

Device manual



SAT-TV Transmodulator

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



A-PALIOS-4CIM4
Part N°: 5103.82

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1. Safety and operating instructions



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



The devices may only be installed and started up by authorized technical personnel.



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



The assembly and wiring have to be done without voltage.



With all work the defaults of the DIN EN 50083 have to be considered. It is especially important to follow DIN EN 60728-11[2].



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



The devices come under protection classification I. It is absolutely necessary, therefore, to insert the mains plug into a socket with protective contact.



WEEE-Reg.-Nr. DE 50389067

2. Device variants

A-PALIOS-4CIM4 5103.82 DVB-S/ -S2 (4x/ 8x QPSK/ 8PSK) → 4x CI → ATV (8x AM)

3. General

The SAT-TV Transmodulator A-PALIOS-4CIM4 is a device of the head end system A-LINE, which is conceived as a complete system for big and middle sized networks.

The A-PALIOS-4CIM4 converts digital satellite signals into analogue TV signals to transmit it in cable networks. In this case, a maximum of 8 analog television channels are generated from the available H.264/ AVC or MPEG2 transport streams. 2 Common Interface slots enables the use of up to 4 CA modules for the reception of scrambled satellite signals/ programmes.

4. Main features

- 4x or 8x DVB-S/ -S2 (QPSK/ 8PSK) input
- first satellite port permanently input, second satellite port switchable as input or loop through output
- 4x Common Interface according PCMCIA standard, cascable, multi decryption capable
- MPEG 2/4 HD/ SD decoding
- multi-standard PAL modulator
- IEDGE signal processing
- switchable RF output as single or with loop
- control of the device via HTML or SNMP

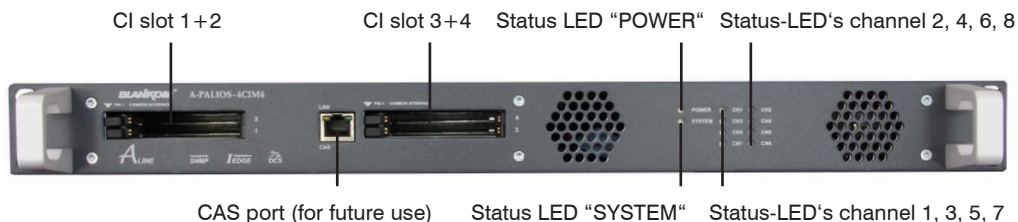
5. Functional description

The satellite 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) DVBS/ S2 input parts and their QPSK/ 8PSK demodulators. The resulting transport streams are processed in 8 H.264/ AVC & MPEG2 decoders. The analogue TV modulation and the freely adjustable up-conversion in the cable network range (45 ... 862 MHz) is carried out by a high-performance FPGA. 2 Common Interface slots enables the use of 4 CA modules, which are cascable, for the reception of scrambled satellite signals/ programmes.

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 switchable directional coupler to the output jacks.

6. Explanation of the operating elements

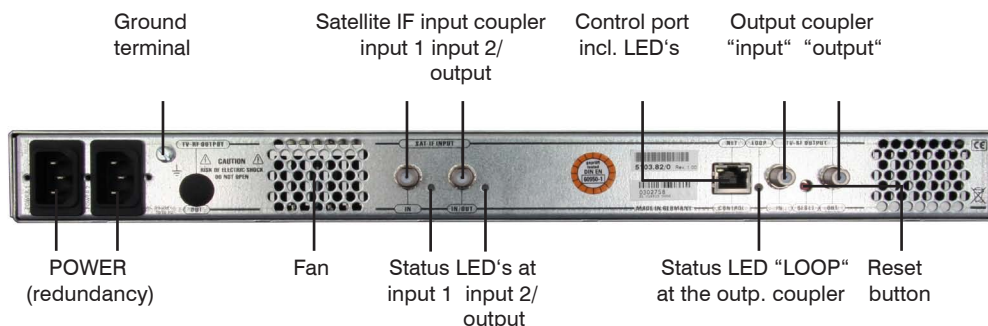
6.1 Front view



6.2 Meaning of the status LED's

Designation	Colour	Status	Meaning of display
POWER	green	permanently on	device is on
	amber	permanently on	device is in standby
		off	device is off, operating voltage is not applied
SYSTEM	green	permanently on	device 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 work or is forced to shut down
		off	device 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 (eg. mosaic effect in the TV picture)
		flashing	hardware is faulty
		off	channel is off

6.3 Rear view



6.4 Meaning of the LED's on rear

6.4.1 Status LED's at the satellite signal ports

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

6.4.2 Status LED at the output coupler

Designation	Colour	Status	Meaning of display
LOOP	green	permanently on	loop active, i.e. nominal level range 62 ... 82 dB μ V
		off	no loop, i.e. nominal level range 74 ... 94 dB μ V

6.4.3 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	data is exchanged
	off	no data exchange

7. Adjusting by web server

7.1 Network connection to the computer

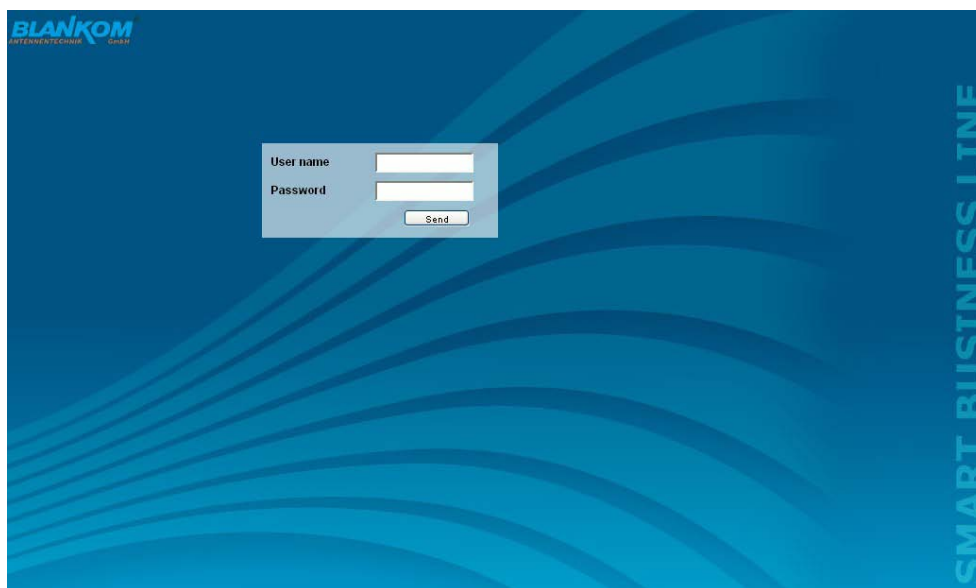
System requirements:

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

Setup the connection:

The A-PALIOS-4CIM4 has to be connected to PC network using an Ethernet cable. The IP address of the device is 192.168.1.100 on delivery. If several devices should be controlled or adjusted via an Ethernet switch, each device must first be configured **individually** to its provided IP address within the network. To do so the address of the network port on the PC (temporary) must be adapted to the IP address of the device (subnet mask: 255.255.255.0, IP address: 192.168.1.XXX, where XXX is not the same as the corresponding value of the device IP address).

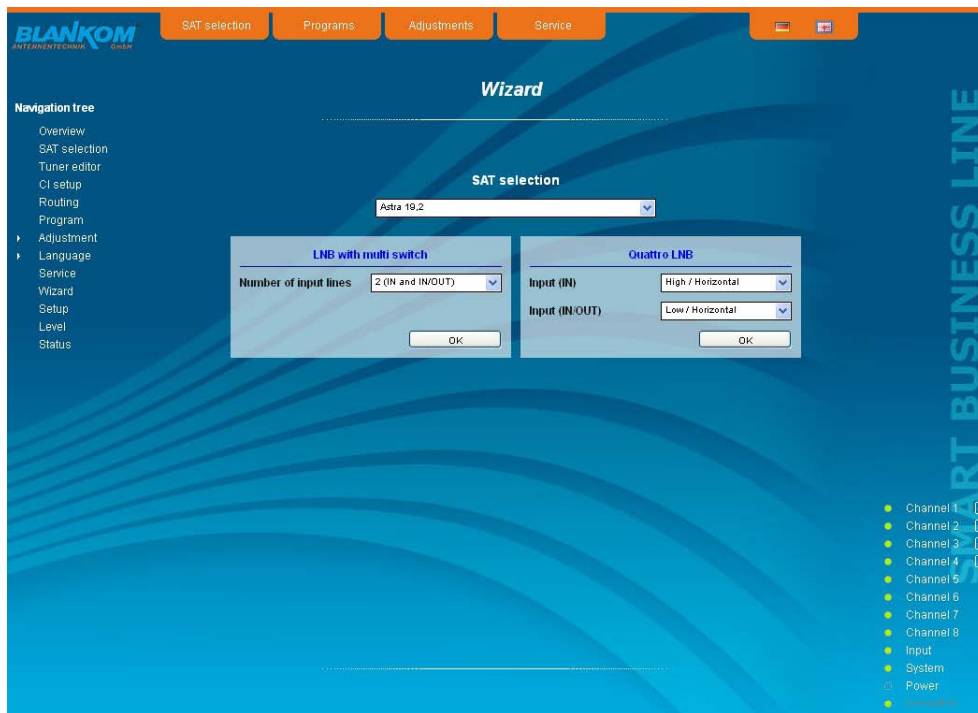
After the network configuration of the device(s) the IP address of the control PC is converted to the provided IP address and the devices can be accessed through the browser with their new IP addresses. The user must authenticate himself with his credentials (user name and password), if the password and user testing were activated on the setup page (see chapter 7.3.9):



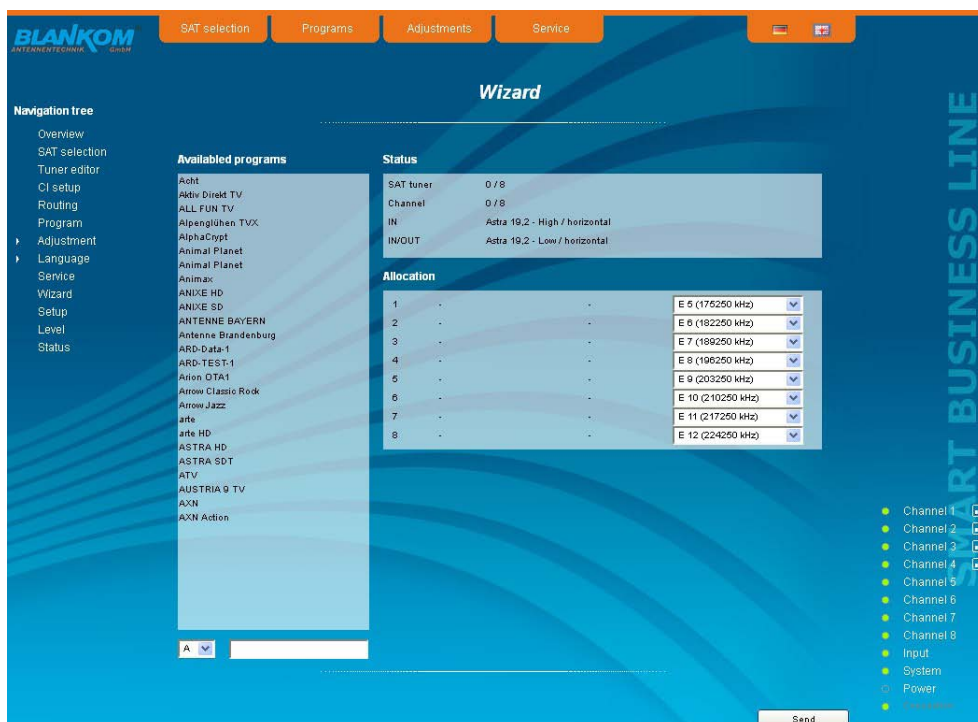
After successful registration or successful connection establishment without password (default setting) the home of the device, the menu "Overview" (see chapter 7.3.1), appears.

