

Operating instructions



SAT-TV Transmodulator

DVB-S/ -S2 (4x/ 8x QPSK/ 8PSK) → ATV (8x AM)



PALIOS
Part N°: 5101.0x

...Setting Signals



Contents

1. Safety and operating instructions	3
2. Device variants	3
3. General	3
4. Front view	4
5. Functional description	4
6. Meaning of the LED's	4
6.1 LED's at the Sat ports	4
6.2 Device and channel status LED's	5
6.3 LED's at the 10/ 100 Mbit control port	5
7. Adjusting by web server	6
7.1 Network connection to the computer	6
7.2 Initial installation using the wizard	7
7.3 Settings in basic and expert mode	9
7.3.1 Menu "Overview"	10
7.3.2 Menu "Tuner editor"	11
7.3.3 Menu "SAT selection"	12
7.3.4 Menu "Programs"	14
7.3.5 Menu "Adjustment"	14
7.3.6 Menu "Language"	18
7.3.7 Menu "Setup"	18
7.3.8 Menu "Service"	23
7.3.9 Menu "Level"	23
7.3.10 Menu "Status"	24
8. Factory settings	25
9. Block diagram	26
10. Application example	26
11. Technical data	27
12. Glossary	27
13. Bibliography	28
14. Document history	28

1. Safety and operating instructions



When assembling, starting-up and adjusting the modules, it is necessary to consider the system specific references in the manual instruction.



The modules may only be installed and started up by authorized technical personnel. There are only permitted the mounting styles indicated in the quick start guide, which is included each module.



When assembling the modules into the receiving points, the adherence of the EMC regulations is to be ensured.



The assembly and wiring have to be done without voltage. For installation, only the supplied accessories (DIN rail clip with screws and 19" accessories) may only be used.



All active modules may only be operated with the power supply HELIOS, HELIOS-P1 or QUASARIOS. To supply the module only the attached accessory cables are used.



The mains voltage and the operating voltage of the modules working by DC have to be in compliance to the operating parameters described in the technical data.



With all work the defaults of the DIN EN 50083 have to be considered. Especially the safety relevant execution of the DIN EN 60728-11[4] is necessary.



The unit should be mounted only vertically. The ventilation slots as well as the circulation perforation of the modules must be kept absolutely free.



If installed in mounting cabinets a adequate heat circulation must be guaranteed. The mounting in closed cabinets without air exchange is **not allowed!**



For **DIN rail mounting** is important to note that between the heat sink and a neighboring building, a distance of 2 cm is required. If the modules mounted on top of each, so to observe a distance of 20 cm from the bottom edge of the top module to top edge of the lower module.



For **19" mounting** all devices in the rack must be fitted with 19" Edge Guide. The sole panel mounting is not enough! Furthermore, the operation of a fully occupied rack is only allowed with an underlying 1-U fan box (at least 3 fans, 176 mm deep).

2. Device variants

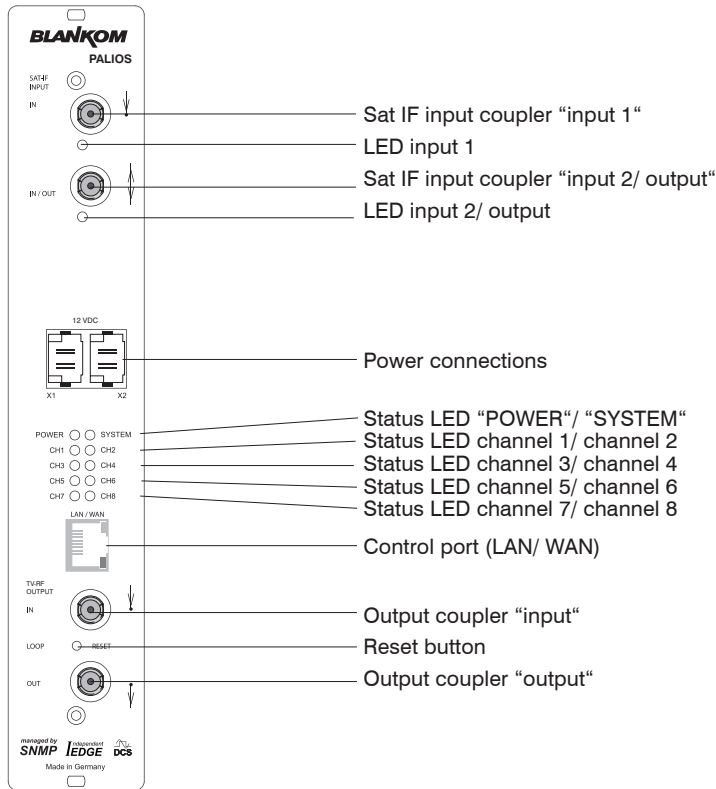
PALIOS	5101.01	DVB-S/ -S2 (4x/ 8x QPSK/ 8PSK) → ATV (8x AM)
PALIOS	5101.02	DVB-S/ -S2 (4x/ 8x QPSK/ 8PSK) → ATV (8x AM), BISS decryption optionally

3. General

The Smart Business Line (SBL) is a modern head end system, that is distinguished by its modular and compact design. A userfriendly operating concept facilitates setup, configuration and maintenance of the system.

The PALIOS module converts digital satellite signals into analogue TV signals to transmit it in cable networks. In this case, up to 8 analogue TV channels from the available satellite IF signals are generated, which are attached via a maximum of two inputs.

4. Front view



Independent
EDGE



managed by
SNMP

5. Functional description

The Sat IF signal is fed through 2 inputs or a loop-through input by means of a switching matrix to the default 4 (or optionally 8) DVB-S/ S2 input parts and their QPSK/ 8PSK demodulators. The resulting transport streams are processed in 8 MPEG2 decoders. The analogue TV modulation and the freely adjustable up-converting in the cable network range (45 ... 862 MHz) is carried out by a high-performance FPGA.

The eightfold modulator is adjacent channel compatible. A highly-clocked digital to analogue converter (DAC) is responsible for the spectrally pure output of the cable signal. After amplification and sum level adjustment, the cable signal is coupled through a directional coupler to the output jacks.

6. Meaning of the LED's

6.1 LED's at the Sat ports

Colour	Status	Meaning of display
green	permanently on	Terminal has been configured as input, works properly.
amber	permanently on	Terminal has been configured as output (only port "IN/ OUT")
	flashing	LNB overcurrent (e.g. by short circuit) and/ or LNB power supply overheated, port is disabled temporarily.
	off	No tuner is locked on this input or port is deactivated (only port "IN/ OUT").



6.2 Device and channel status LED's

Designation	Colour	Status	Meaning of display
POWER	green	permanently on	Module is on.
	amber	permanently on	Module is in standby.
		off	Module is off, operating voltage is not applied.
SYSTEM	green	permanently on	Module is ready for work.
		flashing	Software update is running.
	amber	permanently on	Temperature is high, fan is already activated.
		flashing	Temperature is critical. The device will no longer ensured or forced shutdown.
		off	Module is not ready for work.
CH 1 ... CH 8	green	permanently on	Channel operates without error.
	amber	permanently on	Error warnings, depending on signal: - input and/ or output without sync - input sync, but in bad quality (e.g. mosaic effect in the TV picture)
		flashing	Hardware is faulty.
		off	Channel is off.

6.3 LED's at the 10/ 100 Mbit control port

Designation/ colour	Status	Meaning of display
Connect LED/ yellow	permanently on	Network cable is connected.
	off	No cable connection
Data LED/ green	flashing	The data exchange.
	off	No data exchange

7. Adjusting by web server

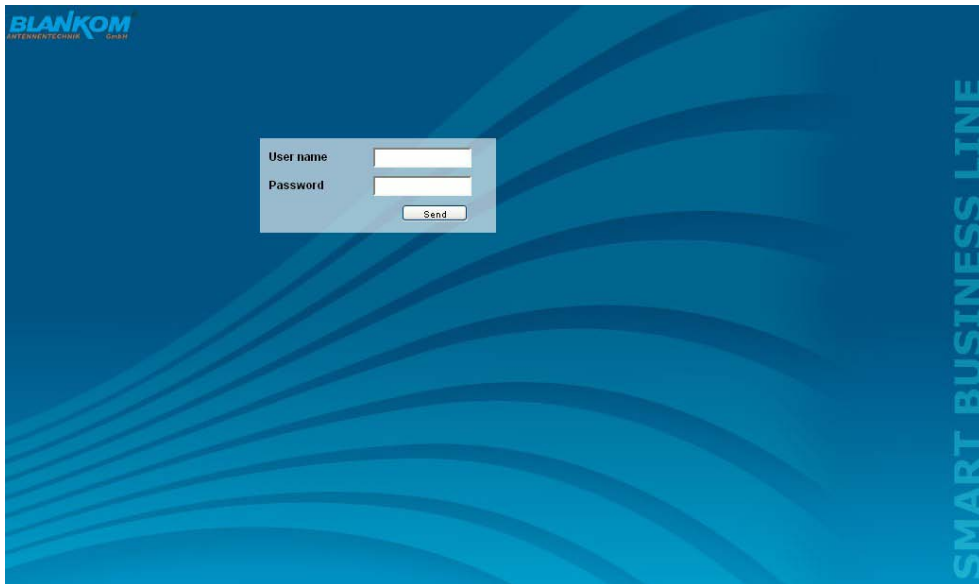
7.1 Network connection to the computer

System requirements:

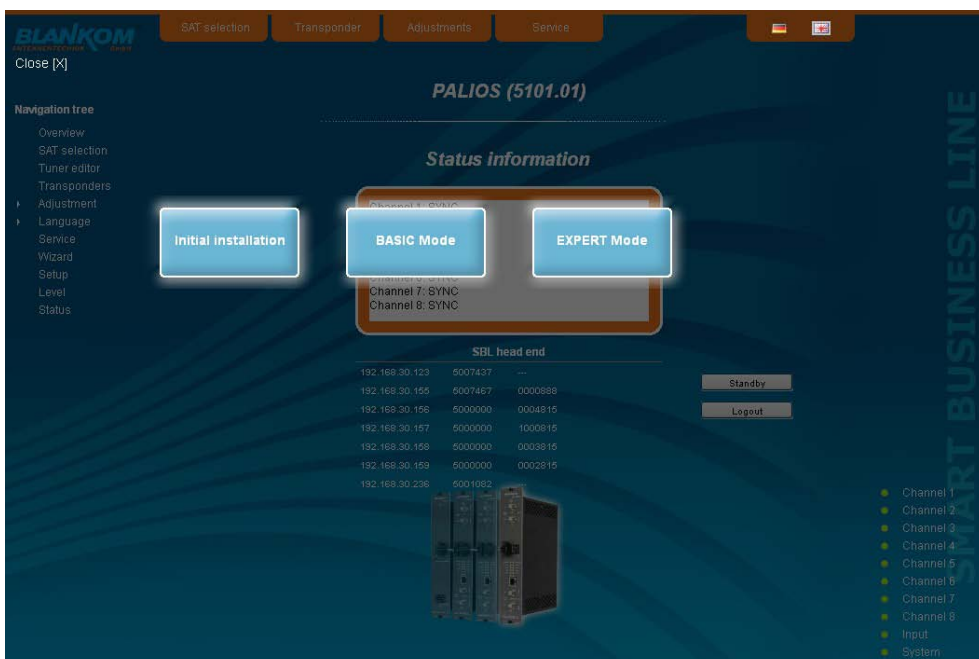
- PC/ laptop with 10/100 Mbit Ethernet interface
- Internet browser (e.g. Windows Internet Explorer), which accept JAVA script.

