



DVB 2000

OS for digital satellite receiver NOKIA DVB9600S
(DVB9500S, DVB9200S, D-Box)

Operating Manual

Dr. Overflow DVB2000-Soft Project

©DVB2000 Logo: provided by Andy
Translation, text and graphics:
Milan Cok © 2000, 2001
Updated on January 1st, 2001 (v2.01)

CONTENTS:		page
1.	Introduction	2
2.	DVB2000 SW transfer to the receiver	3
3.	First launch of the DVB2000 software	3
4.	Remote controller buttons	3
4.1	Channel select	4
4.2	Favourite channels setup	5
4.3	Setting, channel name change, editing	5
4.4	Volume setting	5
5.	<u>Main Menu</u>	6
5.1	Teletext – COOLTEXT	6
5.2	Multimedia (SCSI HDD, CD)	8
5.3	SCSI Support (CD Rom + HDD)	8
5.4	Timer/video	10
5.5	Tuner	11
5.6	PID	12
5.7	Setup	13
5.7.1	Submenu – LNB Setup	13
5.7.2	Submenu – LNB Control	14
5.7.3	Submenu – CAM menu	14
5.7.4	Submenu – SCSI	16
5.7.5	Submenu – Video	17
5.7.6	Submenu – Search 2	17
5.7.6.1	Submenu – SAT Search	18
5.7.7	Submenu – Positioner	19
6.	<u>Expert Menu</u>	20
6.1	Layer Demux	20
6.2	Tuner	21
6.3	Video MPEG	22
6.3.1	NTSC Expert Menu	23
6.4	Audio MPEG	23
6.5	I/O Port setting	24
6.5.1	12V Cinch Menu	25
6.5.2	SCART Menu	26
6.6	Data Download	27
6.7	Encoder 71xx	28
6.8	Channels	28
6.8.1	SI-Parsing Menu	29
6.9	DiSEqC	30
6.10	General Setup	31
6.10.1	Display Menu	32
6.10.1.1	Colours Menu	33
6.10.2	Delay/Timer Menu	33
6.10.3	Defaults Menu	34
7.1	Parental Cnt (control)	35
7.2	Info Menu	35
7.3	Help Menu	35
7.4	Option Menu	35
8.1	Watching TV with 16:9 wide-screen TV	35
8.2	EPG	36
9.1	Accessories, supporting software for PC	37
9.2	How to do ...? (enlarging RAM, reset of general settings)	37
10.1	Glossary	38
	Remote Control photo and buttons description	42

1. Introduction

WARNING:

The DVB2000 software is an experimental software that is not exclusively written for the very digital satellite TV beginners. The DVB9600S and similar digital receiver users who only want to watch TV programmes and listen to digital radio without any deeper technical interest and without any desire to experiment – they should rather leave the things as they are. In this case we recommend to go on with the original software Nokia with its all positive and negative features.

This manual corresponds to the beta SW DVB2000 v.1.82.6.

We have to inform all the users that the DVB2000 software is distributed in **beta versions only**, i.e. that some parts of the software need not to be absolutely 100% functional. We would also like to inform you that some functions may not be well explained because the original SW authors manual does not exist.

This manual is the final manual of the last official Dr. Overflow software and is published as a new file dvb20men.zip. The information about the changes of the previous manual are described in the attached file changes.txt. The published manual is not „write“ protected but it is not written for commercial distribution. Further distribution of the manual must be first permitted by its author.

Well, what user may use the DVB2000 software ?

Everyone who:

- Is not very satisfied with the original DVB9600 or DVB9200 (D-Box) software
- Wants to have a comfortable teletext
- Wants to make use of a comfortable channel setup via PC and who wants to save more than 500 channels to the receiver (this is impossible with the original Nokia software)
- Wants to watch TV signals from more satellites than from Astra or Hotbird only (e.g. SCPC signals) and who is disappointed with channel list at the original SW.

What do you need to change the original SW to DVB2000 ?

- a Nokia DVB9600S or DVB9200S (D-Box) receiver
- a TV receiver with SCART video input
- a satellite antenna with LNB
- a PC AT Computer (the Pentium with Windows 95/98 OS is the best)
- a PC software with the help of which you can transfer the DVB2000 software to your receiver. Further it is necessary to choose a method how to change the software, respectively the bootloader (with the help of the BDM Interface or with the software Transbox Pro and serial RS232 connection, the software used to be available at german company Mascom, <http://www.mascom.de>). Technical experts will probably use the BDM Interface for some its advantageous features.
- Other software for PC with the help of which you can upgrade DVB2000 software and edit channels. We can recommend DVBEEdit, SetEdit or NSE software.
- And in the end it is necessary to buy a „nullmodem“ cable to connect the receiver to the PC (serial line RS232)

2. The DVB2000 Software Transfer to the Receiver

Previous chapter informed you about the ways of the DVB2000 software transfer to the receiver. One of the possibilities is to use the BDM Interface. If you use either the BDM Interface or the Transbox Pro* software, there is always necessary to **open the box** of the receiver. You cannot avoid it. Such a step can lead to the warranty loss at your supplier. That's why we recommend so that the BDM Interface should use only experienced users. But it is better solution for common users to use the Transbox Pro software and serial line RS232 (it costs about 30DM).

* It is only necessary to open the box if you want to install the b200uns bootloader. You can also use the original CI1.06 bootloader with the Transbox Pro software. The DVB2000 is also functional with the CI bootloader but the b200uns seems to be more reliable. Software update with CI bootloader can be done with the help of the Transbox Pro software only.

3. First Launch of the DVB2000 Software

After you have done the software changes (bootloader B2.00uns and DVB2000 Software has been saved in your receiver) the DVB2000 automatically launches. If it does not launch press the red button at the left upper corner of your remote controller. The receiver display shows „DVB 2000“. After a short time you will see an introductory system screenshot on your TV.

The text system information follows:

Model: 96xx	(informs about the type of the receiver)
Flashtype: 00012258	(informs about the type of the Flash memory)
Bootblock is protected	(bootloader je protected against overwriting)
Ramsize: 0x100000	(RAM memory size – 0x100000=1MB, 0x180000=1,5MB, 0x300000=3MB)
Frontend: 02 06 0C 00 62 0B	(the receiver tuner, last 2 bytes change, 62 0B=DF1ST1, 21 20=NDT1006)
SAT Tuner detected	(receiver SAT tuner was detected)
Demux Rev: 03	(demultiplexer version) Encoder Version: 4 (encoder – video version)
SCSI scan: disabled	(SCSI port scanning – off)
Checking SCSI ID n	(SCSI ID search – if SCSI is set on, checking ID 6-0)
Bootup sequence ready	(system loading ready)

After that you can already watch TV programmes (7-10 Astra satellite channels are preset). You can save another channels to the receiver with the help of SetEdit, DVBEedit or NSE software or let the receiver search for new channels.

4. The Remote Controller Buttons

The meaning of some buttons are changed from the original Nokia software. The changes are described further:

Guide	Main Menu
I	Info about a programme (if transmitted), 2 nd pressing of the key recalls another info screen, channel name edit (after channel list recall)
Menu	Teletext (also functions at timer, sleeptimer etc.)
Text	Help + Option menu, channel delete
Exit	For basic functions unused (only timer, sleeptimer etc.)
TV	Switches signals between digital and external analog receiver
Radio	Switches signals between TV and Radio watching/listening

These buttons are used as hexadecimal symbols A-F (i.e. 10-15 decimally):

Original	new
Menu	A cursor = arrow
Exit	B page up/down = double arrow up/down
Info	C
+	D
-	E
Mute	F

Remote control photo and buttons description (see last page).

4.1 Channel Select

Channel change is the same as with the original SW, i.e. with cursors up and down. When you press the cursor – channel changes and a line at the bottom of the TV screen appears. It shows the channel number, its name and in brackets (**A**, **V** or **V/T**). These characters inform what type of the programme you are watching (A = audio = radio – only at radio receiving, video = TV, T = informs that the teletext pages are available). Next to the information in the brackets there is a symbol **F**, **S***, **D** or **?** (F = FTA programme, S* = scrambled programme, D = data – under tests now, ? = no or unknown signal). Then the received signal of the chosen channel appears. If you need to know later what channel you watch – just press OK button and the program line appears. The programme type symbols – in brackets – can be changed to simple graphic symbols (function GUIDE-9-A-9-6 = select text or graphics, set to graphic). To change the symbols back to text – use the same function but set it to text.

If you need to change e.g. from channel 350 to 360, it is better to use channel list function = press page up or down – you can see the channel list with the highlighted channel that is just received. To change the channel position use the cursors up or down, or for faster move in the list page up or down. The cursors left and right are used to switch to another satellite mark in the list. The required channel will be chosen by pressing OK button. The TV button closes the channel list window.

You can also change to the required channel by entering the channel number from the remote control keyboard. Installation menu enables to set the delay for accepting the channel number from remote control.

If you enter the required channel number from the keyboard and by mistake enter the wrong channel number you can return to the previously watched channel by pressing „0“. It is **advantageous** to use this feature for switching between two previously watched channels („0“).

Button „Radio“ switches between TV and radio channels.

Button „TV“ switches between DVB9600 and external analog satellite receiver signals.

Move channels in the channel list (manual change):

First - recall the channel list by pressing page up/down. Set the cursor to the channel position you want to move to another position and press „menu = A“ button. You will see * (asterisk) left from the channel name. Now you can move the channel with the help of cursors up or down to the required position in the list. Then press OK button. The channel is on the new position in the list.

Manual deleting of the channel in the channel list:

First - recall the channel list by pressing page up or down. Set the cursor to the channel you want to erase and press the „exit = B“ button. The channel disappears from the list. This way you can cut more channels from the list simultaneously. The selected channels will be definitely deleted after pressing OK button, you will see „Are you sure?“ prompt – then press „TV“ to cancel or „+“ to confirm.

Audio channel select:

When you change the channel, the program line appears at the bottom of the TV screen. Sometimes the second line shows AUDIO .. track1 – then it is possible to use cursors left or right to change the audio channel of the received programme, e.g. Euronews – you can set the audio in german, english, italien....

Selected function cancelling (when you edit something in menu – e.g. at video PID edit you enter wrong number and the entry is not finished yet – you can cancel your entry by pressing „guide“ or TV buttons.

4.2 Favourite channels setup

You can mark groups of channels you want to watch most often. You can do it only with the SetEdit software remotely in your PC. Use the function „link channels“ with SetEdit software but earlier mark the channels by keys CTRL+left mouse button, then press right mouse button and choose the function “link channels“. Then send the changed list via RS232 to the receiver. You can also do it manually with the remote controller.

This function can be recalled by „TEXT“ button. By pressing this key a new empty channel list is displayed. You must define the channels for this list at the main channel list first. This list can contain up to 126 favourite channels.

