a moving dot;
    b. the search completed popup menu appears.
35. On the RCU, press the OK key. to end the initial setup procedure.	
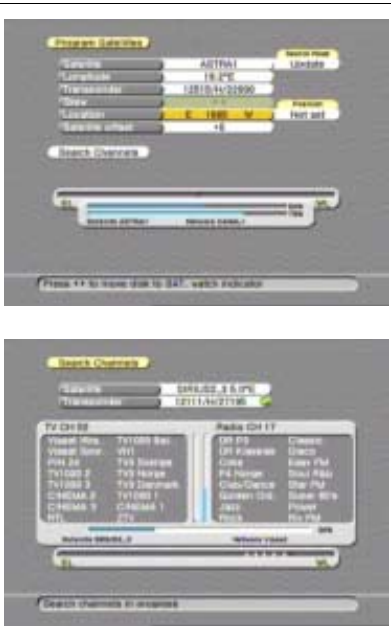
FOR SMATV INSTALLATIONS

22. Make the required selections. After the initial installation it is possible to add more symbol rates. Refer to section Maintenance for detailed instructions. 23. Read the available help text for information. 24. Go to the Check Signal field. 25. On the RCU, press the OK key to advance.	

26. Wait for the search to complete:
    a. the receiver display shows a moving dot;
    b. the search completed popup menu appears.
27. On the RCU, press the OK key to end the initial setup procedure.	

1. THE RECEIVER

The digital satellite receiver has 2 Common Interface slots. The front panel gives you the control over the basic functions. The rear panel gives you various connections to connect the audio and video equipment as well as a terrestrial and dish antenna. Ventilation slots in the housing are provided for cooling of the internal electronics.

The software of the receiver contains the EchoNAV user interface with on-screen help, which gives you easy control over the features of the receiver. The software contains also a large database of pre-programmed satellites and transponders which are used for a quick installation. For initial installation, the software guides you through the required setup menu to allow for an easy and reliable installation setup of the receiver.

FEATURE HIGHLIGHTS

- Multilingual Advanced User Interface (*12+ languages*);
- Embedded Viaccess 1.1;
- 40 Gbyte Low Noise Audio/Video Hard Disk Drive;
- Digital Audio/Video Recording with Slow Motion, Pause, FF, Rew;
- Pause Live Video;
- MP3 Player, 500 Songs (*typical.*)/USB Port;
- 6 Week EPG (*Saved on Hard Disk*);
- 5,700 Channels, 100 Satellites, 1,300 Transponders;
- 8 Favorite Lists for each Mode (*TV, Radio, DVR, MP3*);
- Powerful Channel Sorting and Grouping;
- Multiple Scan Modes (*incl. Update Scan*);
- Digital Audio Output (*Dolby Digital Compatible);*
- Integrated High Power Positioner (*36 Volt, 5 Amp.*);
- Software Updates via Internet/Satellite (*OTA).*

1.1. THE RECEIVER FRONT PANEL

The front panel has:

- The display,
  to show the clock or the actual status of the receiver;

- The ⏻ key,
  to switch the receiver to on or stand-by;
- The **MENU** key,
  to get access to the EchoNAV installation menu;
- The **OK** key,
  to get access to the EchoNAV mode and selection menu;
- The arrow keys,
  to navigate left, up, right and down through the selectable options;
- The access door,
  to access the different slots for the CI-modules and smart cards.

1.2. THE RECEIVER REAR PANEL

The rear panel gives you various connections to connect the audio and video equipment as well as a terrestrial and dish antennas. Depending on the installation setup, you may not use all connectors, but they are provided for any desired setup in future.

The available connectors on the rear panel are:

- The **LNB IN** connector (F-type), for the connection of a dish to the receiver, to receive the digital broadcasts;
- The **IF OUT DIGITAL** connector (F-type), for the connection of a loop through cable;
- The **LNB IN ANALOG** connector (F-type), for the connection of a dish to the receiver, to receive the analog broadcasts;
- The **S/PDIF** connector (RCA), for the connection of Dolby Digital (AC-3) compatible audio equipment;
- The **VIDEO** connector (RCA), for the connection to the composite video input of the TV (monitor);
- The **AUDIO L** connector (RCA), for the connection of the left audio input channel of a stereo set;
- The **AUDIO R** connector (RCA), for the connection of the right audio input channel of a stereo set;
- The **ANT IN** connector (IEC), for the connection of an terrestrial TV antenna;
- The **TV OUT** connector (IEC), for the connection to the antenna connector of a TV or a VCR;
- The **SERIAL PORT** connector (sub-D), for the connection to the serial communication port of a PC;
- The **USB** connector (slave USB), for the connection to an operational USB port of a PC;

- The **VCR** connector (SCART), for the connection of a VCR with the use of a fully-featured SCART-cable;
- The **DECODER** connector (SCART), for the connection of a decoder with the use of a fully-featured SCART-cable;
- The **TV** connector (SCART), for the connection of a TV with the use of a fully-featured SCART-cable;
- The **0/12V** connector (RCA), for the connection of a remote switch;
- The **FERRITE +** connector (spring-clip), for the connection to the + terminal of a magnetic polarotor (Ferrite);
- The **FERRITE -** connector (spring-clip), for the connection to the - terminal of a magnetic polarotor (Ferrite);
- The **M1** connector (spring-clip), for the line 1 connection of a motor or actuator (for motorized/actuated dishes);
- The **M2** connector (spring-clip), for the line 2 connection of a motor or actuator (for motorized/actuated dishes);
- The **M.PULSE** connector (spring-clip), for the connection of the feedback sensor (for motorized/actuated dishes);
- The **+5V** connector (spring-clip), for the connection of the power terminal of a polarotor;
- The **GND** connector (spring-clip), for the connection of the ground terminal of the feedback sensor and the polarotor;
- The **SKEW** connector (spring-clip), for the connection of the skew terminal of a polarotor;

1.3.   THE REMOTE CONTROL UNIT (RCU)

The EchoStar Quattro is a programmable RCU that also can control your TV, VCR, DVD and/or Audio set. The EchoStar Quattro requires two AA/R6 alkaline batteries to operate.

- **ON/STANDBY**
  To switch to standby or on.
- **VCR**
  To control the VCR.
- **TV**
  To control the TV.
- **EPG**
  To view the EPG.
- **MENU**
  To go to the installation menu.
- **VOL+**
  To increase the volume.
- **VOL-**
  To decrease the volume.
- **ARROW CLUSTER**
  To scroll left, up, right or down.
- **EXIT**
  To leave a menu or feature.
- **PAGE+**
  To go one page up.
- **PAGE -**
  To go one page down.
- **ALT AUDIO**
  To choose a language.
- **ALT SUBTITLE**
  To choose a subtitle.
- **STOP**
  To stop the recording or play back of an event;
  To return to actual time in the EPG window
- **REWIND**
  To go to the beginning of an recorded event fastly.
- **RECORD (press twice)**
  To record a live program.
- **SKIP BACKWARD**
  Not used for Sat-mode.
- **GREEN**
  To select a (favorites) list.
- **RED**
  To go to another mode.
- **NUMBER KEYS**
  To enter numerical settings;
  To type in a channel number.
- **TV/RAD**
  To switch to TV or Radio mode.

- **MUTE**
  To blank out the volume.
- **AUX**
  To control the Audio Set or DVD.
- **SAT**
  To control the receiver.
- **i**
  To view the InfoBanner;
  To view detailed EPG information.
- **Satellite Dish**
  To select another satellite.
- **CH+**
  To go one channel up.
- **CH-**
  To go one channel down.
- **OK**
  To go to the (favorites) lists;
  To make a menu selection;
  To pull down a selection menu.
- **PREVIOUS**
  To go to the previous channel;
  To access special features.
- **?**
  Not used for Sat-mode.
- **V (white)**
  To edit a list
- **PLAY**
  To play back a recorded event.
- **FAST FORWARD**
  To go to the end of an recorded event fastly.
- **PAUSE**
  To pause the playback of an event;
  To pause a live program.
- **SKIP FORWARD**
  Not used for Sat-mode.
- **YELLOW**
  To group a list;
  To select an EPG timer.
- **BLUE**
  To sort a list;
  To zoom in/out the time slot of the EPG view window.
- **FAV**
  To go to the favorite list of the actual mode.

4

1.4.   THE ECHONAV USER INTERFACE

The EchoNAV user interface is designed to give you easy control over the receiver. The EchoNAV user interface has four main features that give access to the different functions. The four main features are:

■ The EchoNAV installation menu,
  that helps you to setup the receiver and access the parental lock settings;
■ The EchoNAV user menu,
  that helps you to control the daily operation and selection of the favorites;
■ The EchoNAV EPG menu,
  that helps you to control the different timers and to view the available EPG;
■ The EchoNAV InfoBanner,
  that helps you to view the available information about the actual mode.

The EchoNAV user interface has various ways to navigate through the menus and functions. Some of the keys on the remote control unit give direct access to functions. The most important keys are identified as EPG, colored keys, MENU, OK and record (press twice). Other keys are multi-functional which means that their function changes dependent of the mode that you are in.

☞ NOTE
   Unless otherwise specified; this note explains the way you can navigate through the pages of the EchoNAV user menu.
   1. Use the OK key to pull down the menu selection fields.
   2. Use the ▲ ▼ keys to scroll the selectable items.
   3. Use the ◄ ► keys to navigate between the left and right column of selectable items.
   4. Use the EXIT key to leave the menu and return to the view mode.
   5. In a pull-down menu:
      - use the OK key to confirm the selection.
      - the yellow bar indicates the active selection;
      - on the left, the green page indicator indicates where you are..

2.   THE ECHONAV INSTALLATION MENU

The EchoNAV installation menu has different main menus that give you access to the different sub menus. The main menus are:

■ The guided initial setup menu which is only accessible after the first time you switch the receiver on and after every manually initiated factory reset;
■ The User Preferences menu, the installation setup menu and the CI menu are accessible at any time.

NAVIGATION

A highlighted button shows you which (main/sub) menu is selected. The MENU key lets you change between the main and sub menu where the ◄ ► keys let you make a selection in the selected (main/sub) menu. The OK key brings you into the related page, where you can make a choice from the available options.

☞ NOTE
   Once in a page, at any time:
   ■ you can use the MENU key to reverse from a menu page to the sub menu bar;
   ■ you can easily leave with the EXIT key.

The main menus are divided in sub menus, selection pages and option fields. The main menu buttons are shown at the right hand side of the menu bar. The different sub menu buttons are shown on the left hand side of the menu bar.

The selection pages with the option fields are accessible after you have selected a sub menu.

Every menu, sub menu and selection page has one or more help lines to assist you.

The main menus are accessible with:

■ The button, that gives you access to the User Preferences menu.

■ The button, that gives you access to the installation setup menu.

■ The button, that gives you access to the Conditional Access menu.

2.1. THE USER PREFERENCES MENU

This main menu has different sub menus that give access to the pages where you can customize the factory settings.

The user preferences menu always comes in view with the User Profile sub menu. In the menu bar the sub menus are shown at the right side. The available sub menus are shown as icons which become a highlighted button after selection.

The sub menus are accessible with:

■ The button, that gives you access to the User Profile page.

■ The button, that gives you access to the Languages page.

■ The button, that gives you access to the Parental Lock page.

■ The button, that gives you access to the Local Time page.

■ The button, that gives you access to the TV System page.

2.1.1. USER PROFILE PAGE

This menu page allows you to customize the user profile, you can customize:

- Aspect ratio
  To set the screen size of the TV.
- Banner time out
  To set the view time for the InfoBanner.
- Dolby Digital
  To tell the receiver that it is connected to a Dolby Digital amplifier or not.
- Backgrounds
  To select the standard or a personal background.

2.1.2. LANGUAGES PAGE

This menu page allows you to customize the language settings, you can customize

- Menu Language
  To set the language you want to use in the menus.
- Main audio language
  To set language for programs with bi-lingual audio.
- 2nd audio language
  To set language for programs with bi-lingual audio.
- Subtitling language
  To set language for bi-lingual subtitled programs.
- 2nd subtitling language
  To set language for bi-lingual subtitled programs.

2.1.3. PARENTAL LOCK PAGE

The parental lock menu is initial accessible with the factory default PIN code 0000. For future use, you are requested to change the PIN code to your own personal code.

This sub menu contains two menu pages. These menu pages are:

TO CHANGE THE PARENTAL LOCK SETTINGS

This menu page allows you to customize the parental lock settings, you can customize:

- Receiver Lock
  To lock the receiver completely for unauthorized users.
- Installation Lock
  To lock the installation menu for unauthorized users.
- Channel lock
  To lock or unlock all locked selections at once.
- Master hide
  To hide or unhide all hidden selections at once.
- Change PIN Code
  To access the change PIN code page.

TO CHANGE THE PIN CODE

This menu page allows you to change the PIN code, you can change:

- Old password
  To type in the factory default or personal PIN code.
- New password
  To type in your new PIN code (numbers only).
- Verify password
  To type in your New password again. Now the receivers verifies the new password to make sure that you typed in the new password correctly.

2.1.4. LOCAL TIME PAGE

This menu page allows you to customize the local time settings. For the correct operation of the EPG and the timers, it is necessary to set the local time correctly. You can customize:

- Selected time zone
  To set the time zone where you are.
- Year
  To set the actual year.
- Month
  To set the actual month.
- Date
  To set the actual date.
- Day
  To set the actual day.
- Hour
  To set the actual time in hours.
- Minute
  To set the actual time in minutes.
- Press OK to set the time
  To confirm the settings you made.

2.1.5. TV SYSTEM PAGE

This menu page allows you to customize the TV settings used for the receiver, you can customize:

- Channel
  To select the (UHF) TV channel to which the receiver is connected.
- CH Frequency
  To view the frequency that corresponds with the selected channel. You can not set this option.
- System
  To set the video format supported by your TV.

2.2.   THE INSTALLATION SETUP MENU

This main menu has different sub menus that give access to the pages where you can customize the settings to match your personal requirements.
Note that the sub menus are dynamic which means that they change with the selections you make.
The installation setup menu always comes in view with the system setup sub menu. In the menu bar the sub menus are shown at the right side. The available sub menus are shown as icons which become a highlighted button after selection. The sub menus are accessible with:

■ The [icon] button, that gives you access to the System Setup page (for Fixed dish).

■ The [icon] button, that gives you access to the System Setup page (for motorized dish).

■ The [icon] button, that gives you access to the Program Satellites page (for motorized dish).

■ The [icon] button, that gives you access to the User LNB Setting page.

■ The [icon] button, that gives you access to the About EchoStar information page.

■ The [icon] button, that gives you access to the System Upgrade page.

■ The [icon] button, that gives you access to the Factory Reset page.

SIGNAL AND EL-WL INDICATOR

In some menus the signal indicator is shown to help you to find a satellite and fine tune for the best signal level and quality.

In some menus (motorized only), an EL-WL indicator is shown to show you what the East and West limits are that you have set for the dish installation, also the position of the searched satellites is shown.

■ The signal indicator
The top bar shows the signal level to indicate that you receive a signal.
The bottom bar shows the quality of the signal (signal-to-noise ratio) to indicate that you have a lock onto the selected transponder.
The bottom text gives the satellite and network information to which the lock is established.

■ The EL-WL indicator (motorized only)
EL and WL show you the calculated East and West Limits. The Indication in the EL-WL indicator show you the calculated position of the searched satellites. Note that this indicator can also show in the TV or Radio mode as part of the InfoBanner.