7.2 Initial installation using the wizard

The easiest way to set the A-PALIOS-4CIM4 is to use the wizard. By clicking the “Wizard” menu in the navigation tree 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.

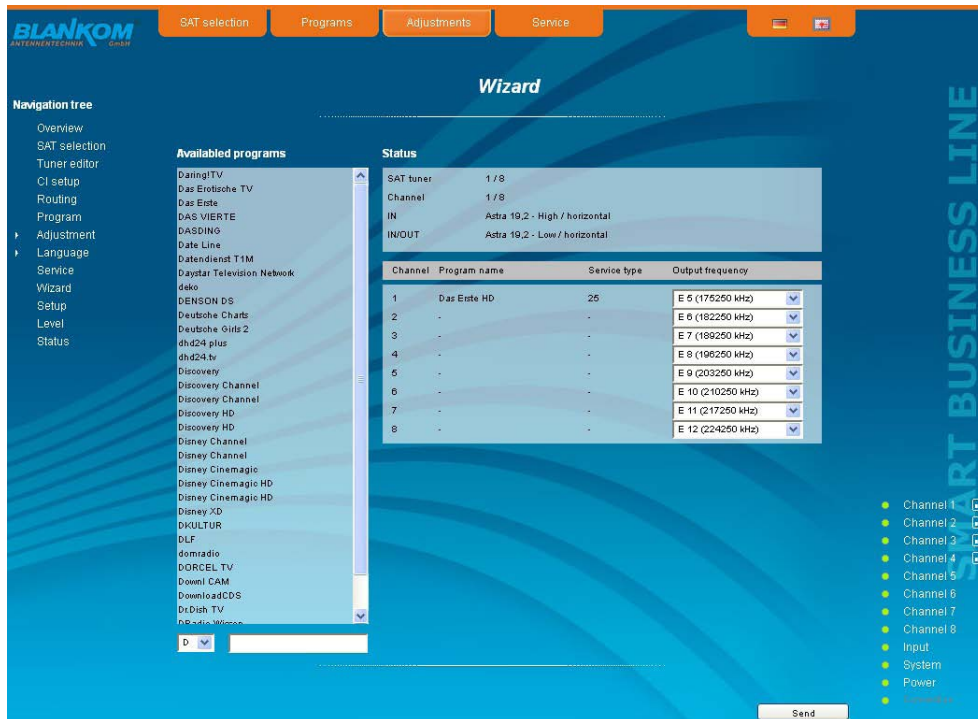


First choose the configuration of the system. If the system is equipped with LNB and multiswitch, so you can select the number of feeds on the left. If the system is operated with a Quattro LNB, so you choose from the right side, which satellite level contact with the corresponding input jack. Press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

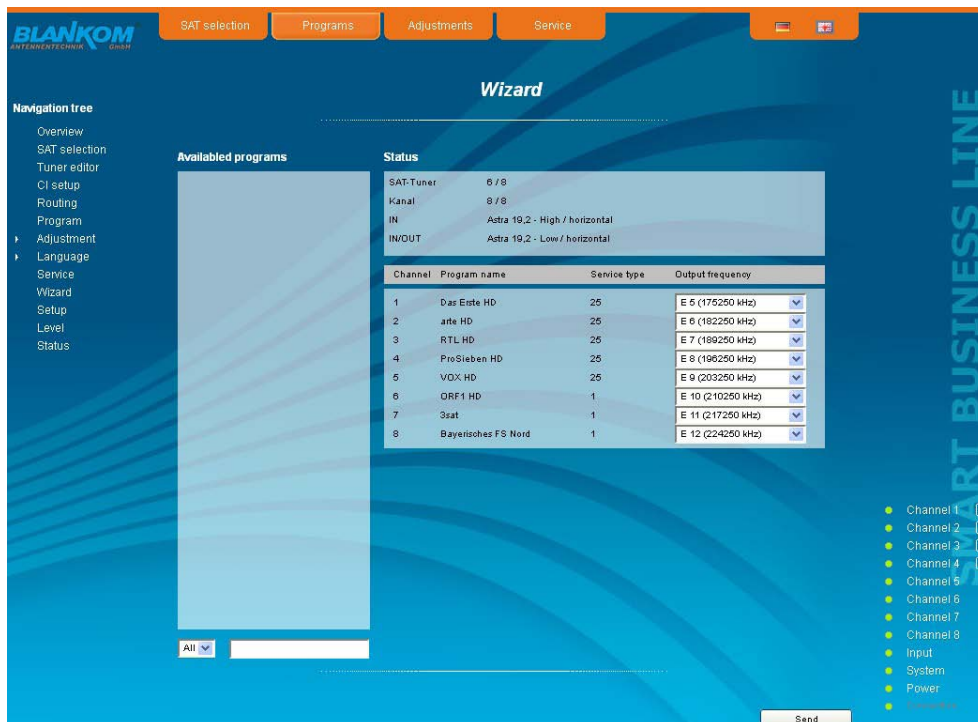


In the left column, all available programs are loaded according to the selected satellite from the database. The listing is in alphabetical order, the start of the list can be selected under the list by selecting the first letter. Alternatively, you can also enter a string (e.g. “HD”) in the text box 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 7.3.8) 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.



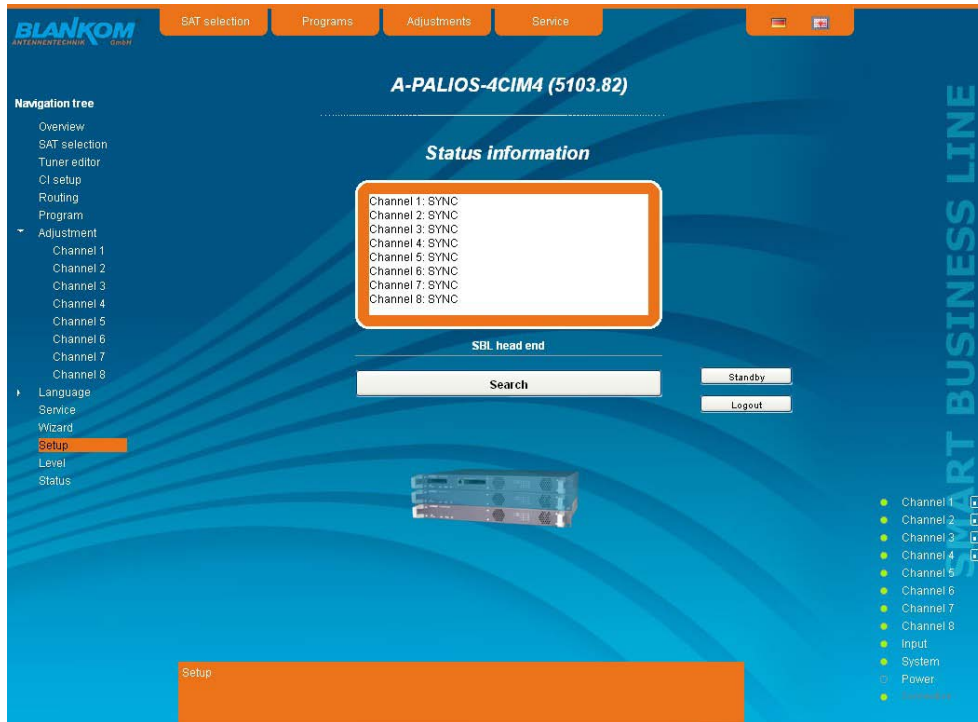
In this way, up to 8 programs per A-PALIOS-4CIM4 can be selected now to be transferred. First, as the output channel the next higher channel to the last selected program package is offered. But for each program the output channel can be chosen freely in the total frequency range. If an incorrect selection is made, it can be removed by double-clicking the unwanted selected program in the right field .



Clicking the "Send" button, the selection is accepted and set in the A-PALIOS-4CIM4. 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 device. The changes will be accepted and set only by pressing the "Send" button. Additional or specific settings can be made by using the adjustment menus.

7.3 Setting of individual parameters

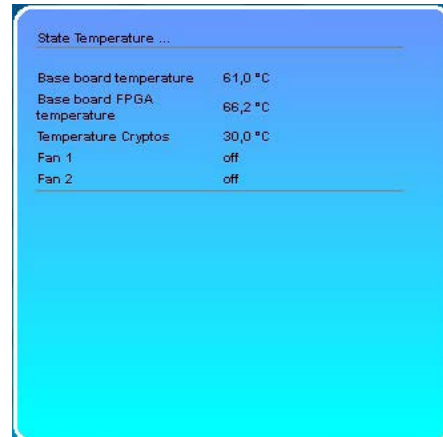
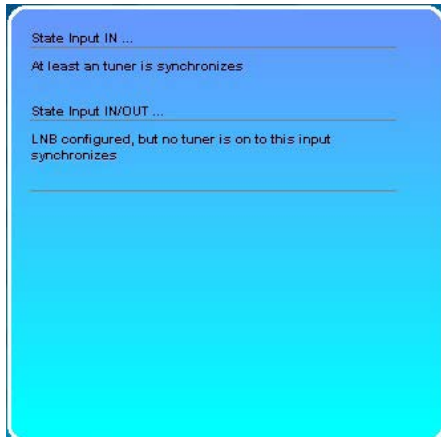
Using the web site, you can set certain parameters of the device or perform configurations on the device or the user interface. The various setting menus can be selected in the navigation tree on the left side. The setting is supported by an online help. Hovering the parameters by the mouse in the lower part of the site an orange colored text box appears with explanations for each parameter. By setting in the "Setup" menu (see chapter 7.3.9) 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 device is displayed. By changing the setup menu, the status information can also be moved to the right (see also chapter 7.3.9). 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 clicking the corresponding channel. In the browser interface, a status overview appears.

