

Operating instructions

SAT-TV Demodulator

DVB-S/-S2 → CI → ASI-TS & A/V



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SDB 908

Part N°: 9726.02

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.-Nr. DE 50389067

2. Device variants

SDB 908 9726.02 DVB-S/-S2 → CI → ASI-TS & A/V

Minimum software requirements for HCB x00:

9650.03: version 2.34¹
9650.04/.05: version 3.18¹
9652.01: version 3.23¹
9653.01: version 3.27¹
9653.02: version 3.28¹

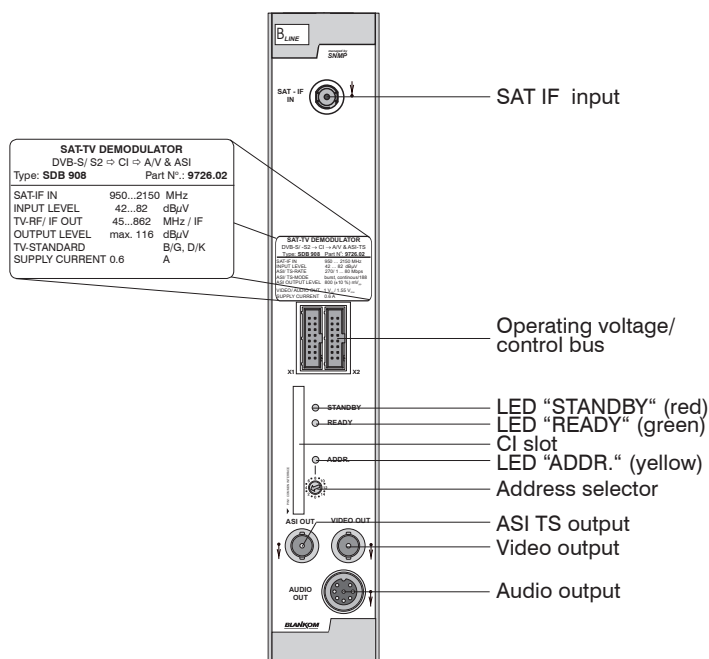
¹ Updates: www.blankom.de

3. General

The SAT-TV Demodulator SDB 908 is a module of the head end system B-LINE, which is conceived as a complete system for middle sized networks. The SDB 908 demodulates DVB-S/ -S2 signals (8PSK, QPSK) into analogue audio/ video signals. A Common Interface slot enables the use of CA modules for the reception of scrambled satellite signals/ programs. Additionally the processed transport stream with the descrambled services is available on the ASI output.

All the components are programmed via a central control unit and will function independently thereafter. The status of the modules is displayed via LED's (see chapter 7 "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 DVB module consisting of a demultiplexer and a H.264/ AVC & MPEG2 decoder. An analogue video- and an associated stereo-audio signal are generated within the DVB module. The video signal is filtered and the audio signal is processed by a DA converter afterwards. The SDB 908 supports the output of additional services like Teletext, WSS, VPS and optional the display of subtitle. The analogue signal outputs were fed by buffer amplifiers (for the pin assignment of the audio socket see chapter 8). The audio outputs are balanced to ground. A respective CA module with smart card, which is supported by the device, has to be used for descrambling.¹ Multi service decryption is possible if there are not any restrictions by the CAM itself or by the service provider. With this module its possible to choose elementary streams of a service for decryption. So the ressources of the respective CAM/ smart card combination can be used optimally. BISS decryption can be performed by activating the software option CKB 104. Supported are the BISS mode 1 and the BISS mode E with entering the necessary injected ID, but not the BISS mode E with the optional buried ID. The activation of the software option CKB 105 allows the output of the processed data stream on the ASI TS connector. The multi service decryption is enabled thereby.

¹ 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 (1... 15) at the Headend Controller(HCB x00)
 - yellow LED illuminates until the beginning of the parameter adjustment
- Adjustment of the SDB 908 parameters (see chapter 10) → green LED is switched on
- After the programming the SDB 908 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

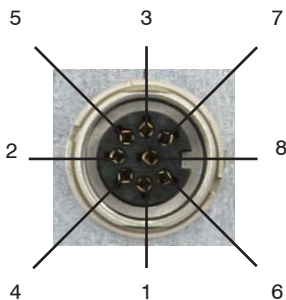
- Prerequisite for the SNMP functionality is the use of HCB x00 with enabled SNMP software option CKB 100.
- Supported is SNMP version 1.0 [7].
- Automatic creation of the MIB based on the current head end configuration by the HCB x00.
- For setting and reading out the parameters and is to receive traps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