Setup the connection:

The PALIOS module has to be connected to PC network using an Ethernet cable. The IP address of the PALIOS module is 192.168.1.100 on delivery. If several PALIOS and/ or QAMOS/ QAMOS-4CI modules should be controlled or adjusted via an Ethernet switch, each module must first be converted individually to its provided IP address within the network! To that the address of the network port on the PC (temporary) must be adapted to the IP address of the PALIOS/ QAMOS/ QAMOS-4CI module (subnet mask: 255.255.255.0, IP address: 192.168.1.XXX, where XXX is not the same as the corresponding value of the PALIOS/ QAMOS/ QAMOS-4CI IP address). After the network configuration of the module(s) the IP address of the control PC is converted to the provided IP address and the modules can be accessed through the browser with their new IP addresses. First appears the login window, if the password and user testing were activated on the setup page (see chapter 7.3.7):



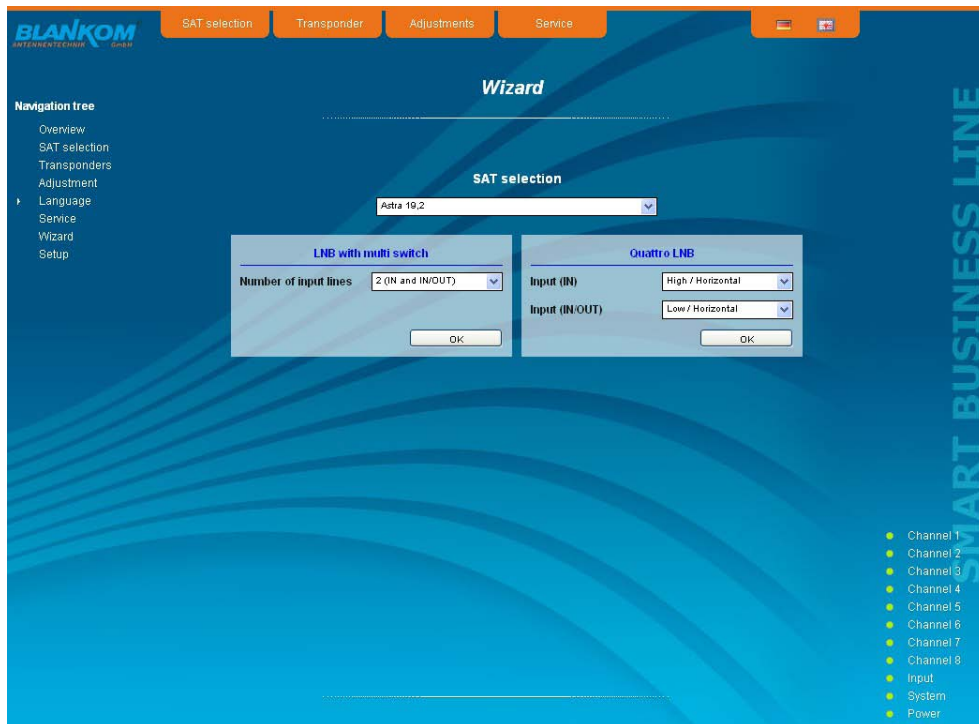
After successful registration or successful connection establishment without password (default setting) the start page of the module is charging.



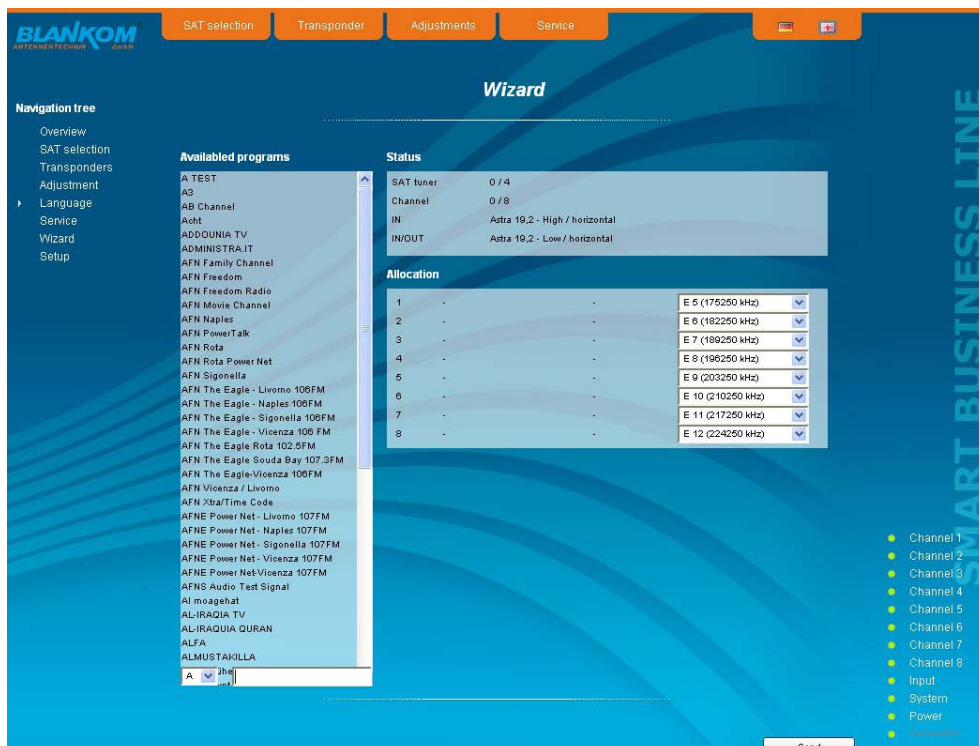
Now you can choose whether you want to make the initial installation (using the wizard), or adjust the module in basic or expert mode. In addition, the language selection is possible between German and English top right.

7.2 Initial installation using the wizard

The easiest way to set the PALIOS module is to use the wizard. By pressing the “Initial installation” button you get to the home page of the wizard. As with any other browser page at the top right hand it can also change the language.



First choose the configuration of the system. If the system is equipped with LNB and multiswitch, so you can select the number of feeds on the left. If the system is operated with a Quattro LNB, so you choose from the right side, which satellite level contact with the corresponding input jack. Press the “OK” button, the corresponding data are loaded and you will be forwarded to the selection of the programs.



In the left column, all available programs are loaded according to the selected satellite from the database. The listing is in alphabetical order, the start of the list can be selected under the list by selecting the first letter. Alternatively, you can also enter a string (e.g. “HD”) in the text box next to the letter sequence. In this case all the programs are listed that contain that search string in their names.

You select the output channel in the selection box right before the program selection is made. According the selected standard (see 7.3.7) the selection begins with channel E5 or R6 (175.25 MHz-frequency of the picture carrier). But all channels of the entire frequency range of 45 ... 862 MHz can be chosen freely in the channel spacing of standard B/G or D/K. From the program list on the left you can select by double click the desired program, which is then transmitted in that output channel. After the selection in the upper box on the right status information of the selected satellite input channel will appear. In the right list box below there is the list of already selected programs to the output channel in which they are to be transmitted.

The screenshot shows the 'Wizard' interface with the 'Service' tab selected. The 'Available programs' list on the left includes 'Das Erste HD', 'DAS VIERTE', 'DASDING', 'Data_01', 'Data_02', 'Date Line', 'Datendienst T1M', 'Daystar Television Network', 'DAYSTAR TV', 'DEEJAY', 'DENSON DS', 'Deutsche Charts', 'Deutsche Hits 2', 'dh424 plus', 'dh424 tv', 'DISCORADIO', 'Discovery', 'Discovery Channel', 'Discovery HD', 'Discovery HD', 'Disney Channel', 'Disney Cinemagic', 'Disney Cinemagic HD', 'Disney XD', 'DKULTUR', 'D871', 'D881', 'DLF', 'domradio', 'Doreel T.V.', 'Doreel TV', and 'Doreel TV'. The 'Status' box shows: SAT tuner 1 / 4, Channel 1 / 8, IN Astra 19.2 - High / horizontal, IN/OUT Astra 19.2 - Low / horizontal. The 'Channel' table below shows 8 channels with their respective program names and output frequencies.

Channel	Program name	Service type	Output frequency
1	Das Erste	1	E 5 (175250 kHz)
2	-	-	E 6 (182250 kHz)
3	-	-	E 7 (189250 kHz)
4	-	-	E 8 (196250 kHz)
5	-	-	E 9 (203250 kHz)
6	-	-	E 10 (210250 kHz)
7	-	-	E 11 (217250 kHz)
8	-	-	E 12 (224250 kHz)

In this way, up to 8 programs per PALIOS module can be selected now to be transferred. First, as the output channel the next higher channel to the last selected program package is offered. But for each program the output channel can be chosen freely in the total frequency range. If an incorrect selection is made, it can be removed by double-clicking the unwanted selected program in the right field.

The screenshot shows the 'Wizard' interface with the 'Service' tab selected. The 'Available programs' list on the left is empty. The 'Status' box shows: SAT tuner 4 / 4, Channel 8 / 8, IN Astra 19.2 - High / horizontal, IN/OUT Astra 19.2 - Low / horizontal. The 'Channel' table below shows 8 channels with their respective program names and output frequencies.

Channel	Program name	Service type	Output frequency
1	Das Erste	1	E 5 (175250 kHz)
2	DAS VIERTE	1	E 6 (182250 kHz)
3	ZDF	1	E 7 (189250 kHz)
4	RTL Television	1	E 8 (196250 kHz)
5	Bayerisches FS Nord	1	E 9 (203250 kHz)
6	VOX	1	E 10 (210250 kHz)
7	SWR Fernsehen BW	1	E 11 (217250 kHz)
8	Super RTL	1	E 12 (224250 kHz)

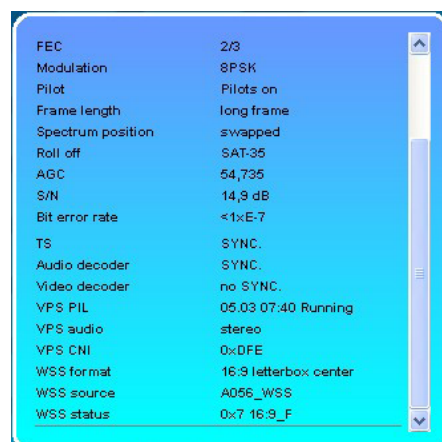
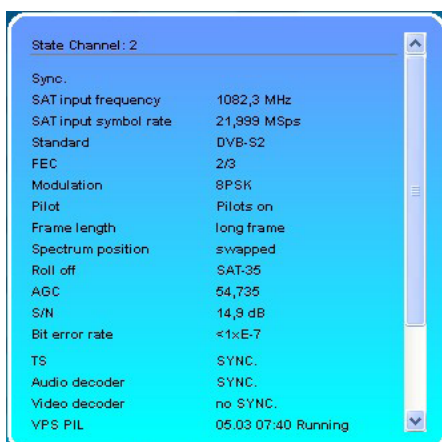
Clicking on the "Send" button, the selection is accepted and set in PALIOS module. The browser will be redirected to the home page (see chapter 7.3.1).
 By a reopening of the wizards left in the navigation tree you can always do a complete reinitialization of the module. The changes will be accepted and set only by pressing of the "Send" button. Additional or specific settings can be made by using the basic or expert mode.