State Channel: 1	
SAT input frequency	1552,8 MHz
SAT input symbol rate	21,999 MSps
Standard	DVB-S2
FEC	2/3
Modulation	8PSK
Pilot	Pilots on
Frame length	long frame
Spectrum position	swapped
Roll off	SAT-35
AGC	56%
S/N	17,9 dB
Bit error rate	<1xE-7
TS	SYNC.
Video decoder	SYNC.
Audio decoder	SYNC.

A transparent LED symbol means that the channel is not configured yet, or the RF output is turned off. Furthermore, we obtain the same way status information about the inputs and about the 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 clicking the name field.



The last display point indicates the connection status between the network interface and the device. 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 A-PALIOS-4CIM4 is set on these values after a restart too. Settings with the check box are usually performed immediately but not stored in memory, so they would be lost on a possible restart of the device. To save these settings the “send” button must be pressed. In all menus, the language selection is possible between German and English top right.

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.

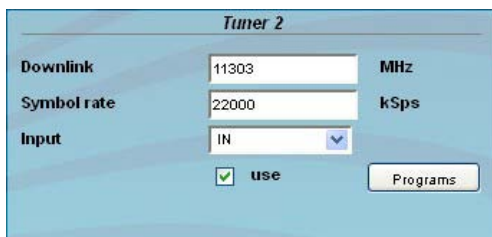
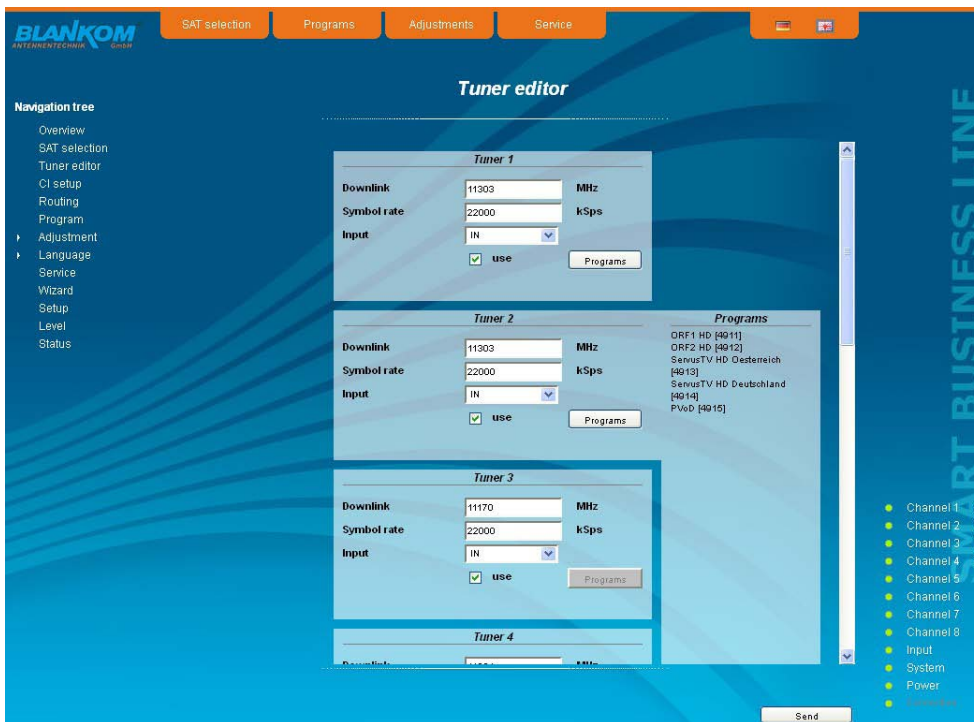


In addition, below the status window the head end display is visible. There all A-LINE-SBL- and SBL devices are listed, which are in the same network and which have been associated with the head end in the “Setup” menu (see 7.3.9). This is significant because functions over all devices such as the NIT processing between devices of the A-QAMOS- and QAMOS product group 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 device. If no head end was configured, a “Search” button appears, which forwards to the “Setup” menu and scans the network for other A-LINE-SBL- and SBL devices. Then all available devices are listed and can be selected and added to the head end.

By clicking the “Logout” button the user logs out of the device and the login window appears. By pressing the “Standby” button the device is switched to standby, which is indicated by an amber POWER LED on the device. The “Standby” button will be replaced by an “ON” button, and by pressing this the device will be switched back 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 A-PALIOS-4CIM4 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 check box "use". Is at one or two input ports unicable used, no program listings can be displayed. It appears, instead, next to the „downlink“ input field, an additional selection field in which the name of the associated satellite level is selected (see section 7.3.3)



Tuner x

Downlink
Symbol rate
Input
use
Programs

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 transponders programs

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.

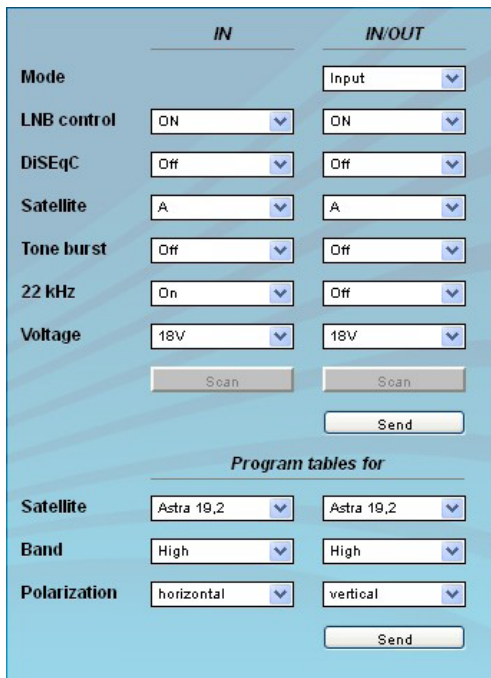
7.3.3 Menu "SAT selection"

In this menu you can make the the choice of the satellites and the input configuration of the device. In the left part of the user interface there is the configuration menu of the input part.



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.

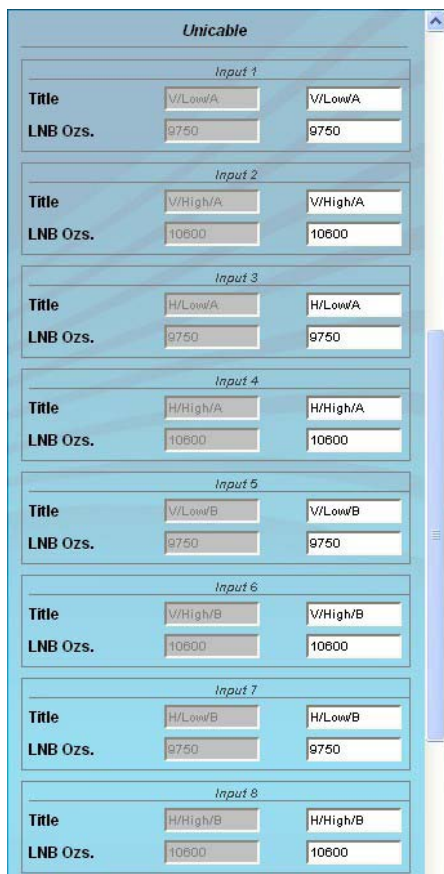
If the second sat jack (IN/ OUT) is configured as a loop-through output, or not used, then the input configuration parameters of the LNB control and program table are grayed out and not adjustable.



- Mode*** selection of sat jack 1 (IN) and 2 (IN/ OUT)
- LNB control** selection: not used, input, output
- DiSeqC** selection: on, off (remote supply off completely), unicable
- Satellite**** selection: on, off
- Tonburst** selection: A, B, C, D
- 22 kHz** selection: off, A (unmodulated), B (modulated)
- Voltage** selection: on, off
- Satellite** selection: Astra 19,2°, East, Eutelsat 13° East, Eurobird 9° East
- Band** selection: Low, High
- Polarization** selection: vertical, horizontal

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

In the selection field "LNB control" the item "unicable" is available for both satellite ports. Thus, it is possible that before the respective satellite input a unicable module can be switched on then the transponder selection can be made according to the receiving equipment installed there. So it is possible, to assign up to 8 satellites levels (one or more satellites) to the unicable module. From this assigned levels the required transponders can then be selected and assigned.



Unicable

Input 1

Title: V/Low/A V/Low/A
LNB Ozs.: 9750 9750

Input 2

Title: V/High/A V/High/A
LNB Ozs.: 10600 10600

Input 3

Title: H/Low/A H/Low/A
LNB Ozs.: 9750 9750

Input 4

Title: H/High/A H/High/A
LNB Ozs.: 10600 10600

Input 5

Title: V/Low/B V/Low/B
LNB Ozs.: 9750 9750

Input 6

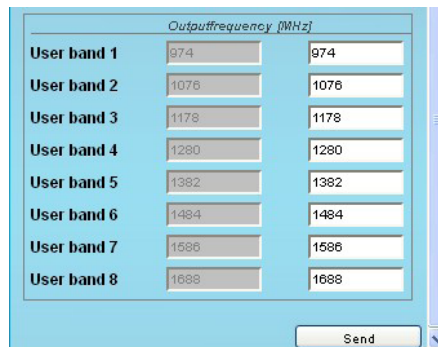
Title: V/High/B V/High/B
LNB Ozs.: 10600 10600

Input 7

Title: H/Low/B H/Low/B
LNB Ozs.: 9750 9750

Input 8

Title: H/High/B H/High/B
LNB Ozs.: 10600 10600



Output frequency [MHz]

User band 1	974	974
User band 2	1076	1076
User band 3	1178	1178
User band 4	1280	1280
User band 5	1382	1382
User band 6	1484	1484
User band 7	1586	1586
User band 8	1688	1688

Send

If the point is “unicable“ selected for one or both satellite ports, the input mask is expanded by the unicable settings. If only one satellite port is set to unicable, the settings for the other port is disabled and grayed out. For an active unicable port the other settings are inactive and grayed out.

