

Operating instructions



8 pole IP-/ ASI-TV Modulator

IP/ SFP/ ASI (H.264/ AVC, MPEG2) → ATV (8x AM)



PALIOS-IPM4
Part N°: 5105.10



Contents

1. Safety and operating instructions	3
2. Device variants	3
3. General	3
4. Main features	3
5. Front view	4
6. Functional description	4
7. Meaning of the LED's	4
7.1 LED's at the 10/ 100/ 1000 Mbit stream port 1	4
7.2 LED's at the 10/ 100/ 1000 Mbit stream port 2	5
7.3 LED at the ASI socket	5
7.4 Status LED's	5
7.5 LED's at the 10/ 100 Mbit control port	5
8. Adjusting by web server	6
8.1 Network connection to the computer	6
8.2 Setting of individual parameters	7
8.2.1 Menu "Overview"	8
8.2.2 Menu "IP input"	9
8.2.2.1 SFP option	10
8.2.3 Menu "Transponders"	11
8.2.4 Menu "Adjustment"	11
8.2.5 Menu "Language"	14
8.2.6 Menu "Setup"	14
8.2.7 Menu "Service"	19
8.2.8 Menu "Level"	19
8.2.9 Menu "Status"	20
9. Factory settings	21
10. Block diagram	22
11. Application example	22
12. Technical data	23
13. Glossary	23
14. Bibliography	24
15. Notes on the device software	24
16. Document history	24
☞ Declaration of Conformity	25

1. Safety and operating instructions



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



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, included with 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 powered by the power supplies HELIOS, HELIOS-P1 or QUASARIOS. Only connect the module with the accessory cables provided.



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



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].



The unit must only be mounted vertically. The ventilation slots as well as the circulation perforation of the modules is not be obstructed in any way.



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



For **DIN rail mounting** is important to note that between the heat sink and a neighboring module, a distance of 2 cm is required. If the modules mounted on top of each, so they must be spaced 20 cm apart.



For **19" mounting** all devices in the rack must be fitted with 19" Edge Guide. Mounting the device using only the screw holes at the front panel is insecure and discouraged. 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).



WEEE-Reg.-Nr. DE 50389067

2. Device variants

PALIOS-IPM4 5105.10 IP/ SFP/ ASI (H.264/ AVC, MPEG2) → ATV (8x AM)

3. General

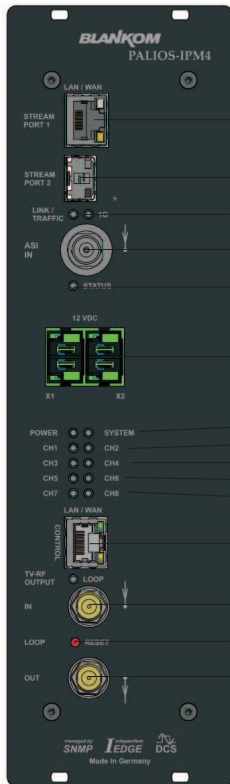
The Smart Business Line (SBL) is a modern head end system, that is distinguished by its modular and compact design. A userfriendly operating concept facilitates setup, configuration and maintenance of the system.

The PALIOS-IPM4 module selects 8 programs from up to 8 adjacent IP transport streams or from an ASI transport stream and converts these 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.

4. Main features

- 8x IP SPTS/ MPTS input
- IP streaming via RJ45 or SFP with redundancy
- 1x ASI input
- MPEG 2/4 HD/ SD decoding
- multi-standard PAL modulator
- IEdge signal processing
- switchable RF output as single or with loop
- control of the module via HTML or SNMP

5. Front view



- Stream port 1 (RJ 45) incl. LED's
- Stream port 2 (SFP)
- Stream port 2 LED's "LINK/ TRAFFIC" + "1G"
- ASI input
- ASI LED "Status"
- Power connections
- Status LED "POWER"/ "SYSTEM"
- Status LED channel 1/ channel 2
- Status LED channel 3/ channel 4
- Status LED channel 5/ channel 6
- Status LED channel 7/ channel 8
- Control port (LAN/ WAN) incl. LED's
- Output coupler "input"
- Reset button
- Output coupler "output"

Independent
EDGE



managed by
SNMP

6. Functional description

The module receives a data stream via Gigabit Ethernet and can receive 8 transport streams from the included IP encapsulated transport streams. The 8 transport streams are further 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. 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.

7. Meaning of the LED's

7.1 LED's at the 10/ 100/ 1000 Mbit stream port 1

Designation, colour	Status	Meaning of display
GbE connect LED, green	permanently on	only illuminated when the connection is a GbE connection (does not light up at a 10/ 100 Mbit connection)
	off	no GbE connection
Connect/ data LED yellow	permanently on	cable connection is established
	flashing	data is received
	off	no cable connection



7.2 LED's at the 10/ 100/ 1000 Mbit stream port 2

Designation	Colour	Status	Meaning of display
1G	green	permanently on	only illuminated when the cable connection is a GbE connection (does not light up at a 10/ 100 Mbit connection)
		off	no GbE connection
LINK/ TRAFFIC	amber	permanently on	cable connection is established
		flashing	data is received
		off	no cable connection or option is not enabled

7.3 LED at the ASI socket

Designation	Colour	Status	Meaning of display
STATUS	green	permanently on	ASI transport stream is present
		flashing	no ASI transport stream
		off	option is not enabled

