



Installation
and Operating Instructions

SkyStar1

DVB PCI Sat-Card

0000/4092

Features

- > Reception of digital satellite TV (DVB) and radio programs on your PC
- > Record/Playback - Storing of DVB satellite programs in MPEG2 format (video+audio) on your hard disk
- > Teletext reception and display
- > High-speed DVB Internet access or reception of IP-push-services (Multicast) with transmission rates of up to several MBit/s

Special features

- > Simple installation with plug & play
- > Together with a digital compliant satellite reception antenna the whole spectrum of digital video broadcasting (DVB) can be used
- > Common Interface, that virtually allows the reception of almost all encoded pay-TV programs with the corresponding additional module
- > Fast image data transfer via PCI-Bus, no cable connection to graphic card
- > Image reproduction with continuous zoom in Windows window
- > Image display up to max. 768x576 for PAL/DSECAM
- > Full Frame (without television frame, TV-screen mode)
- > Creates separate frequency lists
- > Automatic fast station search
- > Storage of station specific and general settings
- > Background search for teletext pages (VTX)
- > Direct VTX page selection by clicking on page numbers in the text
- > Storage and printing of VTX pages
- > Extensive configuration options for SAT reception (e.g. DiSEqC)

System requirements

To operate this PC card your PC needs to meet the following minimum requirements for hard and software:

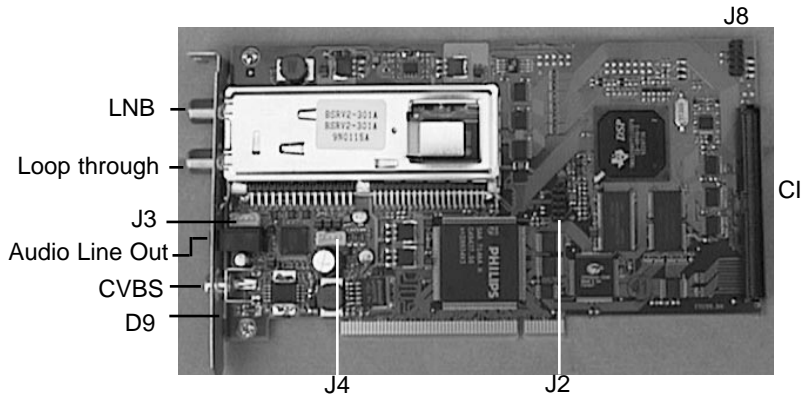
- > PC with Pentium processor 166 or higher
- > a free busmaster PCI slot
- > at least 32 MB RAM
- > at least 32 MB free hard disk storage
- > a PCI or AGP graphic acceleration card which can create at least 800x600 image points in High Color (16 Bit) or True Color (24 or 32 Bit) mode; a corresponding monitor; a mouse
- > active speakers or sound card
- > a CD-ROM drive (needed for software installation), Microsoft Windows 95 or Microsoft Windows 98
- > DirectX 5 or higher
- > Microsoft Internet Explorer 4.01

Furthermore, the card needs to be connected to a satellite reception antenna or to a satellite reception system which both can receive digital satellite signals (DVB-S). The connecting cable needs to be equipped with a common F-connector.

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Card connectors



LNB

F-Connector, for connection to satellite reception system

Loop through

F-Connector, loop through for satellite reception signal, for example for analogue Sat-TV card; is only supported when D9 is equipped.

Audio Line Out

3.5 mm jack, analogue audio out signal, for the connection of sound-card (Line In) or active speakers

CVBS

Cinch, Composite Video out signal, for the connection of a TV set or VCR

J3

CD-ROM audio loop through out, for internal connection to sound card (CD ROM Audio In),

J4

CD-ROM Audio loop through in, for internal connection to analogue audio out of CD-ROM drive

J2, J8

Reserved for future extensions

CI

Connector for Common Interface Module

1. Installation of the DVB PCI Sat card

The manufacturer takes no liability for damages, caused by wrong installation of a prefabricated device.

Contact a qualified computer expert if you are not sure with the installation of the card or if unexpected problems arise.

Caution !!!

When power is switched on during the installation there is the possibility of an electroshock !!!

In addition, the system components and the DVB PC card might be damaged.

The manufacturer is not responsible for any possible data loss or other damages in connection with the operation of the DVB PC card.

1.1 Installing the DVB PCI Sat card

1. Before you start the installation of the PC card, please make sure that:
 - > Windows 95 or Windows 98 is installed and configured
 - > Microsoft Internet Explorer 4.01 is installed
 - > DirectX 5 or higher is installed
2. Please, close Windows and turn the computer off.
Before doing any work on the hardware remove the power supply of your computer first and then statically unload your body by touching an earthed, unvarnished part of your computer casing.
3. Remove the casing cover of your computer. If necessary see the instructions manual.
4. Choose a free busmaster PCI slot. Most computers are equipped with busmaster PCI slots.
5. Remove the metal cover of the chosen empty PCI slot. If necessary, connect the CD-ROM Audio In (**J4**) of the DVB PC card with the analogue Audio Out of the CD-ROM drive.
6. If necessary, connect the CD-ROM Audio Out (**J3**) of the DVB PC card with the analogue CD-ROM Audio In of the sound card.
7. Insert the PC card in the slot.
Make sure the card fits tightly.
8. Secure the card with the screw of the removed metal slot cover **and replace the cover of the computer casing.**
9. Connect your satellite reception system with the **LNB In** socket (upper i.e. outward F-connector) of the PC card.
10. If needed connect the **Audio-Line-Out** of the PC card with the Line-In of the sound card i.e. with the active speakers.