7. Front panel LED`s

Designation (Colour)	Status	Meaning of display
STANDBY (red)	permanently on	module is in standby
	flashing	module faulty (hardware error)
READY (green)	permanently on	module working properly
	flashing	error warnings, depending on signal: - tuner not synchronized (e.g. there is no input signal) - service settings are not valid
ADDR. (yellow)	illuminated/ flashing	remote control connection/ data being exchanged

8. Audio socket

Pin assignment



- 1 stereo left+/ dual A+/ mono+
- 2 screening/ earth
- 3 stereo right+/ dual B+
- 4 stereo left-/ dual A-/ mono-
- 5 stereo right-/ dual B-
- 6 control line contact 1
- 7 control line contact 2
- 8 control line return path (earth)

Audio mode signaling

- Mono** Pins 6/ 8: Connection open
 Pins 7/ 8: Connection closed
- Stereo** Pins 6/ 8: Connection closed
 Pins 7/ 8: Connection open
- Dual** Pins 6/ 8: Connection closed
 Pins 7/ 8: Connection closed
 or
 Pins 6/ 8: Connection open
 Pins 7/ 8: Connection open

9. Programming by web server *

9.1 Main menu

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00	
Description	ORF2
Input	
SAT IF	2092 MHz
Symbol rate	22000 kSps
Standard	auto
Status	SYNC
BISS settings	
BISS key	
BISS-E injected ID	
ASI output	
Polarity	normal
TS source	auto
A/V program settings	
Program listing	Load
Service ID	13002 dez
Service type	TV
Audio PID 1 language number	0
Language code 1	ger mpeg1
Audio PID 2 language number	1
Language code 2	---
Audio description	off
Audio settings	
Audio gain	0 dB
Common Interface	
Status	AlphaCrypt
CA menu	Load
Multidecryption	
Menu	Count of service:2 Load
Operating status	on [on]
SNMP trap message	on
SYNC control	normally
Factory settings	Load
<input type="button" value="Software options"/> <input type="button" value="Extended settings"/> <input type="button" value="Status"/> <input type="button" value="Software overview"/>	
<input type="button" value="Update"/> <input type="button" value="Transmit"/>	
<input type="button" value="<<<"/> <input type="button" value="Back"/> <input type="button" value=">>>"/>	

Name of device, item number, address in head end

Description Name of program (max. 30 characters)

Input

SAT IF adjustment range: 950 ... 2150 MHz
 Symbol rate adjustment range: 1000 ... 45000 kSps
 Standard selection: auto, DVB-S, DVB-S2
 Status display whether **SYNC**hronization or **noSYNC**hronization with input

BISS settings

(will only be available if "BISS decryption" option is enabled)
 BISS key input of the 12-digit code in BISS mode 1 or the 16-digit code in BISS mode E
 BISS-E injected-ID input of the 14-digit code in BISS mode E, no input in BISS mode 1.

ASI output

(will only be available if "ASI output" option is enabled)
 Polarity selection: normal, inverse
 TS source selection: auto, original

A/V program settings

Program listing see menu 2
 Service ID adjustment range: 0...65535
 Service type displays the type of selected service (TV, Radio)
 Audio PID 1 lang. n° adjustment range: 0...47¹
 Language code 1 displays the code of the selected lang. 1
 Audio PID 2 lang. n° adjustment range: 0...47¹
 Language code 2 displays the code of the selected lang. 2
 Audio description selection: on, off²

Audio settings

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

Common Interface

Status status message of the CA module
 CA menu see menu 3

Multidecryption

Menu see menu 4

Operating status selection: on, off, reset
 SNMP trap mess. on, off, if SNMP option in HCB x00 is enabled, otherwise "locked" is displayed
 SYNC control synchronization test at input. selection: fast, normally, slowly

Factory settings

see menu 10

Routing to the appropriate adjustment menu:

Software options see menu 1
 Extended settings see menu 8
 Status see menu 10
 Software overview see menu 11

¹ In the SDB 908, it is possible to select 1 or 2 audio PID's for transmitting. If you select only one language, then this is transmitted in the present audio mode (mono, stereo, dual). If you choose, however, two audio PID's, a dual tone is generated from both of them, as the dual tone 1 the language of the audio PID 1, as the dual tone 2 the language of the audio PID 2 (see also menu 8). The audio PID 2 is disabled by a non numerical character.