7.4 Status LED's

Designation	Colour	Status	Meaning of display
POWER	green	permanently on	module is on
		amber	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 work or is forced to shut down
	off	module is not ready for work	
CH 1 ... CH 8	green	permanently on	channel operates without error
		amber	permanently on
	amber	flashing	hardware is faulty
		off	channel is off

7.5 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

8. Adjusting by web server

8.1 Network connection to the computer

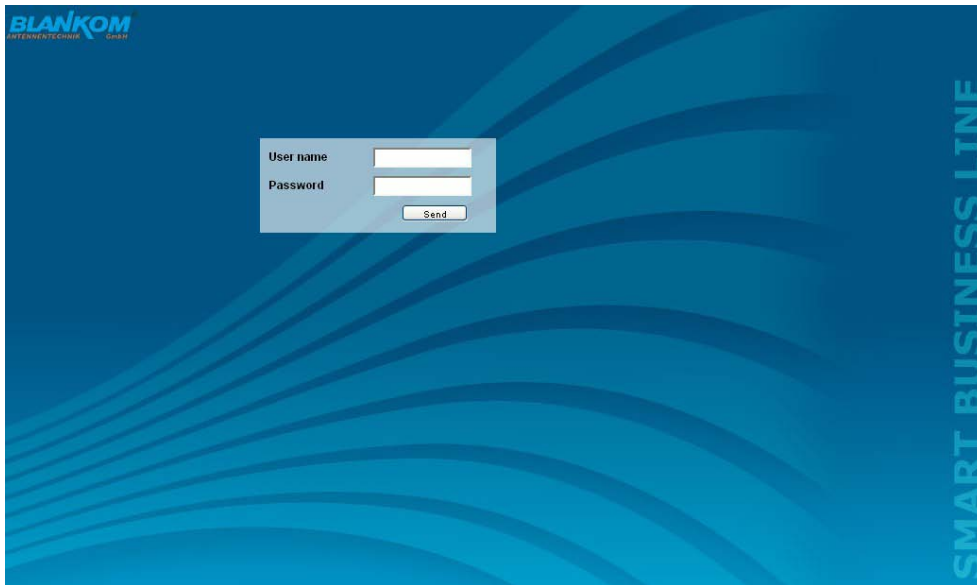
System requirements:

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

Setup the connection:

The PALIOS-IPM4 module has to be connected to PC network using an Ethernet cable. The IP address of the PALIOS-IPM4 module is 192.168.1.100 on delivery. If several SBL modules should be controlled or adjusted via an Ethernet switch, each module 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 SBL 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 SBL module 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. 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 8.2.6):



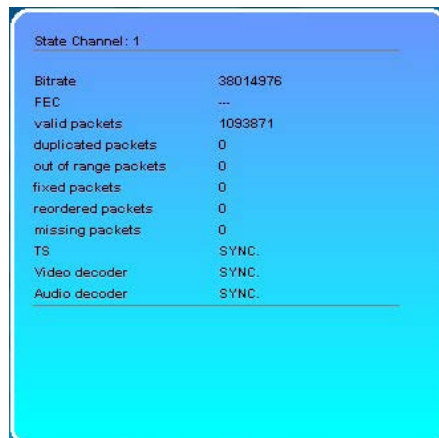
After successful registration or successful connection establishment without password (default setting) the start page of the module is the menu "Overview" (see chapter 8.2.1).

8.2 Setting of individual parameters

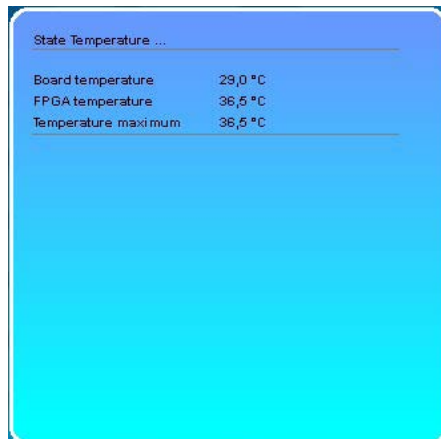
Using the web site, you can set certain parameters of the module or perform configurations on the module or the user interface. The various setting menus can be selected in the navigation tree on the left side. The setting is supported by an online help. Hovering the parameters by the mouse in the lower part of the site an orange colored text box appears with explanations for each parameter. By setting in the "Setup" menu (see chapter 8.2.6) 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 8.2.6). 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.



A transparent LED symbol means that the channel is not configured yet, or the RF output is turned off. Status information about the system is mirrored in the same way. 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 displayed 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-IPM4 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. In all menus, the language selection is possible between German and English top right.

8.2.1 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 SBL modules are listed, which are in the same network and which have been associated with the head end in the “Setup” menu (see 8.2.6). This is significant because functions over all modules such as the NIT processing between QAMOS/ QAMOS-4CI/ QAMOS-IP 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 configured, a “Search” button appears, which forwards to the “Setup” menu and scans the network for other SBL modules. Then all available modules are listed and 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 switched to standby, which is indicated by an amber POWER LED on the module. The “Standby” button will be replaced by a “ON” button, and by pressing this the module will be switched back on.

8.2.2 Menu “IP Input”

This menu contains the network configuration for the streaming port and for the 8 IP transport streams from which then the 8 desired programs for transmitting can be selected.