2.2.1. SYSTEM SETUP MENU

This sub menu allows you to customize the system setup to match your installation. Note that the menu page is dynamic which means that it changes with the selections you make. You can customize:

■ System
  To set the dish type you use.
■ LNBs
  To set the amount of LNBs you have installed.
■ Polarity
  To set the device that controls the signal polarity.
■ Switch
  To set the switch type which you use to control the dish installation (if used).
■ LNB1
  To set the LNB type(s) you use.
■ Method (motorized only)
  To set the scan method;
  AutoSat (automatically calculate the satellite positions from reference positions)
  Manual (enter the satellites by manual search).
■ AutoSat (motorized, AutoSat only)
  To confirm the selections you made and advance to the AutoSat setup page (AutoSat only)
■ Set Limits (motorized, manual only)
  To confirm the selections you made and advance to the Set Limits page.
■ Satellite (fixed only)
  To set the satellite you want to scan for the LNB.
■ Check Signal (fixed only)
  To confirm the selections you made and advance to the Check Signal page.
■ LNB Power (SMATV only)
  To select the distribution type (cable=Off, IF=On).
■ Symbol Rate 1-4 (SMATV only)
  To set the symbol rate you want to scan.
■ Search Channels (SMATV only)
  To confirm the selections you made and advance to the Search Channels page.

2.2.2. FIXED DISH SETUP

This sub menu allows you to customize the system setup to add an additional fixed dish into your motorized configuration. Note that the menu page is dynamic which means that it changes with the selections you make. You can customize:

■ LNBs
To set the amount of LNBs you have installed.

■ Polarity
To set the device that controls the signal polarity.

■ Switch
To set the switch type which you use to control the dish installation.

■ LNB1
To set the LNB type(s) you use.

■ Satellite
To set the satellite you want to scan for the LNB.

■ Check Signal
To confirm the selections you made and advance to the Check Signal page.

2.2.3. PROGRAM SATELLITES

This sub menu allows you to customize the system setup to add an additional satellite into your receiver. Note that the menu page is dynamic which means that it changes with the selections you make. You can customize and view:

■ Satellite
To set the satellite you want to scan for the LNB.

■ Search mode
To set a specific search mode (All, FTA, IF, TP, network or update).

■ Longitude
To view the satellite location on the Clarke Belt.

■ Transponder
To select a transponder of the selected satellite.

■ Skew
To adjust the Horizontal/Vertical setting (only for polarotor).

■ Location
To move the dish for best signal level and quality.

■ Satellite offset
To compensate for a dish offset caused by ambient conditions.

☞ **NOTE**
The satellite offset will affect all satellite positions, this means that all scanned positions will change which might result in total loss of signal for all satellites.

■ Search Channels
To confirm the selections you made and advance to the Search Channels page.

2.2.4. USER LNB SETTING

This sub menu allows you to program a LNB that is not listed in the LNB selection list. Note that the menu page is dynamic which means that it changes with the selections you make. You can customize:

- ■ User's LNB
  To select the first or second user defined LNB.
- ■ Low Frequency
  To enter the low frequency of the user LNB.
- ■ High Frequency
  To enter the high frequency of the user LNB.
- ■ Polarity Control
  To select the device that controls the polarity.
- ■ Band Control
  To set the control signal for high or low band selection.
- ■ Ku/C Control
  To set the control signal for the Ku/C LNB.
- ■ Store settings
  To confirm the selection and save the settings.

2.2.5. ABOUT ECHOSTAR

The About EchoStar menu gives all the where-to-contact-Information about EchoStar and the status information about the receiver. You can view:

- ■ Company
  This field shows the full name of EchoStar.
- ■ Address
  This field shows the address of EchoStar.
- ■ S/W version
  This field shows the current software version loaded into the receiver.
- ■ Boot version
  This field shows the current boot version loaded into the receiver.
- ■ Web site
  This field shows the EchoStar web site where you can find the latest user and software information.

4

2.2.6. SYSTEM UPGRADE PAGE

This menu page allows you to upgrade the receiver's software. EchoStar provides software updates Over-The-Air (OTA) which means that you can upgrade your system via the satellite.

If you are not able to receive the satellite/transponder, you always can upgrade the software through the SERIAL PORT (RS232) at the rear of the receiver and the downloaded software from the EchoStar website.

■ Location
  To select the default or user defined satellite where you want to download from.
■ Satellite
  To set the satellite where you want to download from.
■ TP frequency
  To set the transponder where you want to download from.
■ Polarity
  To set the correct polarity for the transponder.
■ Symbol rate
  To set the correct symbol rate for the transponder.
■ FEC
  To set the correct Forward Error Correction for the transponder

2.2.7. FACTORY RESET

The Factory Reset menu gives you the possibility to reset the receiver to the initial factory settings. The memory erase option restores the factory settings over your personal settings. All customized data like parental lock and favorites will be replaced with the factory settings.

■ Memory Erase - User Data
  To instruct the receiver to delete all personal settings and replace them with the factory settings, the PIN code is reset to the factory default 0000.
■ HDD Erase - Recordings
  To instruct the receiver to delete (only) all TV and Radio recordings from the hard disk.
■ HDD Erase - MP3 Songs
  To instruct the receiver to delete (only) all MP3 songs from the hard disk.
■ HDD Erase - Backgrounds
  To instruct the receiver to delete (only) all the personal backgrounds from the hard disk.
■ HDD Erase - EPG Data
  To instruct the receiver to delete (only) all scheduled EPG data from the hard disk.
■ Confirm Reset
  With this field you can confirm the selections made and execute the selected procedure.
  After the memory erase procedure is finished, you are taken to the initial setup procedure.
  (for detailed instructions, please refer to section 4).

2.3. THE CI INFORMATION MENU

This main menu has different sub menus that give access to the pages where you can view the CI-module and smart card settings.
Note that the sub menus are dynamic which means that they change with the selections you make.
The conditional access information menu always comes in view with the system setup sub menu. In the menu bar the sub menus are shown at the right side. The available sub menus are shown as icons which become a highlighted button after selection. The sub menus are accessible with:

The ⬚ button, that gives you access to the CI-module 1 information page;

The ⬚ button, that gives you access to the CI-module 2 information page;

The ⬚ button, that gives you access to the Viaccess smart card reader information page.

2.3.1. CI-MODULES

The CI-modules sub menu gives all the Information about the CI-module and related smart card that is inserted. Note that the menu is dynamic which means that it changes with the type of CI-module and related smart card inserted. The menus for slots 1, 2 and 3 are almost identical, therefore only an example for slot 1 is shown. You can view:

■ Module
  Gives information about which CI-module and related smart card is inserted in the selected CI-slot.

■ Viaccess Embedded (smart card reader only)
  Gives information about which Viaccess compatible smart card is inserted in the Viaccess smart card reader.

CONDITIONAL ACCESS INFORMATION

■ As an example;
  this page shows the additional information that is available from the inserted CI-module and smart card.

■ Note that this page can show differently for other CI-modules and smart cards.

■ EchoStar has no control over the information provided by the related service provider, therefor no specific information is given.

3.   THE ECHONAV MODE AND SELECTION MENUS

3.1.   INTRODUCTION

The mode and selection menu gives access to the current list, related features and on-screen help lines. After you have entered the mode and selection menu you can manipulate the lists through:

■ The Mode bar (red);

■ The List bar (green);

■ The Edit bar (white);

■ The Group bar (yellow);

■ The Sort bar (blue).

3.2.   MODE

The Mode bar gives access to the different receiver modes. The receiver modes are:

■ TV
To switch the receiver in the TV mode and to access the list of TV channels.

■ Radio
To switch the receiver in the Radio mode and to access the list of Radio channels.

■ DVR
To switch the receiver in the DVR mode and to access the list of DVR events.

■ MP3
To switch the receiver in the MP3 mode and to access the list of MP3 songs.

■ Lists
To switch the receiver in the Lists mode and to access the favorite lists.

3.3.   LIST

The Lists are available in the all modes. Some of the lists are factory defined and other lists (Favorite lists) are user defined. Favorite lists are lists of your favorite items that are created and maintained by you. In every mode you can setup a number of favorite lists. The lists available are (mode dependent):

■ All Channels
To access the list of scanned TV channels available on the scanned satellites.

■ Current Sat
To access the list of all scanned TV channels available on the current selected satellite.

■ Favorites
To access to your own favorite lists. You can rename the favorites to something meaningful to yourself, e.g. Film, Sport, Kids.

3.4. EDIT

The Edit options are available in the all modes. The Edit option gives you the possibility to customize the different lists. The availability of the Edit options is mode dependent, the available options are:

- None
  No edit option is selected.
- Move
  To enter the move channel function.
- Add
  To enter the add channel function.
- Rename
  To enter the rename channel function.
- Volume
  To enter the set volume offset function.
- Lock
  To enter the lock channel function.

- Delete
  To enter the delete channel function.
- Edit PID
  To enter the edit PID function.
- Add PID
  To enter the add PID function.
- Edit TP
  To enter the edit TP function.
- Add TP
  To enter the add TP function.
- Add SAT
  To enter the add SAT function.

3.5. GROUP

The Group options are available in the all modes. The Group option allows you to group the lists in different ways. The availability of the Group options is mode dependent, the available options are:

- None
  No group option is selected.
- Per Satellite
  To group the list per satellite.
- Per Network
  To group the list per network.
- Per Transponder
  To group the list per transponder.

(MP3 mode only)
- None
  No group option is selected.
- Per Genre
  To group the list per genre.
- Per Artist
  To group the list per artist.
- Per Album
  To group the list per album.

3.6.   SORT

The Sort options are available in all modes. The Sort options allow you to sort the lists in different ways. The availability of the Sort options is mode dependent, the available options are:

- None
  No sort option is selected.
- A to Z
  Sorts a list alphabetically.
- Z to A
  Sorts a list alphabetically, in reverse order.
- Character
  Shows list with entered character only.
- Word
  Shows a list that contains the selected word only.
- Scrambled
  Shows a list of encrypted channels only.
- FTA
  Shows a list of Free-To-Air channels only.
- Locked
  Shows a list of locked channels only.

4.   THE ELECTRONIC PROGRAM GUIDE (EPG)

Most digital channels transmit program data as an EPG. Digital channels that transmit EPG offer you program information in advance for a certain period of time. Dependent of the service provider, EPG is offered in different ways.

After you have entered the EPG, you can select the different EPG options, these are:

- Mode, to select the TV or Radio mode to show.
- List, to select the list in all channels, current satellite or personal favorite.
- Date, to access the EPG calendar.
- Timers, to select and set the VCR or Reserved timer.
- Zoom, to expand or shrink the EPG window as a function of the time slot.

4.1. THE TIMERS

The event timers are a kind of alarm clock. An event timer reminds you when a timed program or recording starts. You can set the next timers:

■ DVR timer, to automatically record a program onto the hard disk.

■ VCR timer, to automatically switch over to the timed program before it really starts. This allows you to record a program on a video tape (video recorder);

■ Reserved timer, to automatically switch over to the timed program before it really starts or when the receiver is in standby, to switch on the receiver.

If a timer is set on a program that is shown in the EPG, the relevant data is already shown in the timer. You can change the settings as follows:

■ Date, to set the start date for the timer;

■ Start time, to set the start time in hours/minutes;

■ Stop time, to set stop time in hours/minutes;

■ Period, to set the timer once or repeat for every occurrence;

■ Favorite list, to select a list where to save the recording (none saves into the all files list).

■ Parental lock, to lock or hide the recording automatically.

■ Status, to set (active) or delete (inactive) the timer.

■ Store settings, to program the timer.

Timers are shown in the EPG window as clocks.
In the List-Timers page, it is possible to get a list of the timers that are set. In this page you also can change or delete a set timer.

You can view an overview of all the timers that are set if you select the timers list.

5.   THE INFOBANNER AND POP-UP MENUS

5.1.   THE TV INFOBANNER

The TV InfoBanner shows the information related to the actual channel.

The information shown is (some information only if provided by the service provider).

- ■ The channel information bar, to show the (favorites) list number and the channel name;
- ■ The satellite information dish, to show the name of the selected satellite;
- ■ The program information bar, to show the start time, duration indicator and program name;
- ■ The i-button, to indicate that there is detailed program information available;
- ■ The additional information bar, to show the additional service icons. These icons show only if the additional service is available. The icons are:

  - the [icon] icon for teletext;

  - the [icon] icon for alternate audio;

  - the [icon] icon for alternate subtitling;

  - the [icon] icon for Dolby Digital audio;

  - the [icon] icon for Favorite channel;

  - the [icon] icon for Parental rating information.
- ■ The digital clock, to show the actual local time;
- ■ The next program information bar, to show the information of the next program.
- ■ If the volume +/- key is pressed, the volume button is shown (see the radio InfoBanner).
- ■ If the mute key is pressed, the volume button is shown with a red indicator.

5.2.   THE RADIO INFOBANNER

The radio InfoBanner shows the information related to the actual channel. The radio InfoBanner can show the same information as discussed with the TV InfoBanner.

5.3. THE DVR INFOBANNER

The DVR InfoBanner shows the information related to the actual recording. The information shown is (some information only if provided during the MP recording by the service provider).

- ■ The recording information bar, to show the name of the recording;
- ■ The jog shuttle, to show the actual status of the DVR (rewind, reverse slow motion, pause, play, fast forward and record);
- ■ The progress information bar, to show the start time and duration indicator;
- ■ The i-button, to indicate that there is detailed program information available;
- ■ The speed indicator to show the (re)wind and slow motion speed;
- ■ The menu bar, to show the special functions. The special functions are:

  - the ⊟ button, to mark a scene with an index marker;

  - the ⟲ button, to repeat the recording continuously;

  - the ⟳ button, to repeat all the recordings from the selected (favorite) list;

  - the A-B button, to mark and repeat a scene continuously;

  - the 📷 button, to capture an image as a personal background.

5.4. THE MP3 INFOBANNER

The MP3 InfoBanner shows the information related to the actual MP3 song.

- ■ The song information bar, to show the name of the recording;
- ■ The jog shuttle, to show the actual status of the MP3 player (rewind, pause, play and fast forward);
- ■ The progress information bar, to show the start time and duration indicator;
- ■ The i-button, to indicate that there is detailed information available;
- ■ The bass and treble indicators and the control button (alt audio key);
- ■ The menu bar, to show the special functions. The special functions are:

  - the RND button, to repeat the list in a random order;

  - the ⟲ button, to repeat the song continuously;

  - the ⟳ button, to repeat all the songs from the selected (favorite) list;

  - the A-B button, to mark and repeat a song fragment continuously;

5.5.   POP-UP MENUS

Some pop-up menus are used to show that the receiver is busy to execute a task. Other pop-up menus require interaction with the user, you have to confirm or deny a earlier given command to complete the task

5.5.1.   ALT AUDIO

If transmitted, you can set per channel your alternate audio. You can call up the pop-up menu with the alternative audio key on the remote control unit.
You can navigate up and down between the audio languages or left and right for bi-lingual programs.
For the radio channels, you can navigate up and down between the different radio stations within the selected channel.

5.5.2.   SUBTITLE

If transmitted, you can set per channel your subtitling
You can call up the pop-up menu with the subtitle key on the remote control unit.
You can navigate up and down between the languages.

5.5.3.   SATELLITE LIST

This pop-up menu gives you the possibility to choose directly from the available satellites. You can call up the pop-up menu with the satellite key on the remote control unit.

1.   TO NAVIGATE THROUGH THE MENUS

☞ NOTE

Unless otherwise specified; this note explains the way you can navigate through the pages of the EchoNAV user menu.

1. Use the OK key to pull down the menu selection fields.
2. Use the ▲ ▼ keys to scroll the selectable items.
3. Use the ◀ ▶ keys to navigate between the left and right column of selectable items.
4. Use the EXIT key to leave the menu and return to the view mode.
5. In a pull-down menu:
    - use the OK key to confirm the selection.
    - the yellow bar indicates the active selection;
    - on the left, the green page indicator indicates where you are.

☞ NOTE

In the following procedures, we assume that you have switched on the TV and the receiver is in the TV mode.

1.1.   TO SELECT A MODE

1. On the RCU, press the OK key;
2. Press the RED key and make the selection.
3. Read the available help text for information.

1.2.   TO SELECT A CHANNEL

1. On the RCU, press the OK key.
2. Select the required mode.
3. Read the available help text for information.
4. Select a channel, either:
    a. use the ▲ ▼ keys;
    b. use the page + / - keys;
    c. use the numbered keys.

☞ NOTE

Normally, you only can view a scrambled channel with the applicable CI-module and/or smart card inserted in a CI-slot or Viaccess smart card reader.