Now, you can install the drivers and application software for the DVB PCI Sat card.

Installation of the Common Interface (CI)

With an optional CI module case, a CI module (PC card) and an activated smartcard you can also receive and decode encoded DVB programs (pay-TV).

The CI module case is to be installed via the provided connector **CI** (see fig. 1, Card connectors) with help of the enclosed ribbon cable (connector is safe against mix-up).

1.2 Installation of the DVB PCI Sat software

After you have successfully installed the DVB PCI Sat card in your computer like described under 1.1 you can install the drivers for your DVB PCI Sat card as follows:

1.2.1 Installation of the driver for Windows 95 and Windows 98

1. Switch your computer on.
2. When Windows is started it automatically recognizes the new hardware and asks you to install the driver.
3. Windows asks you for the driver files. Please, insert the enclosed CD-ROM into your CD-ROM drive and choose the start folder (containing the file **ttdvb.inf**). Follow the instructions of the installation program. For a complete installation you might also need the Windows installation CD-ROM. All driver files needed for the installation are located in the sub-file **Driver**.
4. After the driver is installed, you might be asked to please turn off the computer and reboot it again. If not, you can continue with the installation of the application software.

1.2.2 Installing the DVB PCI Sat card application software

1. Make sure DirectX 5 or higher is installed on your computer.
2. Make sure Microsoft Internet Explorer 4.01 is installed.
3. Insert the enclosed CD-ROM into your CD-ROM drive.
4. Click on **Start** in the Windows task bar.
5. Choose **Run ...**
6. Enter **D:\SETUP** and click **OK**. (If D is not your CD-ROM drive, replace D with the right drive letter.)
7. Follow the instructions of the installation program.
8. In the last step, a "Virtual DVB/IP Network Cards Driver" ("Virtual DVB/IP Network Adapter") will automatically be installed and configured. To do so, you will possibly also require the Windows CD-ROM for the completion of the installation. If you have already installed other network protocols than TCP/IP on your computer, for example IPX/SPX please confirm possible appearing warning messages with OK. The DVB PCI Sat card only requires the TCP/IP protocol.
9. If the "Virtual DVB/IP Network Cards Driver" is installed and is configured confirm and start Windows again. Your computer will now be turned off and rebooted. After that, you can use the DVB PCI Sat card applications.

Remark!!!

To check and if necessary change the settings for the "Virtual DVB/IP Network Adapter" please choose "Network" from "Control Panel".

Check whether an IP address is entered !

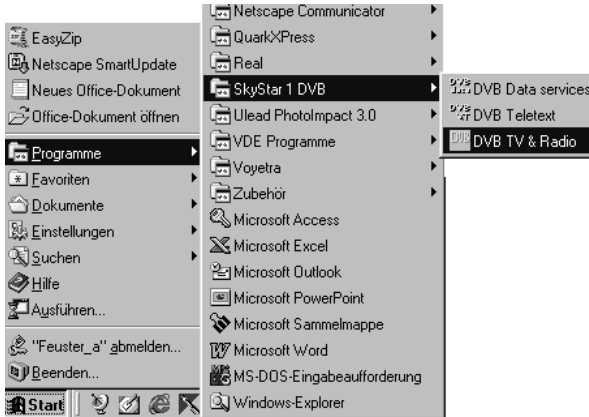
During the installation 192.168.2.239 is automatically entered as IP address and 255.255.255.0 as Subnet Mask.

If this IP address creates problems with other network cards, please contact your network administrator or ISP and get an other valid Class-C IP address and Subnet Mask.

Only the TCP/IP protocol may be bound to the "Virtual DVB/IP Network Adapter". Connections to other protocols must be removed.

2 Loading of applications

After installing the DVB PC card and the software, you can choose between several application programs. To select and start the applications, click on Start in the Windows task bar. In the appearing window select Programs. The files can be found in the folder **SkyStar1 DVB**.



Following applications are available:

DVB TV & Radio

enables the reception and playback of DVB TV and radio programs.

DVB Teletext

is a simple teletext browser. DVB teletext only starts, if DVB TV & Radio is started.

DVB Network Setup Help

supports a later installation or configuration of the TechniSat SkyStar1 DVB Network driver.

DVB Data services

enables the reception of IP based DVB data services. Profiles for the reception of different data services can be stored.

All DVB applications automatically start a further program: the TechniSat SkyStar1 DVB Server. This program controls the access to the TechniSat SkyStar1 DVB card in the background. If the TechniSat SkyStar1 DVB Server is started, you can pop-up the status bar by double-clicking on the DVB symbol in the Windows task bar (hint: The program TechniSat SkyStar1 DVB Server can be closed with ALT+F4.)

Before your DVB card is ready for reception you first need to adjust it to your reception system.

To do so, please first start the application **DVB TV & Radio**.



During DVB TV/Radio operation you can receive digital television and radio programs. In the program list, sorted by provider or in alphabetical order you can change stations by mouse-click. The TV picture is scaled with the application window, furthermore, several frame modes with hidden controls are adjustable. In this case you can change stations and control the volume with the keyboard.

The program window consists of several control bars which can be switched on and off by mouse-click, a field for the program list and the thickly framed TV picture. Program lists are stored as files on the hard disk. This enables you to use different lists (e.g. separate TV and radio lists).