On top the configuration options for the two stream ports are displayed. It should be noted that the stream port 2 is available only after enabling the associate software option (see section 8.2.6). The IP address, subnet mask and gateway can be configured for each port. The next step is to configure the setup parameters of the 8 IP input transport streams (IP input channels). Again, IP address, port and transport protocol (UDP or RTP) have to be entered for each IP channel. Everything is confirmed by pressing the “send” button. If not all 8 ports are used, the unused ports can be disabled by entering the IP address 0.0.0.0. Identical settings within these 8 IP channels are not permitted and are automatically marked red.

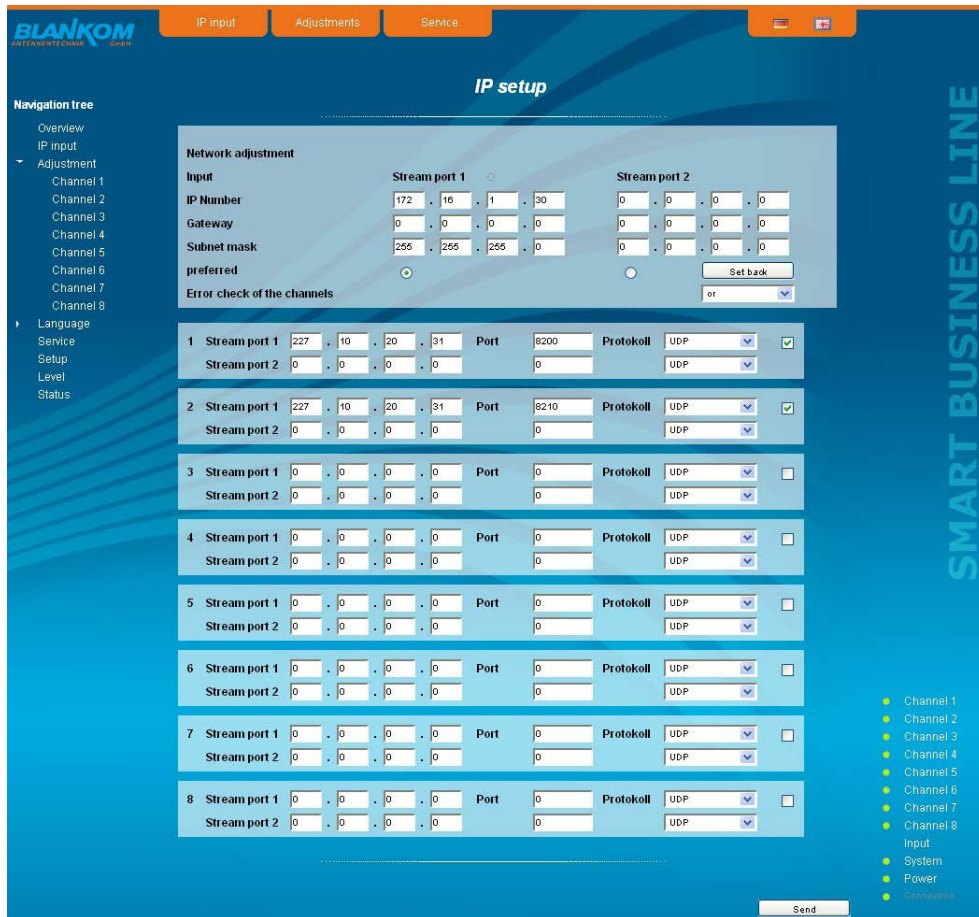
Note:

Some switches, it can happen that a configuration change concerning on the multicast group will take effect after the end of the switch set query interval:

Some switches ignore an unsolicited IGMP join message. If the querier is set in the switch to a longer period of time, it may occur, that after a configuration change the stream is not applied immediately, because the switch ignores the directly emitted IGMP message. Upon expiration of the query interval, the switch then asks himself after memberships in multicast groups. Also to this request, the device responds and sends a corresponding response message - this is then accepted by the switch, which thus transmits the stream to the device.

8.2.2.1 SFP option

The SFP option allows the connection of different modules for the IP input. Depending on the SFP module thus various management and media types can be connected to the PALIOS-IPM4. The IP input can be expanded to another IP data source. The SFP module figures as the stream port 2, so that either “Stream port 1” or “Stream port 2” can be used as an IP input. Simultaneously there is the ability to define one of the two IP inputs as the preferred source and the respective other IP input as redundancy source. When an IP data source fails, then switches to the other data source. For this purpose, individual rules can be defined for when and how to switch. Inclusion in the monitoring is configured on a per-channel basis. This is a global option, deciding when to switch: either when an input channel is down or all monitored channels have failed. The switching occurs even when no signal should be present at the redundancy input. Switching back to the preferred IP input is not automatic, but can only be done manually via the user interface. Please note that actual monitoring on a particular channel starts for real one if actually receives data.



The form of the network settings also includes means for selecting the preferred IP input. The selection is made by pressing the appropriate option button. “Error check of the channels“ as described above configures the device for switchover if only one of the monitored channels fails (“or”) or only when all monitored channels have failed (“and”). At the right of the configuration of each of the 8 IP input transport streams, there is a check box. By marking this box, the respective transport stream is included in the monitoring.

8.2.3 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 PALIOS-IPM4 module is listed. The following settings respective changes per channel are possible: in the column "IP" there can be selected the transponder, which contains the program to be transferred. 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 is set to "on" or "off". Clicking on the "Send" button, the settings are taken and stored..



