

Operating instructions

TWIN SAT-Streamer

DVB-S/-S2 → 2 x CI → IP & ASI monitoring



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SSI 108

Part N°: 9740.01

1. Safety and operating instructions



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



The modules may only be installed and started up by authorized technical personnel!



When assembling the modules into the receiving points, the adherence of the EMC regulations is to be secured!



The assembly and wiring have to be done without voltage!



All active modules may only be operated with the Headend Controller HCB x00 or Bus Extender BEB x00!



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



With all work the defaults of the DIN EN 50083 have to be considered! Especially the safetyrelevant execution of the DIN EN 60728-11 [6] is necessary!



WEEE reg. n°: DE 50389067

2. Device variants

SSI 108 9740.01 DVB-S/-S2 → 2 x CI → IP & ASI monitoring

Minimum software requirements for HCB x00:

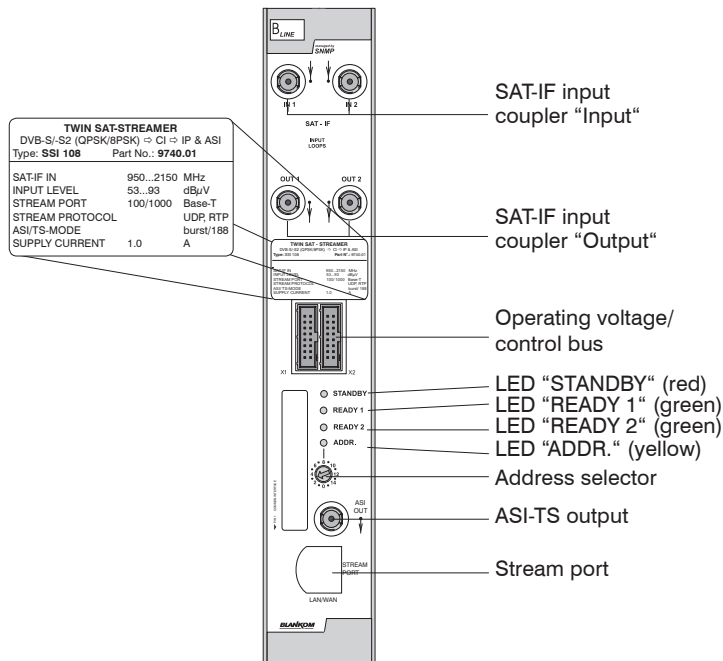
9650.03: version 2.34*
9650.04/.05: version 3.25*
9652.01: version 3.25*
9653.01: version 3.27*

*) Updates: www.blankom.de

3. General

The TWIN SAT Streamer SSI 108 is a module of the head end system B-LINE, which is conceived as a complete system for middle sized networks. The SSI 108 demodulates DVB-S/-S2 signals (8PSK, QPSK) into 2 transport streams, which are sent out over IP. A Common Interface slot enables the use of CA-Modules for the reception of scrambled SAT signals/ programs. Additionally the processed transport streams with the descrambled services are available on the ASI output, and the max. 16 IP transport streams too. All the components are programmed via a central control unit and will function independently thereafter. The status of the modules are displayed via LED's (see chapter 7.2 "Status LED's").

4. Front view



managed by
SNMP

5. Functional description

The SAT-IF input signal is fed to the DVB-S/ -S2 front end, where the selection of a transponder and its QPSK or 8PSK demodulation are done. The data stream is routed by a switching matrix either to the Common Interface or directly to the IP module. A respective CA module with smart card, which is supported by the device, has to be used for descrambling.* Multi service decryption is possible if there are not any restrictions by the CAM itself or by the service provider. The decryption of MPEG-4 services is supported. With this module its possible to choose elementary streams of a service for decryption. So the resources of the respective CAM/ smart card combination can be used optimally. The SI and PSI tables affected (i.e. the PAT, PMT, SDT, EIT) are automatically corrected. 16 of all programs contained in both transport streams can be selected and transmitted via IP. This is supported by different protocols. Address and port selection are not restricted, but should be orientated itself according recommendations of IANA. The module allows the output of one single program transport stream (SPTS) per IP connection, but also the output of one of both multi program transport streams (MPTS), that can be decrypted. For monitoring there is an ASI output to check one of the 16 stream channels. A permanent 12 V voltage for LNC supply is available at the SAT inputs.

* The design of the Common interface of this module is done according to DVB standards. Because of the dependencies in interaction of the DVB signals, CA modules and smart cards we can not assure a general functional capability for all application possibilities. Please contact our service department for further assistance!

6. Adjustments

6.1 Adjustment with the Headend Controller

- Adjustment of the addresses at the Bus Extender BEB x00 and at the modules
- Activation of the programming mode on each module by selecting the line (BEB x00) and the module position (01... 15) at the Headend Controller (HCB x00)
 - yellow LED illuminates until the beginning of the parameter adjustment
- Adjustment of the SSI 108 parameters (see chapter 9) → green LED is switched on
- After the programming the SSI 108 will be automatically switched into the operating mode
 - yellow LED flashes shortly/ green LED is switched on

6.2 Adjustment with the PC/ laptop

- Prerequisite for the remote programming is an "online-connection" according the IP standard and an ethernet connection at the PC/ laptop
- Adjustment of the line/ position addresses at the Bus Extender BEB x00 as well as at the modules
- At the Headend Controller HCB x00 input IP address (default: 192.168.2.80)
- For "direct connection" between a PC and HCB x00 use crossover cable (RJ 45)
- For connection over a HUB use a normal straight through patch cable
- Start-up HTML browser and put in IP address as target address
- If connected correctly the web interface will be opened on the pc and a blue LED (LINK) at the HCB x00 will be lit up.
- All adjustments of the modules are specified on the web interface.