Almost all controls, even those in pop-up windows are provided with so-called "tool tips". These are small boxes with texts that are automatically shown when you move the mouse over the control and remain there for approximately one second. Possibly, you need to click on the main page of the application window or the relevant dialog window first to move it into the foreground.

2.1 Switching control bars on and off

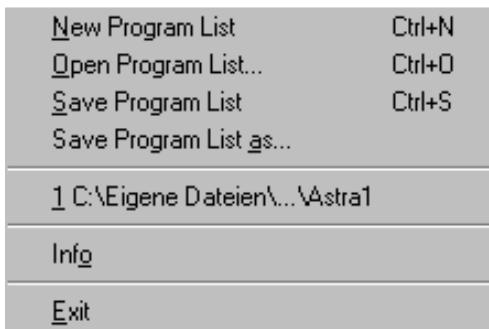
In the left upper corner of a control bar is a small button with an arrow pointing down or right. On clicking on one of these buttons you can open or close the affiliated control bar. If the control bar is closed, the arrow points to the right; if the control bar is open, it points down.

The control bar **Menu** contains five symbols. By clicking on one of these symbols you can start the functions listed in the following table.



- 1) Open the menu Program List
- 2) Open the window Transponder Scan
- 3) Open the window LNB/Satellite Settings
- 4) Open the window Record/Playback
- 5) Open the menu for selection of operating language (German or English)

2.2 Menu Program List (tool pit 1)



The menu Program List lets you select the following commands:

New Program List

A new program list is created.

Open Program List

Opens an existing program list. For this, a dialog appears to select the file.

Save Program List

Stores the program list in a file. If the program list was not stored before, a dialog for the file selection appears.

Save Program List as ...

Stores the program list in a file with a different filename. A dialog is opened for the file selection.

1,2,3

Lists the files opened last. Allows opening an existing program list without opening a panel for the file selection.

Info

Opens a window with information on copyright and version.

Exit

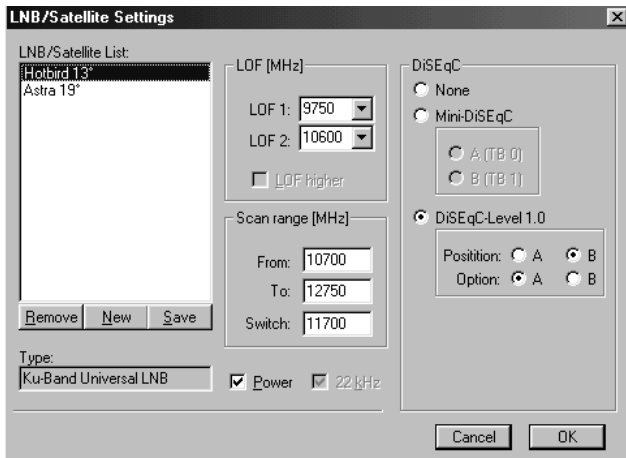
Closes the DVB TV & Radio application. If you have altered the program list and have not stored it yet you are automatically asked to do this. You then have the choice to discard or to store the alterations or you can cancel the Exit function and further work with the application.

With the next start of the DVB TV & Radio application the program list and the last selected channel is automatically activated.

3 Adjustment to your Satellite Reception System (tool pit 3)

In order for your DVB PC card to receive all channels it must be adjusted to your satellite reception system.

To do so, please open the window **LNB/Satellite Settings**.



The controls of this window carry out the following functions and displays:

LNB/Satellite List

List with the symbolic names of the LNBs i.e. satellite positions. To each entry individual features are assigned. If you select an entry in the list these features are shown in the corresponding fields and can be changed.

Remove

Deletes the selected LNB from the list.

New

Generates a new LNB. You can enter the symbolic name and type.

Save

Assigns the current features to the selected LNB.

LOF (Local Oscillator Frequency)

The Transponder frequencies of the common television satellites often lie within the range of 10 GHz and higher. Since the attenuation losses of the coaxial cable during the transmission of such high frequencies are too big, the LNB (Low Noise Block converter, sometimes also LNC - Low Noise Converter) at the antenna converts the signal to a lower frequency range, the so-called Sat-IF (950 to 2150 MHz). This is also the input frequency range of digital satellite receivers and the DVB PC card.

LOF indicates the value by which the input frequency is converted. The DVB PC card requires the input of this value in order to be able to display the actual input frequencies during the station search. The LOF is printed on the LNB. Digital compliant Universal LNBs have 2 LOFs, one for the low band (11 GHz band) and one for the high band (12 GHz band). The switching between the two LOFs is handled with a 22 kHz signal. If you alter the LOF values, the threshold i.e. switching frequency changes, too.

LOF 1

LOF 1 (low band for Universal LNB)

LOF 2

LOF 2 (high band for Universal LNB)

LOF higher

Indicates whether the LOF lies above the input frequency range, usually with C-band LNBs. Then the Sat-IF is LOF value minus input frequency.

From

Lowest threshold value of the input frequency range. Results from the LOF settings. If you know that a certain satellite does not transmit DVB channels below a certain frequency, you can increase this value accordingly. This can speed up the station search.

To

Highest threshold value of the input frequency range. Results from the LOF settings. If you know that a certain satellite does not transmit channels above a certain frequency, you can decline this value accordingly. This can speed up the station search.