8.2.4 Menu "Adjustment"

In this menu, the settings of the module 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	Service ID	Select
RTL Television	12003	<input checked="" type="radio"/>
RTL Regional NRW	12004	<input type="radio"/>
RTL HB NDS	12005	<input type="radio"/>
RTL FS	12006	<input type="radio"/>
RTL2	12020	<input type="radio"/>
RTL Living	12030	<input type="radio"/>
SUPER RTL	12040	<input type="radio"/>
SUPER RTL CH	12041	<input type="radio"/>
VOX	12060	<input type="radio"/>
RTLNITRD	12061	<input type="radio"/>
Channel 21	12080	<input type="radio"/>
n-tv	12090	<input type="radio"/>
Channel 21 ALT	12095	<input type="radio"/>

Program list (Transponder)

If "Program selection with select box" in chapter "GUI settings" is deactivated (see also chapter 8.2.6), 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. In this case the program name in the menu "Selected program", variant 1 is not selectable.



Input

input parameters of the channel
Input name e.g. name of the program, editable
Input selection: IP input channels 1 ... 8, ASI TS
 By pressing the "?" button, the channel list is updated.



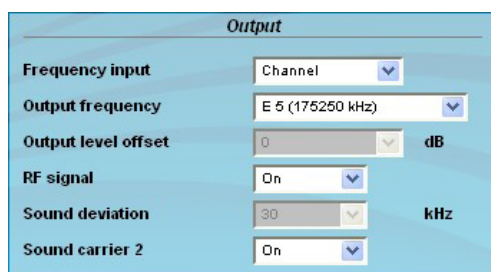
Selected program

variant 1: program selection menu
Program name selection 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

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

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 at the frequency input "channel" is selected, the output frequency can be chosen in the pre-selected channel spacing (see chapter 8.2.6). If, however, "frequency" is selected, then the output frequency is selectable in kHz steps.

** Adjustment of the offset of each channel to the basic level, see chapter 8.2.6

***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

setting of the video parameters
Video output selection: On, auto Off, auto colour palette bar
Color bar selection: On, Off
Color system selection: PAL, SECAM, NTSC
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
Audio mode

adjustment range: +6...-20 dB
selection 1: mono L, mono R, dual, dual invers, stereo, auto *
selection 2: mono L, mono R, mono L+R, auto **
* if sound carrier 2 is set to "On"
** if sound carrier 2 is set to "Off"

VPS

CMI code: 000

Source audio mode

Source PIL: A056

VPS

setting of the VPS parameters

CMI code

adjustment range: 0x000...0xFFFF (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

Subtitling ***

adjustment of the parameters

Mode

selection: Off, Teletext, DVB

Settings DVB subtitling

DVB language index
Use extended ID's

adjustment range: 0...255
selection: yes, no

Settings teletext subtitling

Teletext page
Language mode

adjustment range: 0..65535
selection: West, East, Russian, Arabic, Farsi

*** only available, if "Subtitling" option is enabled (see chapter 8.2.6)

Test lines

1. Line	17	Off
2. Line	18	Off
3. Line	330	Off
4. Line	331	Off

Test lines****

The PALIOS-IPM4 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.

**** only available, if "Test line" option is enabled (see chapter 8.2.6)

Decryption settings

BISS key: *

BISS-E injected ID: *

Decryption settings*****

BISS key
BISS-E injected ID

input of the 12-digit code in BISS mode 1 or of the 16-digit code in BISS mode E
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 8.2.6)

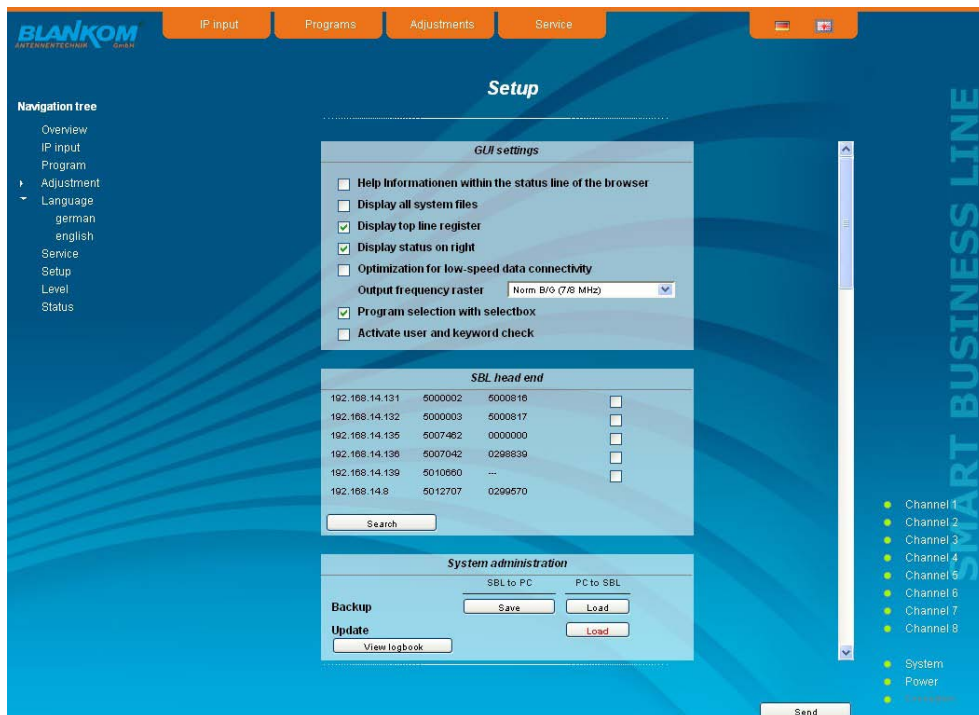
8.2.5 Menu "Language"

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.