The manual instructions of the Headend Controller HCB x00 and the Bus Extender BEB x00 have to be considered!

6.3 Adjustment with SNMP

- Prerequisite for the SNMP functionality is the use of HCB x00 with enabled SNMP software option CKB 100.
- Supported is SNMP version 1.0 [7].
- Automatic creation of the MIB based on the current head end configuration by the HCB x00.
- Software is required for setting and reading out the parameters and to receive traps from an SNMP management.
- Further Notes on the SNMP functionality of BLANKOM modules are listed in the SNMP manual.

7. Meaning of the LED's

7.1 LED's at the stream port

Meaning (Colour)	Status	Meaning of display
GbE connect LED (green)	permanently on	cable connection with GbE
	off	no cable connection with GbE
Data LED (yellow)	permanently on	port active
	flashing	data being exchanged

7.2 Status LED's

Designation (Colour)	Status	Meaning of display
STANDBY (red)	permanently on	module is in standby
	flashing	module faulty (hardware error)
READY 1/ 2 (green)	permanently on	module working properly
	flashing	error warnings, depending on signal: - tuner 1/ 2 not synchronized (e.g. there is no input signal) - error of decryption - stream channel to the receiver is broken
ADDR. (yellow)	illuminated/ flashing	remote control connection/ data being exchanged

8. Programming by web server*

8.1 Main menu

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 02 / 02						
Description: SKY / ZDF						
Input channel						
SAT-IF	1	2				
Symbol rate	1198	1354	MHz			
Standard	27500	27500	kSps			
Status	Auto	Auto	Status			
Common Interface						
TS-Source	Slot 1	Slot 2				
CA-Module	Input channel 1	Input channel 1				
CA-Menu	AlphaCrypt	not found				
Multidecryption	Count of service:19	Count of service:9				
IP-Network						
Ethernet	IP-Address	Subnet mask	Gateway	MAC-Address		
	192.168.2.100	255.255.255.0	192.168.2.1	00:50:C2:B7:50:DA		
Program settings						
Program listing						
IP-Output						
Stream channel1	On	Sky Comedy	232.16.1.2	1234	connected	Extended
Stream channel2	On	Sky Action	232.16.2.2	1234	connected	Extended
Stream channel3	On	Sky Cinema	232.16.2.4	1234	connected	Extended
Stream channel4	On	Sky Cinema +1	232.16.2.5	1234	connected	Extended
Stream channel5	On	Sky Emotion	232.16.2.6	2000	connected	Extended
Stream channel6	On	(MPTS) TS:1	232.16.2.1	1234	connected	Extended
Stream channel7	On	ZDF	232.16.22.1	0	connected	Extended
Stream channel8	On	ZDFinfokanal	232.16.22.1	5	connected	Extended
Stream channel9	On	zdf_neo	232.16.22.1	15	connected	Extended
Stream channel10	On	ZDFtheaterkana	232.16.22.1	20	connected	Extended
Stream channel11	On	3sat	232.16.22.1	25	connected	Extended
Stream channel12	On	KiKa	232.16.22.1	30	connected	Extended
Stream channel13	On	DRadio Wissen	232.16.22.1	35	connected	Extended
Stream channel14	On	DKULTUR	232.16.22.1	40	connected	Extended
Stream channel15	On	DLF	232.16.22.1	45	connected	Extended
Stream channel16	On	(MPTS) TS:2	232.16.22.1	50	connected	Extended
ASI-Output						
Data source	Stream channel 6					
Operating status	On [On]					
SNMP-Trap message	On					
Factory settings	Load					
Extended settings Software overview Status						
Update Transmit						
<<<< Back >>>>						

Name of device, item number, address in head end

Description Name of programme (max. 30 characters)

Input channel
SAT-IF adjustment range: 950 ... 2150 MHz
Symbol rate adjustment range: 1000 ... 45000 kSps
Standard selection: Auto, DVB-S, DVB-S2
Status displays whether **SYNC**hronization or **noSYNC**hronization with input and the format of transmission

Common Interface
TS-Source slot 1 always input channel 1 assigned, slot 2 - selection: input channel 1 or 2

CA-Module displays the type of the CA module per slot

CA-Menu see menu 2

Multidecryption see menu 3

IP-Network
Ethernet input of IP address, subnet mask and gateway, display of the MAC address

Program settings
Program listing see menu 1

IP-Output
per stream channel (1 ... 16) :
- selection: On/ Off (of the channel)
- displays the name
- input of the destination IP
- input of the destination port
- displays the status of connection
- routing to the menu 7 (extended settings)