The manual setup of the favourite channel list is the following:

Recall the main channel list by pressing double ↑ or ↓. Set the cursor to the channel you want to copy to the favourite channel list.

„+“ key adds the channel to the new list. The channels are marked by „#„ - then press OK to save the new channels (+ key confirms, TV cancels). „ - „ key deletes the channel from the favourite channel list, use # marked positions only (you do this in the main channel list).

You can move or delete the channels in the new list in the same way as it is described on the previous page for the main channel list (move channels). When deleting channels, you do not confirm the prompt by pressing OK.

Fast jump to the 1st channel in the new list – press ← key, to the last channel – press → key. The original channels in the main channel list are not deleted, only a copy of each channel is put to the new list.

4.3 Setting, channel name change, editing with remote controller

This function provides the possibility to change (to edit) the name of the channel in the channel list. You can recall it only in channel list window by **I (INFO) button**:

Button	Meaning	Button	Meaning
←	Moves the cursor left.	EXIT	Inserts a symbol that marks the beginning of displayed text on the receiver display *)
→	Moves the cursor right.	MENU	Inserts a symbol that marks the end of displayed text on the receiver display *)
+	Inserts a symbol (space).	-	Erases a symbol.
↑	Moves in ASCII table.	↓	Moves in ASCII table.
1	Symbols 1,.,:;?	6	Letters 6,m,n,o,M,N,O
2	Letters 2,a,b,c,A,B,C	7	Letters 7,p,q,r,s,P,Q,R,S
3	Letters 3,d,e,f,D,E,F	8	Letters 8,t,u,v,T,U,V
4	Letters 4,g,h,i,G,H,I	9	Letters 9,w,x,y,z,W,X,Y,Z
5	Letters 5,j,k,l,J,K,L	0	Symbols 0,space,+,-,!

*) It is possible to display only 7 symbols on the receiver display but the channel name can be longer in the channel list. That is the reason why this function is implemented. It serves to cut the part of the channel name that is displayed on the receiver display.

Manual channel inserting – it is the best to use search function to insert a new channel (e.g. guide-6-9-OK, and select insert).

Manual satellite inserting – you can use the same function like for channel inserting, move the channel to the required position in the list, rename the channel to satellite name and then set all the channel parameters to 0 (frequency, SR, PID etc.).

4.4 Volume setting

The volume level can be controlled by + and - buttons.

Audio channels balance

Press volume control button (+ or -), release it and press immediately 1 or left cursor (left audio channel) and/or 2 or right cursor (right channel) – volume window must not disappear, and further by pressing + or – set the level for left, respectively for right audio channel (left or right channel can be adjusted separately, depending on 1, 2 select). As you release the button + or – the adjusted value is saved to the memory and at the next pressing of volume control buttons you will control the volume with the new audio channel balance setting.

5 MAIN Menu

Main menu can be recalled by pressing **Guide** button.

The submenus are recalled by pressing 0-9, A-F on your remote controller.

Button	Select	Meaning
1	About	Displays info about the software, and then you can press either „Guide“ or „Text“ key, see „Option menu“, chap.7.4
2	Radio	Switches to radio channel list, listening to Radio
3	Teletext	Switches to teletext viewing
4	Multimedia	SCSI CD and SCSI HDD functions
5	Timer/video	Timer – programmable switch clock
6	Tuner	Tuner setting (frequency, polarisation, SR, FEC)
7	PIDs	Channel PIDs
8	Setup	Installation menu 1 – setting
9	Expert Menu	Menu for experts (like at DVB98)
0	Parental Cnt	Parental control (see chap.7.1)
A	Hidden	Recalls moving globe on TV screen, TV escapes to TV watching, guide returns to this menu.
B	Hidden	Recalls horizontally moving bar, TV escapes to TV

The DVB2000 software has very pleasant feature - separate TV and radio channel lists. If the parental code is changed from default 0000, functions 5-0 can be accessed only through this new code.

5.1 Teletext – COOLTEXT (3)

This function can be recalled by pressing „menu“ or in main menu - 3 (guide-3).

You will see that what other software does not always provide it is a standard feature with the DVB2000. The DVB2000 provides all features of the COOL-TEXT. If you see letter T on watching the TV channel (program line) it means that teletext is transmitted with the programme. Press buttons „guide“-3 or „menu“, and teletext pages are shown. The teletext function is following: When you execute the teletext function, all available teletext pages are being saved to the memory (you can save up to 495 pages in case your receiver RAM memory size is 1MB = DVB9600S and/or up to 977 pages, if the RAM memory size is more than 1,5MB). Thanks to this feature it is possible to move quickly among teletext pages of the received programme.

If you finish teletext search e.g. on page 500, this information stays in receiver memory. If you change to another channel teletext screen, you will see page 500 first, i.e. recently

displayed page on another channel. If the software will go on searching – it means that the page of the other channel does not exist, then try main teletext page 100 by pressing OK button. You can also use your remote controller keyboard to enter the page number (e.g. 100). You can move among pages by cursors or pages up or down. If OK button is pressed it returns to the main teletext screen (page 100).

You can switch among subpages by left and right cursor – only in case you have more than 1,5MB RAM in your receiver (1MB RAM is standard with DVB9600).

Another interesting feature is the possibility to view teletext service pages with the help of hexadecimal keyboard (values 1-0, A-F). It is possible e.g. to recall page 1AA that cannot be recalled with the original Nokia software.

If you press „Guide“ button during teletext page view you will switch to teletext menu. This menu provides information about received teletext pages, other setting possibilities etc., see table below.

Button	Select	Option	Meaning
1	Send available Pages to PC		Sends a list of available teletext pages of received channel in table form via RS232 to your PC .
2	Char. Set	German Italien International Danish	There is a possibility to change to the required character set – to provide special national characters. You can switch among the mentioned languages.
3	Subtitles	Enabled	If enabled - programme subtitles are shown directly in received programme (transparent view). More setting possible.
		Disabled	If disabled you can view subtitles separately on black background – you cannot see TV picture simultaneously (only audio).
	Cacheable Pages	495	Shows max. number of cacheable teletext pages, depends on RAM size.
	Available Pages		Shows number of available teletext pages offered on received channel.
	Tag markers		Service information – not for users.
	Cached pages		Shows number of teletext pages those are saved in receiver memory.
	Subtitle pages		Shows number of available teletext subpages.
	Non EBU Packets		Shows how many data packets do not contain any information.
	Hamming Errors		Shows number of errors at teletext data decoding.
Guide			„Guide“ button returns back to teletext page view.
TV			TV button returns to TV watching
0	<i>Hidden</i>		Shows teletext font table.

In teletext mode – **cooltext - subtitles** – by pressing „text“ button - it is possible to switch to smaller transparent menu on the screen. If you want to place this menu to another part of the screen – press „Guide“ button. With the help of this menu you can change the placement of the subtitle window on the TV screen (it is valid for subtitles only, you can move the window by cursors left, right, up and down). Then you can press button 1 to set the view of channel

name and teletext page information where you can find programme subtitles. This mode can be recalled only in case that programme subtitles are transmitted. Repeated pressing of „text“ button switches among various subtitle languages if they are available. You can return to the subtitle window by pressing „Guide“. The subtitling can be cancelled only by pressing TV button. Character set for appropriate subtitles and teletext view – see table above - key 2.

5.2 Multimedia (4) – CD ROM not tested

To recall „multimedia“ function - press 4 at main menu.

It serves for SCSI CD and SCSI HDD communication, i.e. for audio/video CD discs replay, for HDD audio files replay, for .mpeg files HDD record, and in the end for erasing (formatting) SCSI HDD.

Button	Select	Meaning
1	CD Rom	Replays audio/video CD discs (DVD)
A	Select drive	Selects a drive (audio discs replay, multi CD)
2	HD Player	Replays audio HDD files, button 2 recalls a file list where you can move by up and down cursors, OK button starts replaying a file at highlighted position.
B	Select drive	Selects a drive (audio files replay, multi HDD)
3	HD Recorder	Records data on HDD (audio + video), button 3 directly executes the recording
4	HD Info	HDD Information, dynamic technical HDD features
5	HD Delete	HDD erase (soft formatting)

Video data replaying is not functional this time.

HDD files replay function:

OK button launches replaying, „**0**“ erases a file at the cursor position, „**Menu**“ changes replay mode - „folder“ mode – replays all files recorded on the HDD (file by file), „single“ mode – replays a single file from the file list on the highlighted cursor position, **EXIT** (normal/switch/left/right) – changes the audio mode – similar to audio channel setting (guide-9-4), **TV** cancels replaying and returns back to the file list, **GUIDE** – returns back to the multimedia menu – and TV watching.

5.3 SCSI support – general information (CD Rom+HDD) – CD ROM not tested.

The SCSI support for DVB2000 forms a little different software than that of DVB2000. Of course, it is possible to connect SCSI CD drive directly to the DVB9600 SCSI port and so you can immediately replay video CD discs (DVD). But it seems more interesting to connect the SCSI port of the receiver to the SCSI port of your PC. This way - it is theoretically possible to connect all your PC SCSI devices to the receiver. At present there are many available programs for editing channels, colours, teletext fonts and upgrading software (DVBEEdit 5, SetEdit, NSE, VGrabber etc.). The software upgrade takes only few seconds via SCSI port.

The SCSI port configuration can be recalled at menu 8 – Setup (guide-8). There is a configuration information shown for a short time during receiver system boot-up (SCSI port configuration and type of connected HDD, resp. CD). When you have set

up the SCSI port in DVB9600 you should restart your PC (if SCSI PC port is connected to the DVB9600 and you use Windows 95/98 OS in your PC). Then a new drive is automatically installed in your PC - „DVB2000 Nokia rulez“ – see setting – control panel – system – device manager, disc drives (Win95). DVB9600 must be on. Insert a CD disc in your CD SCSI drive (video-CD format or ISO 9660 format) and press 1 on your remote controller (from submenu „multimedia“). You will see the SCSI menu. Afterwards a folder with CD disc content appears and you can move there by pressing up and down cursors. Pressing OK button at the highlighted file will launch its replaying. The DVB2000 system can replay data in MPEG format layer II (*.mp2) or videodata (*.mpg, *.dat).

During the video CD disc replaying you can view the information window that informs you about the features of the replayed file. The window shows the filename, CD mode, data media location (Loc), data file size in bytes (Len), and the position of the replayed file part in bytes (Pos). When you press OK the window disappears and you can watch on the replayed file. New pressing of OK button recalls this window again. TV button cancels file replaying. It returns back to the file list.

The audio CD disc replaying is similar to video CD disc replaying. In this case you can view the information about the replayed data, too. The difference is that after pressing OK (at information window view) the window does not disappear but two replay modes can be changed. The „single“ mode enables to replay a single file with return back to the file list window and the „folder“ mode enables replaying of all files recorded on the CD disc (file by file). By pressing page up/down it is possible to skip to the next file replaying.