Switch

Indicates the frequency at which a Universal LNB should be switched from low to high band with a 22 kHz signal.

Power

Indicates whether the LNB needs power supply. Should always be activated.

22 kHz

Indicates whether the 22 kHz signal should be sent to the LNB. With Universal LNBs that is automatically done in relation to the chosen frequency.

DiSEqC

The DiSEqC settings (Digital Satellite Equipment Control) are important, if you connect the DVB PC card to a satellite system which enables the reception of multiple satellites and the combination of the individual antenna signals is handled by DiSEqC multiswitches.

None

Choose this option, if you connect the DVB PC card directly to a single satellite antenna installed for the reception of only one satellite position.

Mini-DiSEqC

Choose this option, if the DVB PC card is connected to a switching box with "tone burst control" (also called "Mini-DiSEqC" or "Simple DiSEqC"). Then you have the possibility to choose between two satellites.

DiSEqC Levels 1.0

Choose this option if the DVB PC card is connected to a switching box or a multiswitch with DiSEqC control. Then you can choose between four possible settings (Position/Option). For the selected satellite position set the position to A or B and the option to A or B according to your multiswitch connection.

4 Searching New Channels

This chapter describes how you can search new channels. There are two ways: the automatic and the manual transponder scan.



4.1 Window Transponder Scan



In the window Transponder Scan you can search for new DVB channels and update the program list. With the controls of this dialog window you can execute the following functions:

Transponder

LNB/Satellite

Selection of the LNB i.e. the satellite. Select the satellite for which you would like to execute a station search or update.

H/V

Adjust the polarization level (horizontal or vertical).

Symbol rate

Selection and input of the symbol rate. The DVB PC card needs the input of the symbol rate to recognize the transponder(s).

Frequency

Adjustment of the transponder frequency. The Transponder frequency can be adjusted with the slider or with the arrow keys of the keyboard.

<-? / ?->

Search the previous or following transponder based on the currently adjusted frequency. The search is executed for the selected satellite with the adjusted polarization and symbol rate.

Auto Scan

Opens a window for the automatic search throughout the whole frequency range.

Frontend Status

Signal

Indicates, whether a DVB signal is found.

Carrier

Indicates, whether a carrier signal is found.

Viterbi

Indicates, whether the Viterbi Decoder is engaged.

FSync

Indicates, whether the DVB frame synchronization was recognized.

Level

Display of the estimated signal/noise ratio in dB.

Quality

Display of the bit-error rate in four steps (better than 10-1, 10-2,10-3 or 10-4).

A DVB transponder is regarded as recognized when the display fields Signal, Carrier, Viterbi and FSync are set.

Program List

List

Listing of the current program list. Already existing channels are displayed blue, newly recognized or updated channels appear green. Individual or multiple channels can be marked. The channel which was marked the least is tuned in. For TV channels, the TV picture is represented on the right side of the dialog box.

Remove

Deletes the marked channels from the program list.

Store list

Adds newly recognized channels and saves the settings of updated channels to the program list.

TV / Radio / Data Services

Here, you lay down which type of channels should appear in the listing.

New / Updated only

Activate this control button, if only new or updated channels should be listed.

Cancel

Clicking on Cancel closes the window and lets you return to the main window. Alterations in the program list are not saved.

OK

The OK button also closes this window. New or updated channels can be saved into the program list after confirmation in a pop-up window.

4.2 Window Automatic Transponder Scan



The window Automatic Transponder Scan automatically searches the entire frequency range of one satellite position for DVB channels. At the moment, the automatic search for MCPC transponders on Eutelsat Hot Bird at 13° East with 27.5 MSym/s and on the Astra satellites at 19° East with 27.5 or 22 MSym/s is supported.

The pop-up window Automatic Transponder Scan is opened with the **AutoScan** button.

With the controls of this window you can execute the following functions:

LNB/Satellite

Selecting the LNB i.e. the satellite. Select the satellite on which you would like to search or update a DVB channel.

H / V

Select the polarization level for the search (horizontal and/or vertical).

Astra Scan

Searches frequencies up to 12.5 GHz for transponders with a symbol rate of 27.5 MSym/s, for frequencies over 12.5 GHz transponders with a symbol rate of 22 MSym/s. These is the common configuration for the Astra satellites at 19° East at present.

Hotbird Scan

Searches all transponders with a symbol rate of 27.5 MSym/s This is the common configuration for the Eutelsat Hotbird satellite at 13° East at present.

Cancel

Closes the window.

5 Operation

5.1 Control Bar Video

The control bar Video is equipped with three sliders to adjust brightness, contrast and saturation. Furthermore there are three buttons for different frame modes.



- 1) Centers the video-picture within the program window as window-filling as possible with the side-relation of 4:3. The maximum size of the video-picture is approximately 768x572 pixels. Window-areas not covered by the video-picture are shown black. To return to the normal operation mode, please double-click the left mouse button on an any position in the video-picture.
 - 2) Frame-mode with current screen-resolution. The video-picture is centered on the screen with its maximum picture-size (approx. 768x572 pixels) while the desktop and all other program-windows are covered with a black background. To return to the normal operation mode, please double-click the left mouse button on an any position in the video-picture or via a context-menu opened with the right mouse button.
 - 3) Frame-mode with screen-resolution of 800x600 pixels. The video-picture is centered on the screen with its maximum picture-size (approx. 768x572 pixels) while the desktop and all other program-windows are shown with a black background.
- Tip: Even in this mode a narrow black frame remains. But, if you don't use the 800x600-mode of Windows otherwise, with this resolution you can zoom the picture until the black frame disappears and the TV picture covers the complete screen. To return to the normal operation mode, please double-click the left mouse button at any position in the video-picture or via a context-menu opened with the right mouse button.