ASI-Output
Data source selection: stream channel 1... 16, TS1,TS2

Operating status selection: On, Off, Reset
SNMP-Trap message On/ Off, if SNMP option in HCB x00 is enabled, otherwise "locked" is displayed

Factory settings see menu 9

Routing to the appropriate adjustment menu:

Extended settings see menu 8
Software overview see menu 11
Status see menu 10

* For further details see the HCB manual

8.2 Loading the program list (menu 1)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 02 / 02																	
Input channel 1		Stream channel															
Service ID	Program name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	Sky Comedy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Sky Action	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Sky Cinema	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Sky Cinema +1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Sky Emotion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	Sky Cinema +24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
251	Sky Select 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
261	Sky Select 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3499	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3500	CPT_TP69	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4021	Thomson DCI12P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
252	Sky Buli 11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
253	Sky Sport 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
254	Sky Event A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
262	Buli1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
263	Sky Sport 10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
264	Sky Event B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
265	.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3968	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*****	(MPTS) TS:1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Input channel 2		Stream channel															
Service ID	Program name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
28006	ZDF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28011	ZDFinfokanal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28014	zdf_neo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28016	ZDFtheaterkana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28007	3sat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28008	KiKa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28017	DRadio Wissen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28012	DKULTUR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28013	DLF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
*****	(MPTS) TS:2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Disable program		Stream channel															
Service ID	Program name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	empty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This menu contains a list of all services available in the data stream. In the matrix there is a selection of the services per stream channel. Settings are adopted or changed by clicking the "Transmit" button.

8.3 CA menu (menu 2)

TWIN SAT-Streamer, SSI 108
(9740.01 / 00), Address 02 / 02

AlphaCrypt 3.19 (c) Mascom GmbH

Module Options
 1/ Language/Sprache: ENGLISH
 2/ Smartcard Messages: 10SEC
 3/ AlphaCrypt Applications/Updates
 4/ Expert Menu
 5/ Factory Settings
 6/ Quit
 Change with OK

Select Menu 1-6:

Name of device, item number, address in head end

On these pages all menus implemented in the CA module are offered. The available menus are selected individually or are invoked one-by-one to do necessary settings or to get all informations about the CA module.

8.4 Multi-decryption menu (menu 3)

TWIN SAT-Streamer, SSI 108
(9740.01 / 00), Address 02 / 02

Program name	Decoding settings	Status
Sky Action dec.PID's:4	Service completely	stored
Sky Cinema dec.PID's:4	Service completely	stored
Sky Emotion dec.PID's:4	Service completely	stored

dec.PID's total:12

Clear entries

When calling this menu the selection of the services of the adjusted transponder, which were selected for decryption and whose decryption was successfully, appears. Indicated are the program name with the number of the decoded PID's, the decryption settings and the status of the program. "Stored" means, that the service was successfuly decrypted and saved in the CA-service-list. Using the check box "Clear entries" and the "Transmit/ Back" button the entire selection will be deleted and no services are decrypted afterwards. By using the "Selection" button and the appropriate selection of the services in the multi-decryption selection menu (menu 4) the list of the services to decrypt can be changed. Using the "Testing selection" button calls the test menu (menu 5), in which the decryption state of all programs in the CA-service-list will be tested again and possible occurring errors will be listed.

8.5 Multi-decryption selection (menu 4)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 02 / 02									
Program selection			Decoding settings						
Selection	CAM	Program name	Status	private Streams	other Audio Streams	MPEG1/2 Audio Streams	Subtitling Streams	VBI Data Streams	PID-Drop list
<input type="checkbox"/>	1	Sky Comedy	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	1	Sky Action	coded	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	all	all	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	1	Sky Cinema	coded	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	all	all	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	1	Sky Cinema +1	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	1	Sky Emotion	coded	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	all	all	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	1	Sky Cinema +24	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Sky Select 1	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Sky Select 2	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	---	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	CPT_TP69	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Thomson DCI12PRE	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Sky Buli 11	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Sky Sport 3	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Sky Event A	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Buli1	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Sky Sport 10	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	Sky Event B	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	.	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	1	---	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	

Reset CA-Modul

Simultaneous decoding of several programs depends on CA-Module and Smartcard!

In this menu all services of the adjusted transponder and their CA status are listed. 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-Drop list" all PID's have to be entered, that shall not be decrypted.*

In the column "PID-Drop 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.**

Individual CA modules have to be initialized once again before the CA services will be sent to the module. To do so the option "Reset CA-Modul" can be activated.

* "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.

8.6 Multi-decryption test (menu 5)

Check program: Sky Cinema

First all services, which are saved in the CA-service-list, will be tested for the current decryption status.

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 02 / 02		
Program name	Decoding settings	Status
Sky Action dec.PID's:4	Service completely	OK Info
Sky Cinema dec.PID's:4	Service completely	OK Info
Sky Emotion dec.PID's:4	Service completely	OK Info
dec.PID's total:12		
<input type="checkbox"/> Clear entries		
<input type="button" value="Selection"/> <input type="button" value="Testing selection"/> <input type="button" value="Transmit / Back"/>		

After the end of the test the multi-decryption menu (menu 3) appears, where in the "Status"-column the test result of the respective service is stated by using the "Info" button, the relevant information page of the test (menu 6) is displayed. By clicking of the "Transmit / Back" button all settings are transmitted. The "Selection" button routes back to menu 4 to correct input values, e.g. too much PID's were selected.