² If you activate the function of audio description, a dual tone is automatically generated if a program in the appropriate format into the selected service is transmitted, which is transmitted in dual tone 1 the original and the dual tone 2, the descriptive explanation of the image. There is however necessary that there is set as the audio PID 1 the appropriately labeled audio stream of the service.

9.2 Software options (menu 1)

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00	
Available software options	
Option	Status
Subtitling	activate
BISS descrambler	activate
ASI output	activate
Enter license key: <input type="text"/>	
License index:0 Device number:0000000	
<input type="button" value="Back"/> <input type="button" value="Transmit"/>	

Name of device, item number, address in head end

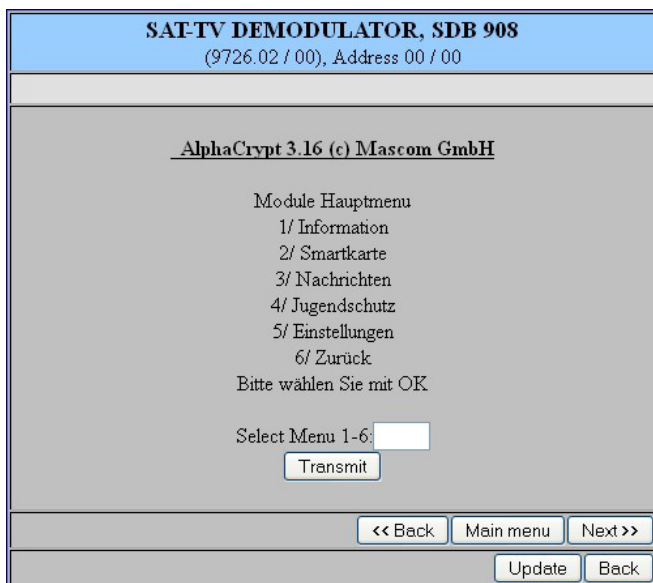
Dialogue for entering a code to activate the "subtitling" (CKB 102), "BISS decryption" (CKB 104) and "ASI output" (CKB 105) software options . When the page is called, the current state of activation will be displayed.

9.3 Loading the program list (menu 2)

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00							
Program listing							
Program name	Status	Service type	Service ID	Audio 1 language	Audio 2 language	Subtitle language	Selection
ORF1	coded	TV	13001	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2	coded	TV	13002	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 W	coded	TV	13003	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 N	coded	TV	13004	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 B	coded	TV	13005	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 O	coded	TV	13006	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 S	coded	TV	13007	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 T	coded	TV	13008	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 V	coded	TV	13009	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 St	coded	TV	13010	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2 K	coded	TV	13011	ger mpeg1	---	missing	<input type="button" value="Set"/>
ATV	coded	TV	13012	ger mpeg1	---	missing	<input type="button" value="Set"/>
HITRADIO OE3	free	TV	13013	ger mpeg1	---	missing	<input type="button" value="Set"/>
ORF2E	free	TV	13014	ger mpeg1	---	missing	<input type="button" value="Set"/>
Hallo TV German free	free	TV	13015	ger mpeg2	---	missing	<input type="button" value="Set"/>
Hallo TV España free	free	TV	13016	spa mpeg2	---	missing	<input type="button" value="Set"/>
Hallo TV Polska free	free	TV	13017	pol mpeg2	---	missing	<input type="button" value="Set"/>
Folk TV	free	TV	13018	ger mpeg2	---	missing	<input type="button" value="Set"/>
RiC	free	TV	13019	ger mpeg2	---	missing	<input type="button" value="Set"/>
<input type="button" value="Update"/> <input type="button" value="Back"/>							

This menu contains a list of all H.264/ AVC- & MPEG-2 services available in the data stream. Audio and DVB subtitle language selection can take place here if there are any available. A service is adopted or changed by clicking the relevant "Set" button.