1.3.   TO SELECT A LIST

1. On the RCU, press the OK key.
2. Select the required mode.
3. Read the available help text for information.
4. On the RCU press the GREEN key.
5. Select the required list.

1.4.   TO GROUP A LIST

1. On the RCU, press the OK key.
2. Select the required mode.
3. Read the available help text for information.
4. On the RCU press the YELLOW key.
5. Select the required group option.

1.5.   TO SORT A LIST

1. On the RCU, press the OK key.
2. Select the required mode.
3. Read the available help text for information.
4. On the RCU press the BLUE key.
5. Select the required sort option.
    Note that only for the Character and Word option
    a keyboard appears.

6. When the keyboard appears:
    a. use the arrow keys to navigate;
    b. press OK to accept the character;
    c. select the ⬆ button to get lower case
        characters and numbers;
    d. select the ⬅ button
    e. on the RCU, press the OK key to confirm.

1.6.   TO EDIT A LIST

1. On the RCU, press the OK key.
2. Select the required list.
3. Read the available help text for information.
4. On the RCU press the WHITE key.
5. Select the required edit option.

☞ NOTE

Some EDIT options are not always available.
If an option is not presented, select Group - None and Sort - None

1.6.1.   TO MOVE A CHANNEL

1. In the Edit menu, select the Move option.
2. Read the available help text for information.
3. Go to the channel you want to move.
4. On the RCU, press the OK key.
    Note a red bullet appears behind the selection.
5. If you want to undo the selection, press the OK key again.

6. Move the channel, either:
    a. use the ▲ ▼ keys;
    b. use the page + / - keys;
7. On the RCU, press the OK key to confirm.
8. Either:
    a. press the WHITE key to end the session, or
    b. select the next channel you want to move.

1.6.2. TO LOCK A CHANNEL

! **CAUTION**

You can only lock a channel or favorite if you have set the parental lock and the PIN-code correctly. We recommend, in the parental lock menu, that you check if the lock option is set correctly.

☞ **NOTE**

After you have set a lock onto a channel, the installation and the EDIT menu are automatically locked with an installation lock to prevent unauthorized access. Now you can only access these functions if you know the correct PIN-code.

---

1. In the Edit menu, select the LOCK option.
2. Read the available help text for information.
3. Go to the channel you want to lock.
4. On the RCU, press the OK key.
   Note a red bullet appears behind the selection.
5. If you want to undo the selection, press the OK key again.

6. Either:
   a. press the WHITE key to confirm the lock and end the session, or
   b. select the next channel you want to lock.

7. You can temporarily unlock all channels:
   a. On the RCU, press the MENU key;
   b. Select the Parental Lock menu;
   c. Enter the correct PIN-code as requested;
   d. Set the channel lock to Off.
8. You can restore all the locks on the channels:
   a. On the RCU, press the MENU key;
   b. Select the Parental Lock menu;
   c. Enter the correct PIN-code as requested;
   d. Set the channel lock to On.

1.6.3. TO DELETE A CHANNEL

1. In the Edit menu, select the DELETE option.
2. Read the available help text for information.
3. Go to the channel you want to delete.
4. On the RCU, press the OK key.
    Note a red bullet appears behind the selection
    and the cursor advances to the next channel.
5. If you want to undo the selection, press the
    OK key again.

6. Either:
    a. press the WHITE key to confirm the deletion
       and end the session, or
    b. select the next channel you want to delete.

1.6.4. TO SET THE CHANNEL VOLUME OFFSET

1. In the Edit menu, select the VOLUME option.
2. Read the available help text for information.
3. Go to the channel you want to edit.
4. On the RCU, use the ◀ ▶ keys to set the
    volume.
5. Either:
    a. Press the WHITE key to end the session, or
    b. select the next channel you want to edit.

1.6.5. TO RENAME A CHANNEL OR RECORDING

1. In the Edit menu, select the RENAME option.
2. Go to the item you want to rename.
3. On the RCU, press the OK key.

5

4. When the keyboard appears:
   a. use the arrow keys to navigate;
   b. press OK to accept the character;
   c. select the ⬆ button to get lower case characters and numbers;
   d. select the ⬅ button
   e. on the RCU, press the OK key to confirm.

5. Either:
   a. Press the WHITE key to end the session, or
   b. select the next channel you want to rename.

1.6.6. TO HIDE A CHANNEL

❗ **CAUTION**
You can only hide a channel if you have set the parental lock and the PIN-code correctly. We recommend that you check if the hide option is set correctly.

☞ **NOTE**
After you have set a hide onto a channel, the installation and the EDIT menu are automatically locked with an installation lock to prevent unauthorized access. Now you can only access these functions if you know the correct PIN-code.

1. Make the hide function available for edit:
   a. On the RCU, press the MENU key;
   b. Select the Parental Lock menu
   c. Enter the correct PIN-code as requested;
2. Set the Master Hide to Off.
3. On the RCU:
   a. press the MENU key;
   b. press the EXIT key.

1. In the Edit menu, select the HIDE option.
2. Read the available help text for information.
3. Go to the channel you want to hide.
4. On the RCU, press the OK key.
   Note a red bullet appears behind the selection.
5. If you want to undo the selection, press the OK key again.

6. Either:
   a. press the WHITE key to confirm the hide and end the session, or
   b. select the next channel you want to hide.

7. Make the hide function active
   a. On the RCU, press the MENU key;
   b. Select the Parental Lock menu
   c. Enter the correct PIN-code as requested;
8. Set the Master Hide to On.
9. On the RCU:
   a. press the MENU key;
   b. press the EXIT key.

10. You can temporarily unhide all channels:
    a. On the RCU, press the MENU key;
    b. Select the Parental Lock menu
    c. Enter the correct PIN-code as requested;
    d. Set the Master Hide to Off.
11. You can restore all the hides on the channels:
    a. In the parental lock menu, set the Master Hide to On.

2.   USE THE FAVORITE LISTS

Navigation and use of the favorite lists are the same as for the all channels and current satellite list as described before. The main difference is that you can setup and organize the favorite lists as required. EchoStar has already pre-named the favorite lists to help you getting started. It is however possible to change the name of the favorite list to something that is meaningful to you.

For adding channels quickly, you can use the group and sort option first to limit the amount of channels where you want to choose from. As an example, now it is possible to add all sport related channels in one step to the Sports TV favorite list.

Note that for each mode, a separate number of favorite lists is available.

2.1. ADD A CHANNEL TO A FAVORITE LIST

1. On the RCU, press the OK key.
2. Select the required mode.
3. Read the available help text for information.
4. Group and sort the all channels list to locate the required channel quickly.
5. On the RCU press the GREEN key.
6. Select the favorite list to which you want to add a channel.

7. On the RCU press the WHITE key.
8. Select the add option.
9. Go to the channel you want to add.
10. On the RCU, press the OK key.
    Note a red bullet appears behind the selection and the cursor advances to the next channel.
11. If you want to undo the selection, press the OK key again.
12. Press the WHITE key to end the session.

2.2. ADD A GROUP OF CHANNELS TO A FAVORITE LIST

☞ NOTE
As an example, this procedure details the instructions on how to add a group of channels to a favorite list.
In this example we add a complete network to the My TV Channels favorite list

1. On the RCU, press the OK key.
2. Select the required mode.
3. Read the available help text for information.
4. Group the channels as required.
5. Select the favorite list to which you want to add the group of channels.
6. On the RCU press the WHITE key.
7. Select the add option.

8. Go to the network you want to add.
9. On the RCU, press the OK key.
    Note a red bullet appears behind the selection and the cursor advances to the next item.
10. If you want to undo the selection, select again and press the OK key.

11. Press the WHITE key to end the session.
12. If only the network bar is show, press the i-key to expand the selection.
13. Select a channel.
14. On the RCU, press the OK key to view the selected channel.
Note that in the left bar of the InfoBanner, a heart symbol appeared to indicate that this channel is a favorite channel.

2.3. RENAME A FAVORITE LIST

1. On the RCU, press the OK key;
2. Press the RED key and select Lists.
3. Press the GREEN key and select the category.
4. Read the available help text for information.

5. In the Edit bar, select the RENAME option.
6. Go to the favorite list you want to rename.
7. On the RCU, press the OK key.

8. When the keyboard appears:
    a. use the arrow keys to navigate;
    b. press OK to accept the character;
    c. select the 🔲 button to get lower case characters and numbers;
    d. select the 🔲 button
    e. on the RCU, press the OK key to confirm.

9. Either:
   a. press the WHITE key to end the session, or
   b. select the next favorite list you want to rename.

3.   TO USE THE ELECTRONIC PROGRAM GUIDE (EPG)

☞   NOTE

The EPG information is not always available. Sometimes the service provider (who sends the EPG information) supplies only the program name, the now/next information or sometimes nothing at all. EchoStar has no influence on this matter. Make sure the local time is set otherwise you can not view EPG information because it needs the correct time (Refer to the Local Time menu).

1. Use the EPG key to access the main EPG menu.
2. Allow the receiver to collect the EPG information for the selected channel.
3. Read the available help text for information.
4. Use the ▲ ▼ keys to select a channel.
5. Use the ◀ ▶ keys to select the programs.

6. Use the ⬤ key to return to actual time in the EPG window.

7. Use the i-key to shift between detailed program information and the main EPG menu.
8. Use the OK key to view the selected channel.

3.1.   TO SET A TIMER

! CAUTION

Note that the VCR timer does not start or program your video recorder (VCR). You have to set the timer of your VCR also to the same time as on the receiver. Please refer to the user's guide of your VCR how to record from a satellite receiver. On quite a lot of VCRs you have to select the so called external channel (E1)

---

1. On the RCU, press the EPG key.
2. If EPG data is available, select a program in the future (right of the red line in the EPG window);
3. If no EPG data is available, select the correct channel.
4. Read the available help text for information.
5. On the RCU press the YELLOW key.
6. Select the required timer.
7. When the timer appears, if necessary:

8. Change the date:
    a. use the ▲ key, to go to the Date;
    b. read the available help text for information;
    c. press the OK key to change the date;
    d. in the calendar, select the required date;
    e. press the OK key to return to the timer.

NOTE
Be aware that the shown EPG start/stop time might not be the same as the actual start/stop times, because of last minute program changes.

9. Change the start time:
    a. use the ▼ key, to go to the Start Time;
    b. read the available help text for information;
    c. press the ◀ ▶ keys to set the hours;
    d. press the OK key to go to the minutes;
    e. press the ◀ ▶ keys to set the minutes.

10. Change the stop time:
    a. use the ▼ key, to go to the Stop Time;
    b. read the available help text for information;
    c. press the ◀ ▶ keys to set the hours;
    d. press the OK key to go to the minutes;
    e. press the ◀ ▶ keys to set the minutes.

5

11. Change the repetition rate:
    a. use the ⯆ key, to go to the Period;
    b. read the available help text for information;
    c. press the ◀ ▶ keys to set the repetition.
12. Save the recording in a specific (favorite) list:
    a. use the ⯆ key, to go to the Favorite List;
    b. read the available help text for information;
    c. press the ◀ ▶ keys to set the (favorite) list.

13. Save the recording as locked or hidden
    a. use the ⯆ key, to go to the Parental Lock;
    b. read the available help text for information;
    c. press the ◀ ▶ keys to select Lock or Hide;
    d. press the OK key to activate the setting.
       Note that a red bullet appears in selection.
14. Change the status:
    a. use the ⯆ key, to go to the Status;
    b. read the available help text for information;
    c. press the ◀ ▶ keys to set the status;

15. Save the timer:
    a. use the ⯆ key, to go to the Store Settings;
    b. read the available help text for information;
    c. press the OK key to confirm the settings.
16. Note the clock that appeared in your program.
17. Do not forget to program also your VCR if you
    have set a VCR timer.

NOTE
You cannot set a (EPG-based) timer in the past or on
a program that has already begun.
If the timer screen does not disappear, you have set
a timer in the past or for a running program. Revise
either date, start or stop time to a time in the future.

18. For a program that has already begun:
    a. set the timer as usual and change the
       start time to 00:00;
    b. use the ⯆ key, to go to the Store Settings;
    c. press the OK key to confirm the settings.
19. Note that:
    a. the DVR InfoBanner momentarily appears
       with a red blinking indicator;
    b. the display on the receiver shows Hdd.

3.2. DELETE A TIMER

1. On the RCU:
    a. press the EPG key;
    b. press the GREEN key;
    c. select from the list: Timers;
    d. press the OK key.
2. Select the applicable timer and press the OK key.
3. Change the status:
    a. use the ▲ key, to go to the status;
    b. read the available help text for information;
    c. press the ▶ key to set the status to inactive.
4. Delete the timer:
    a. use the ▼ key, to go to the Store Settings;
    b. read the available help text for information;
    c. press the OK key to confirm the deletion.

3.3. USE THE INFOBANNER RELATED FUNCTIONS

1. On the RCU, press the i-key.
2. If available, allow the receiver to collect the EPG information for the selected channel.
3. If the i-button in the InfoBanner is shown, use the i-key on the RCU to shift between the detailed program information and the InfoBanner.
4. On the RCU, press the EXIT key to remove the InfoBanner from the screen (only in TV-mode).

3.4. TO SELECT THE ALTERNATE AUDIO

1. On the InfoBanner, find the alt audio symbol.
2. On the RCU, press the ⬚? key.
3. In the Alt. Audio pop-up menu, select the required alternate audio.
    Note that alternate audio information is provided by the service provider.
4. On the RCU, press the ⬚? key.

5

3.5. TO SELECT THE SUBTITLE LANGUAGE

1. On the InfoBanner, find the subtitle symbol.

2. On the RCU, press the ⬤ key.

3. In the subtitle pop-up menu, select the required subtitle language.
    Note that subtitle information is provided by the service provider.

4. On the RCU, press the ⬤ key.

3.6. TO SELECT ANOTHER SATELLITE

1. On the RCU, press the ⬤ key.

2. In the Satellites List pop-up menu, select the required satellite.

3. On the RCU, press the OK key.
    Note that the dish moves towards the selected satellite.

4. TO USE THE DVR

4.1. PLAY BACK A RECORDING

1. On the RCU, press the OK key.
2. Select the DVR mode.
3. Read the available help text for information.
4. Select a recording, either:
    a. use the ▲ ▼ keys;
    b. use the page + / - keys;
5. On the RCU, press the OK key to playback the recording.

6. On the RCU:

    a. press the ⬤ key for play;

    b. press the ⬤ key for fast forward;

    c. press the ⬤ key for rewind;

    d. press the ⬤ key for pause;

    e. press the ⬤ key to stop.

7. For forward slow motion, on the RCU:

    a. press the ⏸ key for pause;

    b. press the ▶ key for slow motion;

8. For reverse slow motion, on the RCU:

    a. press the ⏸ key for pause;

    b. press the ◀ key for reverse slow motion.

4.2. USE THE INDEX MARKER

1. Play back a recording.
2. On the RCU:
    a. press the i-key to show the InfoBanner;
    b. press the MENU key to activate the menu;

    c. use the ◀ ▶ keys to select the ⏭ button.
3. Wait for the scene that you want to mark.
4. On the RCU, press the OK key.
5. Wait for the popup to disappear.
6. On the RCU:
    a. press the MENU key to leave the menu;
    b. press the EXIT key to remove the InfoBanner.

4.3. PLAY BACK THE INDEX MARKER

1. Select the DVR mode.
2. Select the event with the index marker.
3. On the RCU, press the i-key to expand.
4. Select the index that you want to play back.
5. On the RCU, press the OK key to playback the index.

4.4.   USE THE A-B MARKER

1. Play back a recording.
2. On the RCU:
   a. press the i-key to show the InfoBanner;
   b. press the MENU key to activate the menu;
   c. use the ◀ ▶ keys to select the A-B button.
3. Wait for the scene that you want to repeat.
4. On the RCU, press the OK key.
5. Wait for the popup to disappear.

6. Wait for the end of the scene you want to repeat.
7. On the RCU, press the OK key.
8. Wait for the popup to disappear.
9. Note that the marked scene repeats continuously.