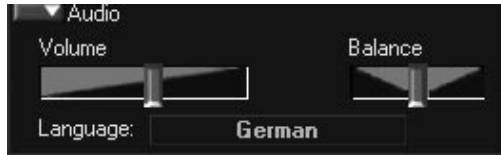
TV picture

In accordance with the window size the TV-picture is represented as big as possible with the side relation of 4:3 (max. approx. 768x572 pixels). During normal operating mode you can change to the frame-mode by double-clicking the left mouse button in the TV-picture. Double-clicking the right mouse button you will return to the last used frame-mode (with current screen-resolution i.e. with 800x600 pixels).

During frame-mode you can change channels with the arrow keys on your keyboard (arrow up or down) or alter the volume (arrow left or right).

Return from frame-mode to normal operating mode by double-clicking of the left mouse button on on any position in the video-picture.

5.2 Control Bar Audio



The control bar Audio contains two sliders for the adjustment of the volume and balance as well as an input field to display the text of the audio channel of the tuned-in station. If the station does not transmit any text information **~no info~** or the **Audio PID** is displayed.

If several audio channels are transmitted via the tuned-in frequency, use the arrow keys to switch between the audio channels.

5.3 Control Bar Program Info



The control bar Program Info shows beginning time, title and subtitle of the current and the following program. These information can only be displayed if they are transmitted.

5.4 Control Panel Program List



The control panel Program List contains a listing of the individual channels as well as two rows of buttons to set the criteria for the listing. A channel is tuned-in by clicking on a channel's name.

With the buttons **TV**, **Radio** and **Data** you can choose what kind of channels should be displayed.

With the buttons **A-F**, **G-M** etc. you reduce the channel selection to the corresponding beginning letters.

If the **All** button is activated, all channels are listed, sorted according to suppliers.

The name of the tuned-in channels is shown in the upper right corner of control panel Program List.

5.5 DVB Teletext Applikation



The application DVB Teletext is a simple teletext browser. DVB Teletext can only be started parallel to the application DVB TV & Radio. If you tune-in a TV channel with teletext in the DVB TV & Radio application, DVB Teletext stores all incoming teletext pages. The application is operated via the buttons arranged at the lower edge of the window.

Copy

Copies the current page into the buffer store.

Print

Prints the current page.

Hold

Prevents updating of the page if a new version is received.

???

Release button for hidden text.

100

Goes to page 100 (start page)

Save

Stores the current page as HTML document.

Forward

Forward scroll in the list of already visited pages.

Back

Back scroll in the list of already visited pages.

Page, «,»

Input of a certain page number, one page forward or back

Subpage, «,»

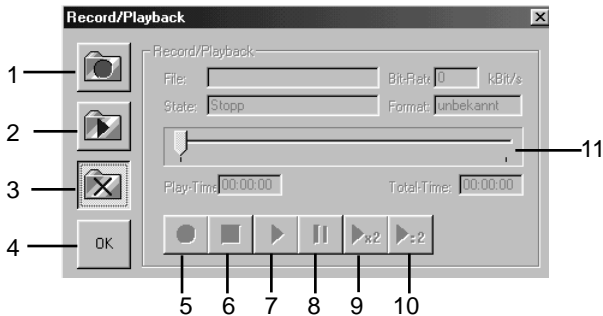
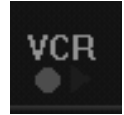
Selection of a subpage, scroll through the subpages.

Close

Ends the DVB teletext application.

Furthermore, the numbers of the arriving pages as well as the time information encoded in the teletext are shown.

5.6 Record/Playback



The window Record/Playback enables the recording of a tuned-in TV or radio channel onto your hard disk. You can choose whether you would like to record only the video stream or audio stream or both combined. This window lets you also playback previously recorded video/audio streams.

With the controls of this window you can execute the following functions:

File

Indicates the path of the opened file.

State

Shows the current status (record / playback / stop...).

Bit-Rate

Indicates the speed of the current recording or playback.

Format

Indicates the format of the opened file.

Play-Time

Indicates the playing time during playback mode with reference to the beginning of the file. During record mode the current recording time is displayed.

Total-Time

Indicates the total running time of the file during playback mode. During record mode the current recording time is displayed.

- 1) Selects and opens a file for recording. Execute this command before starting to record the currently tuned-in program. You are asked to select or enter the file name and the recording format.
- 2) Selects and opens a file for playback. You are asked to select or enter the file name.
- 3) Closes record/playback file.
- 4) Closes window.
- 5) Record button. Starts the recording. This command can only be executed if a file for recording is opened.
- 6) STOP key. Stops a current recording or playback.

- 7) Playback button. Starts the playback mode. This command can only be executed if a file for playback is opened.
- 8) Pause key. Stops the playback mode and displays a still frame of the current video picture. If this button is pressed several times, you can move through the video image by image.
- 9) Fast playback (only for video or audio MP2). The file is shown with double speed.
- 10) Slow playback (only for video or Audio MP2). The file is shown with half speed.
- 11) Indicates the current position during playback mode with reference to the total file length. By moving the slider you can change the current position by hand.