It is also possible to view technical information about the audio and video data if they are available. It is similar like at TV watching – TV programme audio information (guide9-guide-3). You can view it here by pressing „text“. Press OK to return back.

The important information, advices:

The SCSI port itself is a very complex system. Some problems may appear during automatic port search in your PC.

First it is necessary to pay attention to good terminating of the SCSI cable. Inside the PC the termination is usually physically fixed by right connecting of all the peripherals (CD, HDD etc.) with ribbon cable. The situation is however much worse with the external devices connected to the SCSI port. You must fix the right termination at the other end of the cable (and to use the right type of the cable, of course). And then you also need the SCSI controller in your PC, the best is Ultra – wide SCSI. The best results were reached with Adaptec 2940UW controllers. It is necessary to warn you here that only some SCSI controllers are compatible to the DVB2000 (from some manufacturers only, the mentioned Adaptec works 100%).

Some SCSI controllers does not enable simultaneous connection of devices connected to the external SCSI port and to both internal ports (Ultra and Ultra-wide). In this case there is necessary to use an adapter cable to the port that is not used by external device, Ultra-wide port is better to use with the internal devices. It is necessary to pay attention to that the only SCSI-ID is set to one physical SCSI device.

One more note you should not forget – if the DVB2000 is connected to the CD ROM in your PC, it is necessary to avoid device conflict – do not try to access CD ROM from your PC when its is connected to the DVB2000. In this case error prompt may appear – DVB2000 connection error, Windows 95/98 could even halt. You must wait until the port is loosened for the DVB2000.

In the end a short note concerning multi CD operation. In this case the DVB2000 searches for the drive with the lowest SCSI-ID. Example: you have a CD ROM with SCSI-ID 3 and a CD WRITER with SCSI-ID 4, then the DVB2000 connects CD ROM first. You can also meet one more problem connected with CD ROM. When you replay audio data in MPEG Layer II format – there is no problem even at multi CD operation. But the video CD replaying can handle only some CD drives (the newer ones). There are many CD drives on the market but some of them cannot read video CD. It is also necessary to be careful when you buy a new CD drive – you should find first if it is capable to replay video CD files. Minimum PC requirements for video MPEG files replaying – Pentium II – 266 MHz, 32MB RAM, good graphic adapter (PCI, AGP). It is hardly possible to view MPEG files with „slow“ PCs and especially with cheap video cards. Then it is not functional or the quality is not good. It was successfully tested with the graphic adapter ATI Rage 128/16MB RAM, and SW ATI DVD Player. The list of CD ROM drives compatible to the DVB2000 can be found at <http://www.rehtec.com>.

5.4 Timer/video (5)

To recall the timer function – press 5 at main menu (guide-5).

It serves for timer setting. The timer can automatically switch the receiver on on the required channel at the adjusted time. The function is good for VCR recording when you are not present at home. Up to 10 events can be inserted. For correct function check the time zone at Guide-9-A-8-+/- and clock tune at function 5 here.

Press cursor button, text colour changes. Enter the time from the keyboard (default = actual date and time, length 090 minutes), incl. the programme length (in minutes), the channel can be set by page button up or down. You can insert next line by pressing + button, earlier entered data can be deleted by - button. Then confirm (set) the entered data by pressing OK button.

Recall the timer function – a screen with the following text appears:



Timer Settings
05.07.1999 – 19:00 000 Min Hallmark

Mark: Timer is OFF
OPT: Sleptimer is OFF
1/2: Sleptimer minutes: 15

Timer switch on/off – press „menu“ button.

„Sleep-timer“ switch on/off (automatic receiver switch-off) – press „exit“ button.
Switch-off sleptimer delay – press 1(-) or 2(+) buttons, 1 minute step, default is set to 15 min.

Active sleep-timer = a dot is blinking at the upper right corner of the receiver display.

Return back to watching TV – press TV button.

When you switch off the receiver (standby mode) and the timer is on – you will see a blinking dot at the upper right corner of the receiver display – it means that the timer is on. The display clock moves each 10secs.

5.5 Tuner (6)

To recall the Tuner function – press 6 at main menu (guide-6).

It serves for transponder setting – frequency, polarisation, SR, FEC, etc.

Button	Select	Option	Meaning
1	Frequ:		Enter transponder frequency.
2	Pol:	H V	Sets polarisation, horizontal, vertical.
3	Symb:		Enter symbol rate (SR), 1000-30000, or 0 *)
4	FEC:	1 – 7/8 auto *)	Sets FEC (error correction), press 4 repeatedly
5	ACBW:	30	Tuner bandwidth (default 30).
6	Spc-inv:	Auto On Off	Inverts data flow. Default auto. If auto is on – the software sets the right value itself. Press button repeatedly to select the option. When auto is on – with NDT tuners channel switch is a little delayed on some channels. DF1 tuners result no delay.
7	Status raw		Shows info about received transponder (table form) – for experts only (hex format).
8	Status		Shows info about received transponder – received signal „fine“ tuning – frequency, SR, FEC, OK button saves new values, „8“ reads actual state.
9	Search		Searches for available channels on the active transponder. Shows transponder ID, SDT number, i.e. used channels and their list. Move through the list by up and down cursor. To view the channel at highlighted cursor position – press OK. Submenu Options appears (see below). It is also possible to press „menu“ button at the highlighted channel - PMT is searched for and the channel is viewed, channel list stays viewed.
A	DiSEqC	2 (def.) 1-4	Sets the DiSEqC switch input for the channel in channel mode only (see guide-9-9-3). It has no use if global mode is set. Repeated pressing A button („menu“) changes the setting.

At the bottom of the menu you can see a bar signal strength meter. Useful for antenna fine tuning or signal strength checking. The receiver display shows the 1st and the 3rd hex number.

*) Transponder parameter update search without SR and FEC knowledge:

The automatic transponder search works with NDT1006A and DF1ST1173 receiver tuners. You only enter FEC=auto, then SR=0 (NDT tuners) or FEC=3/4, SR=27500 (DF1 tuners). Transponder SR and FEC values are automatically searched for. Earlier you should set correct values of PIDs. You can see the picture in few seconds. Then press 8 and OK to save the new values. You should have set the function guide-7-7 to ON.

Submenu **Options** (see also function 9 - search):

Button	Select	Meaning
2	Add channel	Adds a new channel to the end of the channel list.
3	Replace chn	Replaces a new channel with the original one.
4	Insert chn	Inserts a new channel to the next position behind the actual channel in the list.
5	Insert all	Inserts all found transponder channels to the next position behind the actual channel in the list.
6	Upd/ins all	Old transponder channels are updated, new channels are inserted to the next position behind the actual channel.
7	Add all	Adds all found transponder channels to the end of the list.

5.6 PID (7)

To recall the PID function setting - press 7 at main menu (guide-7).
It serves for channel PID values setting.

Button	Select	Option	Meaning
0	For DEZ/HEX	DEZ HEX	0 changes the mode of PID setting to enter values <u>decimally</u> or <u>hexadecimally</u> . If „For Hex“ is displayed – values in 2-5 are shown decimally, and vice versa.
2	Video:	Nnnn	Video PID setting (4 digits decimally or hexadecimally) *)
3	Audio:	Nnnn	Audio PID setting (4 digits) *)
4	Text:	Nnnn	Teletext PID setting (4 digits)
5	PCR:	Nnnn	PCR PID setting (4 digits)
6	SID:	Nnnn	SID setting (4 digits)
7	PMT:	Nnnn	PMT PID setting (4 digits)
8	AutoPMT:	ON OFF	Default OFF*). Automatic search of PMT and PIDs, then it must be set ON.
9	AutoPID:	ON OFF	Default OFF*). Automatic search of PIDs, then it must be set ON.
A	Channel:	2 Add Ch. 3 Replace 4 Insert	Adds channel with new setting to the end of the channel list. Replaces new channel setting with the original Inserts new channel setting next to the original Generally, this function updates PID setting.

*) PID automatic search:

The automatic PID search works reliably with NDT1006A receiver tuners only (not DF1ST1173). You only enter video or audio PID=0. Then press 7 ON and OFF again. PID values are automatically searched for. To save the new values press 8-3 here. Earlier you should have set correct values for SR and FEC. You can see the picture or sound in few seconds.

5.7 Setup (8)

To recall the function „setup“ – press 8 at main menu (guide-8).

Button	Select	Meaning
1	LNB Setup	LNB 1-4 setup – see submenu LNB Setup
2	LNB Control	LNB 1-4 control – see submenu LNB Control
3	CAM Menu	CAM setting – see submenu CAM Menu
4	SCSI	SCSI setting – see submenu SCSI
5	Video	Video setting – see submenu Video
6	Search	Transponder and channel search on one satellite – see submenu SEARCH 2 below.
7	Positioner	Controls antenna positioning –see submenu Positioner.

5.7.1 Submenu – LNB Setup (1)

To recall the „LNB Setup“ function – press 1 at setup menu (guide-8-1).

It serves for LNB1-4 frequency setting. Useful if more low/high band LNBs of various types are connected via DiSEqC switch 4/1.

Setup	Button	Select	Value	Meaning
LNB1	1	LOF 1:	9750	Oscillator frequency for LNB1 low band.
	2	LOF 2:	10600	Oscillator frequency for LNB1 high band.
	3	SWT:	11700	The received frequency on which the LNB1 is switched to the high band.
LNB2	4	LOF 1:	9750	Oscillator frequency for LNB2 low band.
	5	LOF 2:	10600	Oscillator frequency for LNB2 high band.
	6	SWT:	11700	The received frequency on which the LNB2 is switched to the high band.
LNB3	7	LOF 1:	9750	Oscillator frequency for LNB3 low band.
	8	LOF 2:	10600	Oscillator frequency for LNB3 high band.
	9	SWT:	11700	The received frequency on which the LNB3 is switched to the high band.
LNB4	A	Cband:	5150	Oscillator frequency for LNB4 – C-band.

5.7.2 Submenu – LNB Control (2)

To recall the „LNB Control“ function – press 2 at setup menu (guide-8-2). It serves for DiSEqC 4/1 or switch 2/1, respectively Mini-DiSEqC setting. Press button repeatedly to select the option.

Control	Button	Select	Option	Meaning
	1		12V 1/2 diseqc 1..4	Controls 2 LNBS switch (2/1). Controls DiSEqC switch 4/1.
LNB1	2	14/18V	Polar. Low High Band	Switching 14/18V is used for polarisation switching. LNB supply voltage is 14V. LNB supply voltage is 18V. Switching 14/18V is used for low/high band switching.
LNB2	4	14/18V	Polar. ... atd.	Same meaning as at LNB1.
LNB3	6	14/18V	Polar. ... atd.	Same meaning as at LNB1.
LNB4	8	14/18V	Polar. ... atd.	Same meaning as at LNB1.