8.7 Multi-decryption test information (menu 6)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 02 / 02		
Service Information:		
Service ID	CA Information	Test result
10	coded with CAM support	Test OK
Information about elementary streams:		
PID / Typ	CA Information	Test result
32 / VBI	coded with CAM support	Test OK
511 / Video	coded with CAM support	Test OK
512 / Audio	coded with CAM support	Test OK
515 / AC3	coded with CAM support	Test OK
<input type="button" value="Back"/>		

Name of device, item number, address in head end

On this page informations about the test result of the selected service are displayed. First the final result of the test with service ID and CA information is listed, than for each requested PID the type, the CA information and the test result.

8.8 Extended settings of the stream channels 1 ... 16 (menu 7)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 02 / 02																	
Stream channel 2																	
Operating status	On ▾																
Destination IP	232.16.2.2																
Destination Port	1234																
configuration																	
Transmit protocol	UDP ▾																
FEC-Mode L	1 ▾																
FEC-Mode D	4 ▾																
Set stream data rate to	TS-Data rate ▾																
User defined data rate	***** Kbps																
Change TS-Identification	Off ▾																
TS-ID	*****																
Network-ID	*****																
EIT-Mode	Present/following ▾																
<input type="checkbox"/> Use configuration for all stream channels (without TS-ID)																	
Service settings																	
TS-Source	Input channel 1 ▾																
Streaming mode	SPTS(single program) ▾																
Service ID	9																
Program name	Sky Action																
Update Transmit																	
Stream channel:																	
<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> </table>		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Back																	

Name of device, item number, address in head end

Stream channel x displays the channel, that will be adjusted
 Operating status selection: On/ Off
 Destination IP input of the destination IP number
 Destination Port input of the destination port
 In selecting the destination port please note a distance of 5, if FEC modes were activated.

configuration
 Transmit protocol selection: RTP, UDP
 FEC-Mode L selection: Off, 1 ... 20
 FEC-Mode D selection: Off, 4 ... 20
 Set stream data rate to selection: User defined, TS-Data rate, Service data rate

User defined data rate input of the data rate in kbps (only if "Set stream data rate to user defined", adjustment range: 0..65535)

Change TS-Identification selection: On/ Off
 TS-ID input of the TS-ID**
 Network-ID input of the network ID**
 EIT-Mode selection: EIT completely, present/ following

Use configuration for all stream channels if box is clicked, all configuration settings are adopted for the other 15 stream channels

Service settings
 TS-Source selection: input channel 1 or 2
 Streaming Mode selection: SPTS (one program), MPTS (all programs)
 Service ID adjustment range: 0..65535***
 Program name service name (max. 30 characters)

Stream channel routing to the next stream channel, that should be adjusted

* only selectable if "Change TS-Identification Off"
 ** input only if "Change TS-Identification On" is selected
 *** input only if "Streaming mode SPTS" is selected

The manual configuration of service settings is necessary only if the requested service is not available in the program list. Normally all settings of the service are adopted when the service is selected in the list.
 The selection "Service data rate" of the stream data rate is creating a VBR data stream. This mode should be selected only for appropriate target devices, because it will affect PCR accuracy. If there are doubts about it, selection of "TS data rate" or "User defined" data rate is strongly recommended.

8.9 Extended settings (menu 8)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 03			
CA-Configuration		Slot 1	Slot 2
Mode CA-PMT update		CA-PMT-Entry ▾	CA-PMT-Entry ▾
Use of Date & Time		Off ▾	Off ▾
Smart card activation mode		deactivated ▾	deactivated ▾
TS-Configuration		TS 1	TS 2
SDT/PMT processing		On ▾	On ▾
Update Transmit			
Back			

Name of device, item number, address in head end

CA-Configuration datas per slot
 SDT/PMT-Proc. selection: On/ Off
 Mode
 CA-PMT-Update selection: CA-PMT-Entry, CA-PMT-Listing
 Use of Date & Time selection: On/ Off

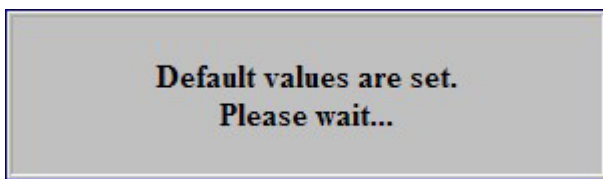
Some CA modules request resource "Date & Time" while being initialised. Otherwise this setting should remain deactivated.
 The smart card activation mode should only be turned on when a new smart card will be enabled or an expired smart card will be re-activated. Thus, the monitoring functions, necessary for the proper operation of the device, will be disabled in order to ensure trouble-free data exchange to enable the card. Depending on the provider, this process may take some time. It should be noted that in this

mode only one service per module is decrypted, the multi-decryption functionality is thus suspended. It is to select this service for decrypting, which includes the activation data (determined by the provider). After successful activation of the card the mode is to disable it in order to ensure the readiness for operating of the device in its entirety (especially the multi-decryption functionality).