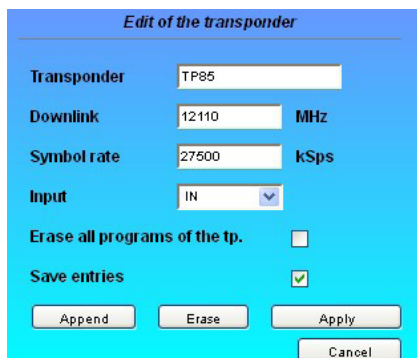
First is for a maximum of 8 satellite levels the input of the corresponding LNB oscillator frequency and a freely selectable name for each satellite level. This name is then found in the “Settings“ menu (see also section 7.3.7) again, because in the case of unicable use, you have to enter in the the downlink frequency input field the corresponding satellite level, that is identified by this name.

Next, for the up to 8 resulting user bands the intermediate frequency must be entered on which the unicable module converts the respective satellite transponder. These values, which are given in the documents of the unicable module, have to enter, then confirm by pressing the „send“ button. The trouble-free functionality was tested using the SUS 4481 F unicable module of the company Spaun. For stable operation, we recommend using a separate power supply for these modules. Trouble-free operation can not be guaranteed when using other unicable assemblies.

If unicable is not used on an input port, in the right part of the GUI a table of the available transponders, which is updated according to the selected satellite, band and polarization, appears. 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 check 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 double clicking the relevant transponder number you entry into the edit menu and can change the data accordingly.



Edit of the transponder

Transponder: TP85

Downlink: 12110 MHz

Symbol rate: 27500 kSps

Input: IN

Erase all programs of the tp.

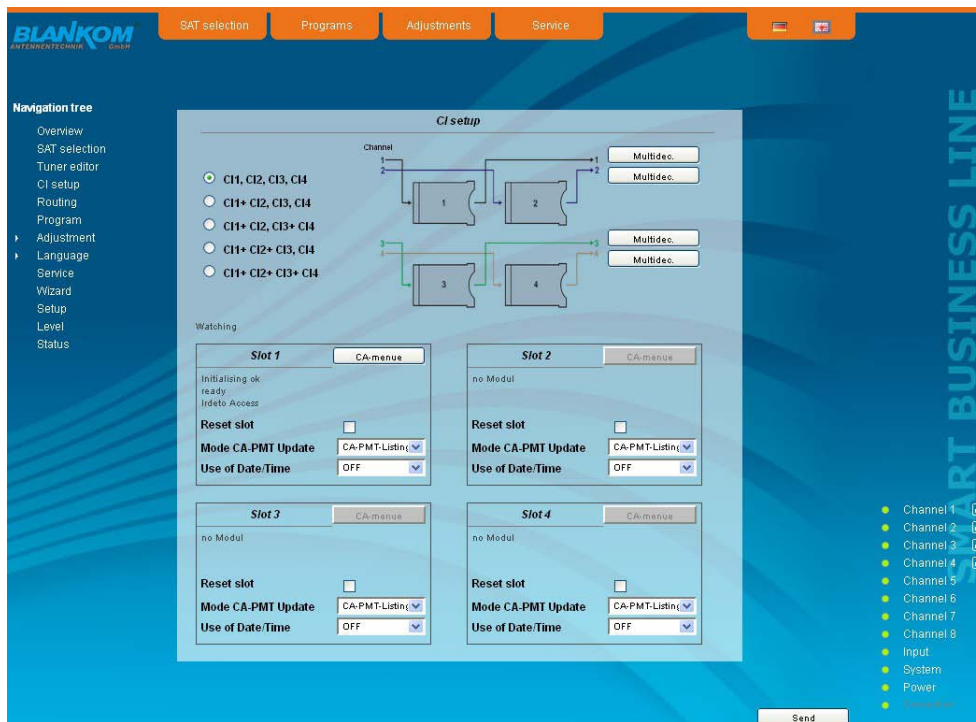
Save entries

Append Erase Apply Cancel

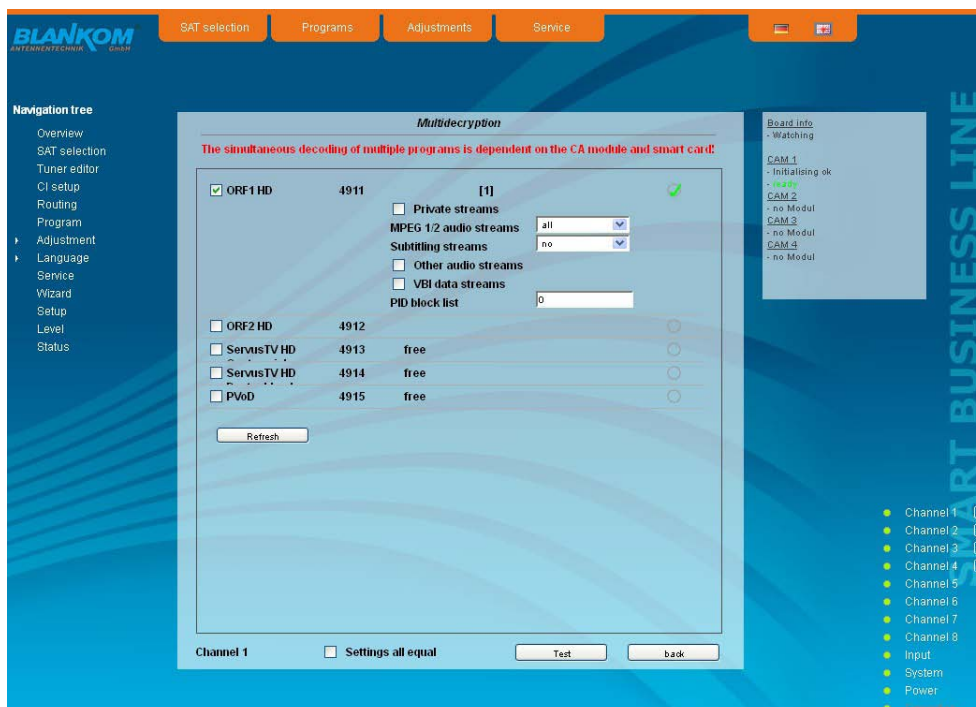
Existing entries can be changed or new ones are attached. By clicking the appropriate box the program list of the transponder can be deleted and changes or additions can be stored into the database permanently. If the box “Save entries“ is not clicked, the changes will remain only as long as the user 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 "CI setup"

In this menu there is the configuration of the Common Interfaces of the device. The A-PALIOS-4CIM4 has 2 double-CI slots for a maximum of 4 CA modules. The modules can be cascaded. That means, that a transport stream can be routed through one up to a maximum of every 4 modules for decryption of services. For this reason, initially there is the decryption configuration, i.e. it determines which transport stream is passed through that module. In A-PALIOS-4CIM4, set the transponder with the services to be decrypted on the channels 1...4, since only these can be routed by the CA modules. First you select the pathway of transport streams of the 4 channels. The first selection point is, channel 1 to be passed through module 1, ..., channel 4 to be passed through module 4. Next, you can route channel 1 through module 1 and then through module 2, channel 3 through module 3 and channel 4 through module 4 and channel 2 through no module. Correspondingly are the other possibilities. For better illustration of the signal path it is displayed on the right side of the select box graphically. Did you choose the right setting, so this is to confirm by pressing the "Send" button that you can perform all other settings for each module.



After the selection above one can make the multi-decryption settings for each signal path through one or more CA modules, if necessary. For this purpose the "Multidec" button is to press and leads to the following menu:



In this menu all services of the adjusted transponder and their CA status are listed. If you want to make adjustments or changes first the "Refresh" button must be activated to get the current transponder allocation. The services are selectable for decryption. For each of this selected services one can determine, what streams or PID's are to be decrypted. That's important because the maximum number of the decryptable PID's is limited and this limit has a different size per CA module.

In the selection boxes "MPEG 1/ 2 Audio Streams" respective "Subtitling Streams" all, no or individual streams are selectable. If one wants to select more than one stream, but not all, the selection field "all" in the box is to be selected and in the column "PID block list" all PID's have to be entered, that shall not be decrypted.*

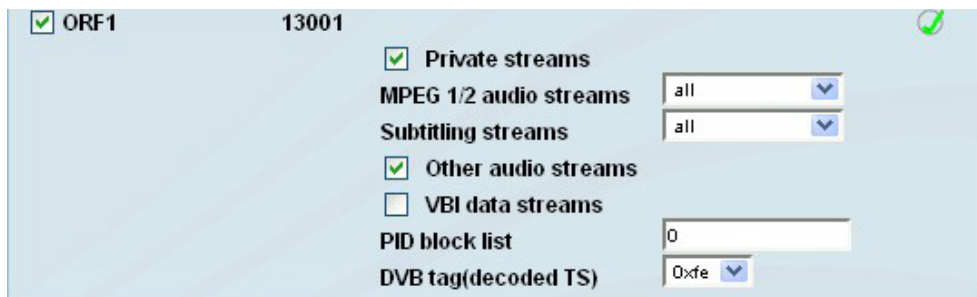
In the column "PID block list" all PID's are listed, that shall not be decrypted. The PID's can be given in decimal or hexadecimal format and have to be separated by a semicolon. The maximum number of PID's is 10.** If "Settings all equal" is clicked, only one service for PID selection is offered and the taken settings are automatically transferred to all other services to be decrypted.

By clicking the "Test" button the CA module will be initialized and all services, which are saved in the CA-service-list, will be tested for the current decryption status. After the end of the test the result of the test appears on right side, where a green check mark means, that the test was successful. On the other hand a red cross means that the test was not successful and the requirements for this service must be corrected, e.g. too much PID's were selected.

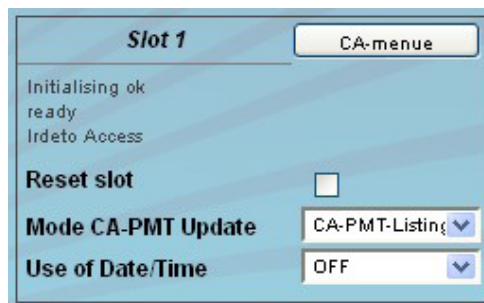
* "Other Audio Streams" includes all AC3-, DTS- and AAC-Streams. "Private Streams" selects all streams which are not captured by the other selection fields.