7.3 Settings in basic and expert mode

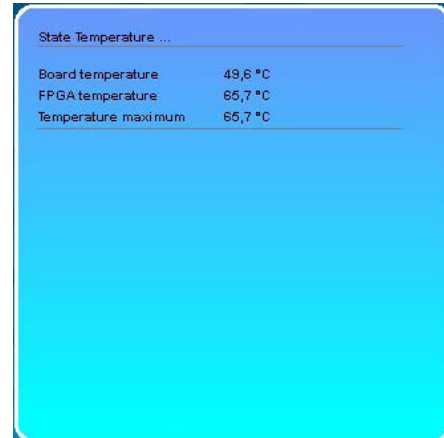
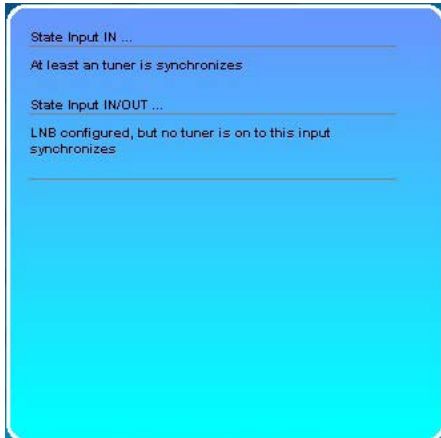
In both modes, you can set certain parameters of the module or perform configurations on the module or the user interface. The various setting menus can be selected in the navigation tree on the left side. A part of the menu is same in both modes ("Overview", "Programs", "Language", "Service", "Wizard", "Setup"). In the menus "SAT selection" and "Adjustment" in the basic mode, a part of the setting parameters are predefined on common values to allowing easier adjustment. In expert mode, all adjustable parameters can then be adapted to the specific requirements of the user. In both menus can be switched via a click box between the basic and expert mode. Additionally the menus "Level", "Tuner editor" and "Status" are available in expert mode.
 The setting is supported by an online help. Touching the parameters by the mouse in the lower part of the site an orange colored text box appears with explanations for each parameter. By setting in the "Setup" menu (see chapter 7.3.7) may be selected so that the help appears in the status bar of your browser. If appropriate setting changes in the browser options are necessary.



In addition, in the lower part of the navigation tree status information for the module is displayed. By changing the setup menu, the status information can also be moved to the right (see also chapter 7.3.7). All 8 channels are listed individually. A green LED symbol before the "channel ..." means that both input and output are synchronized and that the channel operates without error. An orange-colored symbol indicates that an error has occurred in that channel. An overview of the status of various parameters of the channel is obtained by double-clicking the corresponding channel. In the browser interface, a status overview appears.



A transparent LED symbol means that the channel is not programmed and set, or the RF output is turned off. Furthermore, we obtain the same way status information about the input(s) inclusive the connected LNB(s) and about system parameters. In this case too an orange-colored LED symbol displays an error state during which a green LED symbol displays error-free working condition. The detailed status information is available by double clicking the name field.



The last display point indicates the connection status between the network interface and the module. Green means, that the connection is established. A transparent LED light indicates that there is no connection or the connection is failed.

Settings with the selection box or input fields are taken over by pressing the “send” button and stored permanently, and the PALIOS module is set on these values after a restart too. Settings with the click box are usually performed immediately but not stored in memory, so they would be lost on a possible restart of the module. To save these settings the “send” button must be pressed.

7.3.1 Menu “Overview”

This page provides a status overview of the 8 channels. If a channel is working without errors, “SYNC” is displayed. If errors occur you will see an “Error” display. If the RF power is switched off the display “Off” appears behind the respective channel.

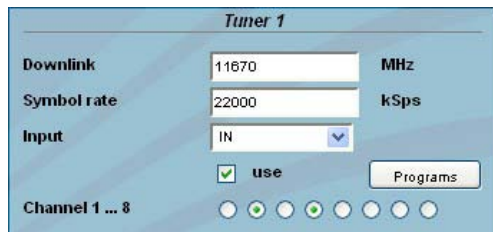


In addition, under the status window there is the head end display. There all SBL modules are listed, which are in the same network and which have been selected to the head end in the setup menu (see 7.3.7). This is significant because functions over all modules such as the NIT processing between QAMOS/ QAMOS-4CI modules can be extended to all components of the head end. The individual components of a head end are listed with their IP address, which is also provided with a link to this address, so you can switch easily to the next module. If no head end was created, a “Search” button appears, which forwards to the setup menu and scans the network for other SBL modules. Then all available modules are listed, can be selected and added to the head end.

By clicking the “Logout” button the user logs out of the module and the login window appears. By pressing the “Standby” button the module is set into standby, which is displayed by a amber illuminating POWER LED on the module. The “Standby” button will be replaced by an “ON” button, and by pressing of that the module will be set on.

7.3.2 Menu "Tuner editor"

In this menu there is done the setting of the 4 (8 if software option is enabled) tuner of the PALIOS module to receive the desired satellite programs. For each tuner there are to be entered the downlink frequency of the transponder, the symbol rate and the associated input (IN or IN/ OUT), at which there is the right satellite signal. With the 8 select boxes in the lower part of the window there will be selected the channels, for which this satellite signal will be needed. By pressing the "Programs" button on the right next to the setting windows there appears an overview, which programs are included within this transponder. If one tuner is not needed, this one can be deactivated by removing of the mark in the click box "use".



Tuner x
Downlink
Symbol rate
Input
use
Programs
Channel 1 ... 8

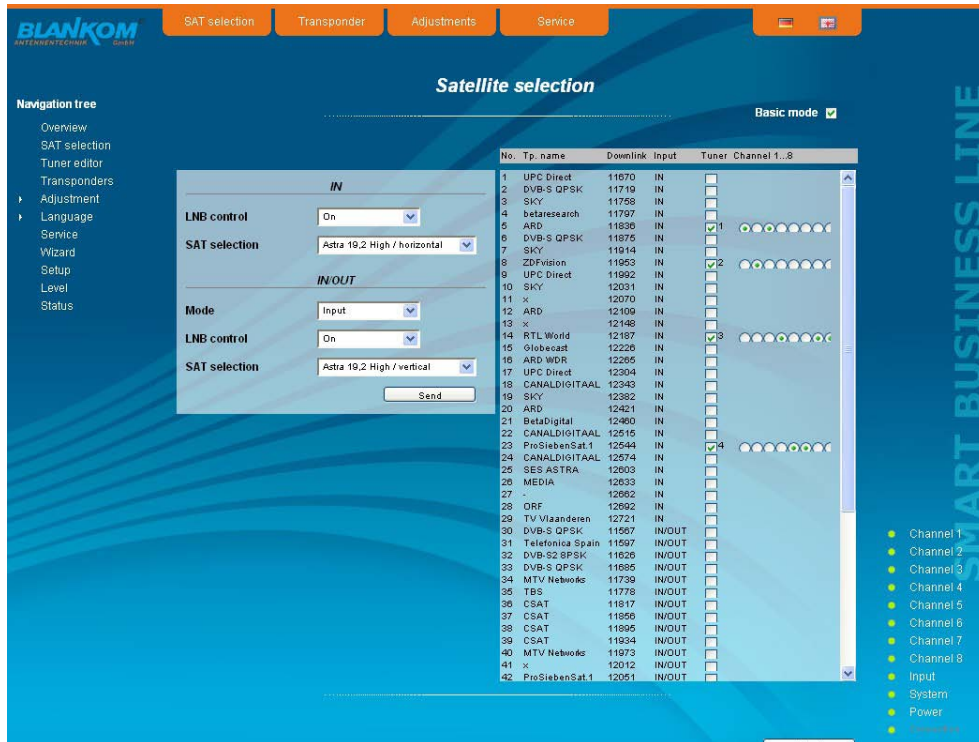
tuner (1..4, 1..8 if software option is enabled) on which settings will be done
downlink of the transponder (in MHz)
symbol rate of the transponder (in kSps)
selection: IN, IN/ OUT
activation or deactivation of the tuners
list of all programs of the transponder
selection, for which channels this tuner will be supplied the input signal

If a tuner was deactivated, all setting fields will be grayed out and no settings can be done.

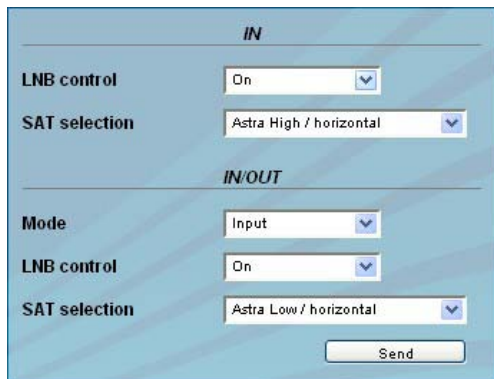
It should be noted that any tuner, that has been activated, at least one output channel has to be assigned. As long as this isn't made, the "send" button remains inactive and the setting can not be adopted.

7.3.3 Menu "SAT selection"

In this menu you can make the the choice of the satellites and the input configuration of the module. In the left part of the user interface there is the configuration menu of the input part. The switching between the basic mode and expert mode is possible using the click box in the upper right part of the user interface.