10. On the RCU, press the OK key to cancel the marker.
11. Wait for the popup to disappear.
12. On the RCU:
    a. press the MENU key to leave the menu;
    b. press the EXIT key to remove the InfoBanner.

4.5.   CAPTURE A PERSONAL BACKGROUND

1. Play back a recording.
2. On the RCU:
   a. press the i-key to show the InfoBanner
   b. press the MENU key to activate the menu;
   c. use the ◀ ▶ keys to select the 📷 button.
3. Wait for the scene that you want to capture.
4. On the RCU, press the OK key.
5. Wait for the popup to disappear.
6. On the RCU:
   a. press the MENU key to leave the menu;
   b. press the EXIT key to remove the InfoBanner.

4.6.   INSTALL A PERSONAL BACKGROUND

1. On the RCU, press:
   a. the MENU key;

   b. the ▸ key to select the 😊 menu;

   c. the OK key, to select the 🙂 menu.
2. Press the OK key and select Background menu.
3. Read the available help text for information.
4. Select the personal background.
5. On the RCU:
   a. press the MENU key to leave the menu;
   b. press the EXIT key to return to live video.

4.7.   USE LIVE PAUSE

1. In the TV mode, select a channel to view.

2. On the RCU, press the ⏸ key:
   a. the DVR InfoBanner appears with a yellow pause and a red blinking indicator (recording);
   b. the live video freezes;
   c. the display on the receiver shows Hdd.

3. On the RCU, press the ▶ key:
   a. the live video is continued from the pause;
   b. the DVR InfoBanner disappears;
   c. the display on the receiver shows Hdd.

4. On the RCU: press the ⏩ key to fast forward a time frame (to catch up with the real live video).

5. On the RCU, press the ⏹ key to abort pause.

5

5.   TO USE THE MP3 PLAYER

5.1.   PLAY BACK A SONG

☞ NOTE
The ◀ ▶ keys have a different function in the various selections:
- normal play mode: ◀ key, previous song - ▶ key, next song;
- detailed information: ◀ key, previous song - ▶ key, next song;
- play mode menu: ◀ key, previous mode - ▶ key, next mode;

1. On the RCU, press the OK key.
2. Select the MP3 mode.
3. Read the available help text for information.
4. Select a song, either:
    a. use the ▲ ▼ keys;
    b. use the page + / - keys;
5. On the RCU, press the OK key to play back the song.

6. On the RCU:
    a. press the ▶ key for play;
    b. press the ▶ key for fast forward;
    c. press the ◀ key for rewind;
    d. press the ⏸ key for pause;
    e. press the ⏹ key to stop;
    f. press the i-key for detailed information.

7. For bass and treble setting, on the RCU:
    a. press the ⏴⏵ key for the bass control button;
    b. press the ◀ ▶ keys to change the setting;
    c. press the ⏴⏵ key for the treble control button;
    d. press the ◀ ▶ keys to change the setting;
    e. press the ⏴⏵ key to confirm the setting.

8. For the different play modes, on the RCU:
    a. press the MENU key to access the menu;
    b. press the ▶ key to select a play mode;
    c. press the OK key, to activate the selection;
    d. press the OK key, to cancel the selection;
    e. press the MENU key to leave the menu.

5.2. USE THE A-B MARKER

1. Play back a song.
2. On the RCU:

   a. press the MENU key to activate the menu;

   b. use the ◀ ▶ keys to select the [A-B] button.
3. Wait for the fragment that you want to repeat.
4. On the RCU, press the OK key.
5. Wait for the popup to disappear.

6. Wait for the end of the fragment you want to repeat.
7. On the RCU, press the OK key.
8. Wait for the popup to disappear.
9. Note that the marked fragment repeats continuously.

10. On the RCU, press the OK key to cancel the marker.
11. Wait for the popup to disappear.
12. On the RCU, press the MENU key to leave the menu.
13. Note that none of the buttons is highlighted.

6.   TO SET THE USER PREFERENCES
6.1. TO CHANGE THE USER PROFILE

1. On the RCU, press:
   a. the MENU key;

   b. the ▶ key to select the 😊 menu;

   c. the OK key, to select the 🖊 menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.
4. On the RCU:
   a. press the MENU key to save the settings;
   b. press the EXIT key to leave the menu.

5

6.2. TO CHANGE THE LANGUAGE

1. On the RCU, press:
    a. the MENU key;

    b. the ▸ key to select the [icon] menu;

    c. the OK key, to select the [icon] menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.
4. On the RCU:
    a. press the MENU key to save the settings;
    b. press the EXIT key to leave the menu.

6.3. TO SET THE PARENTAL LOCK

☞ NOTE
This procedure does not lock a specific channel or favorite. After you made the parental control settings, you must lock the required channels or favorites manually. For a detailed procedure, please refer to the paragraph To lock a channel.

1. On the RCU, press:
    a. the MENU key;

    b. the ▸ key to select the [icon] menu;

    c. the OK key, to select the [icon] menu.
2. Enter the correct PIN-code as requested
3. Press the OK key and make the selections.
4. Read the available help text for information.
5. On the RCU:
    a. press the MENU key to save the settings;
    b. press the EXIT key to leave the menu.

6.4. TO CHANGE THE PIN CODE

1. Select the parental Lock menu
2. Enter the correct PIN-code as requested
3. Select the Change PIN Code bar.
4. On the RCU, press the OK key.
5. Read the available help text for information.
6. In the Change PIN-Code menu, make the required selections. Now you will return to the parental lock menu.
7. On the RCU:
    a. press the MENU key to save the settings;
    b. press the EXIT key to leave the menu.

6.5.   TO SET THE LOCAL DATE AND TIME

☞ NOTE
Make sure the local time is set correctly otherwise you can not view and use the EPG information because the EPG and the related timers need the correct time.

1. On the RCU, press:
    a. the MENU key;

    b. the ▶ key to select the 😊 menu;

    c. the OK key, to select the 🕐 menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.
4. On the RCU:
    a. press the MENU key to save the settings;
    b. press the EXIT key to leave the menu.

6.6.   TO SET THE TV SYSTEM

1. On the RCU, press:
    a. the MENU key;

    b. the ▶ key to select the 😊 menu;

    c. the OK key, to select the 📺 menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.
4. On the RCU:
    a. press the MENU key to save the settings;
    b. press the EXIT key to leave the menu.

5

EchoStar DVR-7000 ⊂⊃ *Viaccess*

1.   HARDWARE MAINTENANCE

⚠ WARNING

RISK OF ELECTRICAL SHOCK.

REMOVE THE MAINS PLUG FROM THE POWER SUPPLY SOCKET BEFORE YOU CLEAN THE RECEIVER. MAKE SURE, IF USED, CLEANING AGENTS CANNOT GET IN THE RECEIVER.

1. Switch the receiver to stand-by and on the display make sure the clock shows.
2. Remove the mains plug from the power supply socket.
3. Wait at least five seconds, to help avoid possible damage to the receiver's electronics.
4. Use a dry, soft and clean lint-free cleaning cloth to clean the receiver.
5. Other cleaning agents can cause damage to the outside surface.
   a.   Make a dry, soft and clean lint-free cleaning cloth a little damp.
   b.   Carefully wipe the surface and make sure that no moisture gets into the receiver.
   c.   Let the receiver dry on the air.
6. Install the receiver and make sure all connections on the rear panel are made correctly (For more detailed instructions, please refer to the section Installation).
7. Connect the mains plug to the power supply socket.
8. Set the local time, for detailed instructions please refer to the section Operation.

☞ NOTE

Make sure the local time is set correctly otherwise you can not view and use the EPG information because the EPG and the related timers need the correct time.

2.   SOFTWARE MAINTENANCE

☞ NOTE

Unless otherwise specified; This note explains the way you can navigate through the maintenance pages of the EchoNAV setup menu.

1. Use the OK key to pull down the menu selection fields.
2. Use the ▲ ▼ arrow keys to go through the selectable menu items.
3. In a pull-down menu, use the OK key to confirm the selection.
4. Use the ◀ ▶ arrow keys to navigate between the left and right column of selectable menu items.
5. Use the EXIT key to leave the menu and return to the live mode.

2.1.   TO CHANGE THE SETUP OF THE RECEIVER

1. On the RCU, press:
   a. the MENU key;

   b. the ▶ key to select the 📺 menu;

   c. the OK key, to select the 📡 or 📡 menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.
4. Go to the Check Signal field.
5. On the RCU, press the OK key.

6. Wait for the Check Signal page to appear.
7. In the Check Signal menu make the required selections for transponder and search mode.
8. Read the available help text for information.
9. If the red dot in the transponder field stays:
    a. select another transponder;
    b. go to the check signal field;
    c. on the RCU, press the OK key.
10. Go to the Search Channels field.

11. On the RCU, press the OK key.
12. Wait for the search to complete:
    a. the receiver display shows a moving dot;
    b. the search completed popup menu appears.
13. On the RCU, press the OK key.

2.2. TO CHANGE THE USER LNB SETTINGS

1. On the RCU, press:
    a. the MENU key;

    b. the ▶ key to select the menu;

    c. the OK key, to select the menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.
4. Go to the Store Settings field.
5. On the RCU:
    a. press the OK key to save the settings;
    b. press the EXIT key to leave the menu.

2.3. ABOUT ECHOSTAR - RECEIVER INFORMATION

1. On the RCU, press:
    a. the MENU key;

    b. the ▶ key to select the menu;

    c. the OK key, to select the menu.
2. In the About EchoStar information menu you can look up the factory and receiver information.
3. Read the available help text for information.

2.4. TO DO A SOFTWARE UPDATE FROM THE SATELLITE

1. On the RCU, press:
   a. the MENU key;

   b. the ▶ key to select the 🔨 menu;

   c. the OK key, to select the 🔧 menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.
4. Go to the System Upgrading field.

5. On the RCU, press the OK key.
6. Wait for the system upgrade to complete.

WARNING
DO NOT PRESS ANY KEYS DURING THE SESSION, THIS
CAN INTERRUPT THE SOFTWARE UPGRADE SEQUENCE
WHICH CAN DAMAGE THE RECEIVER PERMANENTLY.

■ The receiver display shows:
  - ota (check for new software)
  - d1...d100 (downloading)
  - P1...P100 (upgrading)
  - done (update memory)
  - C.... (channel indication)

☞ NOTE
EchoStar offers on a regular basis software updates via the satellite and the
EchoStar website. If you have trouble to get a download with the latest software
version, please ask your retail seller or dealer for assistance.

2.5. TO DO A FACTORY RESET
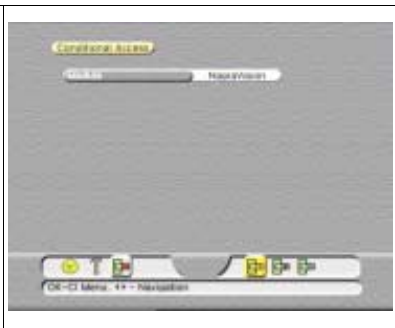
☞ NOTE
Be sure if you select Memory Erase because all your personal settings will be
deleted and replaced with the factory settings. Some of the personal settings that
will be deleted are Parental Lock, Favorite lists and System setup. Memory erase
resets the receiver as if the receiver comes just out of the box.

1. On the RCU, press:
   a. the MENU key;

   b. the ▶ key to select the 🔨 menu;

   c. the OK key, to select the 🔧 menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.
4. Go to the Confirm Reset field.
5. On the RCU, press the OK key.

2.6. TO GET CONDITIONAL ACCESS INFORMATION

1. On the RCU, press:
   a. the MENU key;

   b. the ▶ key to select the menu;

   c. the OK key, to select the menu.
2. Press the OK key and make the selections.
3. Read the available help text for information.

2.7. TO ADD A SATELLITE

1. On the RCU, press:
   a. the OK key;
   b. Select Mode = TV
   c. Select List = All Channels
   d. Select Group = None
   e. Select Sort = None
   f. Select Edit = Add SAT

2. On the RCU, press the OK key.
3. Use the on-screen keyboard to enter the name of the satellite.
4. When the keyboard appears:
   a. use the arrow keys to navigate;
   b. press OK to accept the character;
   c. select the button to get lower case characters and numbers;
   d. select the button
   e. on the RCU, press the OK key to confirm.

5. On the RCU, use the numeric keys to enter the Position.
6. Select the Location.
7. On the RCU, press the white key.
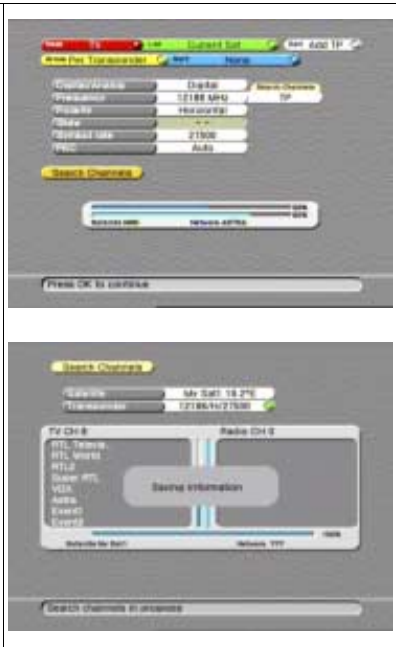
8.   Enter the required settings.

9.   Read the available help text for information.

10. Go to the continue field.

11. On the RCU, press the OK key to advance.

12. Make the required selections, it is advised to select the search mode as TP.

13. Read the available help text for information.

14. Monitor the signal indicator and make sure that you have sufficient signal strength and quality.

15. After you found the location, press the OK key to confirm the position.

16. Go to the Search Channels field.

17. On the RCU, press the OK key to advance.

18. Wait for the search to complete:

     a. the receiver display shows a moving dot;

     b. the search completed popup menu appears.

19. On the RCU:

     a. press the OK key to end the procedure;

     b. press the EXIT key to return to live video.
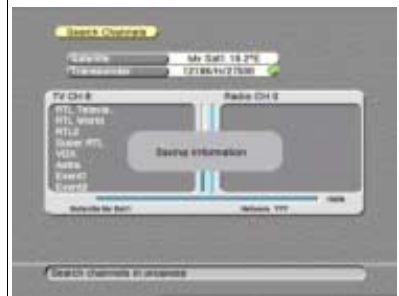
2.8.   TO ADD A TRANSPONDER

6

1.   Select a channel of the satellite to which you want to add a transponder.

2.   On the RCU, press:

     a. the OK key;

     b. Select Mode = TV

     c. Select List = All Channels

     d. Select Group = None

     e. Select Sort = None

     f. Select Edit = Add TP

3.   On the RCU, press the OK key.

4. On the RCU, press the OK key again to advance.
5. Enter the required settings.
6. Read the available help text for information.
7. Monitor the signal indicator and make sure that you have sufficient signal strength and quality.
8. Go to the Search Channels field.
9. On the RCU, press the OK key to advance.

10. Wait for the search to complete:
    a. the receiver display shows a moving dot;
    b. the search completed popup menu appears.
11. On the RCU:
    a. press the OK key to advance;
    b. press the white key to end the procedure;
    c. press the EXIT key to return to live video.

2.9. TO ADD A PID

1. Select a channel of the transponder to which you want to add a PID.
2. On the RCU, press:
    a. the OK key;
    b. Select Mode = TV
    c. Select List = All Channels
    d. Select Group = None
    e. Select Sort = None
    f. Select Edit = Add PID
3. On the RCU, press the OK key.

4. Select the applicable transponder.
5. On the RCU, press the OK key.

6. Enter the required settings.

7. Read the available help text for information.

8. Monitor the signal indicator and make sure that you have sufficient signal strength and quality.

9. Go to the Store Settings field.

10. On the RCU:

    a. press the OK key to store the settings;

    b. press the white key to end the procedure;

    c. press the EXIT key to return to live video.

3. END OF LIFE DISPOSAL

Your receiver and related accessories contain materials which can be recycled and reused. Specialized companies can recycle your equipment to increase the amount of reusable materials and to minimize the amount of materials to be disposed of.