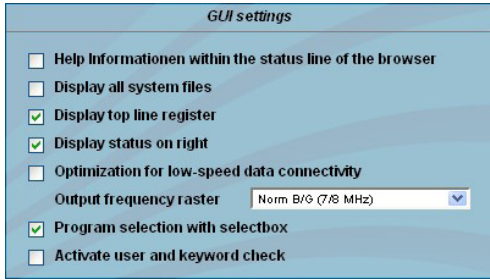
8.2.6 Menu "Setup"

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 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 module, if there is only a low-speed connectivity (GSM). The available reduction is achieved by reducing image size.

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.

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 8.2.4).

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 8.1).



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

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

Backup

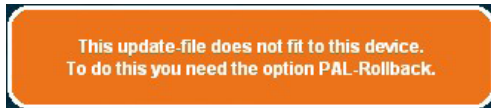
Here the system files can be loaded or saved as a package (except logbook.txt and status.xml). Thus, it is possible, for example in a simple way to copy the system files from a PALIOS-IPM4 module to another. If under "GUI setup" "Display all system files" is selected, the system files can also be loaded or saved separately (see figure below). Moreover, additional system files can be added.

Update

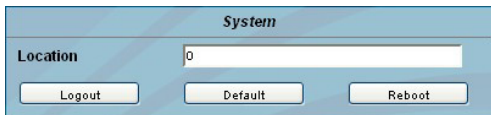
By clicking the "Load" button, the internal software components can always be brought up to date.

If the "PAL-Rollback" option is enabled, it is possible to convert the PALIOS-IPM4 module into a QAMOS-IP module via software update. This can be chosen: a QAMOS-IP release instead of a PALIOS-IPM4 release starts the update reversed when needed as well. After clicking the "Load" button instead of the current PALIOS-IPM4 releases the current QAMOS-IP release is to select and then perform the update process.

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



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.



System Location

In this field a name for the PALIOS-IPM4 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).

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 PALIOS-IPM4 module

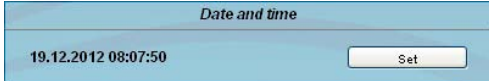


Enabling of

In this field, possible software options for the PALIOS-IPM4 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.

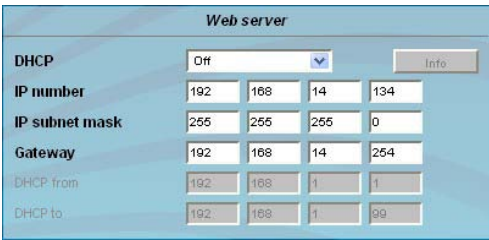
note

To convert a PALIOS-IPM4 into a QAMOS-IP, 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.



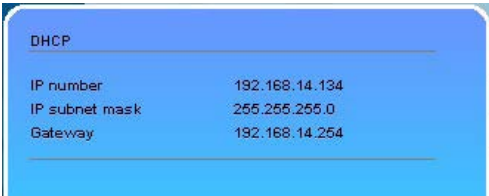
Web server

This setting appears only when you are logged in as administrator, and thus you have the authority to make administrative changes. The PALIOS-IPM4 supports the DHCP functionality. DHCP-Client is factory default. Note, that after each factory reset the PALIOS-IPM4 is set "DHCP-Client".

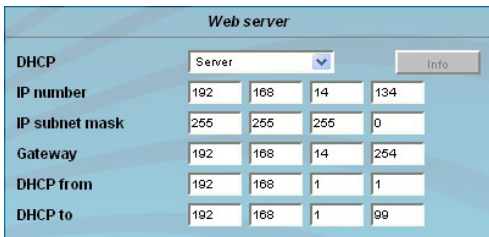
If the **DHCP functionality** is set to "Off", in the appropriate fields the IP number, subnet mask and gateway can be manually entered and then the settings of the PALIOS-IPM4 module are adapted to the network.



If the module 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 module is displayed.



Please note if the module 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 module is configured as a DHCP server or client and the client has received an IP address successfully, so module 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 module 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 module 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 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 GUI 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". 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: Off
Version: Version 1
Community-Read: public
Community-Write: private MIB

Trap
Version: V1 trap Test
Community: trapping
User: v3TrapUser
Password: *****
Send MAC as engine ID:

Receiver IP

Events

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. With version 3, these two fields are disabled because all registered users of the module (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 module 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 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 attempts to transmit it later, until the confirmation is received. A SBL module 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 module 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 PALIOS-IPM4 module is open, no changes are possible via SNMP.