In **basic mode** the following settings are possible:



IN

LNB control

SAT selection

IN/ OUT

Mode

LNB control

SAT selection

sat jack 1 (permanent input)

selection: on, off (remote supply off), DiSEqC A, ... , DiSEqC D

selection: Astra 19,2° East, low horizontal, low vertical, high horizontal, high vertical

Eutelsat 13° East, low horizontal, low vertical, high horizontal, high vertical,

Eurobird 9° East high horizontal, high vertical

sat jack 2

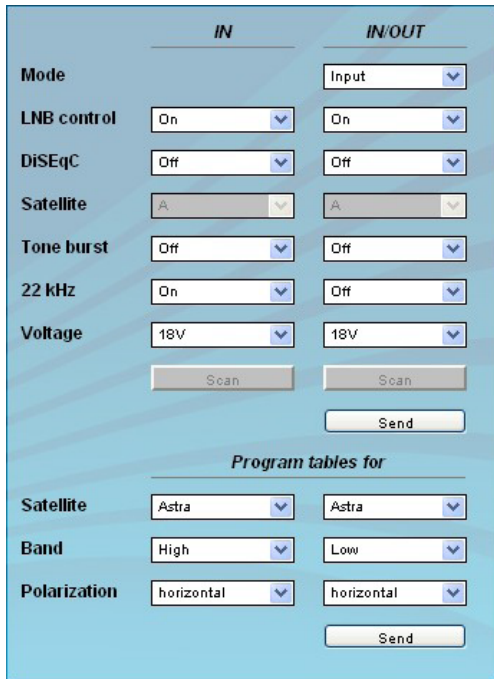
selection: not used, input, output

selection: see LNB control sat jack 1

selection: see SAT selection sat jack 1

If the 2nd sat jack is configured as a loop-through output, or not used, the associated input configuration parameters "LNB control" and "SAT selection" are grayed out and not adjustable.

In **expert mode** the input settings can be made more detailed and individualized. The setting screen is divided into two sections "LNB Control" and "Program tables for", for the two satellite jacks 1 (IN) and 2 (IN/ OUT). The parameters of both sections can be adjusted separately with the "send" button below and then transferred. If the second sat jack (IN/ OUT) is configured as a loop-through output, or not used, then the input configuration parameters of the LNB control and program table are grayed out and not adjustable.



Mode*
selection: not used, input, output

LNB control
selection: on, off (remote supply off completely)

DiSEqC
selection: on, off

Satellite**
selection: A, B, C, D

Tone burst
selection: off, A, B

22 kHz
selection: on, off

Voltage
selection: 13 V, 18 V

* only for sat jack 2 (IN/ OUT) adjustable
** only adjustable, if DiSEqC is on

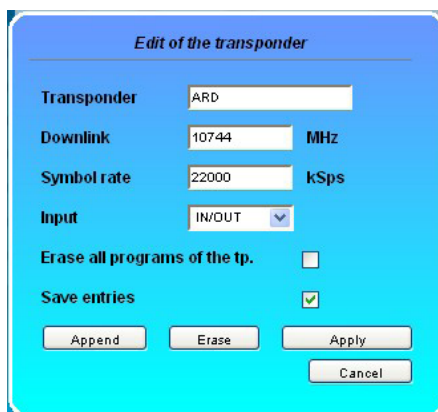
Satellite
selection: Astra 19,2° East, Eutelsat 13° East, Eurobird 9° East

Band
selection: Low, High

Polarization
selection: vertical, horizontal

In the right part of the browser interface there is a table of available transponders, which is loaded according to the selected satellite, band and polarization. The transponders are listed by name, downlink frequency and sat-socket assignment. This is based on an internal database with the current assignments of the satellite transponder positions Astra 19.2° East, Eutelsat 13° East and Eurobird 9° East. In the column "Tuner" this transponders are marked, that are already being transmitted from one of the 4 (8 if software option is enabled) tuners. Right of the click box it appears the tuner number. In the following select boxes the channels are marked which transfer a program of this transponder. As in the "Tuner editor" menu (see also chapter 7.3.2.) changes of the tuner adjustments can be done. A maximum of 4 (8 if software option is enabled) tuners are activated by clicking on. If an activated tuner no channel is assigned, remains the "send" button inactive and the settings can not be adopted.

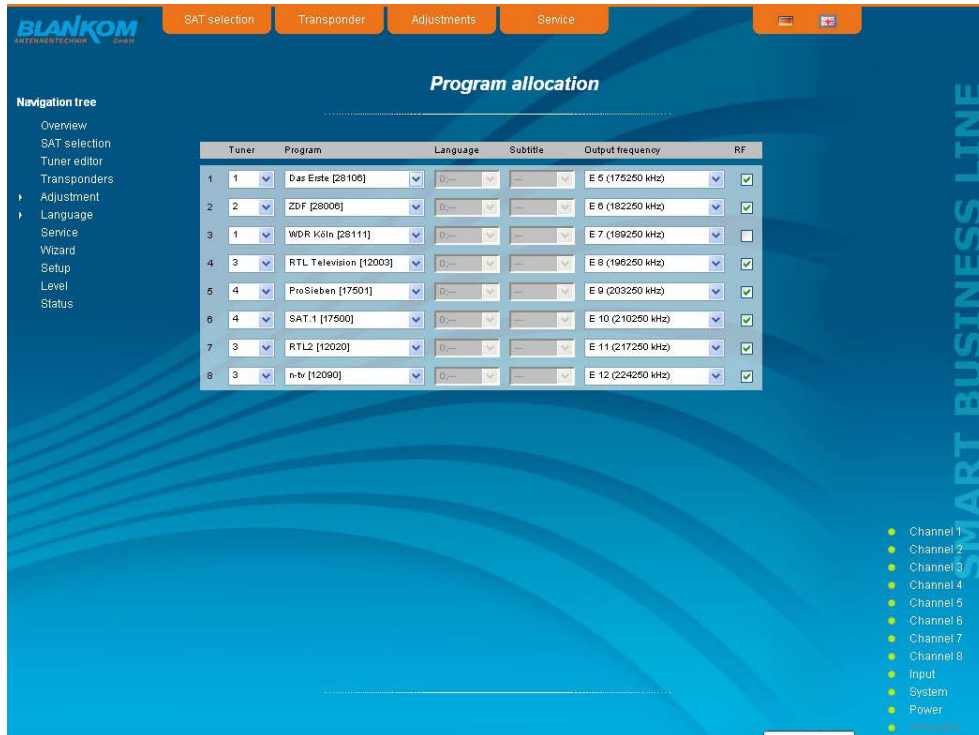
If the transponder allocations should change, you can customize this table and even edit. By doubleclicking the relevant transponder number you entry into the edit menu and can change the data accordingly.



Existing entries can be changed or new ones are attached. By clicking on the appropriate box the program list of the transponder can be deleted and changes or additions can be stored into the database permanently. If the box "Save entries" is not clicked, the changes will remain only as long as the user interface is open. With the next start of the user interface the changes are lost. In this simple way, the program data is kept up to date.

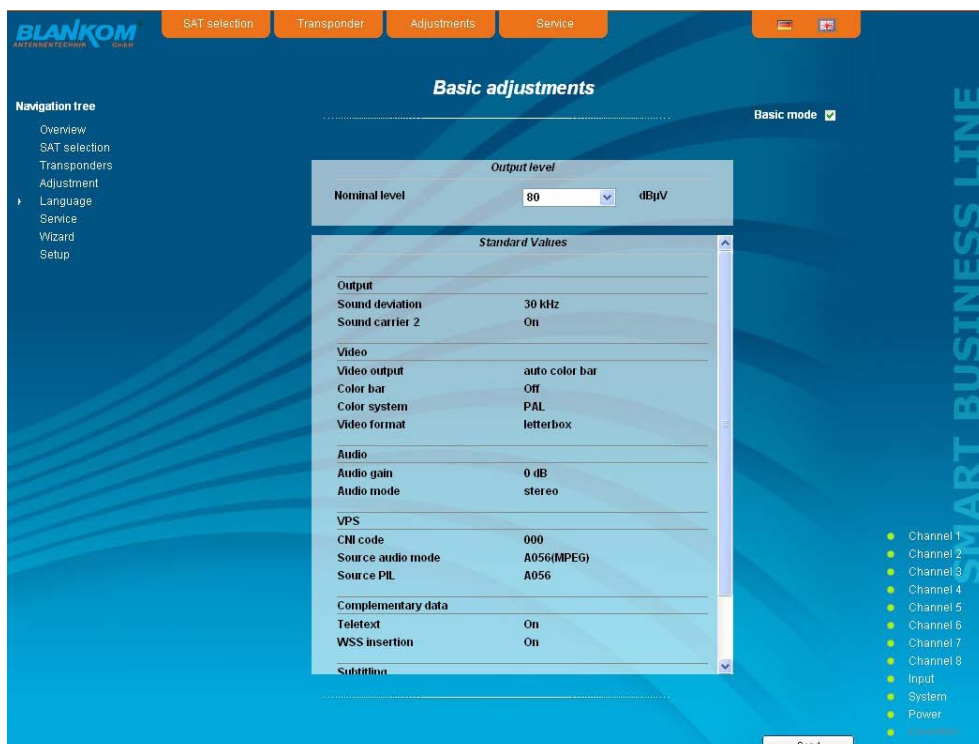
7.3.4 Menu "Programs"

In this menu the program selection is done for all output channels. After call up of the menu at first the actual channel allocation of the PALIOS module is listed. The following settings respective changes per channel are possible: in the column "Tuner" there can be selected the satellite transponder, which contains the program to be transferred. The assignment of the transponders to the tuners 1...4 (1.. 8 if software option is enabled) is done in the menu "Tuner editor" (see chapter 7.3.2). In the next column the requested program can be selected. In the next both columns there can be selected the language respective the language of the subtitles, if there are more than one of them. in the column "Output frequency" there is to be selected the output channel of the program. On double assignments within these 8 channels is called attention to this automatically. With the clickbox "RF" the RF output of the channel ist set to on or off. Clicking on the "Send" button, the settings are taken and stored.



7.3.5 Menu "Adjustment"

In this menu, the settings of the module are made. The **basic mode** is very simple. In this mode you can only adjust the output level for all 8 channels in a range from 62 ... 82 dB μ V. All other settings are set to the default values and are listed under the level setting.



In **expert mode**, however, each channel can be adjusted individually according to individual requirements. The channel selection may be either left in the navigation tree or above the set-up tables.



The following parameters are adjustable:

Program	Service ID	Select
ZDF	28006	<input checked="" type="radio"/>
ZDFinfokanal	28011	<input type="radio"/>
zdf_neo	28014	<input type="radio"/>
zdf.kultur	28016	<input type="radio"/>
3sat	28007	<input type="radio"/>
KiKa	28008	<input type="radio"/>
DRadio Wissen	28017	<input type="radio"/>
DKULTUR	28012	<input type="radio"/>
DLF	28013	<input type="radio"/>

Program list (Transponder)

If "Program selection with select box" in chapter "GUI settings" is deactivated (see also chapter 7.3.7), it appears this table for program selection. All programs of the selected transponder are listed with name and service ID. The selection of the program is done by marking of the respective select box. The program name and the other parameters of the program are adopted automatically. In this case the program name in the menu "Selected program" is not selectable.