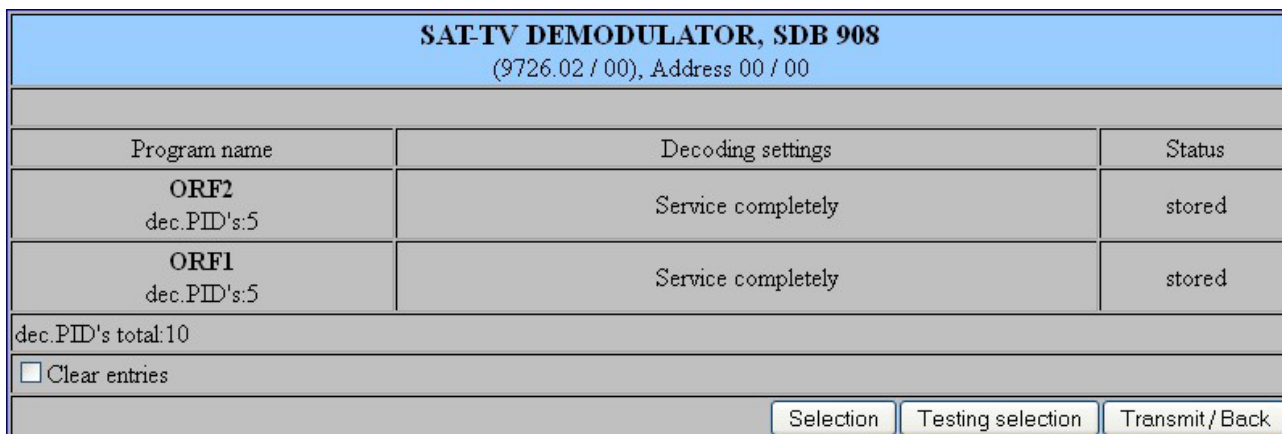
9.4 CA menu (menu 3)



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 information about the CA module.

9.5 Multi-decryption menu (menu 4)



Program name	Decoding settings	Status
ORF2 dec.PID's:5	Service completely	stored
ORF1 dec.PID's:5	Service completely	stored

dec.PID's total:10

Clear entries

Selection Testing selection Transmit / Back

It is important to note that the possibility of multiple decryption depends on the CA module used. The maximum number of PIDs to be decrypted is limited and maximum limit per CA module is different.

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 successfully 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 5) the list of the services to decrypt can be changed.

Using the "Testing selection" button calls the test menu (menu 6), in which the decryption state of all programs in the CA service list will be tested again and possible occurring errors will be listed.

9.6 Multi-decryption selection (menu 5)

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00								
Program selection			Decoding settings					
Selection	Program name	Status	private Streams	other Audio Streams	MPEG 1/2 Audio Streams	Subtitling Streams	VBI Data Streams	PID drop list
<input checked="" type="checkbox"/>	ORF1	coded	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	all	all	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	ORF2	coded	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	all	all	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	ORF2 W	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2 N	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2 B	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2 O	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2 S	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2 T	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2 V	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2 St	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2 K	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ATV	coded	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	HITRADIO OE3	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	ORF2E	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	Hallo TV German free	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	Hallo TV España free	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	Hallo TV Polska free	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	Folk TV	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	RiC	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	AlphaCrypt	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	Schwaiger OTA Service	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/>	VESTEL DOWNLOAD	free	<input type="checkbox"/>	<input type="checkbox"/>	no	no	<input type="checkbox"/>	
<input type="checkbox"/> Reset CA module								
Simultaneous decoding of several programs depends on CA module and smart card!								
						Update	Transmit	
								Back

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. ¹

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. ²

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.

¹ "Other Audio Streams" includes all AC3 and DTS streams. "Private Streams" selects all streams which are not captured by the other selection fields.

² Particularly PID's can be given here, which are active only at times and no authorisation for decryption is available for them.

9.7 Multi-decryption test (menu 6)

Send selection to CA module.

Check program: ORF1

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

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00		
Program name	Decoding settings	Status
ORF2 dec.PID's:5	Service completely	OK Info
ORF1 dec.PID's:5	Service completely	OK Info
dec.PID's total:10		
<input type="checkbox"/> Clear entries		
		Selection Testing selection Transmit / Back

After the end of the test the multi-decryption menu (menu 4) 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 7) is displayed. By clicking the "Transmit/ Back" button all settings are transmitted. The "Selection" button routes back to menu 5 to correct input values, e.g. too much PID's were selected.

9.8 Multi-decryption test information (menu 7)

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00		
Service Information:		
Service ID	CA information	Test result
13001	coded with CAM support	Test OK
Information about elementary streams:		
PID/ Type	CA information	Test result
160 / Video	coded with CAM support	Test OK
161 / Audio	coded with CAM support	Test OK
163 / AC3	coded with CAM support	Test OK
165 / VBI	coded with CAM support	Test OK
169 / VBI	coded with CAM support	Test OK
		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.

