BLANKOM®

Professional Headend Solutions

Operating instructions

ASI-TV Transmodulator

ASI → ATV (AM)

Contents

ATB 19x

Part N°: 9848.xx

...Setting Signals

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 complience 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 [2] is necessary.

2. Device variants

ATB 191	9848.01	ASI → ATV (AM) standard B/G
ATB 191	9848.08	ASI → ATV (AM), A/V standard B/G
ATB 191	9848.09	ASI → IFI → ATV (AM) standard B/G
ATB 192	9848.21	ASI → ATV (AM) standard D/K 1*
ATB 192	9848.22	ASI → ATV (AM) standard D/K 2*
ATB 192	9848.24	ASI → ATV (AM), A/V standard D/K 2*
ATB 192	9848.25	ASI → ATV (AM), A/V standard D/K 1*
ATB 192	9848.28	ASI → IFI → ATV (AM) standard D/K 2*
ATB 192	9848.29	ASI → IFI → ATV (AM) standard D/K 1*

* D/K 1: standard D/K with sound carrier 6,5 MHz and 6,25 MHz
D/K 2: standard D/K with sound carrier 6,5 MHz and 5,74 MHz

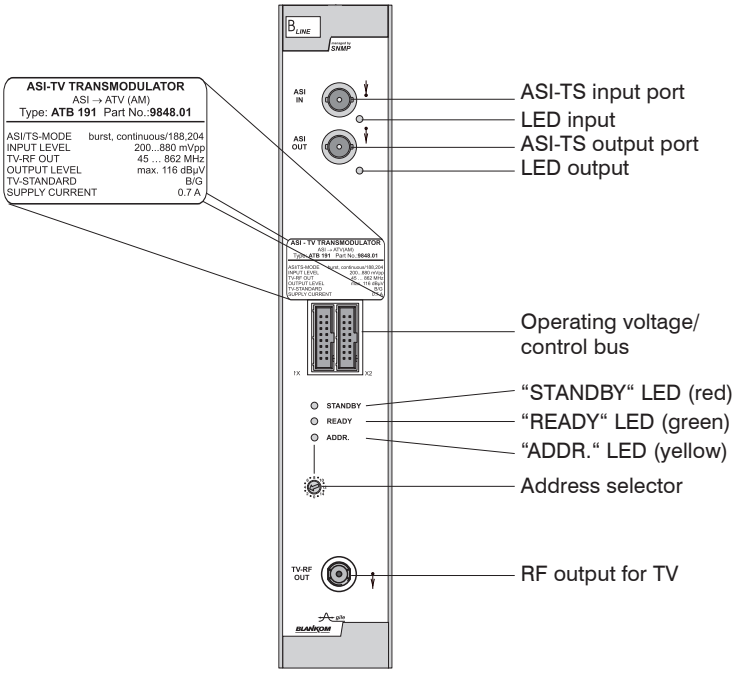
Minimum software requirements for HCB x00:
9650.03: version 2.34**
9650.04/.05: version 3.18**
9652.01: version 3.23**

**) Updates: www.blankom.de

3. General

The ATB 19x ASI-TV transmodulators are components of the B-LINE head end system which has been designed as a complete package for medium-sized distribution networks. They are components which select a programme from the ASI transport stream and convert it into an analogue cable TV channel. All the components are programmed via a single central control unit and thereafter each component will function independently. The status of the modules are displayed via LED's (see chapter 7.2 „Status LED's").

4. Front view



gile

managed by
SNMP

5. Functional description

With this transmodulator, the digital ASI signal is decoded and then transferred into a serial data stream. Next, that data stream is parallelised and fed into a FIFO system. The timing of this data input will in all cases be calculated from how full the FIFO system is and adapted to the general data input rate. The regeneration system for the transport stream SPI protocol follows at the FIFO system output, and at the same time, recognition of the transport stream being correct is ensured. It is at this level that the transport stream can be edited. From the transport stream, the succeeding MPEG decoder selects a program and generates an analogue video signal and a digital audio signal. In the D/A converter which comes next; these two are converted into two analogue audio channels. The analogue signals are fed into separate modulators and then aggregated in the IF (intermediate frequency) position. Then the IF filtering takes place, and after that the production in the desired output channel. The fact that mixers are used which can accommodate a high output, also fractional N-PLLs, guarantees high-quality transmission. There is a free choice of frequency in the output channel from 45 to 862 MHz. On the output side, the modulator does not leak to adjacent channels. If the output level changes, the red LED will flash. Every time the level or frequency figures are programmed, automatic measurement of the reference level takes place; his function will, however, not start until 100 seconds have elapsed after start-up of the system. When the output load changes (perhaps because the output cable is disconnected), a warning and display item for a level fault may also appear. When the fault has been identified, the appropriate SNMP trap message will be sent. Use of this function is optional. By activation of the respective software option the services like test lines, the flash of subtitles and BISS decryption can be used. Supported are the BISS mode 1 and the BISS mode E with input of the necessary Injected ID, but not the BISS mode E with the additional input of the optional Buried ID.