Passwords

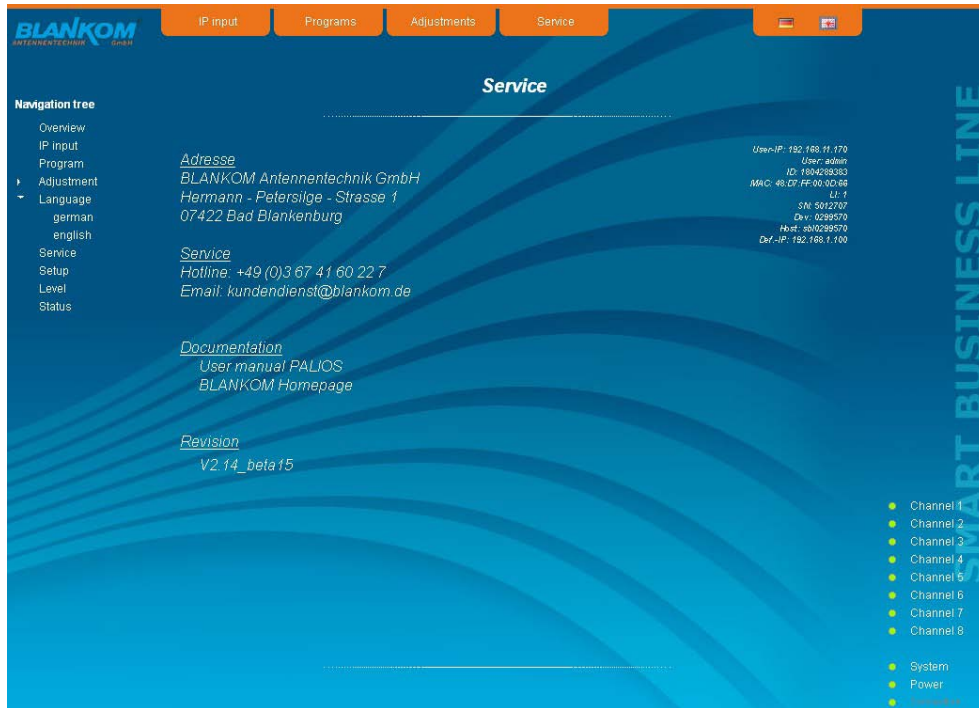
	User name	Password	SNMP
Administrator	admin	****	<input checked="" type="checkbox"/>
User 1	0000	****	<input type="checkbox"/>
User 2	0001	****	<input type="checkbox"/>
User 3	0002	****	<input type="checkbox"/>
User 4	0003	****	<input type="checkbox"/>
User 5	0004	****	<input type="checkbox"/>
User 6	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, having the authority to make administrative changes. In addition the box “User and key-word 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).

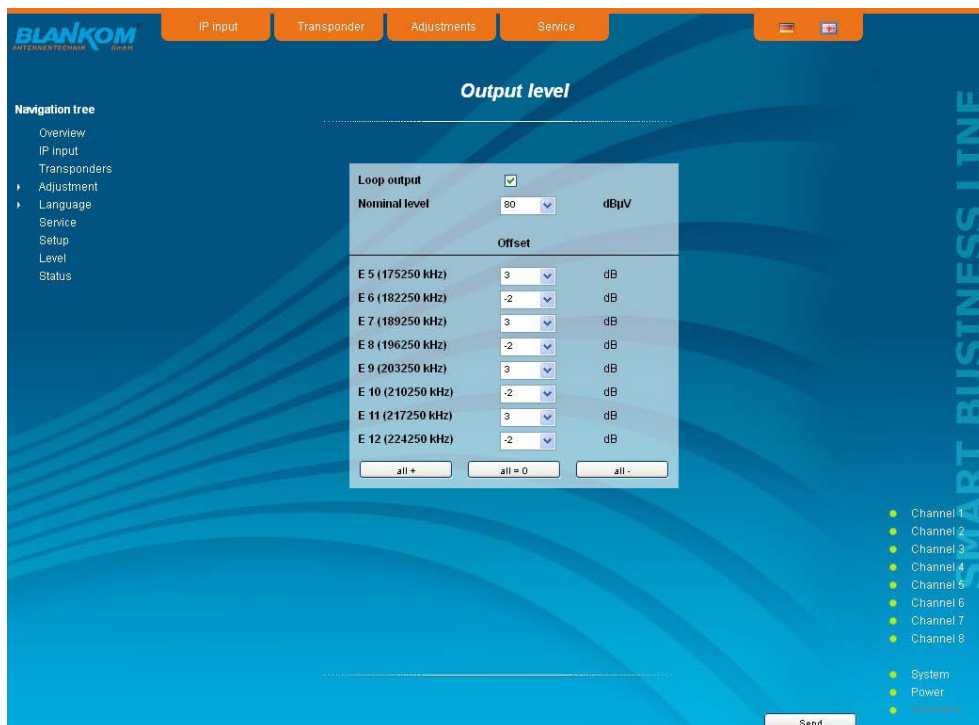
8.2.7 Menu "Service"

In this menu you will find all information about the service for the PALIOS-IPM4 module 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.



8.2.8 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 dB μ V. If the loop is disabled, the output level of the 8 channels may be set in the range of 76 ... 94 dB μ V. 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.



8.2.9 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.



Status table All

	Channel: 1	Channel: 2	Channel: 3	Channel: 4	Channel: 5	Channel: 6	Channel: 7	Channel: 8
(IP Channel 1)	(IP Channel 1)	(IP Channel 1)	(IP Channel 1)	(IP Channel 1)				(IP Channel 2)
38,015 Mbps	38,015 Mbps	38,015 Mbps	38,015 Mbps	38,015 Mbps				38,015 Mbps
1093873	1093873	1093873	1093873	1093873				1092031
0	0	0	0	0				0
0	0	0	0	0				0
0	0	0	0	0				0
0	0	0	0	0				0
0	0	0	0	0				0
active input	Stream port 1							
Start time	08:08:28							
End time	08:13:28							
Datarate read	314,098 Mbps							
Data rate send	0,0 Mbps							
ASI Datarate	42,584 Mbps							
ASI Lock	locked							
SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.
SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.
SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.	SYNC.
Board temperature	30,2 °C							
FPGA temperature	38,1 °C							
Temperature maximum	38,1 °C							
New configuration available.								