Please inform yourself on local regulations on disposal of your equipment.

6
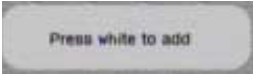
1.   GENERAL

Problem	Possible cause	What to do?
1. Nothing appears on the receiver display.	■ Main power cable is damaged or not connected. ■ General domestic power failure	■ Check the main power cord and insert it in the (wall socket). ■ Check the domestic power supply and insert a new fuse.
2. The display shows a flashing - - : - -	■ The back-up battery of the clock might be empty.	■ Contact your dealer.
3. You have forgotten the personal PIN-code.		■ Contact your dealer.

2.   EPG RELATED

Problem	Possible cause	What to do?
1. The EPG is empty.	■ You have selected an empty (favorites) list. ■ The selected program supports no EPG. ■ The local time is not correct. ■ The selected program is an analog channel. (InfoBanner shows no i button)	■ Select another (favorites) list. ■ There is no solution for this, the data is supplied by the service provider and beyond control. ■ In the Local Time menu, set the correct time. ■ Select a digital channel because analog channels do not support EPG information.
2. The EPG shows (little) grey balloons without text.	■ The time scale of the EPG is to big.	■ Use the zoom function (blue key) to reduce the time scale until the information can be read. ■ Select the grey balloon and on the RCU, press the i-key to view and read the information.

7

3.   TV AND RADIO RELATED

Problem	Possible cause	What to do?
1. No picture or sound in the TV or radio mode.	■ Receiver is in standby. ■ Cable related problems. ■ Dish/LNB related problems.	■ Switch the receiver on. ■ Check the cable connections and do any necessary work. ■ Make sure the dish and LNB are correctly adjusted. Do any necessary work.
2. Bad picture or noisy sound in the TV or radio mode.	■ Bad reception of the signal. ■ Signal interference with UHF-installation.	■ Make sure the dish and LNB are clean and correctly adjusted. Do any necessary work. ■ Check the UHF settings. Make sure you use the correct channel. Please refer to the TV/radio user guide.
3. The TV shows a No Signal message.	■ Bad reception of the signal.	■ Make sure the channel selected transmits. ■ Make sure the correct dish or LNB is selected. ■ Make sure the dish and LNB are clean and correctly adjusted. Do any necessary work.
4. There is no Dolby digital (AC-3) sound to my other equipment.	■ The equipment is connected to the receiver with a RCA or SCART-cable only.	■ Connect the S/P DIF connector of the receiver to the Dolby digital input of the receiving equipment.
5. I cannot view or listen to a scrambled channel.	■ The CI-module/smart card is not valid. ■ The CI-module/smart card is not (correctly) inserted.	■ Insert, for this service, a valid CI-module/smart card. ■ Insert the CI-module/ smart card correctly.
6. I cannot find a channel which should be there.	■ The group or sort option is set.	■ Set the group and sort mode to none.
	■ You are in the wrong list.	■ Check the all channels list and select the correct (favorite) list.
	■ The channel is hidden.	■ Unhide the channel.
7. The TV shows a popup: Press white to add	■ You have selected an empty (favorite) list.	■ Press the WHITE key Select the add option. ■ Press the GREEN key Select the Current Sat or All Channels list.

4. REMOTE CONTROL UNIT (RCU) RELATED

Problem	Possible cause	What to do?
1. Receiver does not respond to the RCU.	■ Batteries are empty.	■ Insert new batteries.
	■ The RCU is set to another mode (TV, VCR, AUX).	■ On the RCU, press the SAT key.
	■ The receiver code is not programmed correctly.	■ Program the SAT mode with code 0222, see the appendix for instructions.
2. Receiver does sometimes not respond to the RCU.	■ Direct sun light from behind the receiver.	■ Close the sun blinds or get closer to the receiver.
	■ You do not aim sufficiently at the receiver.	■ Aim at the receiver display. ■ install a RCU extender.
	■ Batteries are almost empty.	■ Insert new batteries.

5. DVR RELATED

Problem	Possible cause	What to do?
1. I can not record a TV or radio broadcast onto the hard disk drive.	■ You have pressed the record key once.	■ Press the record key twice, EchoStar has build in a safety to prevent unwanted recording.
	■ You have selected an analog station.	■ Analog broadcasts cannot be recorded onto the digital DVR, Please record the broadcast with a VCR.
2. The programmed channel is not recorded completely.	■ Local time setting is not correctly set.	■ Check the Local Time setting and reset as necessary.
	■ The EPG data does not reflect the actual start or stop time.	■ This data is supplied by the service provider and beyond control. You can set the timer 5 minutes earlier/later than shown.
3. Live pause seems not to work.	■ You have selected an analog station.	■ Live pause records the program temporarily onto DVR. Analog broadcasts cannot be recorded onto the digital DVR.
	■ You have pressed the record key.	■ Press the pause key once.
4. I cannot access the special functions menu.	■ The InfoBanner is not in view.	■ Use the i-key to show the InfoBanner and press the MENU key.
	■ You did not press the MENU key.	■ Press the MENU key.

7

Problem	Possible cause	What to do?
5. The detailed information window shows NO INFORMATION	■ You have made a recording from a program that did not offer detailed information.	■ There is no solution for this, the data is supplied by the service provider and beyond control.
6. I cannot find a recording which should be there.	■ The group or sort option is set.	■ Set the group and sort mode to none.
	■ You are in the wrong list.	■ Check the all Files list and select the correct (favorite) list.
	■ The recording is hidden.	■ Unhide the recording.

6.   MP3 PLAYER RELATED

Problem	Possible cause	What to do?
1. I cannot access the special functions menu.	■ You did not press the MENU key.	■ Press the MENU key.
2. The detailed information window shows data that is not complete.	■ The detailed information is not available in the MP3-tag. The MP3-tag is part of the MP3 file and contains the detailed information.	■ When already on the DVR, you cannot access this information. During downloading, use the MP3 loader to change or complete the MP3-tag.
3. I cannot go to another song with the ◄ ► keys.	■ You are in the special functions menu	■ Press the MENU key and try again.

7.   INSTALLATION RELATED

Problem	Possible cause	What to do?
1. My television does not receive any signal from the receiver (UHF only)	■ You did not select the correct audio/video channel on your TV.	■ Refer to the user manual of the TV for instructions. ■ On the receiver, In the TV system menu select the correct channel and PAL setting. ■ Use another method to connect the receiver.
2. My television does not receive any signal from the receiver	■ You did not select the correct A/V channel on your TV.	■ Select the correct A/V channel on your TV.
	■ You did not use a correct SCART cable.	■ Use only a full featured SCART cable that is correctly shielded.
3. My television shows black areas on the left and right of the screen.	■ You did not select the correct aspect ratio for your TV.	■ On the receiver, in the user profile menu select the correct aspect ratio.
4. In a motorized installation, the dish turns to the West while I select Set East Limit.	■ The motor turns the other way around because the cable is not installed correctly.	■ At the receiver, change the cable connections to M1 and M2.

Problem	Possible cause	What to do?
5. In a motorized installation, I cannot select a specific satellite.	■ The required satellite is located outside the selected East or West limit.	■ If physically possible, mind dish damage, revise the limit setting. ■ Select another satellite.
6. In a motorized installation, the positioner reacts unpredictable which results in incorrect positioning of the dish.	■ The cables used are worn, damaged or corroded.	■ Inspect the cable for possible damage and install new cable as required.
	■ The cable is incorrectly finished or not sufficiently shielded.	■ Use sufficiently shielded and correctly finished cables.
7. During (initial) setup of the receiver, no channels are found.	■ You did not select the correct LNB(F).	■ On the receiver, in the installation setup menu select the correct LNB(F).
	■ When installed, you have selected the incorrect switch type or port.	■ On the receiver, in the installation setup menu make the correct selections.
	■ You have selected the incorrect satellite to search channels on.	■ On the receiver, in the installation setup menu select the correct satellite.
	■ You have selected the incorrect search method.	■ At an initial setup, always choose the option All.
8. The signal indicator shows one indicator (only signal strength).	■ You have selected an analog transponder	■ Select another (digital) transponder.

7

1.   LIST OF USED ABBREVIATIONS

A/V	**A**udio/**V**ideo	MCPC	**M**ultiple **C**hannel **P**er **C**arrier
AC	**A**lternating **C**urrent	MHz	**M**ega**H**ertz
ANT	**ANT**enna (terrestial)	min	**min**ute
ATA	**A**dvanced **T**echnology **A**ttachement	min.	**min**imum
ºC	**C**elcius	mm	**m**illi**m**eter
CAM	**C**onditional **A**ccess **M**odule	MPEG	**M**oving **P**icture **E**xperts **G**roup
CD	**C**ompact **D**isc	NTSC	**N**ational **T**elevision **S**tandards **C**ommittee
CE	**C**onformite **E**uropean	NVOD	**N**ear **V**ideo **O**n **D**emand
CH	**CH**annel	OSD	**O**n-**S**creen **D**isplay
CI	**C**ommon **I**nterface	OSG	**O**n **S**creen **G**raphics
D2MAC	**D**igital **M**ultiplexed **A**nalog **C**omponent version **2**	OTA	**O**ver **T**he **A**ir
DAC	**D**igital **A**nalog **C**onverter	PAL B/G	**P**hase **A**lternating **L**ine B/G
dB	**d**eci**B**ell	PAL D/K	**P**hase **A**lternating **L**ine D/K
dBm	**d**eci**B**ell **m**illiwatts	PCMCIA	**P**ersonal **C**omputer **M**emory **C**ard **I**ndustry **A**ssociation
DC	**D**irect **C**urrent	PCR	**P**rogram **C**lock **R**eference
DiSEqC	**Di**gital **S**atellite **Eq**uipment **Control**	PID	**P**acket **ID**entification
DMA	**D**irect **M**emory **A**ccess	PIN	**P**ersonal **I**dentification **N**umber
DVB	**D**igital **V**ideo **B**roadcasting	PWM	**P**ulse **W**idth **M**odulation
DVR	**D**igital **V**ideo **R**ecorder	QPSK	**Q**uadrature **P**hase **S**hift **K**ey
EL	**E**ast **L**imit	RCA	Connector type, also Cinch connector
EPG	**E**lectronic **P**rogram **G**uide	RCU	**R**emote **C**ontrol **U**nit
ºF	**F**ahrenheit	RF	**R**adio **F**requency
FTA	**F**ree-**T**o-**A**ir	RND	**R**a**ND**om
Gb	**G**iga**b**it	S/PDIF	**S**ony/**P**hilips **D**igital **I**nterface
GB	**G**iga**B**yte	SAT	**SAT**ellite
GND	**G**rou**ND**	SCART	Connector type, also Euro connector
GUI	**G**raphical **U**ser **I**nterface	SCPC	**S**ingle **C**hannel **P**er **C**arrier
H-H	**H**orizon-to-**H**orizon	SMATV	**S**atellite **M**aster **A**ntenna **TV**
HW	**H**ard**W**are	STB	**S**et **T**op **B**ox (the satellite receiver)
IDE	**I**ntelligent **D**rive **E**quipment	SW	**S**oft**w**are
IEC	**I**nternational **E**lectrotechnic **C**ommittee	TP	**T**rans**P**onder
IF	**I**ntermediate **F**requency	TV	**T**ele**V**ision
IRD	**I**ntegrated **R**e**c**eicer **D**ecoder (the satellite receiver)	µs	micro **s**econd
ISO	**I**nternational **S**tandards **O**rganisation	UHF	**U**ltra **H**igh **F**requency
kg	**k**ilo**g**ram	V	**V**olt
kHz	**k**ilo**H**ert**z**	VCR	**V**ideo **R**e**C**order
kW	**k**ilo**W**att	Ver.	**Ver**sion
LNB	**L**ow **N**oise **B**lock down converter	V_{p-p}	**V**olts$_{peak-peak}$
LNBF	**LNB** with **F**eedhorn	V_{rms}	**V**olts$_{rootmeansquare}$
max.	**max**imum	W	**W**att
MB	**M**ega**B**yte	WL	**W**est **L**imit
Mbps	**M**ega**b**its **p**er **s**econd	WxHxD	**W**idth x **H**eight x **D**epth

8

2.   EXPLANATION OF USED TERMINOLOGY

C-band	A frequency range (3.70-4.20 GHz) used for satellite broadcasts.
CCITT	An European committee of the international Telecommunications Union and makes recommendations for the distribution of telephone and data distribution.
Clarke Belt	The Clarke Belt is a dedicated satellite orbit in which satellites remain in a fixed position relative to the Earth's surface.
CI-module/CAM	Both names are used for these modules. These modules are PCMCIA cards with a slot in which you can insert a smart card.
Common Interface (CI)	A DVB standard which defines the software and hardware requirements for condition access systems.
Conditional Access	A system which is used by service providers to control the subscriber's access to certain services, programs and events like Pay TV.
DBS band	A signal frequency range (11.70-12.40ghz) intended for direct TV broadcast by satellite channels.
Decoder	A unit that is connected to a satellite receiver in order to unscramble a picture that is protected by encryption.
Digital Audio Broadcasting	Standard which describes the method of transmitting digital audio.
DiSEqC	A standard through which it is possible to let a DiSEqC compatible receiver send a signal over the RF cable to a switching device to switch between different LNBs or dishes. The DiSEqC uses the 22 kHz signal to control the switching device.
DVB	A broadcast standard for digital radio and television, using MPEG-2 compression. DVB is being supported by all European manufacturers and broadcasters.
EPG	A electronic program guide that comes with the broadcast of a particular satellite, Note that every station fills the EPG differently or not, so differences in the EPG are not necessarily receiver errors.
FEC	Is an invisible part of a broadcast.which makes sure that possible errors in the reception of the satellite signal are corrected.
Feedhorn	A part of the dish which collects the signals from the dish. The signal is then fed to the LNB(F).
Ferrite	A remote controlled device that determines the polarity of the signal which is fed to the LNB. The ferrite is more or less an electro-magnetic polarizer.
Fixed Dish	A dish antenna that is pointed at one particular satellite.
Free-To-Air broadcast	An unscrambled broadcast which you can view without additional payments to a service provider.
Frequency band	A frequency band is a range of frequencies which are dedicate to a certain usage. In the satellite area, commonly known bands are the C-band and the Ku-band.
High Definition Television	A digital television format, which combines high-resolution video and theater like sound to create a movie theater quality TV viewing experience.
Horizontal	In the satellite industry, horizontal is used to indicate the direction in which the received signal is polarized. Normally you will find that it is abbreviated as H.
KU-band	A frequency range (10.70-18.00 GHz) used by most European TV satellites.
LNB	A device behind the feedhorn which processes the signal into a format which is understood by the receiver for further processing
LNBF	A LNB with an integrated Feedhorn. So the LNBF comes as one single unit.