Program name	<input type="text" value="9Live123"/>
Tuner	<input type="button" value="4"/> <input type="button" value="Editor"/>

Input

input parameters of the channel

**Program name
Tuner
Editor**

name of the program, editable
selection: 1..4 (1.. 8 if software option is enabled)
link to menu "Tuner editor" (see chapter 7.3.2)

Program name	<input type="text" value="N24 [17503]"/>
Service ID	<input type="text" value="17503"/>
Type	<input type="text" value="TV"/>
Language	<input type="text" value="0xxx"/>
<input type="checkbox"/> Direct input	

Selected program

variant 1: program selection menu

**Program name
Service ID
Type
Language
Direct input**

selection of the program from the program list of the transponder of the selected tuner
displays the service ID of the selected program
displays the type of the program
selection of the available language
selection: selection menu, direct input (see below)

Program name	<input type="text" value="Das Erste"/>
Service ID	<input type="text" value="28106"/>
Type	<input type="text" value="TV"/>
Language	<input type="text" value="0"/>
<input checked="" type="checkbox"/> Direct input	

Selected program

variant 2: direct input

**Program name
Service ID
Type
Language**

displays the name of the program, which was selected in the input menu
input of the service ID of the requested program, adjustment range: 0...65535
selection of the program type: TV, Radio
input of the language n°, adj. range: 0..255



Output

Frequency input: Channel

Output frequency: E 5 (175250 kHz)

Output level offset: 0 dB

RF signal: On

Sound deviation: 30 kHz

Sound carrier 2: On

Output output parameters of the channel

Frequency input selection: channel, frequency *

Output frequency selection from channel table/ input in kHz *

Output level offset display of the level offset **

RF signal selection: On, Off

Sound deviation selection: 30, 50 kHz ***

Sound carrier 2 selection: On, Off

* If selected at the frequency input "channel", so you can select the output frequency in the pre-selected channel spacing (see chapter 7.3.7). If, however, at the frequency input "frequency", then the output frequency is selectable in kHz steps.

** Adjustment of the offset of each channel to the basic level, see chapter 7.3.7

*** Only selectable, if sound carrier 2 is set "Off". If sound carrier 2 is set "On", the sound deviation is permanently 30 kHz

PCR for current service

Use PCR PID: 0 dec.

Manual PID settings

PCR PID: 0 dec.

Video PID: 0 dec.

Audio PID: 0 dec.

Teletext PID: 0 dec.

VBI PID: 0 dec.

Subtitle PID: 0 dec.

Composition page ID: 0 dec.

Ancillary page ID: 0 dec.

PCR for current service*

Use PCR PID adjustment range: 0..8190

Manual PID settings*

PCR-PID adjustment range: 0..8190

Video PID adjustment range: 0..8190

Audio PID adjustment range: 0..8190

Teletext PID adjustment range: 0..8190

VBI PID adjustment range: 0..8190

Subtitle PID adjustment range: 0..8190

Composition Page ID adjustment range: 0..65535

Ancillary Page ID adjustment range: 0..65535

* The menu of the manual PID setting only appears, if the respective box is clicked on in the "Setup" menu, chapter "GUI settings" (see also chapter 7.3.7). **The function is currently not supported.**

Video

Video output: auto color bar

Colour bar: Off

Colour system: PAL

Video format: letterbox

Video setting of the video parameters

Video output selection: On, auto Off, auto colour palette bar

Colour bar selection: On, Off

Colour system selection: PAL, SECAM, NTSC

Video format selection: letterbox, center cut, 1:1, pillarbox, 4:3 vertical cut, 20:9 letterbox

Audio

Audio gain: +6 dB

Audio mode: stereo

Audio setting of the audio parameters

Audio gain adjustment range: +6...-20 dB

Audio mode selection 1: mono L, mono R, dual, dual in- vers, stereo, auto **

selection 2: mono L, mono R, mono L+R, auto ***

** if sound carrier 2 "On"

*** if sound carrier 2 "Off"

VPS

CNI code: 000123

Source audio mode: A056(MPEG)

Source PIL: A056

VPS setting of the VPS parameters

CNI-Code adjustment range: 0x000...0xFFFF (hexadec.)

Source audio mode selection: MPEG, A056(MPEG)

Source PIL selection: A056(PDC), A056, PDC, TimerControlCode

Complementary data

Teletext: On

WSS insertion: On

Complementary data

Teletext selection: On, Off

WSS insertion selection: On, Off

Black bar settings

Mode: Off

	above	below	left	right	%
Std. bar	0	0	0	0	%
16:9-bar	0	0	0	0	%
S16:9-bar	0	0	0	0	%

Black bar settings *

Mode selection: On, Off

The width of the bar can be selected in % related to standard 4:3 format. Different values for 16:9- and special 16:9 format can be adjusted.

Note:
In certain settings it can occur in picture distortion. The adjustment values (in %) in these cases are slightly to change up or down until there are no disturbances occur more.

* only available, if "Black bar" option is enabled (see chapter 7.3.7)

Subtitling

Mode

Settings DVB subtitling

DVB language index

Use extended ID's

Settings Teletext subtitling

Teletext page

Background

Character mode

The following settings are used only in the manual character model

Basic character

Supplementary character

National table

Subtitling**** adjustment of the parameters

Mode selection: Off, Teletext, DVB

Settings DVB subtitling

DVB language index adjustment range: 0...255

Use extended ID's selection: yes, no

Settings teletext subtitling

Teletext page adjustment range: 0..65535

Background selection: opaque, semi-transparent, transparent, black transparent

Character mode selection: auto, manual

The following settings are only used in the manual character mode:

Basic character selection: Latin, Cyrillic-1, Cyrillic-2, Cyrillic-3, Arabic, Greek, Hebrew

Supplementary character selection: Latin, Cyrillic, Arabic, Greek, Hebrew

National table selection: standard table, alternative table, no country code, English, German, Swedish, Italian, French, Spanish, Czech, Rumanian, Polish, Estonian, Latvian, Serbian, Turkish, Danish

****only available, if "Subtitling" option is enabled (see chapter 7.3.7)

Test lines

1. Line	<input type="text" value="17"/>	<input type="text" value="Off"/>
2. Line	<input type="text" value="18"/>	<input type="text" value="Off"/>
3. Line	<input type="text" value="330"/>	<input type="text" value="Off"/>
4. Line	<input type="text" value="331"/>	<input type="text" value="Off"/>

Test lines**

The PALIOS offers the opportunity to output on up to 4 image lines test signals from the following selection: Off, CCIR 17, CCIR 18, CCIR 330, CCIR 331, Sin(x)/ x, Ramp. As a default, the provided lines 17, 18, 330 and 331 are offered. The image lines selection is editable, i.e. the test lines can be output on each image line in the range 1..625.

** only available, if "Test line" option is enabled (see chapter 7.3.7)

Decryption settings

BISS key

BISS-E injected ID

Decryption settings***

BISS key input of the 12-digit code in BISS mode 1 or of the 16-digit code in BISS mode E

BISS-E injected ID input of the 14-digit code in BISS mode E, no input in BISS mode 1

*** only available, if "BISS" option is enabled (see chapter 7.3.7)

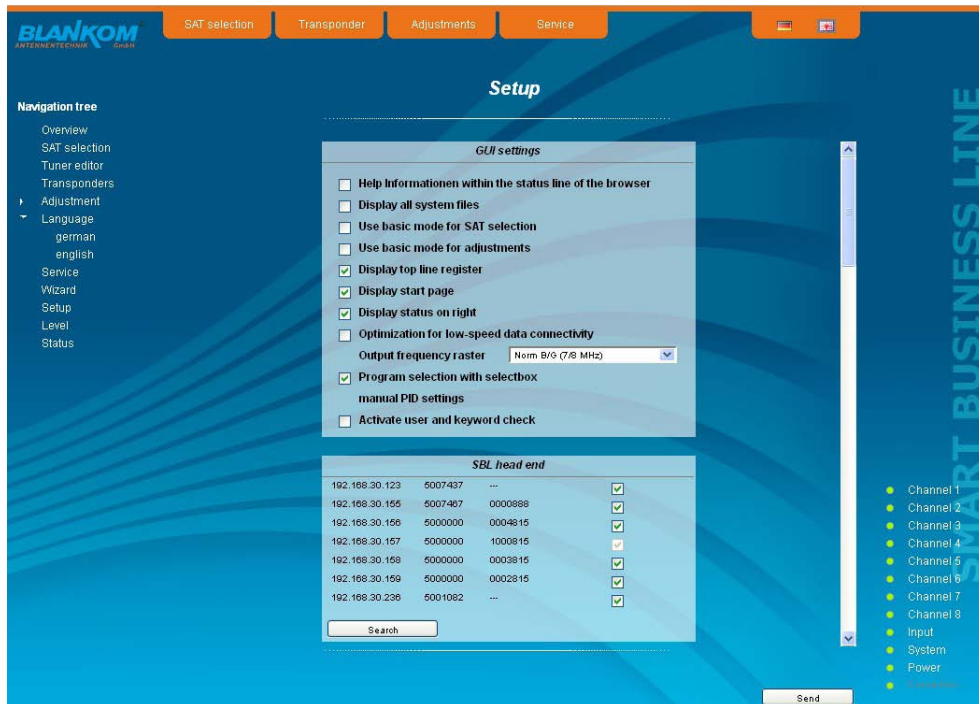
7.3.6 Menu "Language"

In this menu, the changeover of the user interface language is executed. You can choose between German and English. The transition can be made either to the left in the navigation tree in the subtree of the point "language" or top right of the language selection box.

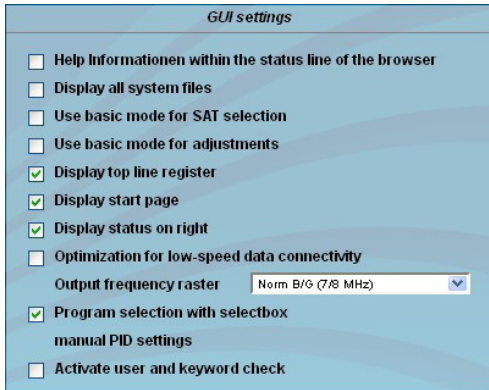


7.3.7 Menu "Setup"

In this menu, various administrative and system settings are made.



Specifically, the following can be configured:



GUI settings

- Help Informationen within the status line of the browser
- Display all system files
- Use basic mode for SAT selection
- Use basic mode for adjustments
- Display top line register
- Display start page
- Display status on right
- Optimization for low-speed data connectivity
- Output frequency raster: Norm B/G (7.8 MHz)
- Program selection with selectbox manual PID settings
- Activate user and keyword check

GUI settings

Help information within the status line of the browser

By default, the online help is displayed in an orange text box at the bottom of the page. If you click this option, the help texts are displayed in the status bar of your browser. Depending on your browser sometimes has to be allows such use in the browser settings.

Display all system files

The default is, that the system files can be subjected to upload or download as a package under "Backup" in the submenu "System administration". If you click on this box, the system files are listed individually and can be individually subjected to an up- or download.

Use basic mode for SAT selection

Switching between basic and expert mode of the channel settings (see also chapter 7.3.3)

Use basic mode for adjustments

Switching between basic and expert mode of the satellite settings (see also chapter 7.3.5)

Display top line register

By default, the registers are shown in the upper part of the user interface, to move more quickly to the most frequently used menus. By removing the box marking the registers are hidden.