9.9 Extended settings (menu 8)

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00	
Video	
Video output	on
Color bar	off
Color system	PAL
Audio	
Sound channel selection (Audio PID 2 is selected). The selection must only be made if dual tone is transmitted in the respective audio TS. The audio channel to be transmitted has to be selected.	
Audio PID 1	Dual I
Audio PID 2	Dual I
VPS settings	
CNI code	0x000
Source audio mode	MPEG
Source PIL	A056 (PDC)
CA settings	
SDT/PMT processing	on
Mode CA-PMT update	CA-PMT-Entry
Use of date & time	off
Smart card activation mode	deactivated
CA check time	0 min
Subtitling	
Mode	off
Settings DVB-Subtitling	
DVB language index	0
DVB language code	---
Use extended ID's	yes
Settings Teletext-Subtitling	
Teletext page	0
Language group	west
<input type="button" value="Update"/> <input type="button" value="Transmit"/>	
<input type="button" value="Back"/>	

Name of device, item number, address in head end

Video
Video output settings of the video parameters
selection: on, auto off, auto colour palette bar
Color bar selection: on, off
Color system selection: PAL, SECAM, NTSC

Audio
A setting of the following fields is only necessary when two audio PID's are selected for transmission in the main menu. For both of these audio data streams, a dual tone is generated. If even a dual tone is transmitted in one or two data streams, so you can choose with the two setting fields, which of the two tones per audio stream to be used for the generation of the resulting dual tone.

VPS settings
CNI code adjustment range: 0x000...0xFFFF hex.
Source audio mode selection: MPEG, A056(MPEG)
Source PIL selection: A056(PDC), A056, PDC, TimerControlCode

CA settings ¹
SDT/ PMT processing selection: on, off
Mode CA-PMT update selection: CA-PMT-List, CA-PMT-Entry (isn't supported by all CAM's)
Use of date & time selection: on, off
Smart card act. mode selection: activated, deactivated
CA check time input in min

Subtitling
(will only be available if "Subtitling" option is enabled)
Mode selection: Off, Teletext, DVB

Settings DVB-Subtitling
(will only be available if "Subtitling" option is enabled)
DVB languages index adjustment range: 0...16
DVB language code displays the code of the language selected
Use extended ID's selection: yes, no

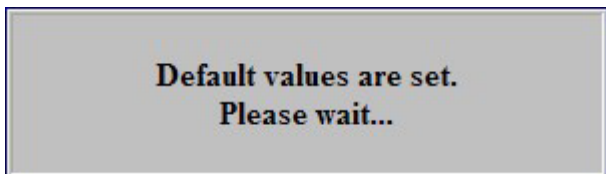
Settings Teletext-Subtitling
(will only be available if "Subtitling" option is enabled)
Teletext page adjustment range: 0...899
Language group selection: west, east, russian, arabic, farsi

¹ The settings listed under "CA settings" are selected individually depending on the particular CA module, since the individual modules may require appropriate resources and timelines for their initialization. Furthermore, in the second setting point, the modes of the CA PMT updates are set. You can choose between CA-PMT-List and CA-PMT-Entry, but the latter is not supported by all CAM's. Some CA modules require to initialize the resource "date & time". For all other modules, this setting should remain disabled.

9.10 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. Once the setting process is over, there will be an automatic return to the main menu.

9.11 Status of the device (menu 10)

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00		
Tuner		
Status	SYNC	
Standard	DVB-S	
Input frequency	2091.696	MHz
Symbol rate	21991.420	ksps
Code rate	5/6	
Modulation	QPSK	
Spectrum	IQ normal	
Tuner AGC	61	%
C/N	14.4	dB
BER/ PER	0 x 1e-7	
DVB-S2 parameters	---	
MPEG decoder		
Status	TS: SYNC Audio Decoder: SYNC Video Decoder: SYNC	
Complementary data		
Current VPS data	PIL= 11.10 10:15 Running Audio= dual-ch CNI= 0x0AC2 secondary	
Current WSS data	4:3 full sec_A056_WSS	
Information		
Temperature	35	°C
Device number	0000000	
Device index	00	
Update Back		

Name of device, item number, address in head end

Tuner
Status displays whether **SYNC**hronization or **noSYNC**hronization
Standard displays the receiv. standard of the signal
Input frequency displays the actual input frequency
Symbol rate displays the actual symbol rate
Code rate displays the FEC
Modulation displays the signal modulation
Spectrum displays the spectral inversion
Tuner AGC in %
C/N in dB
BER/ PER bit error rate (DVB-S)/ packet error rate (DVB-S2) according to the signalling DVB-S2 information