- Channel 1
- Channel 2
- Channel 3
- Channel 4
- Channel 5
- Channel 6
- Channel 7
- Channel 8
- System
- Power
- Temperature

9. 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. This process takes about 15 seconds. In this case the module is set to the following:

Input parameters

Network adjustment			
Input		Stream port 1	
IP Number	0 . 0 . 0 . 0	0	0
Gateway	0 . 0 . 0 . 0	0	0
Subnet mask	0 . 0 . 0 . 0	0	0
<hr/>			
1 Stream port 1	0 . 0 . 0 . 0	Port 0	Protokoll UDP
2 Stream port 1	0 . 0 . 0 . 0	Port 0	Protokoll UDP
3 Stream port 1	0 . 0 . 0 . 0	Port 0	Protokoll UDP
4 Stream port 1	0 . 0 . 0 . 0	Port 0	Protokoll UDP
5 Stream port 1	0 . 0 . 0 . 0	Port 0	Protokoll UDP
6 Stream port 1	0 . 0 . 0 . 0	Port 0	Protokoll UDP
7 Stream port 1	0 . 0 . 0 . 0	Port 0	Protokoll UDP
8 Stream port 1	0 . 0 . 0 . 0	Port 0	Protokoll UDP

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

Loop output	<input checked="" type="checkbox"/>	
Nominal level	80	dB μ V
Offset		
E 5 (175250 kHz)	0	dB
E 6 (182250 kHz)	0	dB
E 7 (189250 kHz)	0	dB
E 8 (196250 kHz)	0	dB
E 9 (203250 kHz)	0	dB
E 10 (210250 kHz)	0	dB
E 11 (217250 kHz)	0	dB
E 12 (224250 kHz)	0	dB
<input type="button" value="all +"/> <input type="button" value="all = 0"/> <input type="button" value="all -"/>		

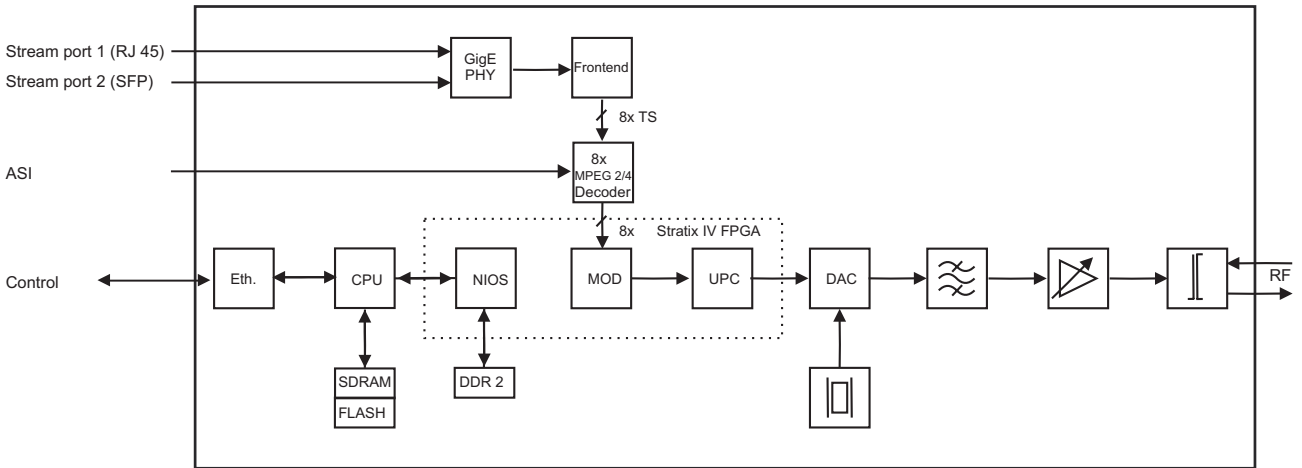
Setup settings

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 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
<input type="checkbox"/>	Activate user and keyword check

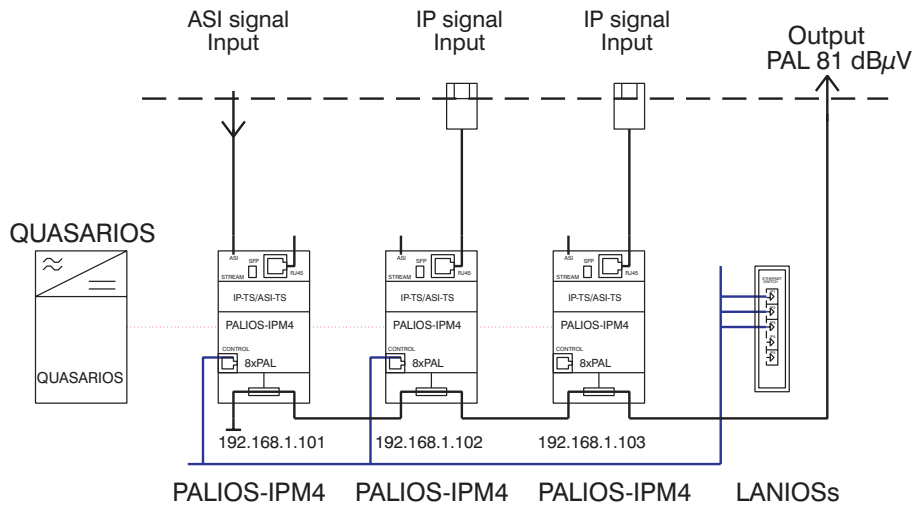
Network settings

Web server				
DHCP	Client	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

10. Block diagram



11. Application example



12. Technical data

IP input (stream port)