Display start page

The default is to start with the menu selection by the command buttons after every restart of the user interface (see chapter 7.1), where you can select the desired setup menu. If this item is disabled, this page will be skipped and you reach instantly the "Overview".

Display status on right

By clicking on the box, the status of the channels or the system is shifted to the right of the user interface.

Optimization for low-speed data connectivity

By clicking the box the data volume of the browser pages are greatly reduced. So it is possible to adjust the module, if there is only a low-speed connectivity (GSM). The restrictions are: there are no wizard, no basic mode for adjustments and no program respective transponder lists. Furthermore, the size of all pictures is reduced.

Output frequency raster

Possible is the selection between the standard B/G raster (7 or 8 MHz) and the D/K rasters. In case of D/K1 the sound carriers are at 6,5/ 6,25 MHz, D/K2 at 6,5/ 5,74 MHz and D/K3 at 6,5/ 6,74 MHz. Simultaneously in accordance with the selection, the group delay filter set for standard B/G or D/K.

Program selection with select box

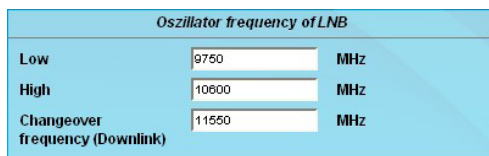
If the box is deactivated, the program selection is done with the program list in the adjustment menu. Otherwise the program selection is done in the field "Selected program" (see chapter 7.3.5).

manual PID settings

By clicking the box the respective input box of each channel appears additionally in the menu "Adjustment" (see also chapter 7.3.5). Default the input box is deactivated.

Activate user and keyword check

This selection is only available if you are logged in as administrator. If the box is disabled, the log-in is skipped after each GUI reboot. Otherwise, user login and password are required (see chapter 7.1).



Oscillator frequency of LNB

Low	9750	MHz
High	10800	MHz
Changeover frequency (Downlink)	11550	MHz

Oscillator frequency of LNB

Low

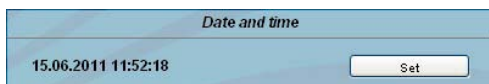
input of the Lo-frequency for receiving of the low band (in MHz)

High

input of the Lo-frequency for receiving of the high band (in MHz)

Changeover frequency (Downlink)

input of the frequency for point of entry from the low into the high band (in MHz)



Date and time

15.06.2011 11:52:18

Date and time

Clicking on the "Set" button, the date and time will be set to that of the PC.

SBL head end			
192.168.35.230	5000031	Andreas Schigold	<input type="checkbox"/>
192.168.35.236	5000080	-	<input type="checkbox"/>
192.168.35.237	5000181	A. Schigold	<input type="checkbox"/>
192.168.2.233	5000815	Test	<input checked="" type="checkbox"/>
192.168.2.234	5000816	Test	<input checked="" type="checkbox"/>
192.168.2.235	5000817	Test	<input checked="" type="checkbox"/>

Search

SBL head end

All SBL modules, which are located in the same network, are listed. By pressing the "Search" button the list is updated. All marked modules belong to the head end and are displayed on the "Overview" page.

System administration	
SBL to PC	PC to SBL
Backup	Save Load
Update	Load
View logbook	

System administration

The default is displaying of the shortened list of files (top).

System administration	
SBL to PC	PC to SBL
Backup	Save Load
Update	Load
Transponder config.	Save Load
SBL configuration	Save Load
Language	Save Load
SBL system	Save Load
Logbook	Save
Status	Save
astra.xml	Save Load Delete
eutelsat.xml	Save Load Delete
View logbook Append	

Backup

Here the system files can be loaded or saved as a package (except logbook.txt and status.xml). Thus, it is possible, for example in a simple way to copy the system files from a PALIOS module to another. If under "GUI setup" "Display all system files" is selected, the system files can also be loaded or saved separately (see figure below). Moreover, additional system files can be added (e.g. other satellite assignments).

Update

By clicking the "Load" button, the internal software components can always be brought up to date.

If the "PAL-Rollback" option is enabled, it is possible to convert the PALIOS module into a QAMOS module via software update, what can be done reversed when needed as well. So after clicking the "Load" button instead of the current PALIOS releases the current QAMOS release is to select and then perform the update process.

If the option is not enabled, after selecting the QAMOS releases appears opposite error message, so that accidental conversion is not possible.

This update-file does not fit to this device.
To do this you need the option PAL-Rollback.

Pressing the button "View logbook" leads to an overview, in which all the processes have been documented since the start of the GUI. Each operation is listed by date, time and description. If operations have been executed, the logged on user, who initiated the action, is saved too. By pressing of the "Delete" button all entries are deleted, when you are logged in as administrator.

The screenshot shows the 'Logbook' page with a navigation tree on the left and a list of log entries in the main area. The log entries include system startup, file loading, and configuration changes.

System	
Location	Head end 1
Logout Default Reboot	

System

Location

Logout Default

Reboot

In this field a name for the PALIOS is made to identify the module easily. This name appears on the top right of the website under the language selection box and is provided via SNMP with the question of the field: Iso(1).org(3).dod(6).internet(1).mgmt(2).mib.2(1).system(1).sysLocation(6).
restart the user interface
delete the settings and reset to default values (including IP address), available only if you have logged in as administrator
restart of the PALIOS module

Enabling of

SNMP
Test line
Subtitling
BISS
Black bar
PAL roll back
8 sat tuner
SFP

Send

Enabling of

In this field, possible software options for the PALIOS module can be enabled. The registration code must be entered in the input field and by pressing the "Send" button the option will be activated. Activated options are displayed in black, inactive are grayed out.

note

To convert a PALIOS into a QAMOS, after switched to free "PAL roll back" option, the update process can be performed (see System administration → update).

Date and time

15.06.2011 11:52:18

Set

Date and time

Clicking on the "Set" button, the date and time will be set to that of the PC.

Web server

DHCP: Off

IP number: 192 168 35 22

IP subnet mask: 255 255 255 0

Gateway: 0 0 0 0

DHCP from: 192 168 35 95

DHCP to: 192 168 35 99

Info

Web server

This setting appears only when you are logged in as administrator, so also has the authority to make administrative changes.

Beginning with release 2.0 the PALIOS supports the DHCP functionality. There DHCP-Client is factory default. After an update from a release 1.x to a release 2.x the DHCP support is off. Note, that after each factory reset the PALIOS is set "DHCP-Client".

If the **DHCP functionality** is set to "Off", in the appropriate fields the IP number, subnet mask and gateway can be manually entered and then the settings of the PALIOS module are adapted to the network.

Web server

DHCP: Client

IP number: 192 168 35 22

IP subnet mask: 255 255 255 0

Gateway: 0 0 0 0

DHCP from: 192 168 35 95

DHCP to: 192 168 35 99

Info

If the module is set as "DHCP-Client", so it is automatically obtained on the network an IP address from the DHCP server. The manual network settings are grayed out and are therefore disabled.

DHCP

IP number: 192.168.2.54

IP subnet mask: 255.255.255.0

Gateway: 192.168.2.254

By pressing the "Info" button the automatically assigned network configuration of the module is displayed.

Web server

DHCP: Server

IP number: 192 168 35 22

IP subnet mask: 255 255 255 0

Gateway: 0 0 0 0

DHCP from: 192 168 35 95

DHCP to: 192 168 35 99

Info

If the module is set as "DHCP-Server" note, that the IP address 192.168.1.100 should not be set. If you select this address, you will get an error message. In addition to the IP settings you can configure the DHCP range from which the IP addresses of the connected clients are assigned. The address range must match the address range according to IP address and subnet mask of the server and should not be too small. The default is the area 192.168.1.1 to 192.168.1.99. Along with the DHCP server will also set up a local DNS (Domain Name Server). To use it in full extend a connected PC/ laptop must be configured as a DHCP client. Especially on Windows is to be noted that not only the IP address, but also the DNS server address automatically is to relate.

If the module is configured as a DHCP server or client and the client has received an IP address successfully, so the module can be accessed via a web browser with a name. This name is composed of the prefix "sbl" and the device number that is printed on the back of the module and on the packaging. For example, the device with the number 0123456 is be called under "sbl0123456". Should there be problems with it among the local network conditions, so in these cases the domain is to add when you call. In the case that the above module is configured as a server, the call using the domain is then "sbl0123456.sbl". If another DHCP server is used, for example, the server of the home network, ask your administrator for the domain name.

An example of the simplification of the configuration or operation of the head end via DHCP, is, that an SBL module is as a server, the remaining modules and the connected PC/ laptop are configured as a client. By calling the browser "dhcp.sbl" the surface of the server module is loaded. If not already done so, now the head end can be read. So all connected components are found and listed. The head end can now be stored in the "Setup" menu under the item "System administration". In the head end overview can be changed quickly to the user interface of any other module by selecting the respective modules links.



SNMP option

Mode: On

Version: Version 1

Community-Read: public

Community-Write: private

Trap

Version: V1 trap

Community: trapping

User: v3TrapUser

Password: *****

Send MAC as engine ID:

Receiver IP

192.168.2.234

Events

Device temperature to high/Ok: 85

Cooler On/Off:

SAT AGC to low: 20000

SNMP option

The SNMP adjustment is only available after the “SNMP” option was enabled (see chapter “Enabling of”).

In the first section, the SNMP functionality, including the sending of traps is enabled or disabled with the “Mode” selection field. With the selector “Version” you can select the SNMP version (version 1, 2 or 3). In the two boxes below it, the communities for versions 1 and 2 are given separately for reading and writing via SNMP. In version 3, these two fields are disabled. There, all registered users of the module (see menu “Passwords”) have an automatic read access to SNMP. The write access can be enabled or disabled for each user by clicking the SNMP-click box in the “Passwords” menu.

By clicking the “MIB” button the MIB of the module is generated and can be stored.

In the second section the trap settings are done. First, the trap version is selected:

- V1 trap - normal traps according SNMPv1 with specified community
- V2 trap - normal traps according SNMPv2 with specified community
- V2 inform - sends information traps according SNMPv2 and waits for an acknowledgment
- V3 trap - normal traps according SNMPv3
- V3 inform - sends information traps according SNMPv3 and waits for an acknowledgment

The community can be configured for traps of SNMP versions v1 and v2. User/ password and use the network MAC address as the engine ID can be configured for traps of SNMP version v3. These settings must correspond with the configuration of the trap receiver, so traps are successfully transferred. For this purpose a test trap can be sent by clicking the button “Test” to test the transmission of traps. If a test trap triggered, all pre-preserved traps discarded.