The features of this function have not been tested, so the meaning is not absolutely clear.

5.7.3 Submenu – CAM Menu (3)

To recall the „CAM menu“ function – press 3 at setup menu (guide-8-3). It serves for CAM instalation (Conditional Access Module, decoding module).

Button	Select	Meaning
1	CAM is ON	CAM module is on/off (Option: ON/OFF).
2	CAM Reset	CAM module reset. Useful.
3	CAM Init	CAM module initialisation. Useful.
4	CAM Info	Info about the active CAM module and the smart card.
0	<i>Hidden</i>	CAM monitoring can be switched on or off by pressing 1. Service function only.

It is functional with CAMs Common Interface (CI), i.e. Irdeto, Seca, Cryptoworks, Viaccess, Conax etc., it also works with CA Irdeto (DVB9500, 9200, D-Box).

CAM module with a smart card must be inserted in the receiver, then switch the CAM on (Select 1). Reset CAM (2) and then execute CAM initialisation (3).

Sometimes the TV screen may fall black (no decoding) – it means that you must repeat steps – reset CAM and CAM Init – then the CAM decodes programme again. After the CAM initialisation you should see a decoded picture. If you can see the black screen on – try to switch the receiver off and on again. The function CAM Info (4) provides the information about the programme provider, respectively about the smart card provider and the CAM itself. Tested Irdeto, Seca and Cryptoworks CAMs.

Do not forget to set the CAM ON (guide-8-3-1).

CAM Info FUNCTION (Guide-8-3-4):

CRYPTOWORKS:

- 1** General card information (information about smart card provider, card itself)
- 2** Available entitlements (similar like 1)
- 3** Smart card management
 - 1** Modify maturity rating (1=Disable MR, 2=Parental Guiding, 3=12, 4=15, 5=18, 6=18+), serves for parental lock setting, the programme age limit information is transmitted by the TV provider – only some providers transmit this info.
 - 2** Modify pincode
 - 3** Disable pincode

To cancel this function – press OK or TV, if it is impossible – switch the receiver off and on again.

IRDETO - 4SE version:

Here appears the information about the CAM software version and the following menu:

- 1** Status (shows the info about the smart card, 1 = smart card update, 2 = quit - return to the previous menu)
- 2** Messages (shows the messages sent from the smart card provider to your smart card)
- 3** Monitoring (requires pin entering)
- 4** CA System Options (1 = primary EMM system – mostly set to auto, 2 = primary ECM system – mostly set to INT, 3 = quit – return to the previous menu)
- 5** Quit (return to TV watching)

SECA (ASTON)

Here appears the information about the CAM software version and the following menu:

- 1** Consultation (information about the smart card packet)
- 2** Information (more information about the smart card, other parameters)
- 3** Parameters (some parameters can be set here)

VIACCESS

Not tested yet.

5.7.4 Submenu – SCSI (4)

To recall the SCSI submenu function – press 4 at setup menu (guide-8-4).

It serves for SCSI devices instalation (CD ROM, HDD).

Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	Harddisc		Initiates, tests the DVB and HDD connection. If the HDD is connected to the SCSI port, you will get the prompt: Example: 1 HD ID:4 SEAGATE ST34520W.
2	CD Rom		Initiates, tests the DVB and CD ROM connection.
3	Detect:	ON OFF	SCSI port detect on initialisation is on. SCSI port detect on initialisation is off.
4	Act.neg.	ON OFF	Initialisation of data synchronisation from DVB9600. Default OFF.
5	Glitch:	12, 35 25, 0ns	The meaning is not clear. Default 12ns.
6	Box ID:	1 – 7	SCSI – ID setting (default 3, for DVB9600). Note: recommended ID=4 for HDD, ID=5 for CD.
7	Stndby:	OFF ON	SCSI detect at standby mode (i.e. if the receiver is off, default OFF)
8		Com-Dev HD-Dev	Probably RS232 active at standby mode. Probably SCSI HDD active at standby mode.

5.7.5 Submenu – video (5)

To recall the video submenu function – press 5 at setup menu (guide-8-5).

It serves for menu window positioning on TV screen and video signal mode setting at the SCART TV connector. Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	R,G,B	R,G,B S-Video	Defines what type of signal is present at the SCART-TV output. The best is RGB. S-Video is the best for VCR connection.
2	Menu pos.	Cursors (arrows)	„Menu“ window position setting on the screen. Move the window by cursors (left, right, up, down). Confirm by OK button.
3	Channel pos.	Cursors (arrows)	„Channel list“ window position setting on the screen. Move the window by cursors (left, right, up, down). Confirm by OK button.
4	Channel PAL	Cursors (arrows)	„Program line“ position setting for PAL programmes on the screen. Move the line by cursors (left, right, up, down). Confirm by OK button.
5	Channel NTSC	Cursors (arrows)	„Program line“ position setting for NTSC programmes on the screen. Move the line by cursors (left, right, up, down). Confirm by OK button.
6	Volume position	Cursors (arrows)	„Volume bar“ position setting. Move the window by cursors (left, right, up, down). Confirm by OK button.
7	Mute position	Cursors (arrows)	„Mute indicator“ position setting. Move the window by cursors (left, right, up, down). Confirm by OK button.
8	Header:	Nrm. Dbl.	Normal size of the window header name Double size of the window header name.
	Move L/R	Cursors (arrows)	You can move the screen left or right by cursors left or right on your remote controller. Default value is 000.

5.7.6 Submenu SEARCH 2 – search (6)

To recall the Search 2 submenu function – press 6 at setup menu (guide-8-6).

For new channel searching, updating.

Function 2 below (Transp. Sel.) seems to be the same as that at guide-6-9 (search).

Button	Select	Meaning
1	Transp. new	Searches for and shows number of PMT and SDT of the active transponder, shows the list of available channels.
2	Transp. Sel.	Shows the number of SDT of the active transponder, shows the list of available channels. Otherwise like guide-6-9.
3	Satellite	Searches for channels on one satellite. See submenu SAT Search below.

5.7.6.1 Submenu SAT SEARCH (3) at submenu search 2

Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	Start Search		Executes search function. Recommendation: set the frequency (tuner) and the parameters of the transponder so that the frequency is really used on the actual satellite. On the contrary the software may not find any transponder. Pay attention to the setting.
2	Mode:	Replace Add	Found channels replace the original setting. The original channel list is deleted and is replaced by the new list with found channels. The channels are written from position 1 in the list. Automatic search adds new channels to the end of the original channel list.
3	Mode:	Quick Normal	Quick search. The software may not find the correct setting of all parameters of the found channels. The function may not find all the available channels. But the searching takes very short time. Standard searching. More complex, longer-time searching of all available channels.
4		All Transp. Horizontal Vertical	Searches through all transponders. Searches only through horizontal polarisation. Searches only through vertical polarisation.
5		Other Astra 28.2 Astra 19.2 ES 16 East Hotbird 13.0 Kop. 23,5 1 West Hispa 30 West	Other satellite search than those specified below. Searches for channels on Astra 28.2E satellite and adds the NIT table to the channels. Searches for channels on Astra 19.2E satellite and adds the NIT table to the channels. Searches for channels on Eutelsat 16E satellite and adds the NIT table to the channels. Searches for channels on Hotbird 13E satellite and adds the NIT table to the channels. Searches for channels on Kopernikus 23,5E satellite and adds the NIT table to the channels. Searches for channels on Thor 1W satellite and adds the NIT table to the channels. Searches for channels on Hispasat 30W satellite and adds the NIT table to the channels.
6	FTA	Only & Scrambled	Searches for FTA channels only. Searches for FTA and Scrambled channels
7	TV/Radio	/Data	Searches for TV and Radio channels only. Searches for TV, Radio and Data channels.
8	No tags	--- Provider tags	No channel provider name is displayed. The channel provider name is displayed.
9	DiSEqC:	2 (1-4)	Searches for channels with LNB2 (LNB1-4). It is important only in case you use the DiSEqC switch. Otherwise no setting important.

5.7.7 Submenu Positioner (guide-8-7)

To recall the Positioner submenu function – press 7 at setup menu (guide-8-7). It serves for antenna positioning. It moves Nokia SatScan motor – VSEC (or other positioning system - DiSEqC). DiSEqC 1.2 support.

Button	Select	Meaning
1	Commands	Antenna moving – see submenu Commands further.
5	LNB1:	Option OFF/ON, default OFF. Selects the LNB (antenna) that is to be rotated.
6	LNB2:	Option OFF/ON, default OFF. Otherwise like LNB1.
7	LNB3:	Option OFF/ON, default OFF. Otherwise like LNB1.
8	LNB4:	Option OFF/ON, default OFF. Otherwise like LNB1.
9	Type:	Option VSEC/DiSEqC.
A	Adrs:	Sets the DiSEqC positioner address. Default 31. Not visible when VSEC is chosen.

The latest SetEdit channel editing software can edit even the satellite (antenna) position.

Submenu Commands:

Button	Select	Meaning
1	Move East	Moves the antenna east.
2	Move West	Moves the antenna west.
3	Store	Stores (writes) the antenna position to the memory. Enter position number (01-99 are available*).
4	Goto	Recalls the previously saved position – moves the antenna to the entered position (01-99* previously saved by „store function“).
5	Limits	Off/On. Switches the limits on or off.
6	Limit E	Sets the East limit for the antenna (positioner).
7	Limit W	Sets the West limit for the antenna (positioner).
8	Recalc	Recalls the preset positions values, resets the user`s setting.

*) The number of available memory positions also depends on the positioner features, see your positioner manual.

6. Expert Menu (9)

This menu was originally used and modified at DVB98 software.

Button	Select	Meaning
1	Layer demux	This menu provides the information about the actual demultiplexers setting (PID setting). The PIDs can be manually modified here.
2	Tuner	This menu shows frequency, polarisation, symbol rate, bandwidth settings and the received signal strength. All parameters can be changed.
3	Video MPEG	With this menu you can directly control the receiver video decoder. We recommend not to change, only for experts!
4	Audio MPEG	Menu shows the information about the actual audio mode, you can change the audio channel – stereo, mono left, right (sometimes very useful)
5	I/O – Space	With this menu you can set the way of external devices connection (LNB, video, analog receiver)
6	Data Download	With this menu you can transfer data to PC, e.g. EPG, teletext etc.
7	Encoder 71xx	This menu serves for video decoder setting, we recommend not to change the parameters (only for experts), except + - buttons – they serve to move TV screen left and right
8	Channels	This menu is main menu for channel settings. You can add or delete channels, let the software search for new channels, or let them automatically check and update their settings (function 6-SI Parsing).
9	DiSEqC Menu	With this menu you can set the DiSEqC features for all channels and you can test the switch here as well.
A	General Setup	In this menu you can set some parameters like LNB, transfer speed for serial channel RS232 a some other common receiver parameters.