MPEG	The Moving Picture Experts group is founded by the ISO to provide a basis for the coding and compression of moving pictures. MPEG has now become a standard method for the digital transmission of video and sound using less bandwidth than the analog transmission method.
Near Video-On-Demand	Multi channel system broadcasting many copies of a film with staggered start times so a complete film is always available to a viewer with a short waiting period.
Network	With respect to the receiver, a network (also known as a bouquet) is a set of programs that is offered by a single service provider.
NTSC	USA video standard with image format 4:3, 625 lines, 60 Hz and 4 MHz bandwidth with a total of 6 MHz video channel width.
PAL	European video standard with image format 4:3, 625 lines, 50 Hz and 4 MHz bandwidth with a total of 8 MHz video channel width.
PID	MPEG-2 transmits the audio and video information in so-called packages. At the beginning of each package is an identifier (PID) present which tells the receiver what to do with the received information. Satellite receivers use normally four types of PID, these are VPID (video PID), APID (audio PID), Program Clock Reference (PCR PID) and data PID (EPG information).
Parental lock	A feature which is introduced to give you the possibility to 'lock' or 'hide' several functions of the receiver to prevent unauthorized persons (children) to view broadcasts that are not suitable for them. The use of the parental lock requires a PIN-code. With this PIN-code you can change or unlock the locked or hided recordings and channels.
Pay-Per-Channel	With this feature, the viewer has to pay a certain price per month (or other period) to receive all programs of a certain channel.
Pay-Per-View	Conditional access service where the user is able to buy one particular program from a particular service provider.
Pay TV	With Pay TV, the consumer has to pay for certain programs or services.
PIN-code	The PIN-code or Personal Identification Number is necessary to make use of the parental lock feature. The PIN code has four digits which can be set personally.
Polarization	Broadcasts are done in a particular frequency band. To make maximum use of a frequency band and bring you the maximum number of programs, the broadcasts are polarized in different ways to fit as much as possible programs into one frequency band.
Polarizer	A remote controlled device that determines the polarity of the signal which is fed to the LNB.
Polarmount	A motorized dish antenna mount which enables a dish to point at every 'visible' satellite on the Clarke Belt.
Receiver	Unit which takes signals from a dish and converts them so they can appear on radio and TV.
RS232 connection	A RS232 connection allows you to connect equipment to the receiver which supports the RS232 protocol.
Satellite	A broadcast station, for satellite radio and TV, positioned on the Clarke Belt.
SCART cable	A SCART cable is also known as 'Peritel' cable and is commonly used in Europe to connect the audio and video equipment. A fully furnished SCART cable has 21 wires which is at both sides finished with a 21-pin connector.
Service provider	A service provider is a company or organization that collects and offers you a number of programs and services. Some are free of charge and others you have to pay for.

8

Smart Card	A card that contains a 'smart' code and is used to de-scramble encrypted broadcasts when placed in a decoder or receiver with a built-in decoder.
SMATV	A satellite master antenna TV system is a system which shares the reception resources and is intended for the distribution of TV and radio signals to the user in one ore more buildings.
Stream	The signal which is received from the transponder which contains the together with the video signal, additional information that the receiver needs in order to process the received signal correctly.
Symbol rate	Invisible information which tells the receiver at which speed (rate) the transponder sends the digital information (symbols). The receiver must be able to handle the symbol rate to process the signal correctly into a correct image.
Transponder	Equipment inside a satellite responsible for receiving a single uplinked channel and rebroadcasting it back to Earth.
Vertical	In the satellite industry, vertical is used to indicate the direction in which the received signal is polarized. Normally you will find that it is abbreviated as V.

3. EXPLANATION OF THE SEARCH MODES

In the various menu pages you can make a selection from various search modes. The search mode gives the possibility to scan a satellite or transponder in a particular manner. The search modes are identified as:

All	In this mode the built-in database is used to select the available transponders. The digital and analog channels that belong to these transponders are searched for and added to the all channel list.
FTA	In this mode the built-in database is used to only search for the available FTA channels which are then added to the all channel list. In the real world it seems that the service providers do not always accurately code their channels with a scrambled or FTA code. For this reason you may find that some searched channels are scrambled. Also there is a possibility that scrambled channels are coded as FTA. These channels will then be missed out because of the erroneous code.
Network	In this mode the built-in database or information from the received stream is used to search for the transponders that are included with the currently received network. The digital channels that belong to this network are searched for and added to the all channel list.
TP	In this mode the built-in database or information from the received stream is used to search for or scan in the selected transponder. The digital and/or analog channels that belong to this transponder only are searched for or scanned in and added to the all channel list.
Digital	In this mode the built-in database is used to search for the available digital channels. The digital channels are then added to the all channel list. The digital channels are shown as white channel names for easy recognition.
Analog	In this mode the built-in database is used to add the analog channels to the all channel list. The analog channels are shown as black channel names for easy recognition.
Digital IF	In this mode the currently received satellite is scanned for digital channels. The digital channels, within the tuner bandwidth and selected symbol rates are scanned in and added to the all channel list.
Analog IF	In this mode the currently received satellite is scanned for analog channels. The analog channels within the tuner bandwidth are scanned in and added to the all channel list.
Update	In this mode the built-in database is used to search for the available digital channels. Then all new channels are added to the all channel list.
None	Transponders on the selected satellite are not searched for.

1. LNB CONFIGURATION MATRIX

In the installation menu, the different LNBs are already pre-programmed to save you a lot of configuring routines.

LNB TYPE	LO Frequency	LO Selection	13/18V		0/22kHz	
			H	V	H	V
Standard	10,000	13/18V	18	18	0	0
Enhanced	9,750	13/18V	18	18	0	0
Quattro	9,750	13V	13	13	0	0
	10,750	18V	18	18	0	0
C-Band	5,150	13/18V	18	18	0	0
DBS	10,750	18V	18	18	0	0
TELECOM	11,475	18V	18	18	0	0

<div style="text-align:right">A1</div>

2. LNBF CONFIGURATION MATRIX

In the installation menu, the different LNBFs are already pre-programmed to save you a lot of configuring routines.

LNBF TYPE	LO Frequency	LO Selection	13/18V		0/22kHz	
			H	V	H	V
Standard	10,000	13/18V	18	13	0	0
Enhanced	9,750	13/18V	18	13	0	0
Universal	9,750	0 kHz	18	13	0	0
	10,600	22 kHz	18	13	22	22
Quattro	9,750	0 kHz	18	13	0	0
	10,750	22 kHz	18	13	22	22
C-Band	5,150	13/18V	18	13	0	0
C-Band SS	5,150	13V	18	13	0	0
	5,750	18V	18	13	0	0

3. USER DEFINED LNB(F) MATRIX

In the User LNB setting menu, you can define your own LNB(F). You can use the list below to note the settings.

User LNB(F)	LO Frequency	LO Selection	13/18V		0/22kHz	
			H	V	H	V
User 1	... ...,...	... .../...	... ...	... ...	... ...	... ...
User 2	... ...,...	... .../...	... ...	... ...	... ...	... ...

EchoStar DVR-7000 *Viaccess*

1.   INTRODUCTION

This appendix gives the information necessary for the use of the Quattro with other equipment than the EchoStar receiver. This appendix also contains a code reference list which gives the program code for most of the know TV, video and audio equipment.

The Quattro is and infra red (IR) type programmable remote control unit (RCU) that is able to control most functions (basic) of your TV, VCR, DVD and Audio equipment connected to the receiver. You can program the RCU with a code to which your equipment responds. If the code is not available in the supplied code list, the built-in intelligence assists you to find the applicable code.

A2

For future use it is recommended that you make a note of the equipment codes and the serial number in the fields below: The RCU is already pre-programmed for the EchoStar receiver with code 0222.

TV key: _ _ _ _

VCR key: _ _ _ _

AUX key: _ _ _ _

SAT key: _ _ _ _

Serial Number: _ _ - _ _ _ - _ _

2.   THE BATTERIES

The RCU is powered by two 1.5 Volt Alkaline batteries type AA/LR6. We recommend that you do not use rechargeable batteries. At battery change, the RCU keeps the programmed information for a maximum of 15 minutes.

1.   Remove the battery cover.
2.   Find the battery + and - marks.
3.   Insert the batteries accordingly the + and - marks.
4.   Install the battery cover.
5.   Press the SAT key once, Make sure the key lights up to indicate that it is ready for use.

3.   THE KEYS

If the RCU is programmed with the correct equipment code, the keys should control the same (basic) functions as the keys on the original remote control unit of that equipment.

The functionality of the SAT mode is discussed in the user's guide of the satellite receiver.

The Power key
This key controls the On-OFF-STANDBY function.

The Mute key
To blank out the volume.

Mode keys (TV, VCR, AUX, SAT)
These keys are programmable to take control over the television, video recorder, DVD-player, audio sets and the satellite receiver.

MENU key
This key activates the available on-screen menu for the selected equipment.

EPG key
If the function is available, this key activates the program function for VCR and DVD equipment.

i key
If the function is available, this key activates the display/information function for TV, VCR and DVD equipment.

Satellite list key
This key is not used.

Volume +/- keys
This key is used to control the volume level for the selected equipment.

CH +/- keys
This key is used to move one channel up or down for the selected equipment.

Arrow cluster
To scroll left, up, right or down.

OK key
While in a menu, this key is mainly used to confirm a selection.

Page +/- keys
If the function is available, this key activates the tracking +/- function for VCR and surround center +/- for audio equipment (AUX).

Recall key
This key brings back the last selection.
If the function is available, this key activates the random function (AUX).

Transport keys
These keys operate the transport function of your VCR, DVD and DVR. To prevent accidental recording, the RECORD key is pressed **twice** to start the recording.

Subtitle key
If the function is available, this key gives subtitles in DVD mode and may also function in TV mode as white fast text key or menu key.

Audio language key
If the function is available, this key selects audio language choice for your DVD player and stereo/mono or audio language for your television.

Bookmark key
This key is dedicated for use in the SAT mode, for detailed information refer to the user's guide of your satellite receiver.

? key
If the function is available, this key activates the ? function for teletext and for some TVs it activates the 16:9 mode.

Red, Green, Yellow, Blue and White key
If the function is available, this key activates the fast text functions (fast navigation in teletext). For some equipment the key activates the menu function. For detailed information of the fast text functions, please refer to the applicable user's guide.

A2

Numerical keys

The Numerical keys (0-9, TV/RAD, FAV) activates the same functions as available on your original remote control unit, such as direct access program selection.

TV/RAD key

If the function is available, this key operates as the AV key for TV and as TV/VCR for VCR.

FAV key

If your original remote control unit uses one/two number keys (usually marked as -/--, 10 or 20), press this key as usual.

Teletext keys

If the function is available, some transport keys control the main teletext functions. You find the teletext functions under the given keys:

teletext off; press the stop key

teletext on; press the play key

teletext mix; press the rewind key

teletext hold; press the pause key

teletext expand; press the record key

4. PROGRAM THE TV, VCR AND AUX KEY

You can program the mode keys (TV, VCR, AUX) with only one device per key.

- The TV key is used to setup the RCU to control your basic TV functions;
- The VCR key is used to setup the RCU to control your basic VCR or DVD functions;
- The AUX key is used to setup the RCU to control your amplifier, tuner or miscellaneous audio equipment.

You can program the SAT mode keys to control a number of satellite receivers. The RCU is default programmed to control the EchoStar satellite receiver that came in the same box.

☞ NOTE

Some codes are quite similar. If your device does not respond or does not function properly with one of the codes, try another code listed under your brand.

4.1. SETUP WITH USE OF THE EQUIPMENT CODE LIST

☞ NOTE

The procedures to set the RCU for the TV, VCR, DVD and Audio equipment is identical, therefor only the procedure to setup the TV is given.

1. Find your brand in the equipment code list.
2. Switch your TV to on and make sure a broadcast is seen.
3. On the RCU, press the TV key continuously until the indicator stays on.
4. Release the TV key and make sure the indicator blinks continuously.
5. Use the numerical keys to enter the first code that is listed behind your brand name.
6. Monitor the TV key and note that the indicator blinks three times.
7. Aim the RCU at your TV and press the on/standby key and make sure the TV switches off.
8. Now the RCU is programmed to control your TV.
9. If there is no response aim and press again. If there is no response, the first code is not valid for your TV. Repeat the previous steps with the next code given.
10. If the TV does not respond at the last code, continue with the next procedure

4.2. SETUP WITH USE OF THE SEARCH CODE FEATURE

👉 **NOTE**
- A completed search is indicated by eight blinks.
- If the original remote control unit for the VCR, DVD or audio device does not have a on/off key: before you continue insert a tape or disk before you continue;
- For some codes the play or Volume + key might work.

1. Switch your TV to on and make sure a broadcast is seen.
2. On the RCU, press the TV key continuously until the indicator stays on.
3. Release the TV key and make sure the indicator blinks continuously.
4. On the RCU, press the on/standby key and make sure the indicator of the TV key stays on.
5. Press the up key once and see if the TV switches off.
    Make sure you wait at least 2 seconds to allow the TV to respond.
6. If the TV does not switch off, repeat step 5 until the TV switches off.
7. After the TV switched off, press the OK key to store the code.
8. On the RCU, press the on/off key. See that the TV key blinks once and the TV switches on.
9. Now your are ready to read-out the code from the memory for future use.

4.3. READ OUT THE EQUIPMENT CODE

👉 **NOTE**
You can read out the code from the RCU, just blink back the code. It is handy for future reference. Remember you only can blink back the code after the RCU operates your device.

1. Switch your TV to on and make sure a broadcast is seen.
2. On the RCU, press the TV key continuously until the indicator stays on.
3. Release the TV key and make sure the indicator blinks continuously.
4. Use the numerical keys to enter code **9 9 0**.
5. Monitor the TV key and note that the indicator goes off and stays off.

👉 **NOTE**
The amount of blinks gives you the first number, no blinks indicate a 0.

6. Press the numerical key 1 and count the blinks for the first number.
7. Press the numerical key 2 and count the blinks for the second number.
8. Press the numerical key 3 and count the blinks for the third number.
9. Press the numerical key 4 and count the blinks for the fourth number.
10. Write the code, with a permanent pen, in the boxes in the battery cover and this manual.
11. Now the RCU is programmed to control your TV.

5. SPECIAL SETUP FUNCTIONS

It is possible to control a second TV or VCR with your RCU. One of the other mode keys (TV, VCR, AUX) must be sacrificed in this case. It is not possible to sacrifice the SAT key.

It is also possible to control another (up to 16) EchoStar receivers that use the equipment code 0222. This is done with use of the address feature in the SAT mode.

A2

5.1. SETUP A SECOND TV OR VCR

☞ NOTE
The procedure to assign a second TV or VCR is identical, therefor only the procedure to assign the second TV is given.

1. On the RCU, press the TV key continuously until the indicator stays on.
2. Release the TV key and make sure the indicator blinks continuously.
3. Use the numerical keys to enter code **9 9 2**.
4. Monitor the TV key and note that the indicator goes on and off and finally stays on.
5. Press the VCR key once and note that the indicator goes on and off and finally stays off.
6. Now the VCR key is assigned as a TV key.
7. Setup the VCR key to control your second TV, refer to chapter 4 for detailed instructions.

5.2. UNDO THE SETUP OF A SECOND TV OR VCR

☞ NOTE
The procedure to undo an assignment for the TV or VCR is identical, therefor only the procedure to undo the assignment of the VCR key as a second TV is given.

1. On the RCU, press the VCR key continuously until the indicator stays on.
2. Release the VCR key and make sure the indicator blinks continuously.
3. Use the numerical keys to enter code **9 9 2**.
4. Monitor the VCR key and note that the indicator goes on and off and finally stays on.
5. Press the VCR key once and note that the indicator goes on and off and finally stays off.
6. Now the VCR key is assigned as a VCR key.
7. Setup the VCR key to control your VCR, refer to chapter 4 for detailed instructions.

6. SPECIAL FUNCTIONS

6.1. VOLUME LOCK (PUNCH THROUGH)

The RCU allows you to select the device that you want to control the volume of, independently from any other mode. As an example, if you are in the SAT mode, you can stay in the SAT mode and adjust the volume of the TV directly with the volume +/- key.

☞ NOTE
The procedures to set the volume lock for the TV, VCR, DVD and Audio equipment is identical, therefor only the procedure to set the volume lock for the TV is given.

1. On the RCU, press the TV key continuously until the indicator stays on.
2. Release the TV key and make sure the indicator blinks continuously.
3. Use the numerical keys to enter code **9 9 3**.
4. Press the TV key once.
5. Monitor the TV key and note that the indicator blinks three times.
6. Now the volume control is locked to the TV except for the AUX mode.

6.2. RESET VOLUME LOCK (PUNCH THROUGH)

1. On the RCU, press the SAT key continuously until the indicator stays on.
2. Release the SAT key and make sure the indicator blinks continuously.
3. Use the numerical keys to enter code **9 9 3**.
4. Press the Volume + key once and note that the indicator blinks four times.
5. Now the volume control is unlocked to control the device that belongs to that key.

6.3. REAL-TIME MACROS

This feature allows you to program a macro on any key. With a macro you can assign a chain of key strokes to any key on the RCU, also on a mode key. The macros are recorded and played real-time, which means the actual time between key strokes will also be recorded.