There up to 256 IP addresses to receive the traps can be created or enabled. These are listed under “Receiver IP”. Below, the events can be configured, whether and partly with what thresholds they should trigger traps. There are three ways to configure a trap:

- without parameters, e.g. fan on/ off
- with a freely selectable parameters for a medium priority
- with a selectable parameter from a list for a medium priority

References and notes:

All users are supposed to work with SNMPv3 must use passwords with at least 8 characters. For SNMPv3 the SBL supports only the authentication password, not the privacy password. The SBL only supports the MD5 algorithm for authentication password in SNMPv3.

Information traps are specific traps that are possible up to SNMPv2. If there is no acknowledgment of the receiver, the transmitter attempting to transmit later again, until the confirmation is received.

A SBL module holds up to 256 before information traps that could not be sent successfully. If there are more waste traps, the earlier traps are discarded and noted in the logbook as having failed. A successful sent trap is also registered as such in the logbook. In case of power failure or reboot of the module reproached traps are lost.

Details may be found in the help text for each event. The critical priorities are each covered with fixed values that can not be changed. If the web site of PALIOS module is open, no changes are possible via SNMP.

Passwords

	User name	Password	SNMP
Administrator	admin	****	<input checked="" type="checkbox"/>
User 1	0000	****	<input type="checkbox"/>
User 2	0001	****	<input type="checkbox"/>
User 3	0002	****	<input type="checkbox"/>
User 4	0003	****	<input type="checkbox"/>
User 5	0004	****	<input type="checkbox"/>
User 6	0005	****	<input type="checkbox"/>
User 7	0006	****	<input type="checkbox"/>
User 8	0007	****	<input type="checkbox"/>

Passwords

Again, this setting appears only when you are logged in as administrator, giving it the authority to make administrative changes. In addition it must be clicked the box “User and keyword check” in the submenu “GUI settings”. The user ID and password for the administrator can be set in then the first line. The fixing of up to 8 user identification and passwords-is possible. The limitations of user rights exist only in the fact that they are not authorized to change web server settings, user rights and password changes and default settings.

The default **password** for the **admin** is: 1111
and for the **users**: 0000

If the SNMP option is enabled, after each user appears an SNMP-click box. By clicking on the box, the writing rights for individual users can be awarded for the SNMP version 3 (see also section SNMP option).

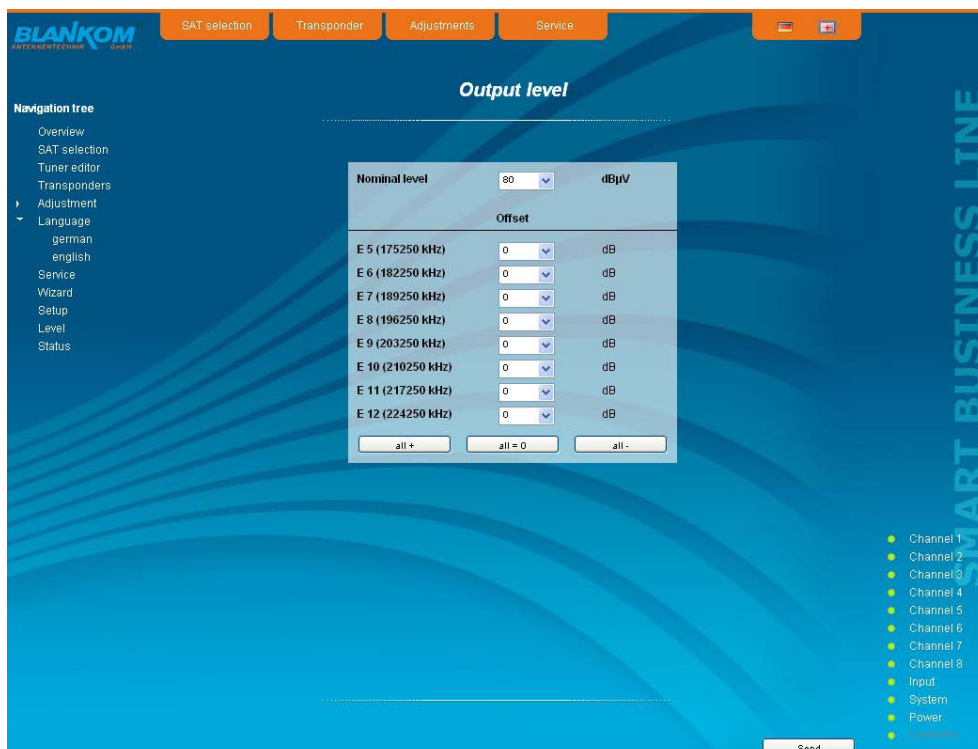
7.3.8 Menu "Service"

In this menu you will find all information about the service/ support for the PALIOS module. There are given the BLANKOM service hotline and the service email address. In addition, the implemented operating instructions may be called as a PDF. If there is an internet connection the BLANKOM homepage can be started. There, the latest software release or descriptions are available. Finally, the currently installed software release appears.



7.3.9 Menu "Level"

This menu is only available in expert mode. The standard level can be set for all 8 channels (i.e. in common) in the range of 62 ... 82 dB μ V in the top selection box. Below each channel can be set individually with an offset of +3 ... -6 dB in 0.5 dB steps. The three lower buttons are used to simplify the offset level setting if you want to perform same adjusting for all 8 channels. With the left button the offset for all 8 channels is increased by 0.5 dB, decreased with the right button by 0.5 dB. The offset is set for all 8 channels to 0 dB with the middle button.



7.3.10 Menu "Status"

The status overview of PALIOS module is only available in expert mode. It presents an overview of the status of the various components per channel, which is updated every 5 seconds. It lists only the current values, the naming of the parameter appears in the help box in the lower part of the user interface or in the status bar of the browser (as adopted configuration), if you approach the mouse cursor to the parameter. The listing is in 3 groups: tuners, modulators, and system. With the selection box at the top right you determine whether you have an overall view or only one of the 3 groups is listed.

The screenshot shows the 'Status table' interface with a navigation tree on the left and a table of channel parameters. The table has columns for Channel 1 through Channel 8. The parameters listed include frequency, modulation, service, and various control codes. A vertical 'SMART BUSINESS LINE' banner is on the right side of the interface.

	Channel: 1	Channel: 2	Channel: 3	Channel: 4	Channel: 5	Channel: 6	Channel: 7	Channel: 8
Frequency	1236 MHz	1363 MHz	1236 MHz	1687 MHz	1944.2 MHz	1944.2 MHz	1687 MHz	1687 MHz
Rate	27.499 MSps	27.499 MSps	27.499 MSps	27.499 MSps	21.999 MSps	21.999 MSps	27.499 MSps	27.499 MSps
Modulation	DVB-S	DVB-S	DVB-S	DVB-S	DVB-S	DVB-S	DVB-S	DVB-S
Language	3/4	3/4	3/4	3/4	6/6	6/6	3/4	3/4
Modulation Type	QPSK	QPSK	QPSK	QPSK	QPSK	QPSK	QPSK	QPSK
Service	swapped	swapped	swapped	swapped	swapped	swapped	swapped	swapped
Service ID	SAT-35	SAT-35	SAT-35	SAT-35	SAT-35	SAT-35	SAT-35	SAT-35
Service Name	22.446	24.955	22.446	21.930	12.991	12.991	21.930	21.930
Service Type	14.5 dB	14.9 dB	14.5 dB	16.5 dB	13.9 dB	13.9 dB	16.5 dB	16.5 dB
Service Error	<1xE-7	<1xE-7	<1xE-7	<1xE-7	<1xE-7	<1xE-7	<1xE-7	<1xE-7
Sync	SYNC	SYNC	SYNC	SYNC	SYNC	SYNC	SYNC	SYNC
Level	SYNC	SYNC	SYNC	SYNC	SYNC	SYNC	SYNC	SYNC
Status	02.09 05.30	02.09 05.30	02.09 07.20	TimeControlCode	TimeControlCode	TimeControlCode	TimeControlCode	TimeControlCode
TimeControlCode	0x0DC1	0x0DC3	0x0DE9	0x0DAB	0x0D94	0x0DB9	0x0D8F	0x0D8C
Letterbox	16:9 letterbox	16:9 letterbox	16:9 letterbox	16:9 letterbox	16:9 letterbox	16:9 letterbox	16:9 letterbox	16:9 letterbox
ADDS_WSS	no ADDS_WSS	no ADDS_WSS	ADDS_WSS	ADDS_WSS	no ADDS_WSS	no ADDS_WSS	ADDS_WSS	no ADDS_WSS
ADDS_F	0x7 16.9_F		0x7 16.9_F	0x7 16.9_F			0x7 16.9_F	
Board temperature			40.7 °C					
FPGA temperature			56.2 °C					
Input IN			At least an tuner is synchronizes					
Input IN/OUT			LNB configured, but no tuner is on to this input synchronizes					

8. Factory settings

A short pressing of the reset button on the front of the module causes a reboot, i.e. the module restarts and all stored values are adjusted. If the module is to be reset to factory settings, the reset button must be pressed so long to keep up until the "POWER" and "SYSTEM" LED will illuminate green permanently again. This process takes about 15 seconds. In this case the module is set to the following:

Input parameters

	IN	IN/OUT
Mode		Input
LNB control	On	On
DiSeqC	Off	Off
Satellite	A	A
Tone burst	Off	Off
22 kHz	On	Off
Voltage	18V	18V
<input type="button" value="Scan"/>		<input type="button" value="Scan"/>
<input type="button" value="Send"/>		
Program tables for		
Satellite	Astra 19,2	Astra 19,2
Band	High	High
Polarization	horizontal	vertical
<input type="button" value="Scan"/>		<input type="button" value="Scan"/>
<input type="button" value="Send"/>		

Output parameters

Output level	
Nominal level	80 dBµV
Standard Values	
Output	
Sound deviation	30 kHz
Sound carrier 2	On
Video	
Video output	auto color bar
Color bar	Off
Color system	PAL
Video format	letterbox
Audio	
Audio gain	0 dB
Audio mode	stereo
VPS	
CNI code	000
Source audio mode	A056(MPEG)
Source PIL	A056
Complementary data	
Teletext	On
WSS insertion	On

Channel settings

Tuner	Program	Language	Subtitle	Output frequency	RF
1	1 Das Erste [28106]	0;...	...	E 5 (175250 kHz)	✓
2	2 ZDF [28006]	0;...	...	E 6 (182250 kHz)	✓
3	1 WDR Köln [28111]	0;...	...	E 7 (189250 kHz)	✓
4	3 RTL Television [12003]	0;...	...	E 8 (196250 kHz)	✓
5	4 ProSieben [17501]	0;...	...	E 9 (203250 kHz)	✓
6	4 SAT.1 [17500]	0;...	...	E 10 (210250 kHz)	✓
7	3 RTL2 [12020]	0;...	...	E 11 (217250 kHz)	✓
8	3 n-tv [12090]	0;...	...	E 12 (224250 kHz)	✓