Hint

The video and audio streams are stored in the MPEG-2 format on the hard disk. Please consider that fast and large hard disks are needed for data rates of up to several MBit/s. To record a 4 MBit/s video stream for one minute you will need about 30 Mbytes, and for one hour already 1.8 Gbytes.

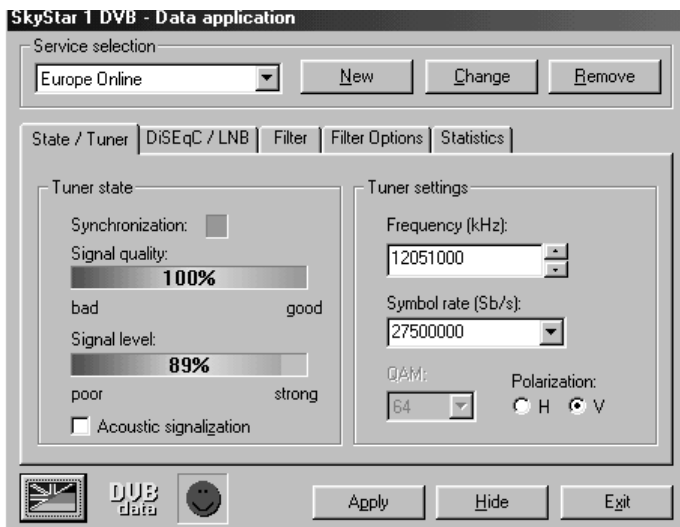
6 DVB Data Services

With the TechniSat SkyStar1 DVB card you can use all IP-based DVB data services. This includes for example High Speed Internet, Web/News Broadcast services (Web Casting), Multicast Streaming services or File Transfer services.

If the PC card is used for DVB Data services it acts just like any regular network card. This enables the reception of any IP-based DVB data services. Furthermore, this way the smooth integration into the Windows network architecture and the compatibility with Internet applications is guaranteed.

Since the DVB PC card does not retrieve its data from a network but via DVB data broadcasting, some additional settings are necessary. The data application allows the administration of as many services as you like and enables a simple adjustment of all necessary parameters.

Hint: The program TechniSat SkyStar1 DVB Servers can be closed with ALT+F4.



Almost all controls, even those in pop-up windows are provided with so-called "tool tips". These are small boxes with texts that are automatically shown when you move the mouse over a control button and remain there for approximately one second. Possibly, you need to click on the main page of the application window or the relevant dialog window first to move it into the foreground.


For the DVB PC card to work as a network card, certain front-end adjustments need to be done and so-called filters need to be configured. Front-end defines the input stage of the DVB PC card consisting of tuner, demodulator, LNB power supply and control and DiSEqC signal generator. All settings that are necessary for the reception of a DVB signals are entered in the index cards Status/Tuner and DiSEqC/LNB.

Filters are used to extract information relevant for the DVB data service from the DVB signal. Depending on the DVB data service one or more filters need to be configured on the index card **Filter**. The index card **Statistics** shows the information density (bit rate) of the selected filters.

Services

In context with the SkyStar1 data application a service means a set with all parameters necessary for the reception of a DVB sat data service.

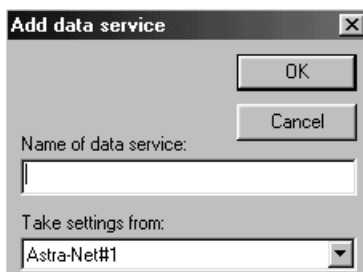
With the selection of a service all adjustments are done in a way that the corresponding DVB data service can be used. The parameters belonging to a service can be changed on the index cards of the SkyStar1 Data application and activated and stored on pressing the button **Apply**. The parameters needed for the use of a DVB data service (frequency, symbol rate, polarization, PID, IP or MAC address) are given to you by the supplier of the service.

To fade out the application window press the button **Hide**. By double clicking on  in the Windows task bar the application window reappears. To close the application press on **Exit**.

Add Data Service

The window Add Data Service opens on pressing the button **New**. After that you need to enter a definite (not yet used) name for the new data service in the entry field Name of Data Service. In order to not have to enter all parameters for each new service again a list allows to adopt the settings of already existing services. These can be modified then. On pressing **OK** the service is installed.

Cancel discards the inputs.



6.1 Select a Service

The selection of a service is simply done by opening the Service Selection and choosing an entry. On starting the program the finally chosen entries are activated again. The three buttons **New**, **Change** and **Remove** are used to manage the services.



Change Service

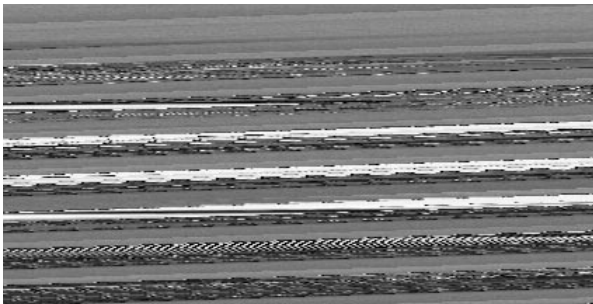
The window Change Data Service opens on pressing the button Change. Now, a different name for the service can be entered. **OK** accepts the change of the service's name and Cancel discards the input.



The button **Remove** deletes the current service from the list of the available services and all affiliated parameters.