6.1 Layer Demux (9-1)

To recall the „Layer Demux“ function – press 1 at expert menu (Guide-9-1).

Here you can set the video, audio and teletext parameters (PIDs). You can enter the parameters in hexadecimal format (select 2-5), or in decimal format (select 6-9), usually decimal format is used. Select 6 = video PID, 7 = audio PID, 8 = teletext PID, 9 = PCR PID. At the bottom of this menu a TSF information (programme coding info) is viewed – if the TSF is 00, it means that the programme is free (FTA), if the TSF is higher than 00, then the programme is scrambled. In case the coding information is not transmitted by the provider then the TSF may show „??“. Repeated pressing of 0 changes video PID incrementally by 1 (useful for manual search of correct video PID, otherwise no special meaning). If you do not know the correct video PID value, you can execute automatic PID search – set the original PCR, TXT and Audio PIDs to 0 or better 1FFF and press 0 then. The searching process takes a long time (up to 30 minutes) and starts from the set video PID value.

Note: each number contents 4 digits – e.g. if you want to enter video PID = 252, enter this number and press OK to save the value.

If you entered the teletext PID 1FFF (hex) or 8191 (dec.), the teletext PID is searched for automatically on channel change.

6.2 Tuner (9-2)

To recall the „Tuner“ function - press 2 at expert menu (Guide-9-2).

Here you can set the tuner parameters for each channel, i.e. frequency, polarisation, FEC etc. The green bar at the bottom of the menu shows the signal strength. The signal strength is also displayed on the receiver display (hex. format) when this menu is recalled.

Button	Select	Option	Meaning
1	Freq	XXXXX	Enter transponder frequency (KU or C band)
2	Pol.	HOR nebo VERT	Repeated pressing 2 changes polarisation (horizontal or vertical)
3	Symb	1-30000	Enter transponder symbol rate (SR) *)
4	FEC	1-7/8 auto *)	Repeated pressing 4 changes FEC.
5	ACBW	30	Enter the transponder bandwidth (default 30 MHz, not necessary to enter, it is set to default value after autosearch), only with some tuners and transponders
6	Status	(Hex)	Shows actual QPSK demultiplexer state (hex.)
7	Status		Shows parameters and state of the QPSK demultiplexer (frequency, SR, FEC) *)
8	QPSK	Off	Pressing 8 and 9 – temporarily switches QPSK demultiplexer off and on, it serves especially for antenna tuning (switched on QPSK does not provide correct results of signal strength), TV picture faults, you can adjust the antenna by the signal strength (the receiver display should give correct values of signal strength – hex. format, not functional ?)
9	QPSK	On	QPSK demultiplexer is on
0	<i>hidden</i>		<i>Graphic analyser of frequency spectrum</i>
A	Spec.-inv.	Auto On Off	Default auto. Inverts digital data flow. If set to auto, the software searches for the correct value itself (better). Some channels appear on the screen with a delay when this function is on (NDT tuners).

*) Transponder parameter update search without SR and FEC knowledge:

See chapter 5.5 – Tuner (guide-6). To save the new SR and FEC values press 7 and OK here instead of 8 at guide-6.

Graphic analyser of frequency spectrum:

It is an interesting function that analyses the strength of received signal within the part of KU or C bands. It measures about 500 MHz frequency spectrum from the adjusted frequency. Example: set frequency = 11000 (or 10600, or only 950), polarisation H or V, SR: 0, FEC: AUTO (NDT tuners), SR: 27500, FEC: 3/4 (DF1

tuners). Then press **0**. In a short time you will see a signal spectrum on TV screen. It may not be functional with some receivers, functionality depends on receiver tuner type.

6.3 Video MPEG (9-3)

To recall the „Video MPEG“ menu function - press 3 at expert menu (guide-9-3). Here you can directly control the video decoder. For experts only, we recommend not to change the default settings. Good knowledge of video MPEG Philips SAA7124 decoder control is necessary. Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	Blnk Scrn	Off On	Default On. Resets MPEG decoder on channel change.
2	CL Reg	0000C08 default	For experts only!! Video decoder setting.
3	CL Val	0000002 default	For experts only!! Video decoder setting.
4	CL Cmd	0012 default	For experts only!! Video decoder setting.
5	Pan+Scan	On (def.) Off	Small changes interpolation is on. Small changes interpolation is on. If you set it off – TV picture may be interrupted and may go black. If the PAL resolution is 704x576, then you can switch it off, otherwise let it on.
6	Mode dec	PAL nebo NTSC	Here you can set the video decoder mode (PAL – 625 lines or NTSC). NTSC is used especially in USA and Japan.
7	Mode enc	PAL nebo NTSC	Sets the video decoder mode, i.e. defines the signal type that is led to the SCART TV output. Generally we recommend to set it to PAL as the TV sets are not usually matched to NTSC. Better do not change it.
8	Force PAL	On/Off	Default=OFF. If set on then the signal on the SCART TV output is always PAL even if the received signal is NTSC. Then the NTSC signal is not deformatted with PAL TV sets.
9	NTSC Expert Menu	<i>Menu</i>	See chap. 6.3.1
0	<i>Hidden menu</i>		Video decoder setting – see table below.

„Res: 704:576, 25fps“: shows video resolution in pixels (columns/rows).

The „res“ (25 fps) info returns number of frames per second.

The value ahead the „res“ returns data flow rate (Mbit/s, e.g. 15.000).

The table below is for experts only. Good knowledge of video MPEG Philips SAA7124 decoder control is necessary.

Button	Select	Option	Meaning
1	GBus R:		Value (00000000)
2	GBus V:		Value (0008001E)
4	Reset on CC:	ON / OFF	Meaning is not clear. Default ON.
5	Mode:	Normal / Async	Meaning is not clear. Default = normal.

6.3.1 NTSC Expert Menu (9-3-8)

To recall the „NTSC Expert Menu“ - press 8 at „video MPEG“ menu (guide-9-3-8).

Here you can define the features of NTSC signal that is led to SCART TV connector for other processing in TV or VCR.

This setting is implemented because the NTSC standard is not based on the only defined standard. For experts only.

Button	Select	Option	Meaning
1	66..63:	21F07C1F	NTSC subcarrier frequency. Standard frequency is 3,58 MHz. The value for 4,43 MHz subcarrier TV is : 2A098ACB.
2	61:	01	Not clear.... (03 changes TV output to PAL) Video synchro signal timing.
3	62:	4B	Colour level timing
4	6a:	00	
5	6e:	20	
6	71:	B3	Moves screen left, right (except bits 0,1)
7	Vtop del:	0012	
8	Vbot del:	0013	
9	Hor. Del:	0079	

6.4 Audio MPEG (9-4)

To recall the „Audio MPEG“ function - press 4 at expert menu (guide-9-4).

Here you can directly control the audio encoder. The „CMD“ item directly controls the encoder, for experts only, we recommend not to change it.

Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	Out:	Normal (default)	Normal stereo signal, i.e. both audio channels are transferred in a usual way (TV or radio). In case of mono audio – the same signal is in both channels.
		Switch L/R Left both Right both	Stereo channels are replaced, i.e. L/R to R/L Left channel is in both output channels. Right channel is in both output channels.
3	Cmd:	000000	Audio encoder control. For experts only. Value 222222 slows the encoding rate to 1/2. Depends on memory size.
4	XMTCN:	0168	Meaning is not clear.
5	XMTCS:	0000	Meaning is not clear.

There is also another info about ERRORS (00) and COUNTER (00) at the bottom.

6.5 I/O port setting = I/O-Space (9-5)

To recall the „I/O-Space“ function - press 5 at expert menu (guide-9-5).

Here you can set the connection of peripherals to the receiver, e.g. how will these devices behave on receiver stand-by mode.

Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	SAT	OFF AUTO	The DVB2000 does not respond to analog receiver switching signal. The DVB2000 responds to analog receiver switching signal (default).
2	VCR	OFF AUTO	The DVB2000 does not respond to VCR switching signal. The DVB2000 responds to VCR switching signal (def.).
3	Priority	SAT VCR	SAT SCART device is preferred to VCR device. VCR SCART device is preferred to SAT device.
4	RGB out	ON OFF	RGB signal is on SCART – TV output. Set this for PAL TV sets. No RGB signal is on SCART – TV output.
5	12V Cinch menu	<i>Menu</i>	12V cinch output setting (see chap. 6.5.1).
7	LNB ext.	ON OFF	The LNB is off on SCART – VCR signal detect. By pressing TV key the LNB power supply is not switched off (be aware at multiplexers connection). The LNB is on on SCART – VCR signal detect.
8	LNB at	+0V +0,5V	LNB is supplied with normal voltage. LNB voltage is 0,5V higher than standard one, useful for longer antenna cables to LNB (>20m)
9	LNB is	Normal OFF	LNB supply voltage is on. LNB is not supplied.
A	Scart menu	<i>Menu</i>	SCART submenu (see chap. 6.5.2).
B	LNB warn. is	OFF ON	LNB cable short circuit is not indicated. LNB cable short circuit is indicated on TV.

6.5.1 12V Cinch Menu (9-5-5)

To recall the „Cinch menu“ - press 5 at „I/O Space“ submenu (guide-9-5-5).

Here you can set the 12V cinch output.

Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	12V	Low*	There is no voltage on the output (0V).
		High	There is 12V on the output.
		C-Band L	If C band frequency is set at Tuner menu, there is no voltage on the output (0V).
		C-Band H	If C band frequency is set at Tuner menu, there is 12V on the output.
		Chan. Low	At channel setting 12V voltage is off.
		Chan. High	At channel setting 12V voltage is on.
2	12V stand-by:	Low*	In stand-by mode there is no voltage on the cinch output (0V).
		High	In stand-by mode there is 12V on the output.
3	12V SAT	High	On SCART – SAT signal detect there is 12V on the cinch output.
		Low	On SCART – SAT signal detect there is no voltage on the output (0V).
		-----*	On SCART – SAT signal detect the output is not changed (original state – no change).
4	12V VCR	High	On SCART – VCR signal detect there is 12V on the cinch output.
		Low	On SCART – VCR signal detect there is no voltage on the output (0V).
		-----*	On SCART – VCR signal detect the output is not changed (original state – no change).

*) default values

6.5.2 SCART Menu (9-5-A)

To recall the „Scart menu“ - press A at „I/O Space“ submenu (guide-9-5-A).

Here you can set the SCART connector switching signal.

Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	Pin 8 SAT	0V	On SCART – SAT signal detect there is no voltage on the SCART – TV connector (0V).
		6V	On SCART – SAT signal detect there is 6V on the SCART – TV connector (changes format to 16:9 at newer TV sets).
		12V*	On SCART – SAT signal detect there is 12V on the SCART – TV connector (normal state).
2	Pin 8 VCR	0V	On SCART – VCR signal detect there is no voltage on the SCART – TV connector (0V).
		6V	On SCART – VCR signal detect there is 6V on the SCART – TV connector (changes format to 16:9 at newer TV sets).
		12V*	On SCART – SAT signal detect there is 12V on the SCART – TV connector (normal state).
3	Pin 8 DIG	0V	In normal DVB9600 operating mode (digital TV + radio) there is no voltage on the SCART – TV connector (0V).
		6V	In normal DVB9600 operating mode (digital TV + radio) there is 6V on the SCART – TV connector (changes format to 16:9 at newer TV sets).
		12V*	In normal DVB9600 operating mode (digital TV + radio) there is 12V on the SCART – TV connector (normal state).
4	Stndb.def.	-----*	In DVB9600 standby mode video switching signal is not connected (see setting in I/O Space menu). Switching signal from VCR or analog SAT automatically switches predefined connection to SCART – TV output.
		SAT	Signal from SCART – SAT is not transferred to SCART – TV output.
		VCR	Signal from SCART – VCR is not transferred to SCART – TV output.

*) default values

6.6 Data Download (9-6)

To recall the „Data download“ menu – press 6 at expert menu (guide-9-6).

It serves for data transfer to PC setting (e.g. EPG, Teletext etc.).

Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	Log PID	1FFF	Enter PID for a signal you want to transfer to PC (default 1FFF), i.e. picture or text.
2	Mode	Entire Adap/priv. Headers ES data TS Payload PES only Adapt.	Select one of the available protocols for data transfer (default = entire).
3	Status	Running Stopped	Button 3 executes data transfer. During data transfer a prompt „running“ is displayed. Default is stopped.
4	ASCII	ASCII HEX BIN	Data transfer in ASCII format (default) Data transfer in hex format Data transfer in binary (bin) format
5	Normal	Normal Test Mode Single	Normal mode for data transfer (default) Only for data transfer testing. One screenshot transfer.
6	Buffer	188	Here you can set the DVB9600 memory buffer for data transfer (default = 188)
7	Autostart	Off/On	It concerns the data transfer to PC. See function 3 above (Status).

You can test data transfer e.g. with Windows 95 – „Hyperterminal“.

In the beginning set these parameters:

Connection = direct to COM 1-x., speed 38400 bits/s, 8 bits, no parity, stop bits = 1, flow control = hardware (the speed must be the same as the speed defined at „General setup“ menu). You can leave the PID set to 1FFF, or try e.g. 0012 or 0001 or set the right PID for the received channel respectively.

6.7 Encoder 71xx (9-7)

To recall the „Encoder 71xx“ menu - press 7 at expert menu (guide-9-7).

Here you can set the video encoder – for experts only, we recommend not to change the default settings. Good knowledge of video MPEG Philips SAA7124 encoder control is necessary.

Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	SAA reg	00 (def.)	Recalls the register that is to be edited.
2	SAA val	00	Enter register value recalled by 1.
3	Colorbar	On Off	Switches on and off the test screen (vertical colour bars – columns).
4	Burst Ampl	3C (def.)	This value is the amplitude of colour carrier signal. This parameter changes colour brightness.
5	Gain U	125 (def.)	Sets the value of differential signals B-Y (blue colour hue).
6	Gain V	175 (def.)	Sets the value of differential signals R-Y (red colour hue).
7	Mode	R,G,B Cr,Y,Cb S-video „C,CVBS, CVBS“	This defines the best output signal at the SCART – TV output. The best is RGB (def.). S-Video is the best for VCR connection. The other modes are not commonly used.
+/-	RCV2	000 (def.)	By pressing +/- (volume) on your remote controller you can move the screen left or right.

6.8 Channels (9-8)

To recall the „Channels“ menu - press 8 at expert menu (guide-9-8).

For manual channel setting (incl. delete old and insert, add new channels).

Press button repeatedly to select the option.

Button	Select	Meaning
1	-	-
2	Add act Channel	Adds new channel position to the end of the channel list.
3	Replace Channel	Replaces original actual channel setting with the new setting.
4	Insert Channel	Inserts new channel position behind the actual channel position.
5	Delete Channel	Deletes actual channel position.
6	SI-Parsing	Recalls search submenu (see 6.8.1)
A	Reset all	Deletes the whole channel list and loads the „default“ list (like at new software instalation), loads few Astra channels only
B	All chn. To PAL	Video mode is set to PAL for all channels.

6.8.1 SI-Parsing Menu (9-8-6)

To recall the „SI-Parsing“ menu - press 6 at submenu „Channels“ (guide-9-8-6).
Searching for channels, PIDs etc.

Button	Select	Meaning
1	Examine Progs.	Searches for channels on actual transponder (channel table appears) - select a channel from the list by up/down cursor and press OK, other menu is viewed (see below)*).
2	Select Prog.	Selects a channel from found actual transponder channels - select a channel by up/down cursor and press OK, other menu is viewed (see below)
3	Examine Transp.	Searches for active transponders on actual satellite position (NIT table). OK at chosen transponder saves the NIT values, guide-1 shows active channels on the transponder).
4	Select Transp.	Selects one of found transponders on actual satellite position.

If you selected 1 or 2 and let the software search for channels - a new menu appears:

Button	Select	Meaning
2	Add channel	Adds actual channel to the end of the channel list.
3	Replace channel	Replaces actual channel data with the new data found by „SI-Parsing“.
4	Insert channel	Inserts a channel behind cursor position in the list.
5	Insert all	Inserts all found channels behind the cursor position.
6	Update/insert All	Searches for and updates channel parameters (e.g. of one transponder).
7	Add all	Adds all found channels to the end of the list.

Return back – press „guide“ at expert menu, or TV (menu disappears).

*) If you only want to have a look at available channels found on a transponder without saving them, it is better to press „menu“ instead of pressing OK (see select 1, 2 – SI Parsing) - a channel appears on the screen. You can move from one to another channel by pressing up/down cursor and „Menu“ then again. This way it enables easy and quick glance at all available channels on the actual transponder.

6.9 DiSEqC (9-9)

To recall the „DiSEqC“ menu - press 9 at expert menu (guide-9-9).

For the DiSEqC switch setting. Press button repeatedly to select the option.

Button	Select	Option	Meaning
0	Bit 0	Low * High Band	Sets band switching...
1	Bit 1	Low * High Pol.	Sets polarisation switching...
2	LNB 2	1,2*,3,4	Selects LNB that is controlled by DiSEqC switch.
3		Channel * Mode Global Mode	DiSEqC switch controls each channel separately (you can set the values separately for each channel, see guide-6-A) DiSEqC switch is set globally for all channels
4	C-Band LNB	- * LNB1-4	Selects LNB for C-band
	PWK Timing	580 *	580 (info only - cannot be edited)
6	DiSEqC Adr	00 – 15	DiSEqC switch address (default 10 *). At Spaun switches 4x1 = adr. 15.
7	22 kHz	Band * High Low	22 kHz depends on received band (for low band is off and for high band is on). 22 kHz signal is on – switches to high band 22 kHz signal is off – switches to low band
9	Burstmode	On Off *	Simple tone switching DiSEqC 2/1 = MiniDiSEqC – for LNB switching no data are sent to the DiSEqC switch but only special switching tones.

* default values

It is necessary to inform you here that the DVB9600 receiver supports only DiSEqC 1.0 or 1.2 (incl. MiniDiSEqC – i.e. tone switching, see function 9 upper), the DVB9600 has not appropriate hardware for DiSEqC 2.0 though these switches are on the market.

Switch test and setting:

Select channel mode by pressing 3 (at DiSEqC menu), select appropriate LNB connected to the output of the DiSEqC switch (function 2). Test the communication by pressing OK. If it fails try to change the switch address (e.g. 10, 11, 14, 15).

The address is marked on some types of DiSEqC switches.

What is it the DiSEqC switch?

The short name means "Digital Satellite Equipment Controller", digital satellite receiver controller. These devices are used to make the satellite receivers setting easier – there exist a lot of various types of LNBs (converters) but there does not exist any standard for their control. Universal LNB uses a signal 22 kHz for band switching. The DiSEqC system enables two-way communication between LNB and a receiver (it is possible to use burst or "multiple pulse" mode). There are simple

modems in a satellite receiver and in a DiSEqC switch those can communicate between themselves. Various levels of communication are used – from the basic mode "Tone Burst" up to full communication 8-bit data format. Common receivers work with "Mini-DiSEqC" mode or DiSEqC 1.0 mode.

Mini-DiSEqC = tone switching only - "toneburst" = 2-state switch, for 2 LNBS (e.g. Nokia 2/1)

DiSEqC 1.0 = one-way communication, from receiver to peripherals only, i.e. to the switch, up to 4 devices can be digitally controlled, LNBS (e.g. Nokia 4/1). The following signals may be used: low and high band, vertical and horizontal polarisation, LNB select. Used with Nokia DVB9600, DVB9200, D-Box receivers.

DiSEqC 2.0 = function like 1.0 but with two-way communication, it can be used e.g. for LNB oscillator frequency reading, LNB select, antenna position setting, etc. It may control up to 4 devices.

DiSEqC 2.1 = features like 2.0 but it may control up to 64 devices (LNBS)

DiSEqC 3.0 = provides all earlier mentioned features – plus external peripheral control with state detect of each DiSEqC compatible device.

In the future it is expected that the system will enable, for example, automatic LNB installation with oscillator frequency setting, positioner setting etc. The system (DiSEqC 2.0 a 3.0) will be strongly dependent on receiver equipment.

6.10 General Setup (9-A)

To recall the „General Setup“ menu - press A („menu“) at expert menu (guide-9-A).

For general receiver parameters setting. Press button repeatedly to select the option.

Button	Select	Meaning
1	LT sup. LNB1:	Support for serial communication with LT8700 receiver. Option On/Off. Default Off. This receiver has built-in positioner and with the help of serial line RS232 the antenna positioning is controlled. Select for DiSEqC–LNB1.
2	LT sup. LNB2:	Like 1 but for LNB2.
3	LT sup. LNB3:	Like 1 but for LNB3.
4	LT sup. LNB4:	Like 1 but for LNB4.
5	LT pos/pol/band Position only	Data for LT8700: LT8700 controls the positioner, polarisation and band switching. LT8700 controls the positioner only.
6	COM	Serial port RS232 speed setting. This value is valid for „data download“ and channel editors (def. 38400). Setting is changed by repeated pressing 6 button.
7	Display	Recalls submenu for TV picture setting. See chap. 6.10.1
8	Delay/Timer	Recalls submenu, system clock setting and displayed time preset (see chap. 6.10.2)
9	Defaults	Recalls submenu for other setting (see chap. 6.10.3)
A	Save Settings	Saves the settings to EEPROM (FLASH ROM) memory.

6.10.1 Display Menu (9-A-7)

To recall the „Display Menu“ - press 7 at submenu General setup (guide-9-A-7).
For general parameters setting. Press button repeatedly to select the option.