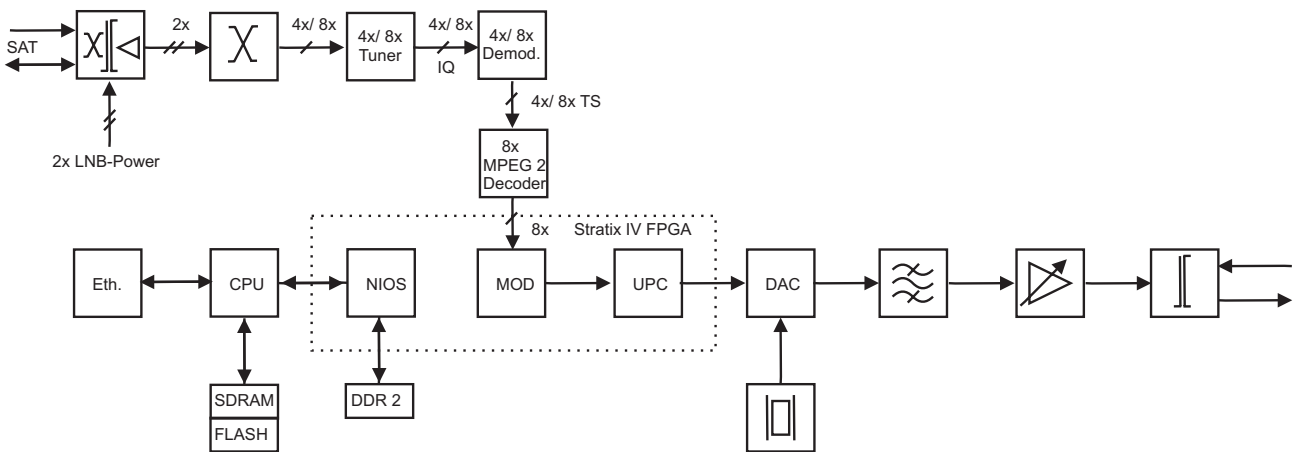
Setup settings

GUI settings	
<input type="checkbox"/>	Help Informationen within the status line of the browser
<input type="checkbox"/>	Display all system files
<input type="checkbox"/>	Use basic mode for SAT selection
<input checked="" type="checkbox"/>	Use basic mode for adjustments
<input checked="" type="checkbox"/>	Display top line register
<input checked="" type="checkbox"/>	Display start page
<input checked="" type="checkbox"/>	Display status on right
<input type="checkbox"/>	Optimization for low-speed data connectivity
	Output frequency raster: Norm B/G (7.8 MHz)
<input checked="" type="checkbox"/>	Program selection with selectbox
	manual PID settings
<input type="checkbox"/>	Activate user and keyword check

Network settings

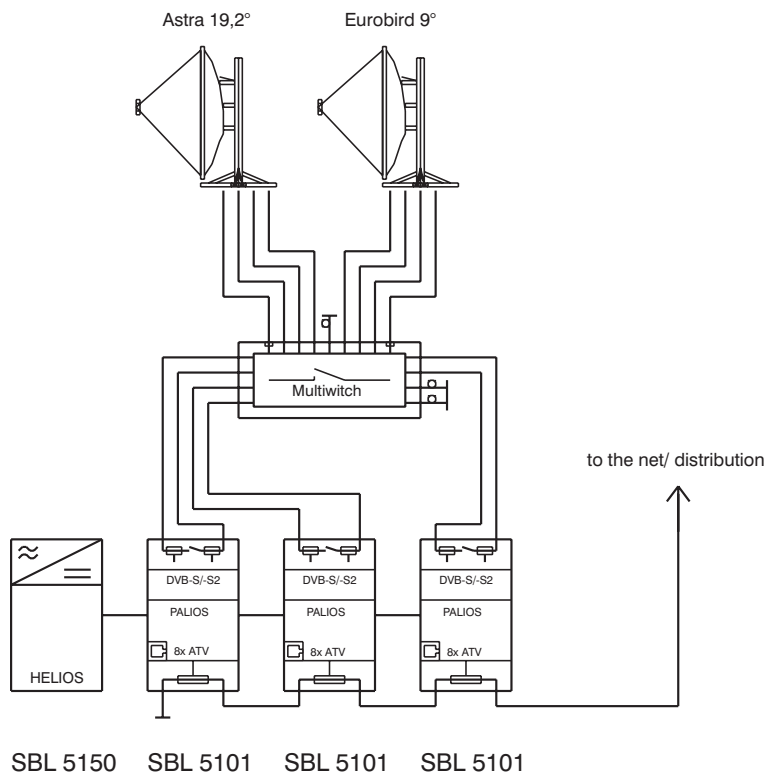
Web server	
DHCP	Client <input type="button" value="Info"/>
IP number	192 168 35 22
IP subnet mask	255 255 255 0
Gateway	0 0 0 0
DHCP from	192 168 35 95
DHCP to	192 168 35 99

9. Block diagram



10. Application example

Conversion of 24 programs into ATV



11. Technical data

SAT-IF input		Audio deviation dual sound	30 kHz
Frequency range	950...2150 MHz	Output frequency range	45 ... 862 MHz
Frequency step	1 MHz	Tuning step	125 kHz
AFC range	± 3 MHz (SR < 10 MSps) ± 5 MHz (SR ≥ 10 MSps)	Max. output level	85 dB μ V (per channel)
AGC level range	64 ... 94 dB μ V	Total level settings	62 ... 82 dB μ V (1 dB steps)
Connector	F socket	Individual level settings (offset)	+3 ... -6 dB (0.5 dB steps)
Through loss	≤ 3 dB	Channel allocation	adjacent channel ability
Impedance	75 Ω	Connector	F socket
LNB voltage	14/ 18 V	Impedance	75 Ω
LNB current	max. 1x 0.4 A	Return loss	≥ 18 dB 45 MHz - 1.5 dB/ octave
DiSEqC	1.0		
DVB-S demodulator (QPSK)		Signal quality	
Symbol rate	1...45 MSps	C/N in channel (BW = 4,8 MHz)	≥ 65 dB
Code rate (Viterbi)	1/2, 2/3, 3/4, 5/6, 7/8	S/N ratio parallel sound (unweighted/ weighted)	≥ 65/ 60 dB
Roll off	35 %	Spurious 45...862 MHz	≥ 60 dB
Signal processing	EN 300 421 [1]	Max. frequency stability	30 kHz
		Output level stability	± 0.5 dB
DVB-S2 demodulator (QPSK, 8PSK)		Operating parameters	
Symbol rate	QPSK 2...47 MSps 8PSK 2...31.5 MSps	Voltage/ current	4 tuners 12 V ± 0.2 V/ max. 2.8 A 8 tuners 12 V ± 0.2 V/ max. 3.2 A
Code rate (LDPC)	QPSK 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8PSK 3/5, 2/3, 3/4, 5/6, 8/9, 9/10	Residual ripple of the supply voltage	10 mV _{pp}
Roll off	20, 25, 35 %		
Signal processing	EN 302 307 [2]	Environmental conditions	
MPEG decoder		Temperature range	-10 ... +55 °C
Video	MPEG-2 MP@HL	Temperature range for data keeping	5 ... 45 °C
Audio	Audio description, MPEG-1 layer 1&2	Relative humidity	≤ 80 % (non condensing)
		Method of mounting	vertical
		Location of mounting	splash-proof and drip-proof
TV output		Miscellaneous	
TV standard	B/G, D/K	Dimensions (l x w x h)	46 x 262 x 167 mm
Sound type	double carrier FM	Weight	1,190 g
Sound carrier frequencies	B/G 5,5/ 5,74 MHz D/K1 6,5/ 6,25 MHz D/K2 6,5/ 5,74 MHz D/K3 6,5/ 6,74 MHz resp. above pic- ture carrier	Delivery content	1x supply cable 1x network cable 2x F connecting cable 140 mm 2x terminating impedance 1x DIN rail clip 1x mounting accessories
Sound mode	mono/ stereo/ dual/ auto (VPS controlled)		
Audio deviation 1 mono carrier	30/ 50 kHz		
Audio deviation 2 mono carrier	30 kHz		

12. Glossary

8PSK	8 Phase Shift Keying
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AM	Amplitude modulation
ATV	Analogue Television
BER	Bit Error Ratio
BISS	Basic Interoperable Scrambling System
BISS-E	Basic Interoperable Scrambling System with Encrypted keys
CNI	Country and Network Identification
DiSEqC	Digital Satellite Equipment Control
DVB	Digital Video Broadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
FPGA	Field Programmable Gate Array
GUI	Graphical User Interface
HD(TV)	High Definition (Television)
HTTP	Hypertext Transfer Protocol
ID	Identifier
IF	Intermediate Frequency
IIC	Inter-Integrated Circuit ((I²C-Bus, data bus within device)
IP	Internet Protocol
LDPC	Low Density Parity Check Code
LED	Light Emitting Diode
LNB	Low Noise Block
MAC	Media Access Control
MPEG	Moving Picture Experts Group
Nios	product name for a processor



NIT	Network Information Table
PCR	Program Clock Reference
PID	Program Identifier
QPSK	Quadrature Phase Shift Keying
RF	Radio Frequency
SNMP	Single Network Management Protocol
TS	Transport Stream
VBI	Vertical Blanking Information
VPS	Video Programming System
WSS	Wide Screen Signalling

13. Bibliography

- [1] EN 300 421: Digital Video Broadcasting (DVB): Framing structure, channel coding and modulation for 11/12 GHz satellite services
- [2] EN 302 307: Digital Video Broadcasting (DVB): Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications
- [3] EN 300 429: Digital Video Broadcasting (DVB): Framing structure, channel coding and modulation for cable systems
- [4] EN 60728-11: Cable networks for television signals, sound signals and interactive services Part 11: Safety (IEC 60728-11:2005); German version EN 60728-11:2005
- [5] EN 50083-2 : Cabled distribution systems for television and sound signals. Electromagnetic compatibility for equipment; EN 50083-2:2001
- [6] RFC 1157 Request for Comments (RFC): RFC Database URL: [Http://www.rfc-editor.org/rfc.html](http://www.rfc-editor.org/rfc.html)

14. Document history

Version	Date	Modification	Author
1.00	21.06.2001	preliminary version	Häußer
1.01	01.09.2011	basic dokument	Häußer
1.02	18.01.2012	insert changes of software release 2.0	Häußer
1.03	10.09.2012	revision, new software options	Häußer

Options available upon request! Subjects to changes due to technical progress.

Declaration of Conformity

The Manufacturer

BLANKOM Antennentechnik GmbH · Hermann-Petersilge-Str. 1 · 07422 Bad Blankenburg · Germany

herewith declares the conformity of the product group

Product name: SAT-TV Transmodulator

Type: PALIOS

Product number: 5101.01, 5101.02

according to the following regulations

EN 50083-2 [5]

EN 60728-11 [4] (as far as relevant)

and additional device-specific regulations, enclosed above, which these products are subjected to.

Date: 19.05.2011

Signature:



Dr. Piero Kirchner
(Managing Director)