6.2 Index Card State / Tuner

The index card State/Tuner represents different reception parameters. Furthermore, it allows to adjust tuner and demodulator settings, e.g. frequency and symbol rate. Alterations only become effective after pressing **Apply**.



Tuner State

Synchronization

Indicates whether a DVB signal is recognized.

Signal Quality

Indicates the quality of the received signal. A value of 100% represents an error-free reception (bit error rate better than 10 E-4).

Signal Level

The level of the received signal in percent. With the help of this value the antenna can optimally be aligned.

Acoustic Signalization

The acoustic signalization helps during the alignment of the antenna. The signal strength can be heard via your sound card.

Tuner Settings

Frequency

Entering the transponder frequency.

You can directly enter the transponder frequency or adjust it step-by-step with the arrow keys.

Symbol Rate

Selecting or entering the symbol rate.

The DVB PC card requires the input of the symbol rate to recognize the corresponding transponder.

H / V

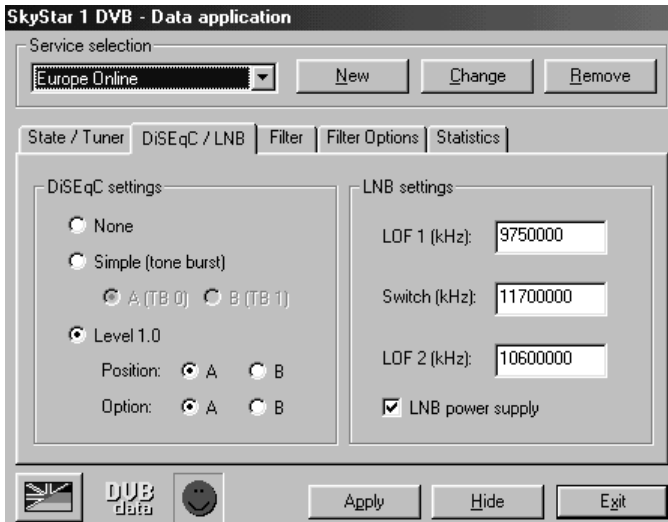
Only with DVB-s cards (satellite). Please enter the polarization level (horizontal or vertical).

QAM

Only with DVB-c cards (cable). Indicates the modulation type of the cable network. If necessary, the cable network provider will give you the modulation type.

6.3 Index Card DiSEqC / LNB

With the settings on the index card DiSEqC/LNB, the DVB PC card is adjusted to your satellite system. Alterations only become effective after accepting with Apply.



DiSEqC Settings

The DiSEqC settings (Digital Satellite Equipment Control) are of importance, if you connect the TT-DVB sat PCI card to a satellite system which enables the reception of several orbital positions and the combination of the individual antenna signals is handled by DiSEqC switches or DiSEqC multiswitches.

None

Choose this option, if you connect the DVB PC card directly to a single satellite antenna installed for the reception of only one satellite position.

Simple (tone burst)

Choose this option, if the DVB PC card is connected to a switching box with "tone burst control" (also called "Mini-DiSEqC" or "Simple DiSEqC"). You then have the possibility to choose between two satellite signals (orbital positions).

Level 1.0

Choose this option, if the DVB PC card is connected to a device with DiSEqC control. You then can choose between four possible settings (Position/Option). For the correct settings consult the instructions of your DiSEqC multiswitch.

LNB Settings

The transponder frequencies of the common television satellites often lie within the range of 10 GHz and higher. Since the attenuation losses in the coaxial cable during the transmission of such high frequencies are too big, the signal is converted right at the antenna - inside the LNB (Low Noise Block converter, sometimes also LNC - Low Noise Converter) - into a lower frequency range, the so-called Sat-IF (950 to 2150 MHz). This is also the input frequency range of digital satellite receivers and the DVB PC card.

LOF 1

LOF 1 is the Local Oscillator Frequency for the low band.

LOF indicates the value by which the input frequency is converted. The TT-DVB sat PCI card requires the input of this value in order to be able to process the actual input frequencies. The LOF is printed on the LNB. Digital compliant Universal LNBs have 2 LOFs, one for the low band (also 11 GHz band) and one for the high band (also 12 GHz band). The switching between the two LOFs is handled with a 22 kHz signal.

LOF 2

LOF 2 is the Local Oscillator Frequency for the high band.

See also LOF 1.

Switch

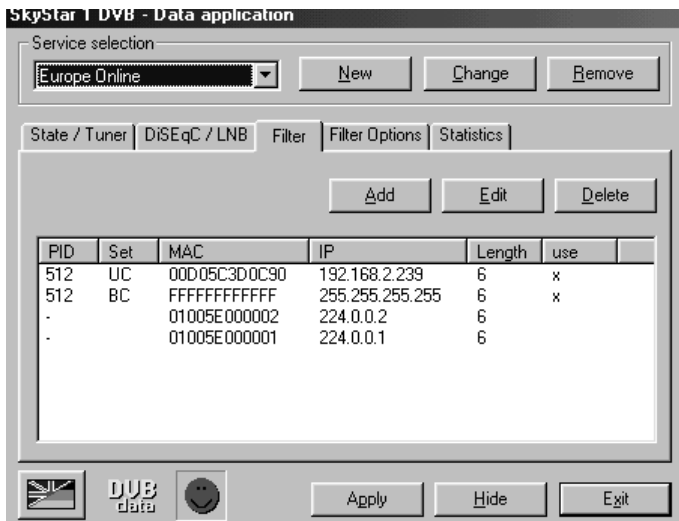
Indicates the frequency at which a Universal LNB should be switched from low to high band with a 22 kHz signal.