8.10 Factory settings (menu 9)



When this menu item is requested, at first a security query whether it really set all parameters to the factory default settings pops up.



Affirming the query, all settings stored in the EEPROM will be deleted and replaced by the default settings. The module will go back to these default values. In particular all network settings (IP address, subnet mask, gateway and destination IP per channel) are set on address 0.0.0.0 . Once the setting process is over, there will be an automatic return to the main menu. It takes about one minute.

8.11 Status of the device (menu 10)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 02 / 02			
Input channel	1	2	
Status	SYNC (DVB-S)	SYNC (DVB-S)	
Set values	Sat ZF:1198 Symbolrate:27500	Sat ZF:1354 MHz Symbolrate:27500 kSps	
RF-Input level	47	42 dBµV	
BER/PER	< 1 E-6	< 1 E-6	
Common Interface	Slot 1	Slot 2	
Decoder status	No messages available	No messages available	
IP-Output	Program name	Status	Data rate
Stream channel 1	Sky Comedy	To be running	6319 Kbps
Stream channel 2	Sky Action	To be running	6431 Kbps
Stream channel 3	Sky Cinema	To be running	6554 Kbps
Stream channel 4	Sky Cinema +1	To be running	5366 Kbps
Stream channel 5	Sky Emotion	To be running	5270 Kbps
Stream channel 6	(MPTS) TS:1	To be running	36025 Kbps
Stream channel 7	ZDF	To be running	9276 Kbps
Stream channel 8	ZDFinfokanal	To be running	5638 Kbps
Stream channel 9	zdf_neo	To be running	6764 Kbps
Stream channel 10	ZDFtheaterkana	To be running	6049 Kbps
Stream channel 11	3sat	To be running	5692 Kbps
Stream channel 12	KiKa	To be running	6079 Kbps
Stream channel 13	DRadio Wissen	To be running	1075 Kbps
Stream channel 14	DKULTUR	To be running	1075 Kbps
Stream channel 15	DLF	To be running	1075 Kbps
Stream channel 16	(MPTS) TS:2	To be running	35457 Kbps
Data rate Stream-Port (receive)			2 Kbps
Data rate Stream-Port (sent)			252739 Kbps
Information			
System status	No messages available		
Temperature	102		
Temperature internally	98		
Device number	0000000		
Device index	00		
Update Back			

Name of device, item number, address in head end

Input channel displays datas for channel 1 and 2
Status displays whether **SYNC**hronization or **noSYNC**hronization with input and the format of transmission
Set values displays adjusted SAT IF and symbol rate
RF-Input level displays in dBµV
BER/ PER bit error rate (DVB-S)/ packet error rate (DVB-S2)

Common Interface displays per slot
Decoder status displays available messages

IP-Output displays status and data rate per stream channel
 An error indicator in the "Status" column has generally indicate a too low data rate choosen.

Data rate Stream-Port (receive)
 The value indicates the network load on the IP port that the CPU has to process. Lie permanently on more than 64 Kbps, a review of the network is recommended.