MPEG decoder
Status Synchronization status for the TS audio and video decoder

Complementary data
Current VPS data displays detailed information about current VPS data
Current WSS data displays detailed information about current WSS data

Information
Temperature temperature of terminals board
Device number display of the device number
Device index display of the device index (hardware)

9.12 Software overview (menu 11)

SAT-TV DEMODULATOR, SDB 908 (9726.02 / 00), Address 00 / 00	
Version	
AP controller	9726.02-81.01 AP Controller V1.00 09.10.2013 JR,JH
MPEG decoder	9726.01-86.01 MPEG4_CI V0.10 03.09.13 S.
FPGA-ASI encoder	9726.01-87.01 ASI-Encoder V0.04 29.08.2013 WE
Back	

Name of device, item number, address in head end

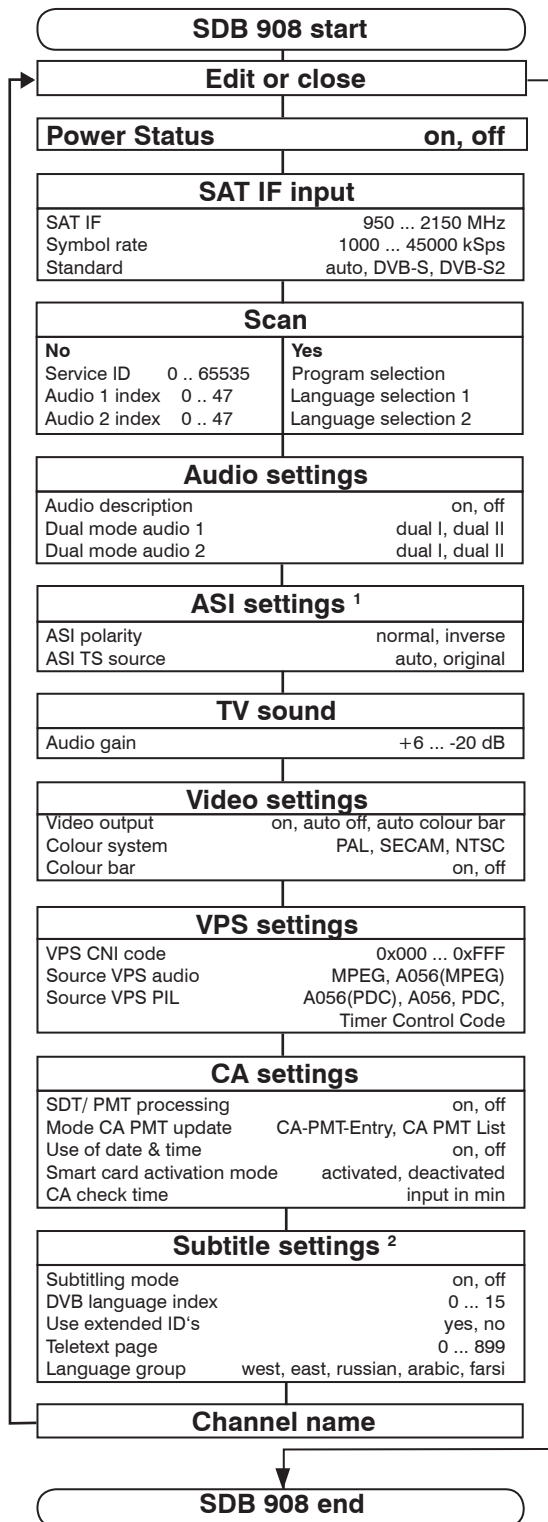
Version
Displays the software versions for the controllers as follows:

- Controller of terminals board

- MPEG decoder

- FPGA ASI encoder

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



¹ only available if "ASI output" option is enabled

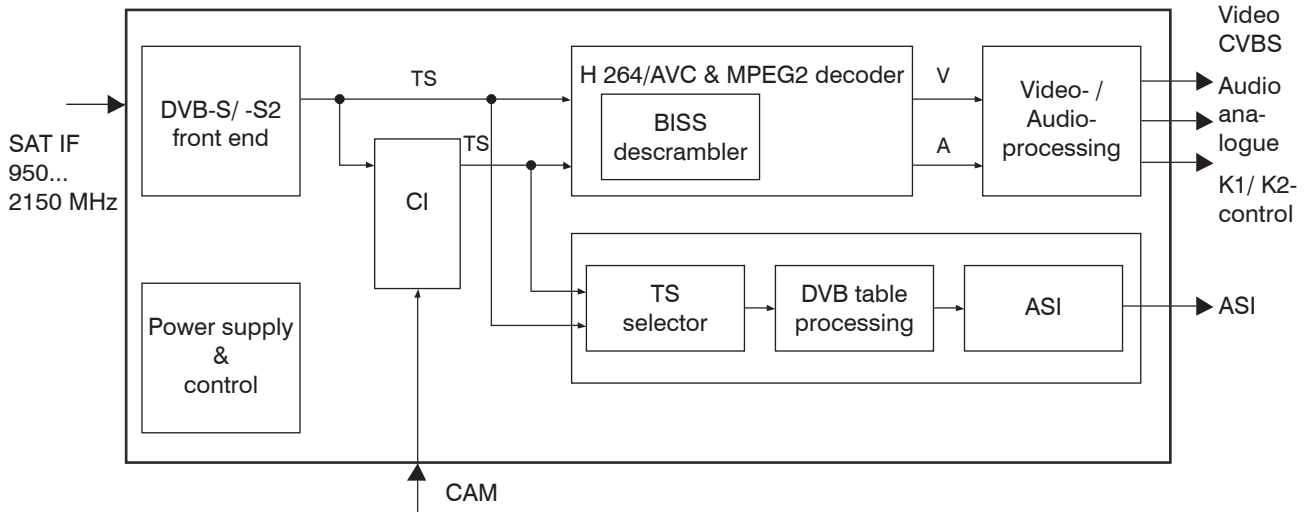
² only available if "Subtitle" option is enabled

11. Trap messages

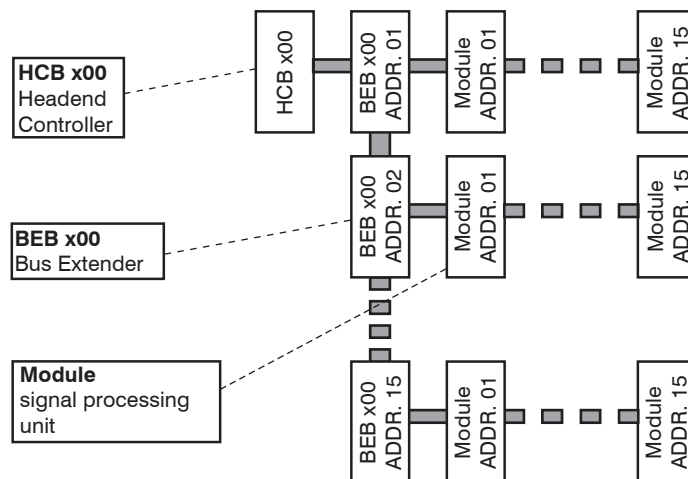
Item	Message	Message type	Explanation
01	Signal OK	INFORMATION	Component working, everything ok
02	Input not sync	WARNING	Input not synchronized
03	MPEG Error	CRITICAL	MPEG error
04	System reset	WARNING	System has been reset after internal error

Item	Message	Message type	Explanation
05	MPEG-Decoder not sync	WARNING	MPEG decoder not synchronized
06	Power fail	CRITICAL	Power supply error
07	Decoding of service ... fail	WARNING	Error on descrambling of service...
08	Decoding of service ... ok	INFORMATION	Descrambling of service ... ok