LNB power supply

Indicates, whether the LNB should be provided with power. Should always be activated.

6.4 Index Card Filter

The index card Filter is used for the configuration of the filter and for display of the filter parameters. The filters are adjusted with the buttons Add, Edit and Delete. The alteration of the def. Multicast PID only becomes effective after accepting with Apply.



PID (Packet-Identifier)

The PID selects one single stream of the multitude of packet streams which make up the DVB signal. The service provider lets you know which PID is used for the transmission of the its DVB data service.

def. Mdef. Multicast PID

If a supplier transmits all multicast DVB data services with the same PID, it is useful to fill in the PID. The SkyStar1 data application is then able to automatically set further multicast filters when requested. Otherwise, the entry field should remain empty.

Set

Indicates, whether a filter is set (is used). The following abbreviations are used: UC - Unicast Filter; BC - Broadcast Filter; MC - Multicast Filter. The filter can only be set by the SkyStar1 data application, if the application is allowed (column use) and a valid PID (column PID) is entered.

MAC (Media Access Control)

Mac address: The Mac address further differentiates the package stream chosen with the PID. Because of that, only packages with the right address reach the Windows network. For multicast DVB data-services the Mac address can be calculated from the IP address. In this case, the input of the IP address is sufficient.

IP (Internet Protocol)

The IP address is not important for the filtering process, however, it makes the assignment of filters to client applications and the address input for multicast filters.

Length

Number of bytes of the MAC address integrated in the filtering process (usually 6, with 0 the filter is only for PID).

use

Indicates, whether a filter should be used.

Adding a filter

On pressing the button **Add** or double-clicking on a free spot in the **filter list** the pop-up window **Filter Settings** opens. The input fields already contain the pre-set values for a new filter. Adjust the diameters as needed. Pressing **OK** adds the new filter to the filter list. **Cancel** deletes the inputs.

The image shows a 'Filter settings' dialog box with the following elements:

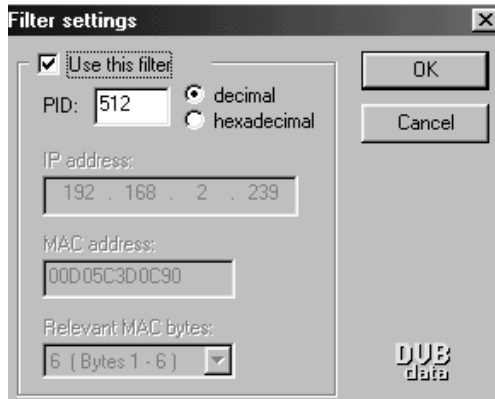
- Use this filter
- PID: [] (radio buttons for decimal and hexadecimal)
- IP address: [0 . 0 . 0 . 0]
- MAC address: [000000000000]
- Relevant MAC bytes: [6 (Bytes 1 - 6)]
- Buttons: OK, Cancel
- Logo: DVB data

Delete removes the selected filter from the list of available filters and all corresponding parameters.

Change Filter Parameter

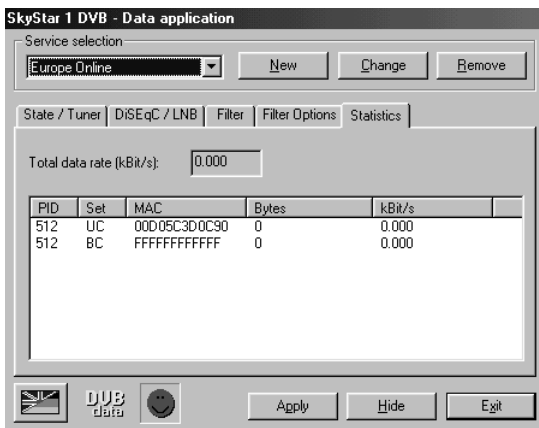
The window Filter Settings can be opened by pressing the button **Edit** or by double-clicking on the PID to be changed. The input-fields contain the settings of the filter. Alter the desired parameters. On pressing **OK** the altered settings are entered in the filter list.

Cancel deletes the alterations.



6.5 Index Card Filter Statistics

The index card Statistics shows the total data rate of the filters set in bit/s.



7 Technical Data

Tuner

Satellite tuner with integrated QPSK modulator (on-board) C and KU band compliant

Input frequency:

950 to 2150 MHz

Input levels:

-65 to -25 dBm

LNB voltage supply:

off/on, 14V / 18V at max. 400 mA

LNB control:

22 kHz and DiSEqC 1.0

Symbol Rate:

from 1 to 45 MSPS

SCPC and MCPC compliant

High performance one-chip backend solution

High performance multimedia PCI bridge (PCI reference 2.1) for:

Video Overlay Display via graphic card

Download of DVB program information (SDT, PMT, NIT, PAT,...)

Download of MPEG-2 audio and video data (recording function)

Replay of MPEG-2 audio and video data

Download of different DVB data services:

TS packages for DVB data piping

PES packages for DVB data streaming

MPEG-2 sections for DVB multi protocol

DVB data Carousels and DVB Object Carousels

This DVB-PC card is CE approved and fulfils all necessary EC regulations!

Errors and misprints excepted. Dated 11/99

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