6.3.1. DEFINE A MACRO

☞ NOTE

- You have to complete the macro within a maximum of 8 key strokes.
- If a mode key is used within a macro then all keys pressed after this mode key will follow that mode until another mode key is pressed.
- Nested macros are not possible, in other words you cannot start another macro within a macro.

1. On the RCU, press the SAT key continuously until the indicator stays on.
2. Release the SAT key and make sure the indicator blinks continuously.
3. Use the numerical keys to enter code **9 9 5** and note that the indicator stays on.
4. Choose and press the key which you want to assign for the macro. This can be any key, but after the recording it's original function is lost.
5. Immediately program the macro as required, after the final key stroke press the SAT key for three seconds to close the macro. Note that the indicator blinks three times.
6. Now the macro is recorded successfully and ready for use.

6.3.2. PLAY BACK A MACRO

If a macro is recorded under any key, not being a mode key, press the key and the macro plays back, for a macro under a mode key you have to press the key twice within two seconds.

6.3.3. DELETE A MACRO

1. On the RCU, press the SAT key continuously until the indicator stays on.
2. Release the SAT key and make sure the indicator blinks continuously.
3. Use the numerical keys to enter code **9 9 5** and note that the indicator stays on.
4. Choose and press the key for the macro that you want to delete.
5. Press the SAT key for three seconds to delete the macro. Note that the indicator blinks three times.
6. Now the macro is deleted successfully and the original key function is restored.

6.4. FACTORY RESET

You can do either a functional reset which means that all personal programs as volume lock and real-time macros are lost. All equipment codes will remain.

A full factory reset is done if you want to delete all personal programming as well as the equipment codes. This procedure will return the factory settings which you can customize later.

6.4.1. FUNCTIONAL RESET

1. On the RCU, press the SAT key continuously until the indicator stays on.
2. Keep the SAT key pressed.
3. Use the numerical keys to enter code **9 8 0** and note that the indicator blinks four times.
4. Now the RCU is programmed with the factory settings and ready for reprogramming.

6.4.2. FULL FACTORY RESET

1. On the RCU, press the SAT key continuously until the indicator stays on.
2. Keep the SAT key pressed.
3. Use the numerical keys to enter code **9 8 1** and note that the indicator blinks four times.
4. Now the RCU is programmed with the factory settings and ready for reprogramming.

7. TROUBLESHOOTING

A2

Problem	Possible cause	What to do?
1. Device does not respond to the RCU.	■ You did not select the correct code for the device.	■ Try all the codes listed for your brand. ■ Try the search method.
2. One of the mode keys blinks twice when a key is pressed but the device does not respond.	■ Batteries are empty.	■ Insert new batteries.
3. Device does sometimes not respond to the RCU.	■ Direct sun light from behind the device.	■ Close the sun blinds or get closer to the device.
	■ You do not aim sufficiently at the device.	■ Aim at the device's display. ■ install a RCU extender.
	■ Batteries are almost empty.	■ Insert new batteries.
4. Your device code is not listed.	■ The device code was not know at the time this manual was created.	■ Try the search method.
5. The RCU does not execute the commands properly.	■ Some codes are quite similar, maybe you have chosen the wrong code.	■ Try another code listed for your brand. ■ Try the search method.
6. Volume control does not respond as expected.	■ Volume is locked to another device.	■ Undo the volume lock (punch through) function.
7. Video does not record.	■ You pressed the record key once.	■ Press the record key twice to start. The RCU has a safety feature to avoid a start of an unwanted recording.
8. The RCU gives still problems.	■ Your customized settings are corrupted.	■ Do an operational reset. ■ Do a factory reset.

8.   EQUIPMENT CODES

8.1.   ECHOSTAR SATELLITE RECEIVERS

AD2000 IP	0453
AD3000 series	0222
D2500 IP	0511
DSB1100	1086
DSB2000	0853
DSB9800	0871
DVR-7000 series	0222
IR700	0312
LT7500	0465
LT80+	0688
LT8700	0454
SR1500	0218
SR200 I.P	0713
SR4500	0100
SR5500	0170

8.2.   ECHOSTAR KEY ASSIGNMENTS

KEY	DSB2000	DSB9800	LT8700	LT80+	SR4500	SR1500
⏻	Power/Stby	Power/Stby	Power/Stby	Power/Stby	Power/Stby	Power/Stby
SAT	Select SAT mode	Select SAT mode	Select SAT mode	Select SAT mode	Select SAT mode	Select SAT mode
TV	Select TV mode	Select TV mode	Select TV mode	Select TV mode	Select TV mode	Select TV mode
VCR	Select VCR mode	Select VCR mode	Select VCR mode	Select VCR mode	Select VCR mode	Select VCR mode
AUX	-	-	-	-	-	-
1☞	1	1	1	1	1	1
2 ABC	2	2	2	2	2	2
3 DEF	3	3	3	3	3	3
4 GHI	4	4	4	4	4	4
5 JKL	5	5	5	5	5	5
6 MNO	6	6	6	6	6	6
7 PQRS	7	7	7	7	7	7
8 TUV	8	8	8	8	8	8
9 WXYZ	9	9	9	9	9	9
0..1..	0	0	0	0	0	0

8.2. ECHOSTAR KEY ASSIGNMENTS (CONTINUED)

A2

KEY	DSB2000	DSB9800	LT8700	LT80+	SR4500	SR1500
TVRAD		TONE- Radio guide select	A/V	TV/SAT-TV or sat. select		
FAV	X- Favorite IRD		FAVORITE	RADIO/SAT- Radio or	FCH, fav list	
MUTE	MUTE- Volume Mute IRD	MUTE- Volume Mute IRD	MUTE- Volume Mute IRD	MUTE- Volume Mute IRD	MUTE- Volume Mute IRD	MUTE- Volume Mute IRD
CH up	Channel up IRD	Cursor up IRD	Channel up IRD	Ch up IRD	Ch up IRD	Channel up IRD
CH down	Channel DOWN IRD	Cursor down IRD	Channel DOWN IRD	Ch down IRD	Ch down IRD	Channel DOWN IRD
VOL up	Volume up IRD	Cursor left IRD	Volume up IRD	Vol- IRD	Volume up IRD	Volume up IRD
VOL down	Volume down IRD	Cursor right IRD	Volume down IRD	Vol+ IRD	Volume down IRD	Volume down IRD
back	->EXIT- IRD		RECALL SAT		ERASE	RECALL
EPG	EPG- EPG	Guide				
SERV	SERV- Info subscription		STORE	ENTER- Ok IRD	CLAMP	
MENU	Menu- Navigator IRD	Menu- Navigator IRD	MENU	Menu- Navigator IRD	FORMAT- format	SETUP - Setup menu IRD
Up	Up cursor IRD	Cursor up IRD		Ch up IRD	VIDEO FINE- up	TUNING- up IRD
Down	Down cursor IRD	Cursor down IRD		Ch DOWN IRD	VIDEO FINE- down	TUNING- down IRD
Left	Left cursor IRD	Cursor left IRD	Left cursor IRD	Tuning <	SKEW- down	
Right	Right cursor IRD	Cursor right IRD	Right cursor IRD	Tuning >	SKEW- up	
OK	OK- IRD	OK- IRD	SELECT- store settings	STORE- store IRD		ENTER- store selection
INFO	INFO- Info prog IRD	Info- Info IRD	CANCEL- cancel		VIDEO DEVIA	VIEW
EXIT	E- Function key	ESC- Escape, exit IRD	VIEW	CANCEL- cancel IRD	POSITION	
A (red)	A- Function key		=== - MAC teletekst	WEST- move dish west		
B (blue)	B- Function key			SAT-		

8.2. ECHOSTAR KEY ASSIGNMENTS (CONTINUED)

KEY	DSB2000	DSB9800	LT8700	LT80+	SR4500	SR1500
	C- Function key		<| |> - enlarge screen	STOP- stop moving dish		
	D- Function key		=?= - subtitiling select	EAST- move dish east		
		subtitling	--- subtitling on/off	P.LOCK- set change p. Lock	AUDIO DE-EMPH	P.LOCK- set change p. Lock
	+- Add. Info, subtitling		TUNE	AUDIO- audio menu	BANDWITH	AUDIO
	TV/SAT Select TV or DBS	Ext	PPV	VIDEO- video menu	POLARITY	

KEY	D2500 I.P.	AD2000 I.P.	SR200 I.P.	SR5500	LT7500	SR5500
	Power/Stby	Power/Stby	Power/Stby	Power/Stby	Power/Stby	Power/Stby
	Select SAT mode	Select SAT mode	Select SAT mode	Select SAT mode	Select SAT mode	Select SAT mode
	Select TV mode	Select TV mode	Select TV mode	Select TV mode	Select TV mode	Select TV mode
	Select VCR mode	Select VCR mode	Select VCR mode	Select VCR mode	Select VCR mode	Select VCR mode
	Select AUX mode	Select AUX mode	Select AUX mode	Select AUX mode	Select AUX mode	Select AUX mode
	1	1	1	1	1	1
	2	2	2	2	2	2
	3	3	3	3	3	3
	4	4	4	4	4	4
	5	5	5	5	5	5
	6	6	6	6	6	6
	7	7	7	7	7	7
	8	8	8	8	8	8
	9	9	9	9	9	9
	0	0	0	0	0	0
	TV/Radio select	TV/Radio select	RADIO -TV/ Radio select			
	Favorite	Favorite	FAV/MAIN- Favorite or main list	FAV, CANCEL		FAV, CANCEL

A2

KEY	D2500 I.P.	AD2000 I.P.	SR200 I.P.	SR5500	LT7500	SR5500
(mute)	MUTE-Volume Mute IRD	MUTE-Volume Mute IRD	MUTE-Volume Mute IRD	MUTE-Volume Mute IRD	MUTE-Volume Mute IRD	MUTE-Volume Mute IRD
(CH up)	Channel up IRD	Channel up IRD	Channel + IRD	Channel up IRD	TUNING- up IRD	Channel up IRD
(CH down)	Channel DOWN IRD	Channel DOWN IRD	Channel - IRD	Channel DOWN IRD	TUNING-down IRD	Channel DOWN IRD
(VOL up)	Volume up IRD	Volume up IRD	Volume + IRD	Volume up IRD	Volume up IRD	Volume up IRD
(VOL down)	Volume down IRD	Volume down IRD	Volume - IRD	Volume down IRD	Volume down IRD	Volume down IRD
(↺)		TV/DBS-Select TV or DBS	TV- Select TV or Sat		TES - Internal sync toggle	
(EPG)	Guide - IRD	Guide - IRD				
(dish)	SAT-List of satellites	SAT-List of satellites	INDEX-system info	MASK	SCAN - dish par.	MASK
(MENU)	Menu-Navigator IRD	Menu-Navigator IRD		ENTER SATELLITE	Menu-Navigator IRD	ENTER SATELLITE
(up arrow)	Channel up IRD	Channel up IRD	Up cursor IRD		TUNING- up IRD	
(down arrow)	Channel DOWN IRD	Channel DOWN IRD	Down cursor IRD		TUNING-down IRD	
(left arrow)	Volume down IRD	Volume down IRD	Left cursor IRD	<- TUNING	<- TUNING	<- TUNING
(right arrow)	Volume up IRD	Volume up IRD	Right cursor IRD	-> TUNING	-> TUNING	-> TUNING
(OK)	OK/Store IRD	OK/Store IRD	STORE- IRD	STORE-store settings	ENTER-store selection	STORE-store settings
(i)	Info IRD	Info IRD		EXTRA FEATURES		EXTRA FEATURES
(EXIT)	Exit IRD	Exit IRD			CANCEL - Cancel IRD	
(red)			WEST- move dish west		DOWN/CANCEL - Pos. control	
(blue)			TUNING SELECT		SAT/STORE-Pos. control	TUNING SELECT
(yellow)			FSS/DBS		SKEW- skew setting	FSS/DBS
(green)			EAST- move dish east	AUDIO BANDWITH	UP/ERASE - Pos. control	AUDIO BANDWITH
(square)		DIG/ANA-Digital analog toggle IRD	TIMER- set timer	AUDIO DE-EMPH	BRF/TEF	AUDIO DE-EMPH

KEY	D2500 I.P.	AD2000 I.P.	SR200 I.P.	SR5500	LT7500	SR5500
	Speaker	ALT- Audio language toggle	LOCK- set change par. Lock	STEREO	AUDIO- audio parameters	STEREO
	UHF-Select TV or DBS	BACK- Background toggle	MIX- Background toggle	FORMAT	VIDEO- video menu	FORMAT

8.3. AMPLIFIERS

Arcam	0641	Pioneer	0013, 0300
Bush	0421	Sansui	0321
Cyrus	0683	Sherwood	0711
Denon	0272	Sony	0689
Goodmans	0421, 0847	Tevion	1129
JBL	0668, 1177	Videologic	1095
Kenwood	0772	Yamaha	0354
Philips	0641		

8.4. MISCELLENEOUS AUDIO

Goodmans	0841	Uher	0841
Sanyo	0871, 0882	Videologic	1179

8.5. RECEIVERS

Aiwa	0121, 1405, 1188	Okano	0440
Akai	0115, 0440	Onkyo	0135
Arcam	0642	Panasonic	0763
Audiolab	1189	Philips	0642, 1089, 1189, 1269, 1289
Bang & Olufsen	0799	Phonotrend	0502
Denon	1104, 1160	Pioneer	0289, 1107, 1143
Fine Arts	1189	RCA	1254, 1123
Fisher	0360	Sanyo	0219, 0360
Goodmans	0440	Sharp	0262
Grundig	0219, 1131, 1189, 1192	Sherwood	0491, 0502, 0653, 1050
Harman/Kardon	0110	Sony	1058, 1158, 1258
JVC	0074, 0464	Technics	0208, 1135, 1308, 1309, 1518
Kenwood	1027, 1313, 1569, 1570	Thomson	1254
Marantz	0219, 0412, 1089, 1189	Thorens	1189
Memorex	1024	Venturer	1033
Micromega	1189	Wharfedale	0440
Mitsubishi	0440	Yamaha	0176, 0712, 1276
Myryad	1189		

8.6. TELEVISIONS

AGB	0516	M Electronic	0009, 0037, 0057, 0104, 0105, 0109, 0163, 0217, 0346, 0374, 0480
ASA	0087, 0104	MTC	0349, 0512
Acura	0009	Magnadyne	0087, 0102, 0247, 0516
Admiral	0087, 0163	Magnafon	0102, 0516
Adyson	0032, 0217	Magnum	0648
Aiwa	0701	Manesth	0217, 0235, 0264
Akai	0208, 0361, 0516, 0602, 0708	Marantz	0037, 0556
Akito	0272	Marelli	0087
Akura	0218, 0264, 0358, 0493	Mark	0037