Network connection (LAN/ WAN) Ethernet, 10/ 100/ 1000 Base-T
Connector 1x RJ 45,
1x SFP
Protocols ARP, IGMPv3, UDP, RTP

ASI input

Level range 200 ... 880 mV_{pp}
Data rate 270 Mbps
Connector BNC socket
Impedance 75 Ω
ASI polarity regular/ inverted

ASI signal processing

Data rate 0.625...75 Mbps
ASI transfer format continuous, burst
TS transfer format 188, 204 Byte
Signal processing EN 50083-9 [1]

MPEG decoder

Video H.264/ AVC Level 4.1 HP,
MPEG-2 MP@HL
Audio MPEG-1 Layer 1&2

TV output

TV standard B/G, D/K
Sound type double carrier FM
Sound carrier frequencies
B/G 5.5/ 5.742 MHz
D/K1 6.5/ 6.25 MHz
D/K2 6.5/ 5.742 MHz
D/K3 6.5/ 6.742 MHz
(each above picture carrier)
Sound mode mono/ stereo/ dual/ auto
(VPS controlled)
Audio deviation 1 mono carrier 30/ 50 kHz
Audio deviation 2 mono carrier 30 kHz
Audio deviation dual sound 30 kHz
Output frequency range 45 ... 862 MHz
Tuning step 125 kHz
Max. output level 97 dBμV (per channel)

Total level settings

without loop 76 ... 94 dBμV (1 dB steps)
with loop 62 ... 82 dBμV (1 dB steps)
Individual level settings (offset) +3 ... -6 dB (0.5 dB steps)
Channel allocation adjacent channel ability
Connector F socket
Impedance 75 Ω
Return loss ≥ 18 dB 45 MHz
- 1.5 dB/ octave

Signal quality

C/N in channel (BW = 4,8 MHz) ≥ 65 dB
S/N ratio parallel sound
(unweighted/ weighted) ≥ 65/ 60 dB
Spurious 45...862 MHz ≥ 60 dB
Max. frequency stability 30 kHz
Output level stability ± 0.5 dB

Operating parameters

Voltage/ current 12 V ± 0.2 V/ max. 3.6 A
Residual ripple of the supply
voltage 10 mV_{pp}

Environmental conditions

Temperature range -10 ... +55 °C
Temperature range for
data keeping 5 ... 45 °C
Relative humidity ≤ 80 % (non condensing)
Method of mounting vertical
Location of mounting splash-proof and
drip-proof

Miscellaneous

Dimensions (l x w x h) 76 x 262 x 167 mm
Weight 1,950 g

Delivery content

1x supply cable
1x network cable
1x F connecting cable 140 mm
1x terminating impedance
1x DIN rail clip
1x mounting accessories

13. Glossary

AAC
AM
ARP
ASI
ATV
BISS
BISS-E
CNI
DVB
FPGA
GbE
GUI
HD(TV)
HE-AAC
HTTP
ID
IF
IGMP
IIC
IP
LED
LNB
MAC
MPEG
Nios

Advanced Audio Coding
Amplitude modulation
Address Resolution Protocol
Asynchronous Serial Interface
Analogue Television
Basic Interoperable Scrambling System
Basic Interoperable Scrambling System with Encrypted keys
Country and Network Identification
Digital Video Broadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
Field Programmable Gate Array
Gigabit-Ethernet
Graphical User Interface (grafische Benutzeroberfläche)
High Definition (Television)
High Efficiency Advanced Audio Coding
Hypertext Transfer Protocol
Identifier
Intermediate Frequency
Internet Group Management Protocol
Inter-Integrated Circuit (geräteinterner Datenbus)
Internet Protocol
Light Emitting Diode
Low Noise Block
Media Access Control
Moving Picture Experts Group
product name for a processor



NIT	Network Information Table
PCR	Program Clock Reference
PID	Program Identifier
RF	Radio Frequency
SFP	Small Form-factor Pluggable
SNMP	Single Network Management Protocol
TS	Transport Stream
VBI	Vertical Blanking Information
VPS	Video Programming System
WSS	Wide Screen Signalling

14. Bibliography

- [1] EN 50083-9: Cabled distribution systems for television, sound and interactive multimedia signals, part 9: Interfaces for CATV/SMATV head ends and similar professional equipment for DVB/MPEG-2 transport streams
- [2] 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
- [3] EN 50083-2 : Cabled distribution systems for television and sound signals. Electromagnetic compatibility for equipment; EN 50083-2:2001
- [4] RFC 1157 Request for Comments (RFC): RFC Database URL: [Http://www.rfc-editor.org/rfc.html](http://www.rfc-editor.org/rfc.html)

15. Notes on the device software

Device Software of the PALIOS-IPM4
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/>](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

16. Document history

Version	Date	Modification	Author
1.00	04.12.2012	basic document	Häußer
1.01	05.04.2013	revision chapter 12, 15	Häußer
1.02	17.04.2013	revision chapter 8.2.2	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

Product name: IP-/ ASI-TV Transmodulator

Type: PALIOS-IPM4

Product number: 5105.10

according to the following regulations

EN 50083-2 [3]

EN 60728-11 [2] (as far as relevant)

and additional device-specific regulations, enclosed above, which this product is subjected to.

Date: 04.12.2012

Signature:



Dr. Piero Kirchner
(Managing Director)