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 of 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 ATB 19x parameter (see chapter 10) → green LED is switched on
- After the programming the ATB 19x will be automatically switched into the operating
  → 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 throught 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 adjustment of the modules are specified at the web interface.

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

7. Meaning of the LED‘s

7.1 LED‘s at the ASI ports

Colour	Status	Meaning of display
green	permanently on	ASI channel has been configured as input
	flashing	no ASI signal
yellow	permanently on	ASI channel has been configured as output
	flashing	no ASI signal

7.2 Status LED‘s

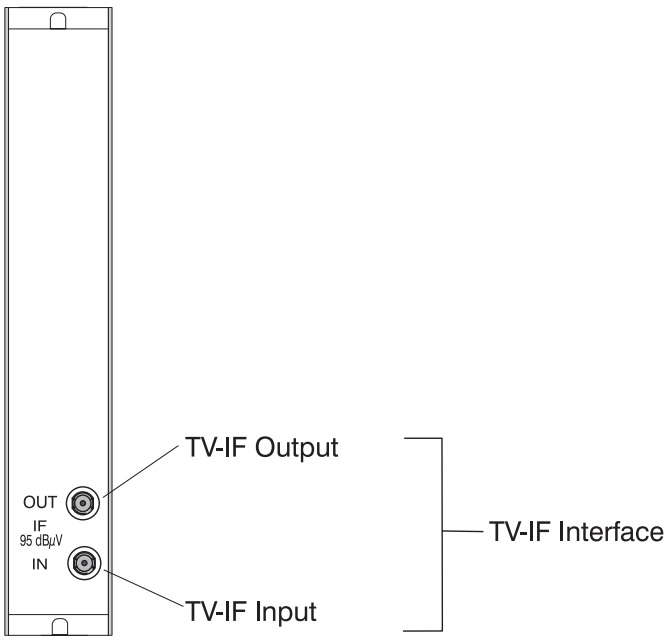
Designation (Colour)	Status	Meaning of display
STANDBY (red)	permanently on	module is in standby
	flashing	module faulty (hardware) or level fault
READY (green)	permanently on	module working properly
	flashing	error warnings, depending on signal: - ASI without sync (e.g. when there is no input signal) - service settings are not valid - service is decrypted
ADDR. (yellow)	illuminated/ flashing	remote control connection/ data being exchanged

8. Optional hardware variants

8.1 IF interface

The IF interface is an optional additional function/ equipment for the modules of the head end system B-LINE. The IF interface separates the internal analogue TV-IF signal path and enables the lead out, the external processing and the re-feeding of the IF signal into the module.The connection sockets (type SMA) are located at the backside of the individual modules. The impedance is 75 Ohms.
The following device variants are equipped with an IF interface:
9848.09
9848.28
9848.29

View (back side of component)



Function description

The analogue TV-IF signal (picture and sound carrier) will be split after the main selection (SAW filter) and transported to the IF output socket. The processed signal will go from the IF input socket over an absorption- and adjustment unit directly to the upward mixer. It has to be considered that no other channel selective filter stages are located in the input signal path and no level adjustments and/ or level control possibilities are available..
For the normal function of the interface, the conditions defined in the manual instructions have to be considered.

Operating instructions

1. The IF input level may only vary ±1 dB from the IF output level (95 dBµV). External IF modules may not change the level of the signal and/ or have to provide the necessary level at the output.
2. The external IF module, which is used for the processing and/or feeding of the IF signal, may not produce any spurious, which fall below the necessary signal-to-noise ratio (>60 dB). If necessary, an additional IF filter has to be connected between the output of the external module and the IF interface input..
3. If a module with IF interface is mounted to the wall, the usage of SMA angle plugs for the interface side of the connection cable is recommended. The cables have to be screwed onto the interface socket before installing the module.
4. The connection cables and the plug connectors for the external IF modules, as well as their IF connections must have an impedance of 75 Ohms (e.g. RG 179 B/U with 75 Ohms BNC plug connections).
5. To bypass the IF interfaces, the interface sockets have to be connected with a short cable (jumper). An internal module bypass (e.g. by a jumper) is not possible.