8.6. TELEVISIONS (CONTINUED)

A2

Alba	0009, 0036, 0037, 0211, 0218, 0235, 0371, 0581, 0668	Matsui	0009, 0011, 0035, 0036, 0037, 0072, 0177, 0208, 0211, 0217, 0235, 0272, 0294, 0354, 0355, 0371, 0443, 0487, 0516, 0579
Allorgan	0294	McMichael	0043
Amplivision	0217, 0400	Mediator	0012, 0037
Amstrad	0009, 0037, 0171, 0177, 0354, 0371, 0412, 0433, 0516	Medion	0668
Anitech	0009	Memorex	0009, 1037
Arc En Ciel	0501, 0568	Memphis	0337
Arcam	0216, 0217	Metz	0087, 0275, 0367, 0388, 0447
Asuka	0218	Minerva	0070, 0237, 0487
Atlantic	0206	Minoka	0412
Audiosonic	0037, 0109	Mitsubishi	0033, 0036, 0087, 0108, 0237, 0354, 0512, 0691
Autovox	0087, 0206, 0237, 0336	Mivar	0216, 0290, 0291, 0292, 0516, 0609
BPL	0282	Multitech	0009, 0102, 0216
BSR	0294	Myryad	0556
BTC	0218	NEC	0170, 0704
Bang & Olufsen	0087, 0565	NEI	0037, 0337
Barco	0380	National	0237
Basic Line	0009, 0218	Neckermann	0037, 0087, 0191, 0349, 0505, 0556
Baur	0010, 0037, 0349, 0361, 0505, 0512	Nesco	0179
Beko	0370, 0486, 0714, 0715	Nikkai	0032, 0035, 0037, 0072, 0216, 0218, 0264, 0337
Beon	0037	Nobliko	0102
Bestar	0626	Nogamatic	0501, 0568
Binatone	0217	Nokia	0361, 0473, 0480, 0548, 0606, 0631
Blaupunkt	0191, 0195, 0200, 0327, 0328	Nordmende	0109, 0196, 0198, 0501, 0560, 0568
Blue Sky	0218, 0668, 1037	Oceanic	0163, 0361
Blue Star	0282	Onwa	0433
Bondstec	0247	Orion	0037, 0177, 0235, 0294, 0355, 0364, 0443, 0516, 0655
Boots	0217	Osaki	0032, 0072, 0217, 0218, 0264, 0412, 0493
Brandt	0109, 0196, 0198, 0335	Oso	0218
Brandt Electronic	0501, 0568	Osume	0032, 0072, 0157
Brionvega	0087	Otto Versand	0010, 0036, 0037, 0191, 0217, 0349, 0505, 0512, 0556
Britannia	0216	Palladium	0370, 0418
Bruns	0087	Panama	0217, 0264
Bush	0009, 0036, 0037, 0211, 0218, 0272, 0282, 0294, 0349, 0355, 0371, 0374, 0519, 0581, 0668	Panasonic	0126, 0163, 0214, 0226, 0237, 0250, 0274, 0367, 0650
CGE	0074, 0084, 0247	Pathe Cinema	0216, 0238
CS Electronics	0216	Pathe Marconi	0196, 0198, 0501, 0568
CTC	0247	Pausa	0009
Carrefour	0036	Phase	0032
Cascade	0009	Philco	0074, 0084, 0087, 0247
Cathay	0037	Philips	0012, 0037, 0043, 0087, 0193, 0374, 0556
Centurion	0037	Phoenix	0087

8.6. TELEVISIONS (CONTINUED)

Century	0087	Phonola	0012, 0037, 0087
Cimline	0009	Pioneer	0109, 0163, 0166
Clarivox	0037	Prandoni Prince	0516
Clatronic	0247, 0370	Profex	0009, 0361
Condor	0370	Protech	0009, 0037, 0102, 0217, 0247, 0264, 0337, 0418, 0668
Contec	0009, 0036, 0216	Pye	0012
Continental Edison	0196, 0198, 0399, 0501, 0568	Quelle	0010, 0011, 0037, 0070, 0074, 0084, 0104, 0200, 0327, 0328, 0361, 0505, 0512
Crosley	0074, 0084, 0087	Questa	0036
Crown	0009, 0037, 0370, 0418, 0579	R-Line	0037
Cybertron	0218	RBM	0070
Daewoo	0009, 0037, 0374, 0499	RFT	0087, 0428
Dainichi	0218	Radiola	0012, 0037
Dansai	0037	Radiomarelli	0087, 0516
Dayton	0009	Rank Arena	0036
De Graaf	0208, 0548	Rediffusion	0361
Decca	0037, 0072, 0272, 0516	Revox	0037
Denon	0145	Rex	0163, 0206, 0259, 0264
Dixi	0009, 0037	Roadstar	0009, 0218, 0264, 0418
Dual	0336, 0519	Runco	0603
Dual Tec	0217	SBR	0012, 0037, 0043, 0193
Dumont	0070, 0087	SEG	0036, 0217, 0264, 0668
Elbe	0259	SEI	0010, 0087, 0102, 0177, 0294, 0516
Elin	037, 0548	Saba	0087, 0109, 0163, 0196, 0198, 0335, 0501, 0568
Elite	0218	Saccs	0238
Elta	0009	Sagem	0610
Emerson	0087, 0361	Saisho	0009, 0011, 0033, 0177, 0211, 0235, 0264, 0354, 0516
Erres	0012, 0037	Salora	0163, 0194, 0349, 0356, 0359, 0361, 0548
Europhon	0516	Sambers	0102, 0516
Expert	0206	Samsung	0009, 0037, 0060, 0217, 0264, 0290, 0370, 0556, 0587
Ferguson	0037, 0073, 0109, 0190, 0193, 0238, 0324, 0335, 0560	Sandra	0216
Fidelity	0193, 0216, 0361	Sanyo	0011, 0036, 0045, 0072, 0104, 0157, 0208, 0339
Finlandia	0208, 0346, 0359	Schaub Lorenz	0361
Finlux	0037, 0070, 0072, 0087, 0104, 0105, 0179, 0346, 0411, 0516	Schneider	0037, 0057, 0218, 0247, 0303, 0336, 0371, 0394, 0668
Firstline	0009, 0216, 0217, 0247, 0294, 0668	Seleco	0163, 0206, 0259, 0411
Fisher	0104, 0208, 0217, 0303, 0370, 0555	Sentra	0035
Flint	0455	Sharp	0036, 0093, 1093, 1193
Forgestone	0193	Shorai	0294
Formenti	0037, 0087	Siarem	0087, 0102, 0516
Frontech	0163, 0247, 0264, 0448	Siemens	0037, 0157, 0191, 0195, 0200, 0327, 0328
Fujitsu	0072, 0206, 0683	Silver	0036
Funai	0179, 0264, 0294, 0303	Singer	0087

8.6. TELEVISIONS (CONTINUED)

A2

GEC	0037, 0043, 0072, 0217, 0516	Sinudyne	0010, 0087, 0102, 0177, 0235, 0294, 0516
GPM	0218	Skantic	0356
Geloso	0009	Solavox	0032, 0163
Genexxa	0163, 0218	Sonitron	0208
GoldStar	0037, 0109, 0217, 0290, 0377	Sonoko	0009, 0037
Goodmans	0036, 0037, 0072, 0179, 0217, 0235, 0364, 0371, 0374, 0499, 0624	Sonolor	0163, 0208
Gorenje	0370	Sontec	0037
Graetz	0163, 0361	Sony	0010, 0011, 0036, 0505, 1505, 1651
Granada	0037, 0045, 0072, 0208, 0217, 0339, 0359, 0516	Soundwave	0037, 0418
Grandin	0282, 0610	Standard	0009, 0217, 0218
Grundig	0070, 0191, 0195, 0237, 0487, 0556, 0587	Stern	0163, 0206, 0259
HCM	0009, 0282, 0412	Sunkai	0294, 0355
Hanseatic	0037, 0361, 0428, 0556	Susumu	0218
Hantarex	0516	Sysline	0037
Hifivox	0501, 0568	T + A	0447
Hinari	0009, 0036, 0037, 0179, 0218	Tandy	0072, 0163, 0217, 0218, 0276
Hisawa	0282, 0400, 0455	Tashiko	0036, 0043, 0217, 0359
Hitachi	0032, 0036, 0043, 0044, 0105, 0109, 0145, 0163, 0196, 0198, 0217, 0225, 0349, 0356, 0441, 0481, 0548, 0563, 0578	Tatung	0037, 0072, 0217, 0516
Huanyu	0216, 0374	Tec	0217, 0247
Hypson	0037, 0264, 0282	Technics	0250, 0650
ICE	0217, 0264, 0371	Technol Ace	0179
ICeS	0218	Teleavia	0501, 0568
ITS	0371	Telefunken	0074, 0084, 0101, 0109, 0262, 0335, 0471, 0498, 0501, 0568, 0625
ITT	0163, 0361, 0548	Teletech	0009
Imperial	0074, 0084, 0247, 0370, 0418	Teleton	0036, 0206, 0217, 0349
Indesit	0237	Tensai	0218, 0294
Indiana	0037	Texet	0216, 0218
Ingelen	0163	Thomson	0109, 0196, 0198, 0237, 0349, 0399, 0501, 0568
Inno Hit	0072, 0516	Thorn	0035, 0037, 0072, 0074, 0084, 0104, 0190, 0192, 0193, 0361, 0499, 0505, 0512
Interfunk	0037, 0163, 0247, 0361, 0501, 0512, 0568	Tomashi	0282
Intervision	0037, 0102, 0217, 0264, 0377, 0654	Toshiba	0035, 0036, 0070, 0243, 0508, 1508
Isukai	0218	Triumph	0177, 0243, 0516
JVC	0036, 0053, 0094, 0190, 0192, 0371, 0606, 0643, 0653	Uher	0206, 0303
Kaisui	0009, 0216, 0217, 0218, 0282	Ultra	0192
Kapsch	0163, 0206	Ultravox	0102
Karcher	0610	Universum	0037, 0104, 0105, 0264, 0346, 0370, 0492
Kathrein	0556	Vestel	0037
Kendo	0037, 0235	Videosat	0247
Kingsley	0216	Videotechnic	0217

8.6. TELEVISIONS (CONTINUED)

Kneissel	0259, 0435	Voxson	0087, 0163
Korpel	0037	Waltham	0217, 0356
Korting	0087	Watson	0037
Koyoda	0009	Watt Radio	0102
Leyco	037, 0072, 0264, 0294	Wega	0036, 0087
Liesenk & Tter	0037	White Westinghouse	0037, 0216
Lloytron	0032	Yoko	0037, 0217, 0264
Loewe	0087, 0512	Zanussi	0206
Luma	0206		
Luxor	0194, 0237, 0349, 0356, 0361		

8.7. VIDEO RECORDERS

ASA	0037, 0081	NEC	0038, 0041, 0067
Aiwa	0000, 0307, 0348, 0352	Neckermann	0081
Akai	0041, 0106, 0315	Nesco	0072
Akiba	0072	Nokia	0041, 0046, 0104, 0106, 0240
Akura	0271	Nordmende	0041, 0320, 0321, 0384, 0494
Alba	0020, 0072, 0278, 0293, 0315, 0333, 0334, 0352, 0554	Oceanic	0000, 0041
Ambassador	0020, 0554	Okano	0315, 0348
Amstrad	0000, 0278, 0325, 0332	Orion	0004, 0333, 0334, 0343, 0348, 0352
Anitech	0072	Osaki	0000, 0037, 0072
Asuka	0037	Otto Versand	0081
Baird	0000, 0041, 0104, 0107	Palladium	0006, 0037, 0041, 0072
Bang & Olufsen	0013, 0499	Panasonic	0162, 0226, 0227, 0454, 0459, 1162
Basic Line	0020, 0072, 0278, 0554	Pathe Marconi	0041
Blaupunkt	0003, 0006, 0034, 0154, 0162, 0195, 0226, 0227	Pentax	0042
Blue Sky	0278	Perdio	0000
Brandt	0320, 0321, 0493	Philco	0038
Brandt Electronic	0041	Philips	0081, 0146, 0384
Bush	0072, 0278, 0293, 0333, 0334, 0352	Phonola	0081
CGE	0000	Pioneer	0067, 0081
Catron	0020, 0554	Portland	0020, 0554
Cimline	0072	Profex	0322
Clatronic	0020, 0554	Profitronic	0240
Combitech	0352	Proline	0000, 0293
Condor	0020, 0554	Pye	0081
Crown	0020, 0072, 0278, 0554	Quartz	0046
Cyrus	0081	Quelle	0081
Daewoo	0020, 0278, 0554	Radiola	0081
Dansai	0072	Rex	0041, 0384
De Graaf	0042, 0166	Roadstar	0037, 0072, 0240, 0278
Decca	0000, 0081	SBR	0081, 0146
Denon	0042	SEG	0240, 0322
Dual	0041	SEI	0004, 0081
Dumont	0000, 0081, 0104	Saba	0041, 0206, 0207, 0320, 0321, 0384, 0494, 0530
ESC	0240, 0278	Saisho	0004
Elbe	0038	Salora	0043, 0046, 0106
Elcatech	0072	Samsung	0240, 0432

8.7.   VIDEO RECORDERS (CONTINUED)

A2

Ferguson	0041, 0107, 0320, 0321, 0493	Sansui	0041, 0067, 0271
Fidelity	0000	Sanyo	0046, 0104
Finlandia	0081, 0104	Saville	0352
Finlux	0000, 0042, 0081, 0104	Schaub Lorenz	0000, 0041, 0104
Firstline	0037, 0043, 0045, 0072	Schneider	0000, 0072, 0081
Fisher	0046, 0047, 0054, 0104	Seleco	0041
Frontech	0020, 0554	Sentra	0020, 0554
Funai	0000	Sharp	0048, 0062
GEC	0081	Shintom	0072, 0104
General	0020, 0554	Shorai	0004
GoldHand	0072	Siemens	0003, 0006, 0037, 0054, 0081, 0104, 0146, 0195
GoldStar	0037	Silva	0037
Goodmans	000, 0020, 0037, 0062, 0072, 0278, 0343, 0554, 0637	Singer	0045
Graetz	0041, 0104, 0240	Sinudyne	0004, 0081
Granada	0046, 0081, 0104	Solavox	0020, 0554
Grandin	0000, 0037, 0072	Sonolor	0046, 0062
Grundig	0003, 0006, 0007, 0072, 0081, 0195, 0207, 0226, 0293, 0347, 0349	Sontec	0037
HCM	0072, 0293	Sony	0011, 0032, 0033, 0034, 1032
Hanseatic	0037	Sunkai	0348
Hinari	0004, 0072, 0240, 0293, 0352	Sunstar	0000
Hitachi	0000, 0004, 0041, 0042, 0166, 0240, 0544	Suntronic	0000
Hypson	0072	Tashiko	0000
ITT	0041, 0046, 0104, 0106, 0240, 0384	Tatung	0000, 0041, 0081
ITV	0020, 0037, 0278	Tec	0020, 0554
Imperial	0000	Technics	0162, 0226
Ingersol	0004	Teleavia	0041, 0493
Interfunk	0081	Telefunken	0041, 0320, 0321, 0384, 0493, 0494, 0529, 0580
JVC	0008, 0041, 0067, 0206, 0207, 0384	Tenosal	0072
Kaisui	0072	Tensai	0000, 0322
Kendo	0106	Thomson	0041, 0320, 0384, 0493, 0494, 0528
Kenwood	0041	Thorn	0041, 0104
Korpel	0072	Toshiba	0041, 0043, 0045, 0081, 0384
Lenco	0278	Towada	0322
Leyco	0072	Uher	0240
Loewe	0004, 0006, 0037, 0081, 0162, 0454, 1162	Universum	0000, 0006, 0037, 0081, 0106, 0195, 0240, 0325
Logik	0004, 0240	Yamishi	0072
Luxor	0043, 0046, 0048, 0062, 0104, 0106	Yokan	0072
M Electronic	0000, 0038	Yoko	0020, 0240, 0554
Manesth	0045, 0072	Thorn	0041, 0104
Marantz	0003, 0006, 0062, 0081, 0146	Toshiba	0041, 0043, 0045, 0081, 0384
Matsui	0004, 0348, 0352	Towada	0322
Memorex	0000, 0037, 0046, 0104	Uher	0240
Memphis	0072	Universum	0000, 0006, 0037, 0081, 0106, 0195, 0240, 0325

8.7. VIDEO RECORDERS (CONTINUED)

Metz	0003, 0006, 0037, 0162, 0195, 0227, 0347, 0454, 0459, 1162	Yamishi	0072
Minerva	0006, 0195	Yokan	0072
Mitsubishi	0043, 0067, 0075, 0081, 0608	Yoko	0020, 0240, 0554
Multitech	0000, 0072		
Murphy	0000		
Myryad	0081		

8.8. DVD

Akai	0611	Samsung	0573
Bush	0690	Sharp	0630
Denon	0490	Sony	0533
JMB	0695	Technics	0490
JVC	0558	Thomson	0551
Kenwood	0490, 0534	Toshiba	0503
Oritron	0651	Wharfedale	0686
Panasonic	0490, 0703	Yamaha	0668
Philips	0539	Yamakawa	0665
Pioneer	0525, 0571		
Proline	0652		