** Particularly PID's can be given here, which are active only at times and no authorisation for decryption is available for them.

The default is that the table editing (SDT, PMT, EIT) is performed. Thereby the CA descriptor 0x09 will be replaced in the PMT through the user-defined descriptor 0xFE. If this descriptor is already used by the service provider, in the "Setup" menu and then "GUI settings" (see section 7.3.9), the field "Tag selection (for decoded pid)" must be enabled. Thus, the option "DVB tag (decoded TS)" also appears in multidecryption menu at each service. At this point, a user-defined descriptor from the range of 0x00 to 0xFF will be selected. It should be noted that this descriptor is not already used in the service.



After returning from the multidecryption menu each of the 4 CA modules can be configured. Per slot is shown here that the module is initialized, if there is readiness for work and which type of module it is.

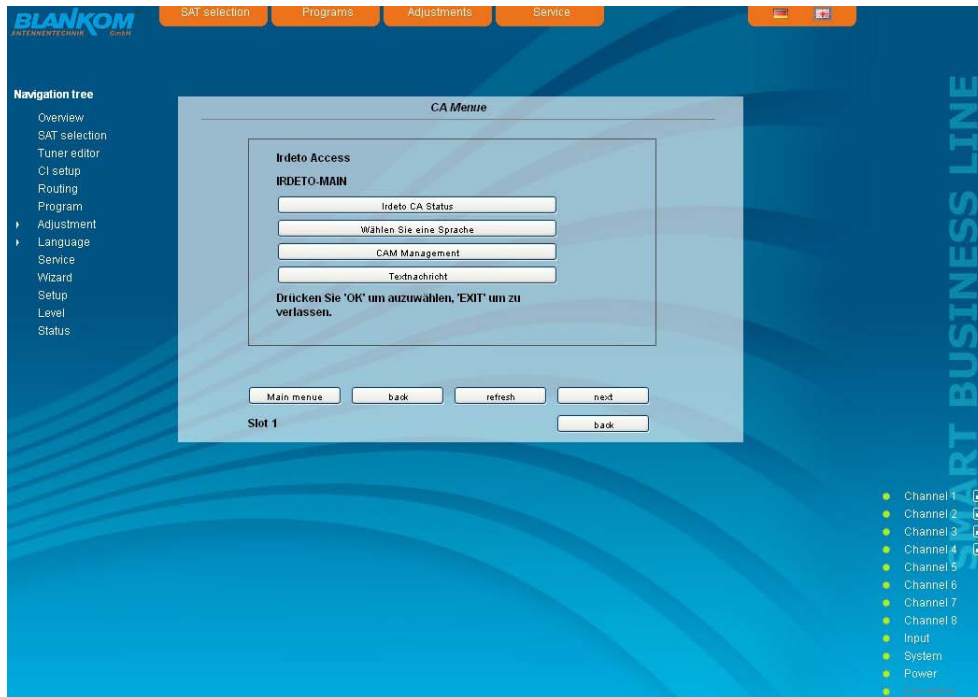


Individual CA modules must be initialized before setting the CA services. For this purpose the box "Reset slot" is clicked. The mode of the CA-PMT update will be adjusted on the next line. You can select between CA and CA-PMT PMT-list entry, where the latter is not supported by all CAM's.

Some CA modules require the resource "Date & Time" for initializing. For all other modules in this setting should be disabled.

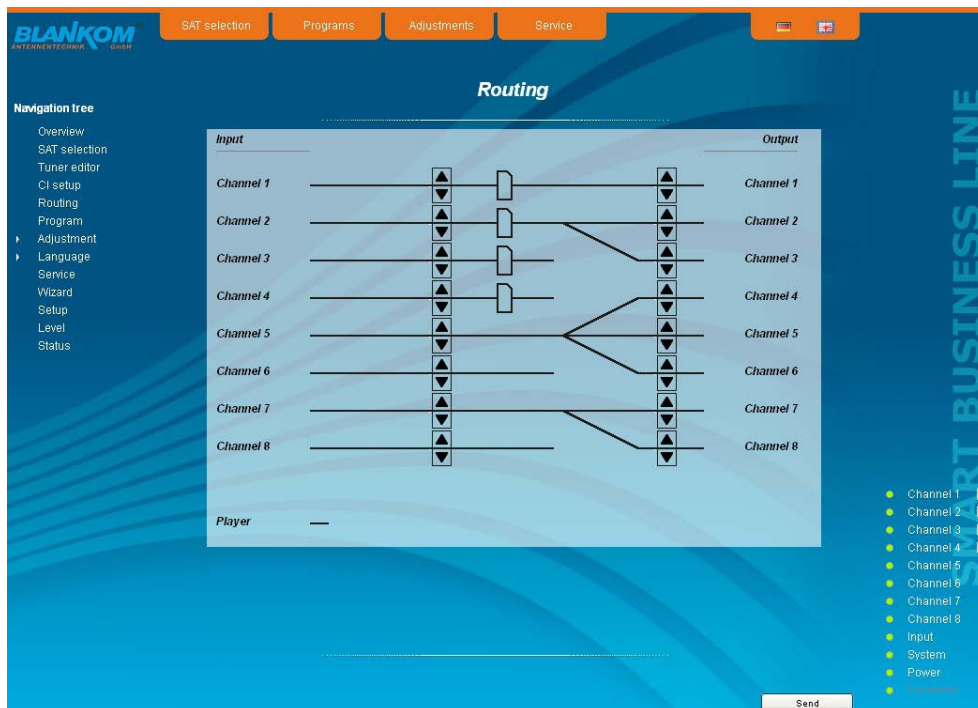
Click the button above right to get into the CA menu. There, the menus implemented in the CA module are offered the user. The menu can be selected individually or sequentially accessed in order to make necessary adjustments or to retrieve information to the CA module.

It should be noted that when changes in the channel (e.g. transponder switching, CA module change or removal) are done, the full menu has to be passed through to update the internal tables. For this purpose, as described above, first the necessary changes in the signal path are to determine and then call the multidecryption menu for the affected channels. First there must be called again the channel list by pressing the the "Refresh" button, and then the appropriate stream selection must be made. This is also necessary if a module has been removed and a free transponder is to be transmitted in this channel. Finally, in the "CI setup" the change is to confirm by pressing the "Send" button that this is also taken internally.



7.3.5 Menu "Routing"

In this menu you can make very clear the channel assignment of the 4 (or 8 if the software option is enabled) inputs and 8 outputs. For each channel, there are two switching options: the first (left in the GUI) at the input and the second (on the right in the GUI) at the output. The setting is done by using the „▲“ or „▼“ button. It should be noted that the inputs can be switched only restricted with respect to the 8 outputs, i.e. at the input, you can only select whether the tuner x (x = 1 .. 4 or 8) is assigned to the output x or the transport stream comes from the media player. On the output side, however, it can be chosen freely, from which tuner input or media player, the transport stream including the desired TV program comes. Because this matrix of the output channel assignment is after the CA processing, it is thus possible to distribute several decrypted channels of a transponder (if the CA module and card support it) to various output channels.



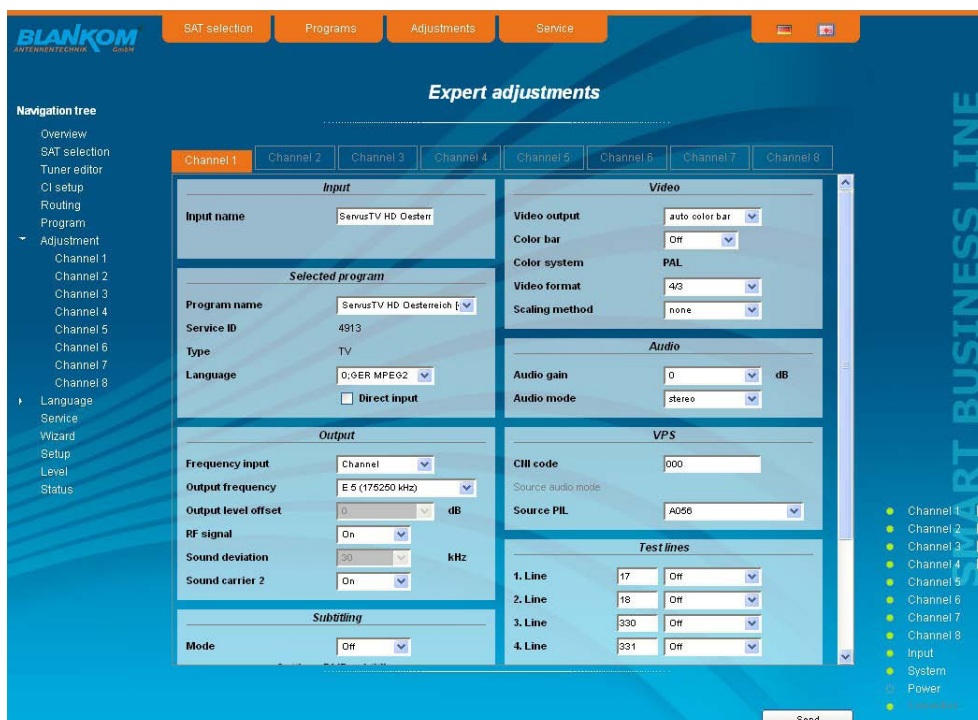
7.3.6 Menu "Transponders"

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 A-PALIOS-4CIM4 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 check box "RF" the RF output of the channel is set to on or off. Clicking on the "Send" button, the settings are taken and stored.



7.3.7 Menu "Adjustment"

In this menu, the settings of the device are made. Each channel can be adjusted individually according to individual requirements. The channel may be selected by clicking either left in the navigation tree or by clicking one of the tabs above the set-up tables.



The following parameters are adjustable:

Program list (Transponder)

Program	Service ID	Select
ORF1 HD	4911	<input checked="" type="radio"/>
ORF2 HD	4912	<input type="radio"/>
ServusTV HD Oesterreich	4913	<input type="radio"/>
ServusTV HD Deutschland	4914	<input type="radio"/>
PVoD	4915	<input type="radio"/>

Program list (Transponder)

If "Program selection with select box" in chapter "GUI settings" is deactivated (see also chapter 7.3.9), the form at the left appears 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.