Data rate Stream-Port (sent)
 displays output data rate

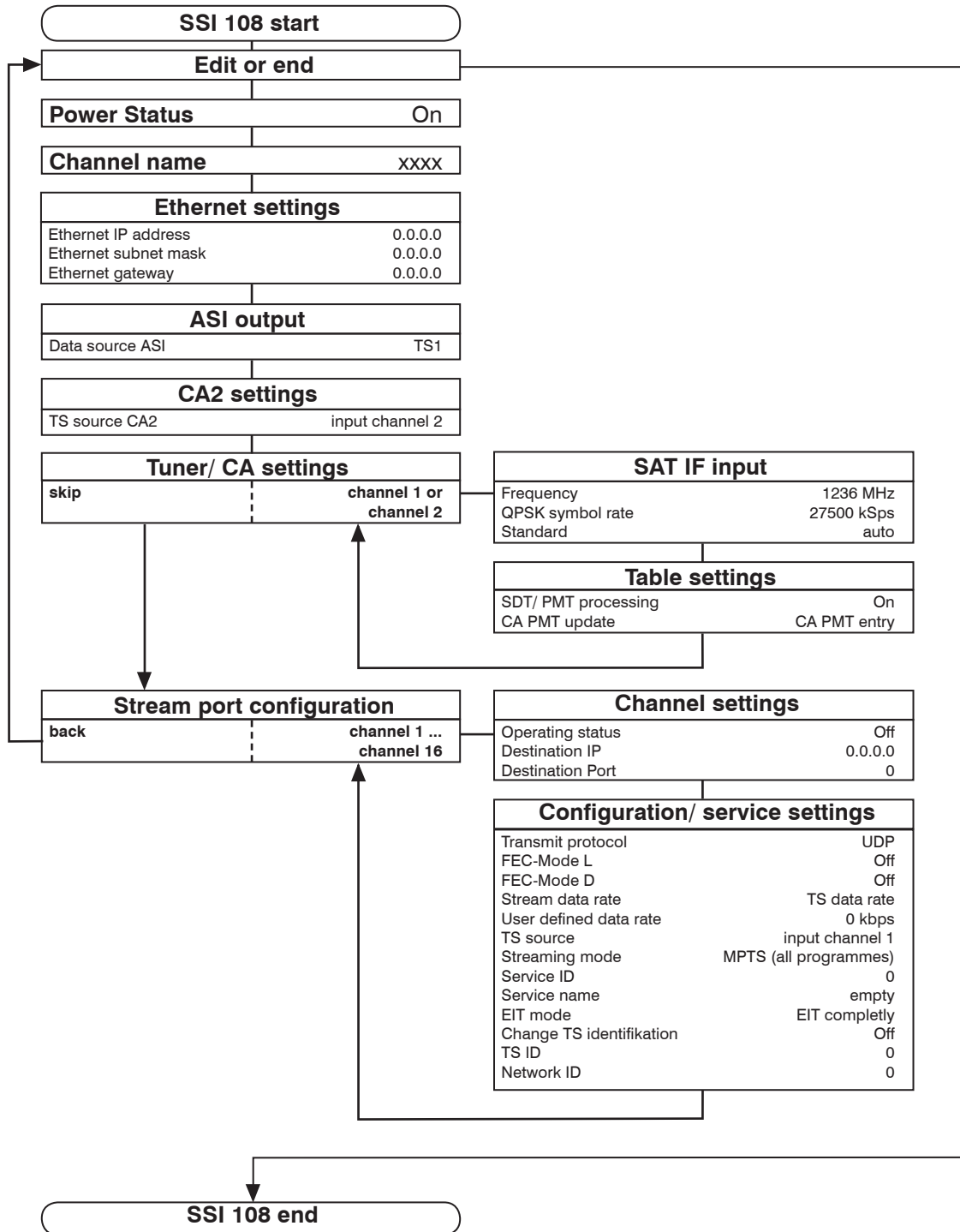
Information
System status displays available messages
Temperature displays external temperature of the device
Temperature internally displays internal temperature of the device
Device number display of the device number
Device index display of the device index (hardware)

8.12 Software overview (menu 11)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 02 / 02		Name of device, item number, address in head end
Version		Software versions
		Displays the software versions for the controllers as follows:
AP-Controller	9740.01-81.01 Steuercontroller Anschluß-LP V1.03 13.04.2010 JR	- Controller of terminals board
DVB-S/S2 Frontend1	9619.05-88.02 S2-NIM-Controller V1.11 11.11.2009 S.	- Controller DVB-S/ S2 frontend 1
DVB-S/S2 Frontend2	9619.05-88.02 S2-NIM-Controller V1.11 11.11.2009 S.	- Controller DVB-S/ S2 frontend 2
CA Bootcontroller	9730.01-88.01 FPGA Boot Controller(2) V1.00 10.06.2009 JR	- CA-Bootcontroller
CA FPGA-Image	9740.01-87.02 FPGA CA-Controller V0.03 20.04.2010 WE	- FPGA CA-Controller
CA NIOS-Application	9740.01-90.03 TS-CA-Manager V1.03 09.04.10 S.	- TS-CA-Manager
IP Bootcontroller	9730.01-88.01 FPGA Boot Controller(1) V1.01 11.11.2009 JR	- IP-Bootcontroller
IP FPGA-Image	9740.01-87.01 FPGA DualCore IP-CPU V1.02 09.03.2010 MF	- FPGA IP-Controller
IP NIOS-Application CPU1	9740.01-90.01 NIOS IP-CPU V1.03 21.04.2010 AS	- IP-CPU
IP NIOS-Application CPU2	9740.01-90.02 NIOS TS-CPU V1.03 21.04.2010 MF	- TS-CPU
<input type="button" value="Back"/>		

9. Manual menu control at the Headend Controller (HCB x00)

The values in the blocks settings are the default values. After pushing the button "default" settings on the main page, all settings stored in the EEPROM are erased and reset to default values. The device is set to these values again (see also chapter 8.10).