12. Block diagram

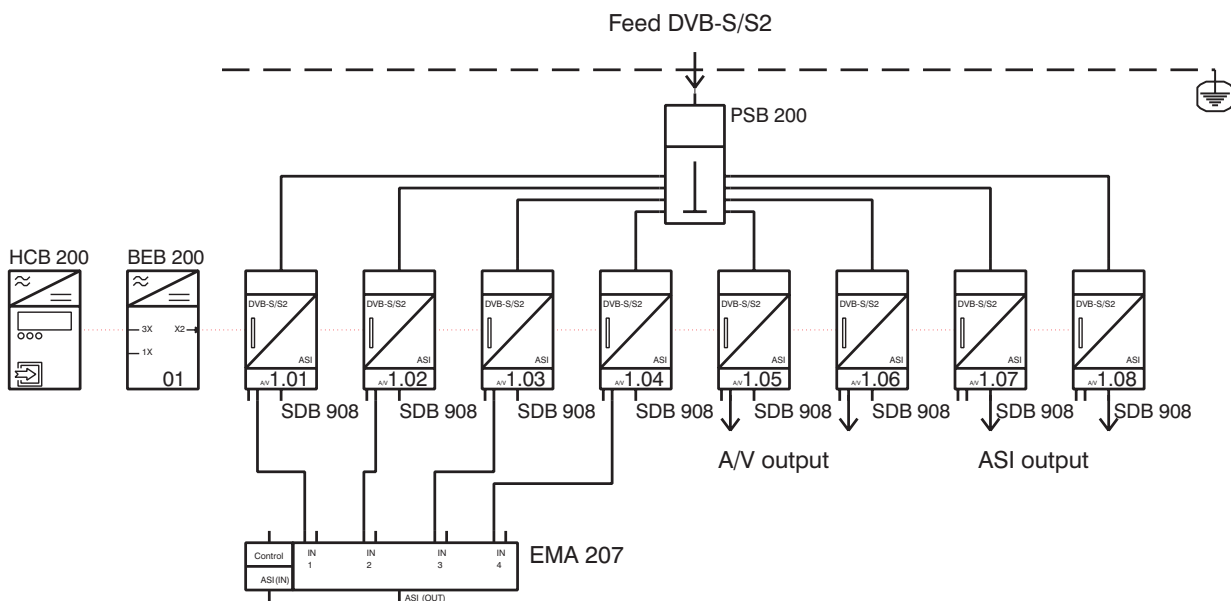


13. Head end bus structure



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

14. Application example



15. 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	42 ... 82 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 2 ... 47 MSps 8PSK 2 ... 31,5 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	20, 25, 35 %
Signal processing	EN 302 307 (DVB - S2) [2]

ASI output

Data rate	270 Mbps
Polarity	normal/ inverted
Mode	burst, continuous
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	21 services max.

MPEG decoder

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

Audio 1

Audio 2 MPEG-1 Layer 1&2 , AAC
MPEG-1 Layer 1&2

Video output

Output voltage	1 V _{pp}
Connector	BNC socket
Impedance	75 Ω

Audio output

Rated level (at digital -6 dBFS)	6 dBu
max. output level	12 dBu
Output impedance	≤ 30 Ω
Output	symmetrical, free-of-ground socket according DIN 45326[5] IEC 130-9-20
Connector	

Operating parameters

Voltage/ current (w/o CAM)	12 V (± 0.2 V)/ 600 mA
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 (w x h x d)	50 x 276 x 148 mm without 19"-adapter 50 x 301 x 148 mm with 19"-adapter
Weight	1,300 g

Delivery content

1x Bus connector
1x Audio connecting cable ASK 525
1x Video connecting cable VVK 526

Software options

Subtitling	CKB 102 (9650.52)
BISS decryption	CKB 104 (9650.54)
Activation of ASI output	CKB 105 (9650.55)

16. Glossary

AAC	Advanced Audio Coding
AP	Anschlussplatte (Terminals board)
ASI	Asynchronous Serial Interface
AV	Audio/Video
BISS	Basic Interoperable Scrambling System
CA	Conditional Access
CAM	Conditional Access Module
CI	Common Interface
CCIR	Comité Consultatif International des Radiocommunications
DVB	Digital Video Broadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
FPGA	Field Programmable Gate Array
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
ID	Identifier
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
NTSC	National Television Systems Committee ¹
PAL	Phase Alternating Line ¹
PCR	Programme Clock Reference
PDC	Programme Delivery Control, synonym of VPS
PID	Packet Identifier
PMT	Programme Map Table
PLL	Phase-locked loop,
SECAM	Séquentiel couleur à mémoire ¹
SNMP	Simple Network Management Protocol
SPI	Serial Peripheral Interface
SPTS	Single Programme Transport Stream
TS	Transport Stream
TV	Television
VPS	Video Programming System
WSS	Wide Screen Signalling

¹ colour-encoding systems of analogue television

17. 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] DIN 45326/ EN 60130-9: Connectors for frequencies below 3 MHz - Part 9: Circular connectors for radio and associated sound equipment, 2000-05
- [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>

18. Document history

Version	Date	Modification	Author
1.00	14.10.2013	basic document	Häußer

Options and other TV standards available upon request. Subjects to changes due to technical progress.

CE Declaration of Conformity

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

Product Name: SAT-TV Transmodulator

Type Name: SDB 908

Type N°: 9726.02

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

Electromagnetic compatibility (2004/ 108/ EC)

The following standards are met:

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

Low voltage guideline (2006/ 95/ EC)

The following standards are met:

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

Restriction of hazardous substances (2011/ 65/ EC)

The following standards are met:

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

Bad Blankenburg, Germany, 2013-10-14


Dr. Piero Kirchner
(Managing Director)