Input

Input name:

Input

input parameters of the channel

Input name

e.g. name of the program, editable

Selected program

Program name: ServusTV HD Oesterreich
 Service ID: 4913
 Type: TV
 Language: 0;GER MPE62
 Direct input

Selected program

variant 1: program selection menu

Program name

displays the name of the program from the program list of the transponder of the selected IP TS

Service ID

displays the service ID of the selected program

Type

displays the type of the program

Language

selection of the available language

Direct input

selection: selection menu, direct input (see below)

Selected program

Program name: ServusTV HD Oesterreich
 Service ID:
 Type: TV
 Language: 0
 Direct input

Selected program

variant 2: direct input

Program name

displays the name of the program, which was selected in the input menu

Service ID

input of the service ID of the requested program, adjustment range: 0...65535

Type

selection of the program type: TV, Radio

Language

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 ¹

Output frequency

selection from channel table/ input in kHz ¹

Output level offset

display of the level offset ²

RF signal

selection: On, Off

Sound deviation

selection: 30, 50 kHz ³

Sound carrier 2

selection: On, Off

¹ If at the frequency input "channel" is selected, the output frequency can be chosen in the pre-selected channel spacing (see chapter 7.3.9). If, however, "frequency" is selected, then the output frequency is selectable in kHz steps.

² Adjustment of the offset of each channel to the basic level, see chapter 7.3.9

³ Only selectable, if sound carrier 2 is set to "Off". If sound carrier 2 is set to "On", the sound deviation is permanently 30 kHz

Video

Video output: auto color bar
 Color bar: Off
 Color system: PAL
 Video format: 4/3
 Scaling method: none

Video

setting of the video parameters

Video output

selection: On, auto Off, auto colour palette bar

Color bar

selection: On, Off

Color system

displays the selected color system (see 7.3.9)

Video format

selection: 4/3, 16/9

Scaling method

selection: none, pillar or letter box, fullscreen center cut out

Audio

Audio gain: 0 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 invers, stereo, auto ⁴

selection 2: mono L, mono R, mono L+R, auto ⁵

⁴ if sound carrier 2 is set to "On"

⁵ if sound carrier 2 is set to "Off"

VPS

CNI code: 000
 Source audio mode:
 Source PIL: A056

VPS

setting of the VPS parameters

CNI code

adjustment range: 0x000...0xFF (hexadec.)

Source PIL

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

Subtitling

Mode: Off

Settings DVB subtitling

DVB language index: 0

Use extended ID's: no

Settings Teletext subtitling

Teletext page: 0

Language group: West

Subtitling⁶ 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

Language mode selection: West, East, Russian, Arabic, Farsi

⁶ only available, if "Subtitling" option is enabled (see chapter 7.3.9)

Test lines

1. Line: 17 CCIR18

2. Line: 18 CCIR330

3. Line: 330 Off

4. Line: 331 Sinus (x)x

Test lines⁷

The A-PALIOS-4CIM4 offers the opportunity to output test signals on up to 4 image lines from the following selection: Off, CCIR 17, CCIR 18, CCIR 330, CCIR 331, Sin(x)/ x, Ramp. As a default, the image lines 17, 18, 330 and 331 are selected. The image lines selection is editable, i.e. the test lines can be output on each image line in the range 1..625.

⁷ only available, if "Test line" option is enabled (see chapter 7.3.9)

Decryption settings

BISS key: *

BISS-E injected ID: *

Decryption settings⁸

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

⁸ only available, if "BISS" option is enabled (see chapter 7.3.9)

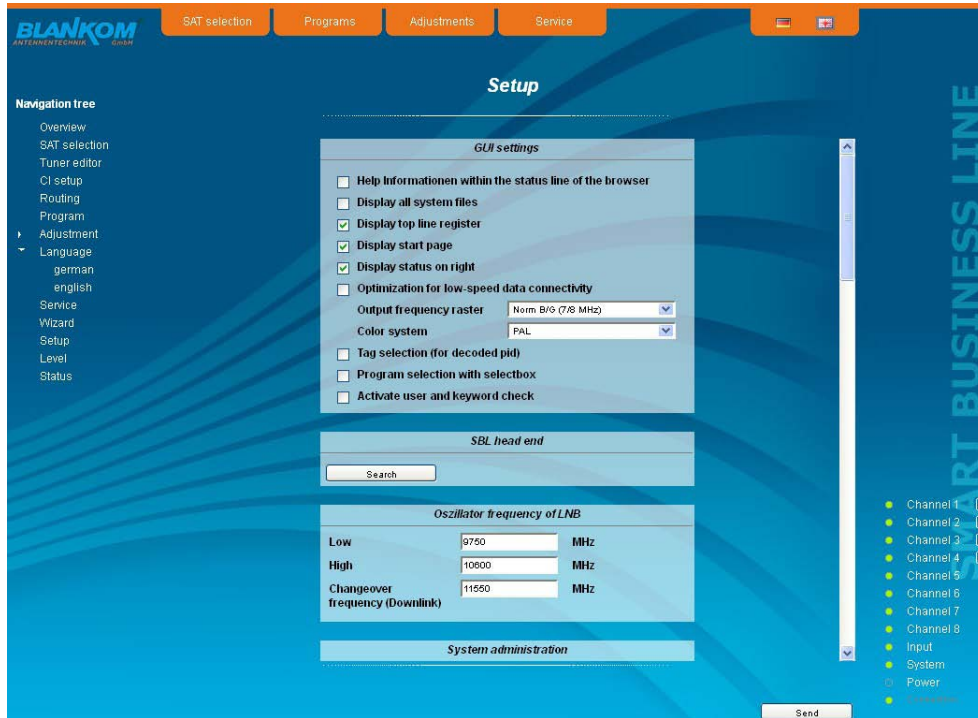
7.3.8 Menu "Language"

In this menu, the selection 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 via the language selection box.

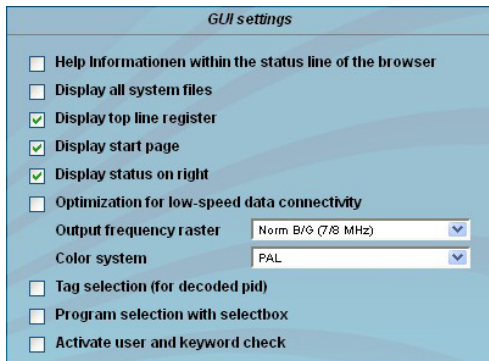


7.3.9 Menu "Setup"

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



Specifically, the following can be configured:



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 such use has to be allowed 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 this box, the system files are listed individually and can be individually subjected to an up- or download.

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 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 is greatly reduced. So it is possible to adjust the device, if there is only a low-speed connectivity (GSM). The restrictions are: there are no wizard and no program respective transponder lists. Furthermore, the size of all pictures is reduced.

Output frequency raster

It is possible to choose 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 is set for standard B/G or D/K.

Color system

In this box you can select in which color standard, the 8 programs are to be transferred. You can choose between PAL and SECAM.

Tag selection (for decoded pid)

By click there is the possibility that in the PMT processing the CA descriptor is replaced by a self-selected user-defined descriptor of the range 0x00 .. 0xFF. The default value is 0xFE (see chapter 7.3.4)

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 7.3.7).

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).

SBL head end			
192.168.14.130	5000005	5000819	<input checked="" type="checkbox"/>
192.168.14.131	5000002	5000816	<input checked="" type="checkbox"/>
192.168.14.132	5000003	5000817	<input checked="" type="checkbox"/>
192.168.14.133	5000001	5000815	<input checked="" type="checkbox"/>
192.168.14.134	5010653	5010653	<input type="checkbox"/>
192.168.14.135	5007462	0000000	<input checked="" type="checkbox"/>
192.168.14.139	5010660	...	<input type="checkbox"/>
192.168.14.155	5010642	...	<input type="checkbox"/>

Search

SBL head end

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

System	
Location	<input type="text" value="0"/>
<input type="button" value="Logout"/>	<input type="button" value="Default"/> <input type="button" value="Reboot"/>

System

Location

In this field a name for the A-PALIOS-4CIM4 is made to identify the device easily. This name appears on the top right of the web site 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).

Logout

restart the user interface

Default

delete the settings and reset to default values (including IP address), available only if you have logged in as administrator

Reboot

restart of the A-PALIOS-4CIM4

System administration		
	SBL to PC	PC to SBL
Backup	<input type="button" value="Save"/>	<input type="button" value="Load"/>
Update		<input type="button" value="Load"/>
<input type="button" value="View logbook"/>		

System administration

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

System administration		
	SBL to PC	PC to SBL
Backup	<input type="button" value="Save"/>	<input type="button" value="Load"/>
Update		<input type="button" value="Load"/>
Transponder config.	<input type="button" value="Save"/>	<input type="button" value="Load"/>
SBL configuration	<input type="button" value="Save"/>	<input type="button" value="Load"/>
Language	<input type="button" value="Save"/>	<input type="button" value="Load"/>
SBL system	<input type="button" value="Save"/>	<input type="button" value="Load"/>
Logbook	<input type="button" value="Save"/>	
Status	<input type="button" value="Save"/>	
astra.xml	<input type="button" value="Save"/>	<input type="button" value="Load"/>
eutelsat.xml	<input type="button" value="Save"/>	<input type="button" value="Load"/>
eurobird.xml	<input type="button" value="Save"/>	<input type="button" value="Load"/>
<input type="button" value="View logbook"/>	<input type="button" value="Append"/>	<input type="button" value="Delete"/>

Backup

Here the system files can be loaded or saved as a package (except Logbook and Status). Thus, it is possible, for example to copy the system files from an A-PALIOS-4CIM4 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

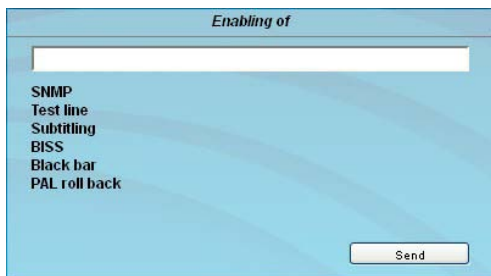
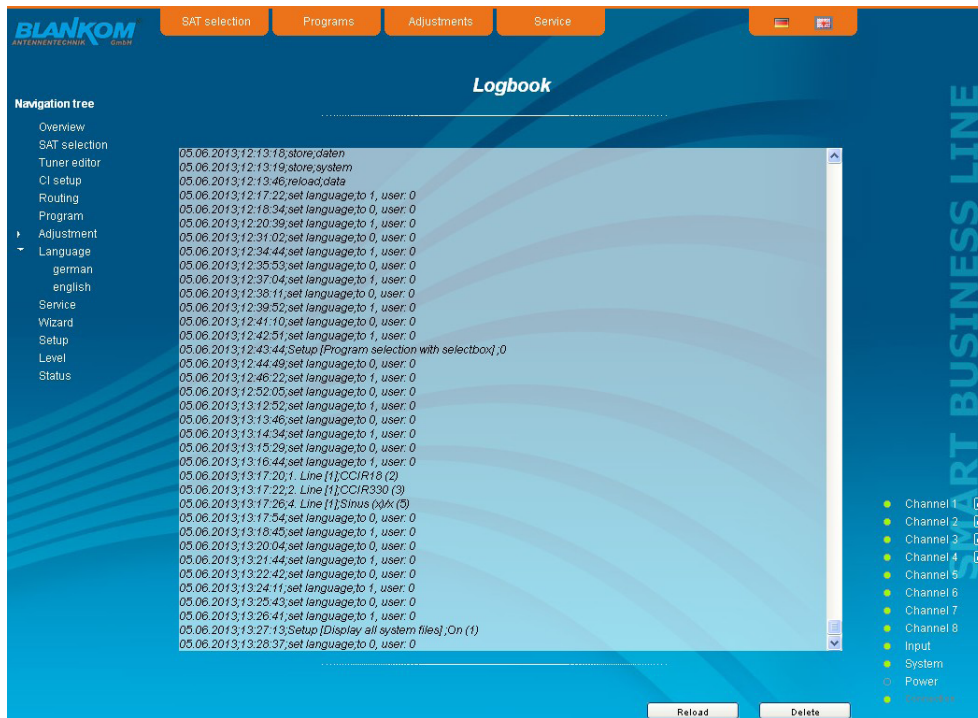
By clicking the "Load" button, the internal software components can always be brought up to date.