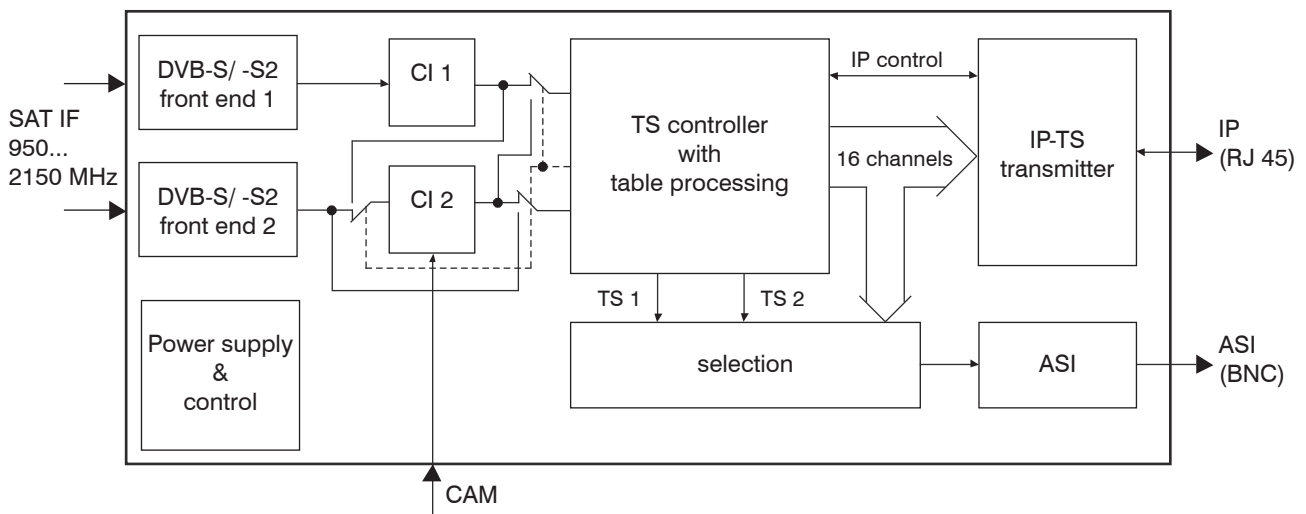


10. Trap messages

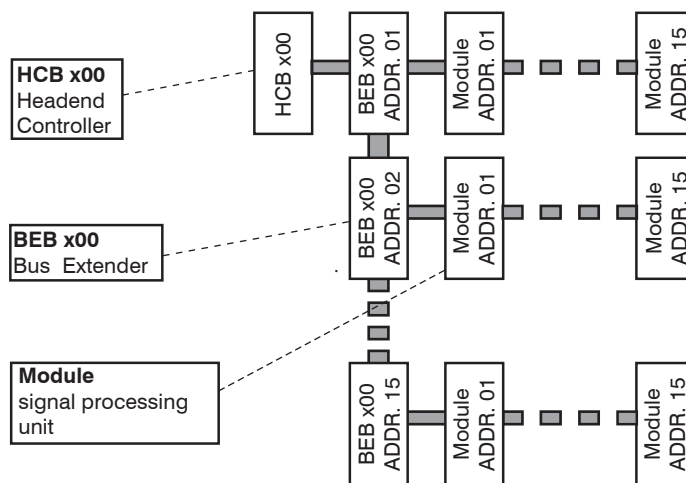
Item	Message	Message Type	Explanation
01	Input sync	INFORMATION	input synchronized
02	Input not sync	WARNING	input not synchronized
03	IIC error	CRITICAL	IIC bus or hardware error

Item	Message	Message Type	Explanation
04	System reset	WARNING	reset by internal error
05	Internal controller reset	WARNING	error when accessing internal controller
06	Power fail	CRITICAL	power supply error
07	Communication CA-Controller lost	WARNING	error when accessing CA controller
08	Communication IP-Controller lost	WARNING	error when accessing IP controller
09	IP-Streamer fail	WARNING	error in IP streamer
10	IP-Streamer ok	INFORMATION	IP streamer working properly
11	Decoding of service ... fail	WARNING	error on descrambling of service...
12	Decoding of service ... ok	INFORMATION	descrambling of service ... ok

11. Block diagram

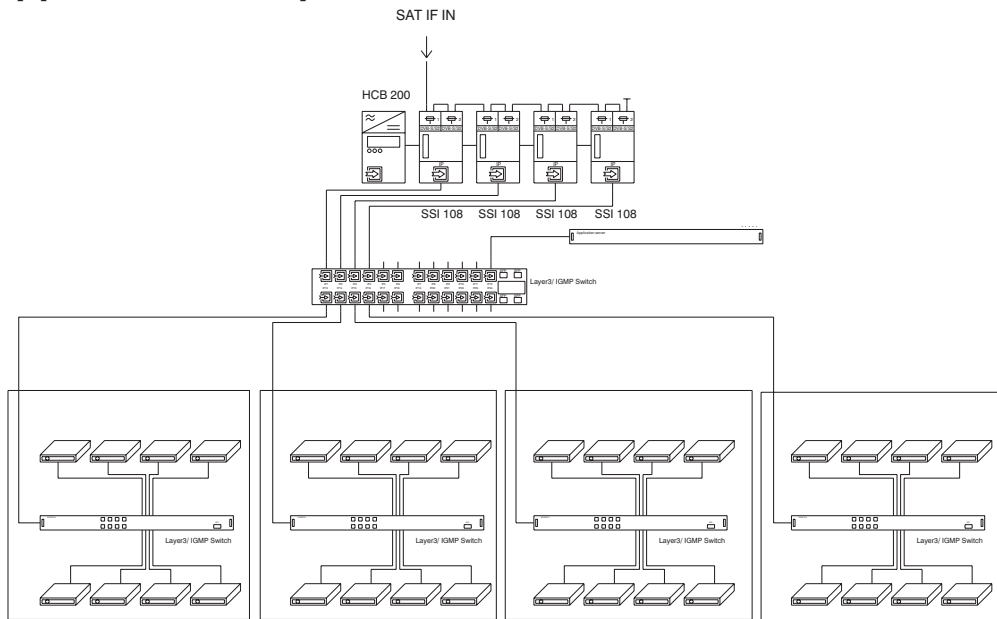


12. Head end bus structure



The number of the possible module connections (00 ... 15) to a BEB x00 depends on the total power consumption of this line!