Button	Select	Option	Meaning
2	Chan.-Font	Sml Big spc	Program line symbol size is normal. Program line symbol size is large (useful for small TV screens only). Special fonts for the program line (nice).
3	Nr.Browse	On Off	The channel list is indexed by numbers 1-xxx (to recall the list – press page up or down). It also enables to use direct entry from remote controller keyboard. The channel list is not indexed (channel names only).
4	Dsp dim Norm	1	Receiver display brightness in ON mode. The less the number you enter, the higher the brightness is (def. 1, option 0-7).
5	Dsp dim Stndby	3	Receiver display brightness in STANDBY mode. The less the number you enter, the higher the brightness is (def. 3, option 0-7).
6	Scroll Mode	1 2 3	Serves to handle with channel list (page up/down). On channel list recall – set highlighted cursor to required channel - the channel changes immediately. Pressing OK – escapes from channel list. Like option 3 but after pressing OK the channel list disappears, then the program line is viewed for a short time and you watch the required channel. On channel recall, move by cursors in the list, pressing OK switches to the required channel. Channel list disappears after pressing TV button.
7	Colours		Recalls submenu -menu colours setting (see 6.10.1.1)
8	Display	Frequ. Names Names 8	Receiver display shows received frequency. Receiver display shows received channel name. Receiver display shows received channel name (eight characters are displayed, without signal bar)
9	Schedul.	Mode 1 Mode 2	Displays the event list incl. old, already transmitted Displays the event list of new events only (def.).
A	EI	Without EI Current Current/ /next	No optional info about the programme are viewed. The info about the current programme is viewed (programme start time, programme name). The info about the current and the next programme is viewed (programme start time, programme name).
B	Up/down	Normal Swap 1 Swap 2	Defines the cursor buttons up and down function for channel list moving and for changing among channels (channel list $\uparrow = -1$, $\downarrow = +1$, changing $\uparrow = +1$, $\downarrow = -1$) Different only on channel change by cursors up and down (e.g. change from 301 to 302), $\uparrow = -1$, $\downarrow = +1$, channel list is the same like at normal option. Different only on channel list moving ($\uparrow = +1$, $\downarrow = -1$), channel change is the same like at normal option.

6.10.1.1 Colours Menu (9-A-7-7)

To recall the „Colours Menu“ - press 7 at submenu Display (guide-9-A-7-7).

For menus colours setting. It is better to set the colours of the menus with the help of the Colours Editor or DVBMCE software in your PC and then to send the setting to the receiver via the serial line RS232.

Button	Select	Values	Meaning
1	Me FG	FEFEE0E0	DVB2000 expert menu text colour
2	Me BG	CBCDFE9	Expert menu background colour
3	Ch FG	C5C5E8DF	Program line text colour
4	Ch BG	E9E9E3D7	Program line background colour
5	SubCL	8181E0E0	Teletext background colour

The values of all the options can be in range 00000000 – FFFFFFFF. The values in the table are default.

We do not recommend to change the values without knowledge of their meaning. We will not describe the colour coding because everyone may use comfortable PC software like Colours Editor or DVBMCE. For manual setting – good knowledge of Philips SAA7124 is necessary – for experts only.

6.10.2 Delay/Timer Menu (9-A-8)

To recall the „Delay/Timer menu“ - press 8 at submenu General setup (guide-9-A-8). For clock, delay, and other setting.

Button	Select	Meaning
1	Channel	The time how long the program line is shown on the screen (def. 200).
2	Volume	The time how long the volume bar is shown on the screen (def. 100)
3	Key del	The time delay of remote controller key pressing (def. 150000)
4	Key rep	The time when the remote controller recognizes at key down position its repeated action (def. 20000)
5	Clock tune	Fine clock tuning (in minutes)
+/-	Clock	Local time setting (time zone). Set the difference (local – UTC in hours). For Germany = +01, summer time (DST) = +02

6.10.3 Defaults Menu (9-A-9)

To recall the „Defaults menu“ - press 9 at submenu General setup (guide-9-A-9).
For general parameters setting. Press button repeatedly to select the option.

Button	Select	Option	Meaning
1	Mode dec	PAL* NTSC	Video decoder is on for PAL mode Video decoder is on for NTSC mode (it has no sense for radio channels)
2	Mode enc	PAL* NTSC	Video encoder is on for PAL mode Video encoder is on for NTSC mode
3	TV Key	Normal* Off No audio	TV button can be used (is ON). TV button is locked (OFF), if LNB ext. is ON and TV is pressed, then the LNB power supply will not switch OFF!!! Mutes audio output when analog receiver is on (TV).
4	Intro***)	Bones Other* None	Introductory DVB2000 screen views „bones“ without audio replay. Introductory DVB2000 screen views „girls“, initial audio is replayed **). No introductory screen is viewed.
5	Radio Mode:	1 2*	Pressing Radio button will not recall radio channels listening. At channel list both TV and Radio channels are displayed. Radio channels can be selected after pressing Radio button, Radio button sets the cursor to radio channels. Separate lists for TV and Radio channels. Looks better.
6	Status:	Grafic* Text	Graphic symbols in program line (for video, text, audio). Text symbols in program line – channel features (V/T A for Video/Text and Audio).
7	Radio	Static* Delayed	After radio channel change the program line stays displayed on the TV screen. After radio channel change the program line disappears after a while (like at TV channels).
8	Powerup	Mode 1* Mode 2 Mode 3	Receiver is switched ON by normal way (standby). Receiver is switched ON by num. keyboard only. Receiver is switched ON by button on receiver panel only.
9	Powerup	Auto* Run	If power fails the receiver will follow the state before power-off (at re-powering the receiver switches on or stays off). At re-powering the receiver will always automatically switch on.
A	Signal track	Off* On	Default off. Checks the presence of received signal. If the signal shortly loses the software automatically resets video and audio decoder. On „S.T.“ = OFF the synchronisation may lose.
B	Audio track	Off* On	Default off. Checks the audio processor. If the buffer gets overflowed (causes audio „cutting“), the audio processor is automatically reseted. For SCSI port audio recording it is better to set audio track = OFF.

*) default values

***) Initial audio can be replaced by another one with the help of VGrabber SCSI SW.

***) Intro screen can be changed with the help of MCES software.

If „Signal track“ or „Audio track“ is ON and the PID is not set correctly or the receiver cannot read it (often at scrambled signals) – the decoders reset and the PID is searched for.

7.1 Parental Cnt - parental control (guide-0)

To recall the „parental control“ menu – press **0** at main menu (guide-0).

When you change the default code (0000) - the functions 5-0 normally available from main menu (guide) can be accessed only after entering the new changed code.

This function enables to control all channels (global or channel mode), the maturity control (age category dependent control) is not available. The code is saved in Flash memory. The use of code **0000** makes all functions and channels free available. If you forget the code use the DVBMCES software to change the value to default one.

Button	Select	Option	Meaning
1	Code:	0000	Here you can change the code for parental control – do not forget the code !!! Default = 0000.
2	Channel	Free Lock	The channel is free – no lock. The channel is available after entering the code – otherwise locked. When you change to a locked channel you must enter the code first, then the channel „opens“.

7.2 Other menu

Info-Menu

To recall this function press Guide-9, and then Guide again.

Button	Select	Meaning
1	Channel Info	The user can find here full channel information, incl. channel location, channel name, PID etc.
2	PMT Scan	Info view of PMT records (see table below). Does not work on some channels without PMT PID.
3	Audio Info	Info view about audio channel, incl. sample frequency
4	Video Info	Info view about video PID, you can test actual data flow rate
5	CA – Info	Info view about received channel coding system (about a TV provider, it does not show the info about the inserted CAM but about the coding system only).
9	Hidden	Shows ASCII table. Press TV button to escape.
0	Hidden	Shows some system table - debugger for TABLE_ID.
A	Hidden	Shows some system table – hex (TABLE_ID).
B	Hidden	Schedule running + channel table memory size
C	Hidden	T status ON/OFF, AC3, ECM, EMM PID

Another hidden tables are under keys 6-8 but they have no important meaning for common users.

To return back from ASCII table function (9) to TV watching = press TV button.

PMT Scan function – codes meaning table (PID info)

Code	Meaning	Code	Meaning
01		06	Teletext
02	Video	81	VPS, RDS
03	Audio Mono, 2xMono	B0, B1	
04	Audio Stereo, Duo	C0-CF	Programme subtitles
05	Maybe EPG	F0-FF	Programme subtitles

To return back from PMT Scan to TV watching = press A („menu“) or Guide.

CA - Info explanation (coding system info):

no CAT on TP - free (FTA) or hardware key

Beta Technik – Betatechnik

Eurodec – Nagravision

Irdeto – Irdeto

Norw. Telekom – Conax

Philips – Cryptoworks

TV/COM -

0x0009 - standard

Canal Plus - Mediaguard

France Telecom - Viaccess

News Datacom - Videoguard

NTL - (RAZ), (DMV)

Scientific Atl. - PowerVu

7.3 Help Menu

This menu was deleted.

7.4 Option menu

To recall this function – press „guide“-1-„text“ keys.

This enables slightly to modify the received picture (video).

Button	Select	Meaning
0	Play	Normal mode.
1	Pause	Picture pausing.
2	Single Step	Moves picture one screenshot ahead, one step.
3	Slow Motion	Slow picture moving, automatically step by step.
4	Decoder Reset	Resets video and audio decoder.
5	Ignore B-picture	Other way of slow picture moving. Every 2 nd picture is omitted.
9	Cold Re-Boot	Cold reset. It works the same like power line switch off and on again. This is useful for software download with Transbox or Nokia „Serial Downloader“.software.

8.1 Watching TV with widescreen 16:9 TV sets

The DVB2000 also enables to connect 16:9 widescreen TV set. At present it does not provide automatic 16:9/4:3 switching depending on the type of received signal but it is possible to set the 16:9 mode manually, as follows:

First it is necessary to do these settings:

- Enter „I/O Space“ menu, then „Scart menu“ (guide-9-5-A) and press 3. By this you will set „pin 8“ to 6V. This option causes that the video signal is interpreted by TV set as a video 16:9 format signal.
- Further in „video MPEG“ menu (guide-9-3) press 5, i.e. „Pan&Scan“ set to OFF. This option makes full use of the video signal bandwidth.

If you do this change with TV that provides only 4:3 format, the picture will be unpleasantly distorted.

Note: If your 4:3 TV set enables 16:9 format watching (you will see smaller picture, black bars in the upper and lower part of the screen), try the following:

Press „text“ button, help menu is recalled. Press 9 (sometimes repeatedly, it depends on the type of your TV set) and the TV screen changes to 16:9 format (it was tested but with no warranty for various types of TV sets).

8.2 EPG

It enables to view the name of a current TV programme (incl. channel name) – OK button and a brief programme information – Info (C) button and sometimes a programme offer for longer time (second pressing of Info button).