If the "PAL-Rollback" option is enabled, it is possible to convert the A-PALIOS-4CIM4 into an A-QAMOS-4CI via software update. This can be chosen: an A-QAMOS-4CI release instead of an A-PALIOS-4CIM4 release starts the update reversed when needed as well. After clicking the "Load" button instead of the current A-PALIOS-4CIM4 releases the current A-QAMOS-4CI release is to select and then perform the update process.

If the option is not enabled, after selecting the A-QAMOS-4CI 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 “Erase” button all entries are deleted, when you are logged in as administrator.

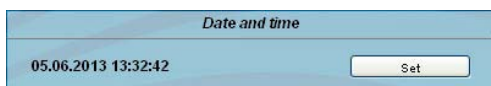


Enabling of

In this field, possible software options for the A-PALIOS-4CIM4 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.

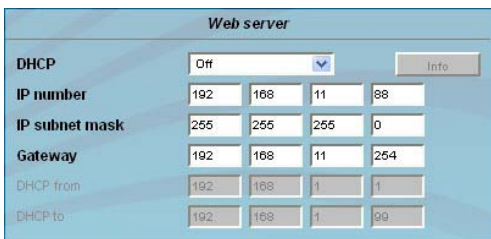
note

To convert an A-PALIOS-4CIM4 into an A-QAMOS-4CI, the option “PAL roll back” must be active to perform the update process (see system administration → update).



Date and time

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



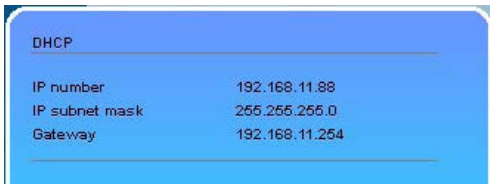
Web server

This setting appears only when you are logged in as administrator, and thus you have the authority to make administrative changes. The A-PALIOS-4CIM4 supports the DHCP functionality. DHCP-Client is factory default. Note, that after each factory reset the A-PALIOS-4CIM4 is set “DHCP-Client”.

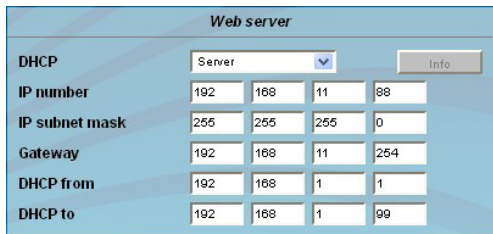
If the **DHCP functionality** is set to “Off”, in the appropriate fields the IP number, subnet mask and gateway can be manually entered and then the settings of the A-PALIOS-4CIM4 are adapted to the network.



If the device is set as “**DHCP-Client**”, it automatically obtains an IP address from the DHCP server on the network. The manual network settings are grayed out and are therefore disabled.



By pressing the “Info” button the automatically assigned network configuration of the device is displayed.



Please note if the device is set as “DHCP-Server“, 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. Additionally with the DHCP server will also set up a local DNS (Domain Name Server). To use it in full extent a connected PC/ laptop must be configured as a DHCP client. Please note, that the client unit not only get its IP address from the DHCP server, but also its DNS server.

If the device is configured as a DHCP server or client and the client has received an IP address successfully, so the device can be accessed via a web browser using its name. This name is composed of the prefix “sbl” and the device number that is printed on the back of the device and on the packaging. For example, the device with the number 0123456 can be called under “sbl0123456”. Should there be problems with it among the local network conditions, the domain can be added. In the case that the above device is configured as a server, the call using the domain is then “sbl0123456.sbl”. If another DHCP server is used, 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 A-LINE-SBL device is as a server, the remaining devices and the connected PC/ laptop are configured as a client. By calling the browser “dhcp.sbl” the GUI of the server device 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”. The head end overview can be changed quickly to the user interface of any other device by selecting the respective modules links.



SNMP option

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. With version 3, these two fields are disabled because all registered users of the device (see menu “Passwords”) have the automatic read access to SNMP. The write access can be enabled or disabled for each user by clicking the SNMP check box in the “Passwords” menu. By clicking the “MIB” button the MIB of the device is generated and offered for download.

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 the using of 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 are 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 parameter for a medium priority
- with a selectable parameter from a list for a medium priority

References and notes:

All users using SNMPv3 must use passwords with at least 8 characters. For SNMPv3 the A-LINE-SBL supports only the authentication password, not the privacy password. The A-LINE-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 attempts to transmit it later, until the confirmation is received.

An A-LINE-SBL device holds up to 256 information traps that could not be sent successfully. If there are more unconfirmed traps, the older 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 device the non-confirmed 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 A-PALIOS-4CIM4 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

This setting appears only when you are logged in as administrator, having the authority to make administrative changes. In addition the box "User and keyword check" in the submenu "GUI settings" has to be clicked. The user ID and password for the administrator can be set in 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, to the right of each user appears an SNMP check box. By clicking the box, the writing rights for individual users can be awarded for the SNMP version 3 (see also section SNMP option).

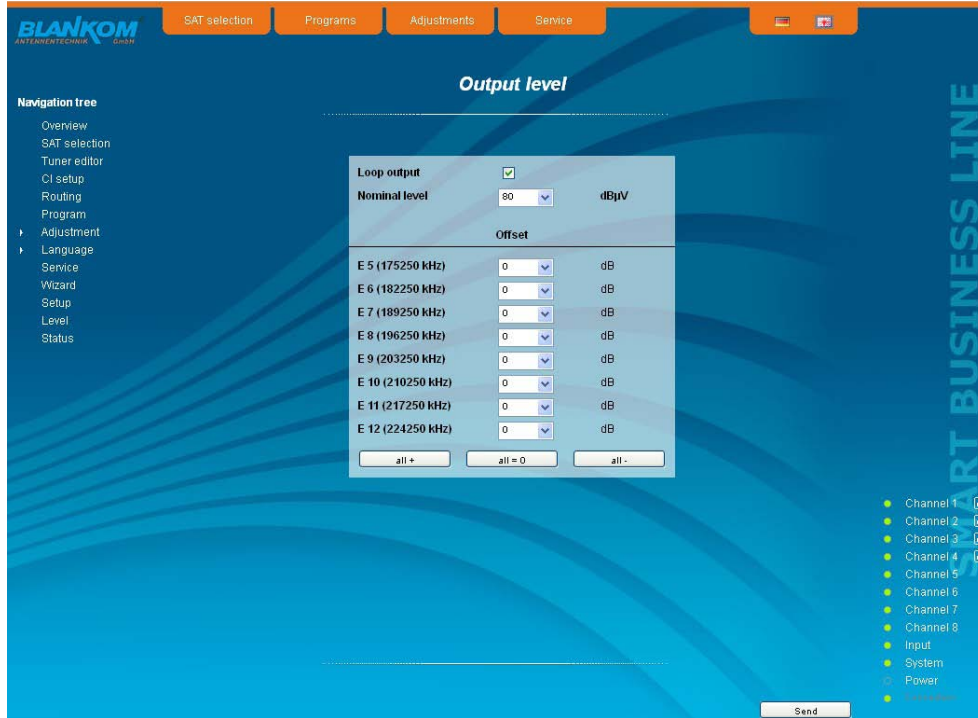
7.3.10 Menu "Service"

In this menu you will find all information about the service for the A-PALIOS-4CIM4 in particular the BLANKOM service hotline and the service email address. In addition, the implemented operating instructions may be downloaded or viewed as PDF. If there is an internet connection the BLANKOM homepage can be started, offering the latest software release or descriptions. Finally, the currently installed software release is displayed.



7.3.11 Menu "Level"

With the top box, the loop through output (loop) is enabled or disabled. If enabled, the underlying selection of the nominal level for all 8 channels may be set in the range from 62 ... 82 dBμV. If the loop is disabled, the output level of the 8 channels may be set in the range of 74 ... 94 dBμV. 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.



7.3.12 Menu "Status"

It presents an overview of the status of the various components per channel, it 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 hover the mouse cursor above the parameter. The listing is in 3 groups: input, 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.