13. Application example



14. Technical data

SAT IF input

Frequency range	950 ... 2150 MHz
Frequency step	1 MHz
AFC range	± 3 MHz (SR < 10 MSps) ± 5 MHz (SR ≥ 10 MSps)
AGC level range	53 ... 93 dBμV
Connector	F socket
Impedance	75 Ω

DVB-S demodulator (QPSK)

Symbol rate	1 ... 45 MSps
Code rate	1/2, 2/3, 3/4, 5/6, 7/8
Roll-off	35 %
Signal processing	EN 300 421 (DVB-S) [1]

DVB-S2 demodulator (QPSK, 8PSK)

Symbol rate	QPSK	5 ... 36 MSps
	8PSK	5 ... 30 MSps
Code rate	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
Roll-off		35 %
Signal processing		EN 302 307 (DVB-S2) [2]

ASI output

Data rate	270 Mbps
Polarity	normal
Mode	burst
TS data rate	according symbol rate and coding
TS mode	188 Bytes
Output voltage	800 mV _{pp} ± 10 %
Connector	BNC socket
Impedance	75 Ω
Signal processing	EN 50083-9 [3]

Decryption interface

Common Interface	PCMCIA-Slot according EN 50221 [4]
Operating voltage	5 V
Multi-Service decryption	24 services max.

IP output

Network connection (LAN/ WAN)	Ethernet, 10/ 100/ 1000 Base-T
Plug connection	RJ 45
Protocols	UDP, RTP, ARP
Additional error correction	pro-MPEG Code of practise 3 rev. 2 [8]
Encapsulation	according ETSI TS 102034 [5]

Operating parameters

Voltage/ current (w/o CAM)	12 V (± 0.2 V)/ 1 A
Residual ripple of 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)	
without 19"-adapter	50 x 276 x 148 mm
with 19"-adapter	50 x 301 x 148 mm
Weight	1,350 g

Delivery content

1 x bus connector
2 x F connecting cable 140 mm

15. Glossary

8PSK	8 Phase Shift Keying
AAC	Advanced Audio Coding
AC3	Adaptive Transform Coder 3 (multi channel audio system of company Dolby)
AP	Anschlussplatte (front terminal board)
ARP	Address Resolution Protocol
ASI	Asynchronous Serial Interface
BER	Bit Error Rate
CA	Conditional Access
CAM	Conditional Access Module
CATV	Cable Television
CI	Common Interface
CCIR	Comité Consultatif International des Radiocommunications
DTS	Digital Theater Systems (multi channel audio system of company with the same name)
DVB	Digital Video Broadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
EIT	Event Information Table
FEC	Forward Error Correction
FPGA	Field Programmable Gate Array
GbE	Gigabit-Ethernet
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
IANA	Internet Assigned Numbers Authority
ID	Identifier
IF	Intermediate Frequency
IIC	Inter-Integrated Circuit (I ² C-Bus, data bus within device)
IP	Internet Protocol
LED	Light Emitting Diode
MC	Microcontroller
MIB	Management Information Base
MPEG	Moving Picture Experts Group
MPTS	Multi Program Transport Stream
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase Shift Keying
PAT	Program Association Table
PCR	Program Clock Reference
PER	Packet Error Rate
PID	Packet Identifier
PMT	Program Map Table
PLL	Phase-locked loop
RTP	Realtime Transport Protocol
SDT	Service Description Table
SMATV	Satellite Master Antenna Television
SNMP	Simple Network Management Protocol
SPI	Serial Peripheral Interface
SPTS	Single Program Transport Stream
TS	Transport Stream
TV	Television
UDP	User Datagram Protocol
VBR	variable bit rate

16. 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 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
- [4] EN 50221: Common interface specification for conditional access and other digital video broadcasting decoder applications; German version EN 50221:1997 + Corrigendum:2000
- [5] ETSI TS 102034: Digital Video Broadcasting (DVB); Transport of MPEG-2 TS Based DVB Services over IP Based Networks, Ver. 1.4.1, 2009-08-04
- [6] 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
- [7] RFC 1157 Request for Comments (RFC): RFC Database URL: <http://www.rfc-editor.org/rfc.html>
- [8] ETSI TS 102034: Digital Video Broadcasting (DVB); Transport of MPEG-2 TS Based DVB Services over IP Based Networks, Ver. 1.4.1, 2009-08-04

17. Document history

Version	Date	Modification	Author
1.00	03.11.2009	Basic document	Häußer
1.01	01.02.2010	Revision	Häußer
1.02	30.04.2010	Revision/adaptation	Häußer
1.03	08.10.2010	Revision chapter 8.8 & 8.9	Häußer
1.04	30.09.2001	Revision chapter 8.11	Häußer
1.05	29.06.2012	Revision chapter 8.9	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: TWIN SAT-Streamer

Type: SSI 108

Product number: 9740.01

according to the following regulations

EN 50083-2

EN 60728-11 (as far as relevant)

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

Date: 03.11.2009

Signature:



(Managing Director)