Example:

You are watching a TV programme, press OK – program line appears – you can see the channel number used in the channel list, channel name and other programme info, incl. the actual time. Below this program line a new line appears. It shows the name of the current TV programme and the time of its beginning. The third line (if set to display in „default menu“) shows the name and the time of the beginning of the next TV programme. Other, more detailed info can be viewed by pressing i = info button. It is called event info or information about the programme. Similarly, the info about the next TV programme can be viewed by pressing page up/down and here you can switch between info about the current and the next programme. If the info about the programme is larger than the event window size you can move the text by pressing cursors up or down. In the upper line of this event info window you can see programme date, its start time and its length in brackets.

Second pressing of „i“ key recalls programme guide for longer time, e.g. one day, one week (it works on some channels only). Of course, it depends on channel provider if this info is transmitted or not. This time about 30-40% providers transmit this info.

This info is very rare on radio channels, except MCE channels where the event info is transmitted.

9.1 Accessories, supporting software for PC

You can find many software programs on the Internet those can communicate with the DVB2000 OS. They are channel editors, programs providing receiver software upgrade etc. We can note DVBEEdit 5, NSE, Nokia Serial Downloader 1.2 etc. Good software for channel list update is DVBEEdit, SetEdit, NSE etc. With the help of these programs you can upgrade DVB2000 software, edit a channel list for DVB2000 (you can edit channels, i.e. change their settings, move them in the table, insert new channels and delete old channels, more than 2000 channels can be edited). Software upgrade and channel list update via serial line RS232 does not take too much time because the communication speed is 38,4 kb/s, i.e. 2x faster than with original Nokia software. You must not forget that you must install new bootloader to

your receiver first (b2.00uns, it is similar to BIOS in your PC). You cannot use these programs with original Nokia CI1.06 bootloader. The bootloader change may be done with the help of the **BDM Interface** and the appropriate software **TRANX1.6** and or with the help of TransBox Pro software and serial line RS232. The BDM Interface can be obtained at many companies (we also offer it), or built by yourself, the software **Transbox Pro** can be obtained at <http://www.mascom.de>. It costs about 30DM.

Some other freeware for DVB2000 may be downloaded from <http://www.rehtec.com> or other websites

We recommend DVBMCE (colour menu setting, teletext background colour setting, teletext font editor etc.), and many others.

Software list for SCSI communication is not mentioned here but there are also many DVB2000 supporting programs, most of earlier mentioned programs can handle SCSI port.

9.2 How to do...?

- How to enlarge the DRAM memory?

The DVB9600S (9200S) receiver with DVB2000 software enables to extend DRAM memory that is advantageous to use with teletext – you can change the view among teletext subpages, by left or right cursor. You can install the DRAM chip into the free socket, located in the left corner behind the front panel of the receiver (under the tuner). The only problem is how to get the chip (I was not successful). It is good enough to extend the RAM from the original 1MB to 1,5MB only (or 3MB) to make the subpage switching available. The best solution is to use chips from the same manufacturer like original 1MB RAM chips (2 chips to the left from the socket).

The list of useable chips to extend the RAM memory:

- DRAM 1Mx16 (16MB), 5V voltage, Fast Page mode, SOJ-42P package, 60ns, 2MB chips are equipped with A10, A11 addresses – 0,5MB chips are not.

1,5MB DRAM extension:

Siemens HYB-5118160BJ-60, NEC uPD4218160, Hitachi HM5118160J-60, Motorola MCM-518160, OKI MSM-5118160, Hyundai HY-5118160, Mitsubishi M5M-418160, Toshiba TC-5118160

3MB DRAM extension:

Siemens HYB-5116160BJ-60, NEC uPD4216160, Hitachi HM5116160J-60, Samsung KM-416C1000AJ-60, Motorola MCM-516160, OKI MSM-5116160, Hyundai HY-5116160, Mitsubishi M5M-416160, Toshiba TC-5116160, Texas Instruments TI-416160, Fujitsu MB-8116160

- How to reset the DVB2000 general-settings to the default values?

1. switch-off the receiver with the remote controller (standby mode)
 2. press and hold all three buttons at the front panel of your receiver
 3. switch-on your receiver with the remote controller
 4. hold down the three buttons on until the receiver shows "ERASE" on the display.
- Now your receiver has the DVB2000 default settings. This procedure will not erase the channel-settings.

10.1 Glossary

ACBW	Acquisition bandwidth – tuner bandwidth for one frequency
Amplitude Modulation	The modulation type at which the amplitude of carrier frequency is varying
BAS-Signal	Video synchro signal amplitude, it is used in analog receivers, it is a summary signal information about brightness (video amplitude) and synchro signals.
CAM	Conditional Access Modul – it is used for digital scrambled programmes decoding (so called Pay-TV). The module is inserted in a receiver slot – a TV programme provider smart card is inserted into this decoder (CAM), it looks like a credit card and enables the pay-TV watching. You can watch only FTA (Free-To-Air) programmes without the CAM and the smart card.
Conax	CA coding system – used at Thor satellite.
Cooltext	Software for DVB2000 teletext.
D-box	Digital satellite receiver Nokia purchased in Germany.
Demodulation	A term for useful signal separation from the carrier frequency.
Demultiplexer	Electronic part of a digital receiver that enables to separate channel data from one transponder (i.e. data on one frequency) to channels those you can watch on your TV screen (there are e.g. 5-10 available channels transmitted on one frequency those have to be separated).
Decimally	Decimal numerical system from 0 to 9.
DVB	Digital Video Broadcasting – a standard for digital TV.
EEPROM	This is also the name of FLASH-PROM (ROM), it is an electronically erasable memory (integrated circuit), it is used in the DVB9600 for software saving, e.g. DVB2000.
EI	Event Information – contents information about the current TV programme start time and its name, and/or about the next programme
EPG	Electronic Programme Guide – text information about TV programmes (current and next) that can be viewed on TV screen.
FBAS-Signal	Colour carrier signal – it follows the BAS signal transfer, it contents colour information
FEC	Forward Error Correction – Writes the value of error correction during digital data transfer (TV)
FTA	Free To Air – free spread transmitting. It is specified as FTA – channel (unscrambled channel) and FTA – receiver (receiver built for unscrambled transmitting only)
Hexadecimal	Hexadecimal numerical system 0-15 (0-9, A-F)
IRDETO	Coding system of TV signal (Conditional Access – CA). Also the company name that developed the system.

Coaxial cable	Asymmetric cable for high frequency signal transfer. It is formed by internal conductor, solid insulation and outer copper cover. The copper part is protected by plastic cover. It serves for antenna and receiver connection.
LNB	Low Noise Block Converter – a part of satellite antenna – input receiving unit that converts the received signal (12000 MHz) to intermediate signal (950 – 2150 MHz)
LNC	Low Noise Converter – other name for LNB – principally the same
LOF	Local Oscillator Frequency – oscillator frequency in LNB unit, it serves to help to convert the received signal to intermediate signal (950-2150 MHz)
MediaBox	Digital settop box – digital receiver Philips – especially for pay-TV receiving.
Mediamaster	Digital receiver Nokia, principally the same like D-box. For FTA or pay-TV (CAM slot).
MPEG	Motion Picture Expert Group – it is a group that is concerned in digital video and audio transfer. The result of this group work are standards MPEG-1, MPEG-2 etc. Digital TV transfer contents MPEG-2 standard.
Multiplexer	Contrary of demultiplexer. It converts separate TV channels to one data signal for one frequency transmitting (i.e. one transponder).
NIT	Network Information Table – this table contains information about provider channel offer and information about the satellite.
NTSC	National Television Standards Committee – TV standard used specially in USA and Japan. It is not used in Europe (in EU is spread PAL system).
Oscillator	Electronic part for high frequency signal processing.
PAL	Phase Alternation Line – TV standard used especially in Europe.
PAT	Program Association Table – associated transmitted program table.
PID	Program Identifier – it is a code that identifies a channel in a data flow.
PMT	Programme Map Table
Polarisation	High frequency signal may come to your antenna in vertical or horizontal polarisations – it depends on transmitting satellite antenna setting (left, right pol. is used on C-band).
QAM	Quadrature Amplitude Modulation – modulation type for digital TV signal transfer (standard for digital cable TV).
QPSK	Quadrature Phase Shift Keying – modulation type for digital TV signal transfer (standard for digital satellite TV).
RGB-Signal	It is a colour TV signal that generally consists of 3 basic colours – red (R), green (G), blue (B). Simply, these colours are mixed and so form a colour picture.

SCART	Special standardised connector for video devices connection (VCR, TV, satellite receiver etc.). Pin connection of the connector is given by a standard that is kept by all video and TV devices producers.
Settop-Box	The name for a digital receiver that is not built-in in TV set.
SCPC	Single Carrier Per Channel – it is the type of digital signal transfer – only one channel is transmitted on one transponder (frequency).
SDT	Service Description Table.
SECA	Société Européenne de controle d`Access – the name of the company providing the coding system for digital TV (they use Mediaguard coding system).
SECAM	Sequential Couleaur a Memoire – TV standard used specially in France and in some countries of Eastern Europe.
Smart-Card	Intelligent chip card that contents coding and decoding information for decoding module CAM (looks like a credit card).
Symbolrate	One of the most important digital transfer parameters. It informs about the digital data transfer speed.
S-video	Or also Y/C signal – it is another type of colour video signal transfer, i.e. brightness information (chrominance signal that is identical to BAS signal) and colour information (luminance signal). S-video connector is usually installed at more expensive VCRs and Camcorders. The quality of S-video signal is better than of FBAS signals but it does not reach RGB signal quality.
Teletext	Also often named as videotext. This function improves the offer of common TV. It provides the user to view text news on TV screen. Teletext transfers text news and very bad graphics. Several versions of teletext exist – level 1, level 1.5 and level 2.5. The higher the version is, the better graphics and colour palette is transferred.
Transponder	In fact it is one frequency transmitted from a satellite, it contents data of one (SCPC channel) or more programme channels. It means that more channels are transmitted simultaneously on one frequency.
TSSD	Time Shifted Service Descriptor.
VCR	Video Casette Recorder – short name for videorecorder
Viaccess	The name of coding system that is used at nordic satellites (Thor) and at Hotbird (mostly French channels).
Video-CD	Special CD ROM format for audio and video signal recording in MPEG-1 format.
Videotext	Other name of teletext – german provider ARD and ZDF named the teletext this way. Otherwise the same like teletext.

We will welcome comments, proposals from other users. The manual is written for all the DVB2000 users and thus we consider very important that all the users are well informed.

STELCO Plus Ltd., <http://www.stelco.cz>, e-mail: stelco@stelco.cz
Milan Cok, 2000, 2001 – this file is at <http://www.stelco.cz/sat/dvb20men.zip>

Remote Control photo and buttons description

DVB 2000