8. Factory settings

A short pressing of the reset button on the rear of the device causes a reboot, i.e. the device restarts and all stored values are adjusted. If the device 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. This process takes about 15 seconds. In this case the device 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
	Scan	Scan
	Send	
Program tables for		
Satellite	Astra 19,2	Astra 19,2
Band	Low	High
Polarization	horizontal	vertical
	Send	

Output parameters

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

Transponders

Tuner	Programm	Sprache	Sprache Unt.	Ausgangsfrequenz	HF
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)	✓

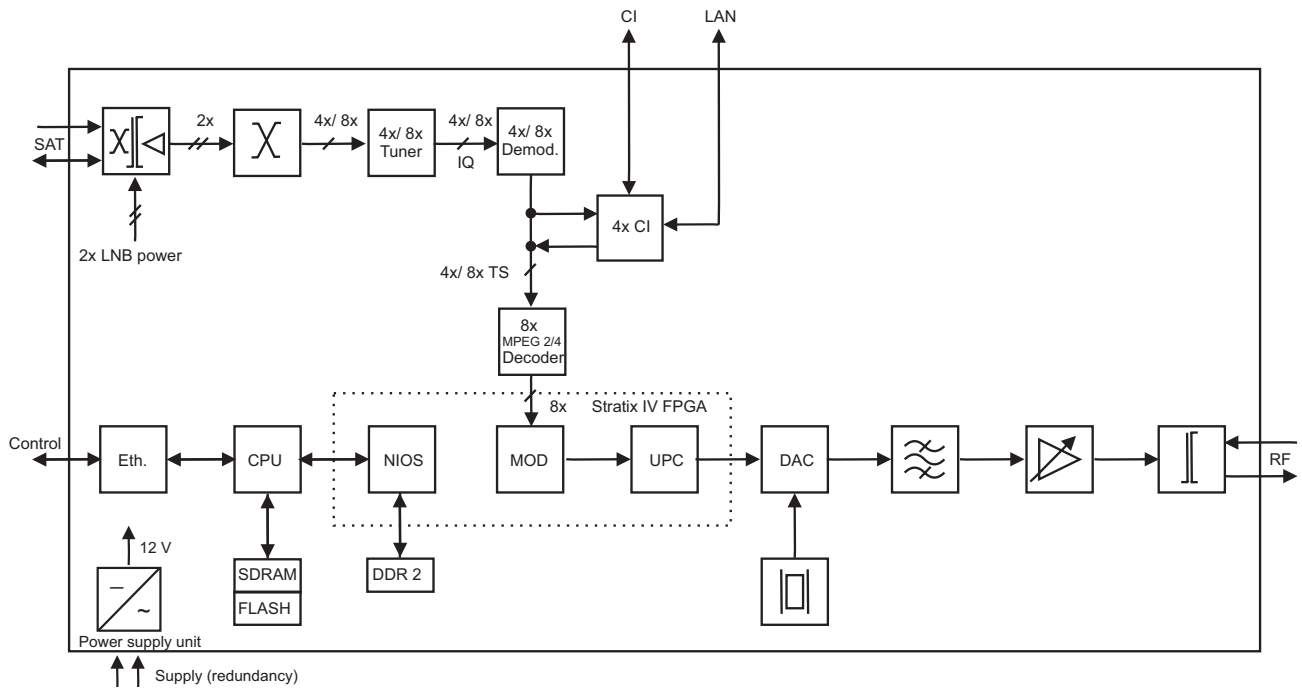
Setup settings

GUI settings	
<input type="checkbox"/>	Help Informationen within the status line of the browser
<input type="checkbox"/>	Display all system files
<input 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)
	Color system: PAL
<input type="checkbox"/>	Tag selection (for decoded pid)
<input checked="" type="checkbox"/>	Program selection with selectbox
<input type="checkbox"/>	Activate user and keyword check

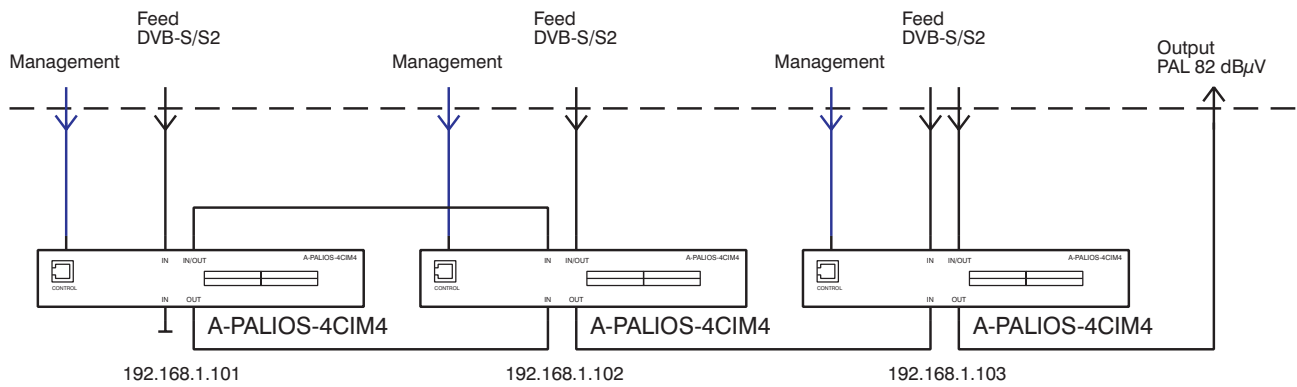
Network settings

Web server	
DHCP	Client: Info
IP number	192 168 11 88
IP subnet mask	255 255 255 0
Gateway	192 168 11 254
DHCP from	192 168 1 1
DHCP to	192 168 1 99

9. Block diagram



10. Application example



11. Technical data

SAT IF input		Audio deviation 1 mono carrier	30/ 50 kHz
Frequency range	950...2150 MHz	Audio deviation 2 mono carrier	30 kHz
Frequency step	1 MHz	Audio deviation dual sound	30 kHz
AFC range	± 3 MHz (SR < 10 MSps) ± 5 MHz (SR ≥ 10 MSps)	Output frequency range	45 ... 862 MHz
AGC level range	64 ... 94 dB μ V	Tuning step	1 kHz
Connector	F socket	Max. output level	97 dB μ V (per channel)
Through loss	≤ 3 dB	Total level settings	
Impedance	75 Ω	without loop	74 ... 94 dB μ V (1 dB steps)
LNB voltage	14/ 18 V	with loop	62 ... 82 dB μ V (1 dB steps)
LNB current	max. 1x 0.4 A	Individual level settings (offset)	+3 ... -6 dB (0.5 dB steps)
DiSEqC	1.0	Channel allocation	adjacent channel ability
DVB-S demodulator (QPSK)		Connector	F socket
Symbol rate	1...45 MSps	Impedance	75 Ω
Code rate (Viterbi)	1/2, 2/3, 3/4, 5/6, 7/8	Return loss	≥ 18 dB 45 MHz - 1.5 dB/ octave
Roll off	35 %	Signal quality	
Signal processing	EN 300 421 [1]	C/N in channel (BW = 4,8 MHz)	≥ 65 dB
DVB-S2 demodulator (QPSK, 8PSK)		S/N ratio parallel sound (unweighted/ weighted)	≥ 65/ 60 dB
Symbol rate	QPSK 2...47 MSps 8PSK 2...31.5 MSps	Spurious 45...862 MHz	≥ 60 dB
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	Max. frequency stability	30 kHz
Roll off	20, 25, 35 %	Output level stability	± 0.5 dB
Signal processing	EN 302 307 [2]	Operating parameters	
Decryption interface		Operating voltage	2x 90 ... 240 V~ 50/ 60 Hz including redundancy function
Common interface	4x PCMCIA-Slot according EN 50221 [7], cascadable	Power consumption	60 W
Operating voltage	5 V	Environmental conditions	
Multi-Service decryption	48 services max.	Temperature range	-10 ... +55 °C
Input data rate	max.75 Mbps acc. adjustment symbol rate & CAM	Temperature range for data keeping	5 ... 45 °C
MPEG decoder		Relative humidity	≤ 80 % (non condensing)
Video	H.264/ AVC Level 4.1 HP, MPEG-2 MP@HL	Method of mounting	vertical
Audio	MPEG-1 Layer 1&2	Location of mounting	splash-proof and drip-proof
TV output		Miscellaneous	
TV standard	B/G, D/K	Dimensions (l x w x h)	448 x 44 x 350 mm
Sound type	double carrier FM	Weight	6,400 g
Sound carrier frequencies		Delivery content	
	B/G 5.5/ 5.742 MHz	2x power cord	
	D/K1 6.5/ 6.25 MHz	1x RJ45 connection cable	
	D/K2 6.5/ 5.742 MHz	2x terminating resistor	
	D/K3 6.5/ 6.742 MHz	1x mounting kit	
	(each above picture carrier)		
Sound mode	mono/ stereo/ dual/ auto (VPS controlled)		

12. Glossary

8PSK
AFC
AGC
AM
ATV
BER
BISS
BISS-E
CNI
DiSEqC
DVB
FPGA
GUI
HD(TV)
HTTP
ID
IF
IIC

8 Phase Shift Keying
Automatic Frequency Control
Automatic Gain Control
Amplitudenmodulation
Analogue Television
Bit Error Ratio
Basic Interoperable Scrambling System
Basic Interoperable Scrambling System with Encrypted keys
Country and Network Identification
Digital Satellite Equipment Control
Digital Video Broadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
Field Programmable Gate Array
Graphical User Interface
High Definition (Television)
Hypertext Transfer Protocol
Identifier
Intermediate Frequency
Inter-Integrated Circuit

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)
- [7] EN 50221: Common interface specification for conditional access and other digital video broadcasting decoder applications; German version EN 50221:1997 + Corrigendum:2000

14. Notes on the device software

Device Software of the A-PALIOS-4CIM4
Copyright (C) BLANKOM Antennentechnik GmbH Bad Blankenburg

This device software based on top of Linux 3.6.8 is free software: you can redistribute it and/ or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 2 of the License, or (at your option) any later version.

You should have received a copy of the GNU General Public License along with FooBar. If not, see <<http://www.gnu.org/licenses/>>.

The source code is available upon request.
Please address requests to:

BLANKOM Antennentechnik GmbH
Hermann-Petersilge-Straße 1

07422 Bad Blankenburg
Germany

15. Document history

Version	Date	Modification	Author
1.00	04.06.2013	basic document	Häußer

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

CE Declaration of Conformity

Manufacturer: BLANKOM Antennentechnik GmbH
Hermann – Petersilge – Straße 1
07422 Bad Blankenburg
Germany

Product Name: SAT-TV Transmodulator

Type Name: A-PALIOS-4CIM4

Type N°: 5103.82

BLANKOM Antennentechnik GmbH confirms that the mentioned product meets the guideline(s) of the Council for the approximation of legislation of the member states.

Electromagnetic compatibility (2004/ 108/ EC)

The following standards are met:

DIN EN 50083-2: 2007-04 (EN 50083-2:2006-06)

Low voltage guideline (2006/ 95/ EC)

The following standards are met:

DIN EN 60950-1: 2006-04 (EN 60950-1:2006-11)
Information technology equipment -Safety-

Restriction of hazardous substances (2011/ 65/ EC)

The following standards are met:

DIN EN 50581: 2013-02 (EN 50581:2012)

Bad Blankenburg, Germany, 2013-06-04



Dr. Piero Kirchner
(Managing Director)