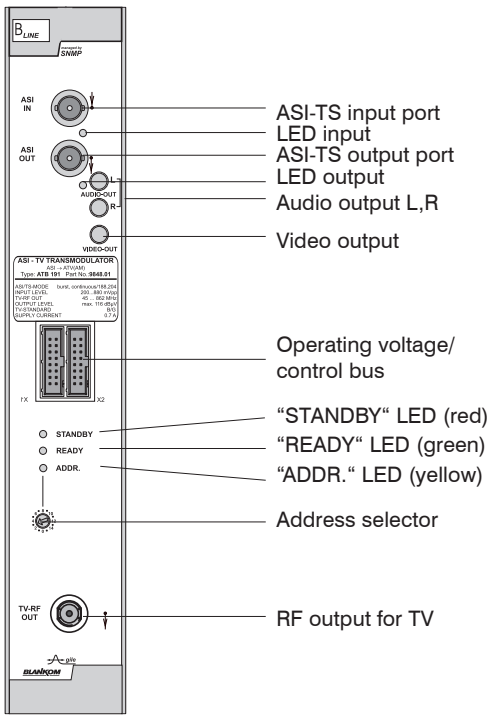
Technical data

Output/ input frequency (picture carrier analogue TV)	38.9 MHz
Frequency range	32.15 ... 40.15 MHz
Output/ input level	95 dBµV
Impedance	75 Ω
Connector	2 x SMA socket
IF decoupling	≥ 80 dB

8.2 Additional A/V monitor outputs

These options have in comparison with the relevant basic variant a video output and two audio outputs for monitoring. The additional outputs are located in the upper part of the front side and are implemented as MCX sockets.
The following device variants are equipped with additional A/V outputs:
9848.08
9848.24
9848.25

Front view

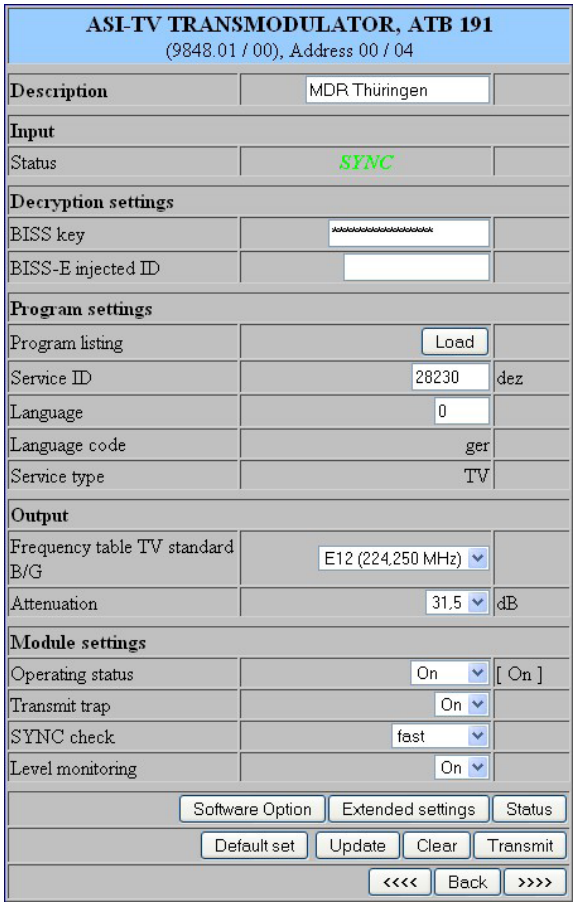


Technical data

Audio output	0.7 V_{eff} at 10 kΩ
Connector	MCX socket
Video output	1 V_{pp} at 75 Ω
Connector	MCX socket

9. Programming by web server*

9.1 Main menu



Name of device, item number, address in head end

Description Name of program (max. 30 characters)

Input

Status display wether **SYNC**hronization or **noSYNC**hronisation with Input

Decryption settings

(will only be available if "BISS decryption" option is on)

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

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

Program settings

Program listing see menu 2

Service ID adjustment range: 0...65535

Language adjustment range: 0...47

Language code displays the code for the sel. language

Service type displays the type of sel. service (TV, radio)

Output

Frequency table channel selection:
- standard B/G channel 2..69
- standard D/K channel R1.. 69

Attenuation adjustment range: 0 ... 31.5 dB

Module settings

Operating status selection: On, Off, Reset

Transmit trap On/ Off, if SNMP option in HCB x00 enabled,otherwise "locked" display

SYNC check checks SYNC at input port. selection: fast, normal, slow

Level monitoring at output port. selection: On, Off

Routing to the appropriate adjustment menu:

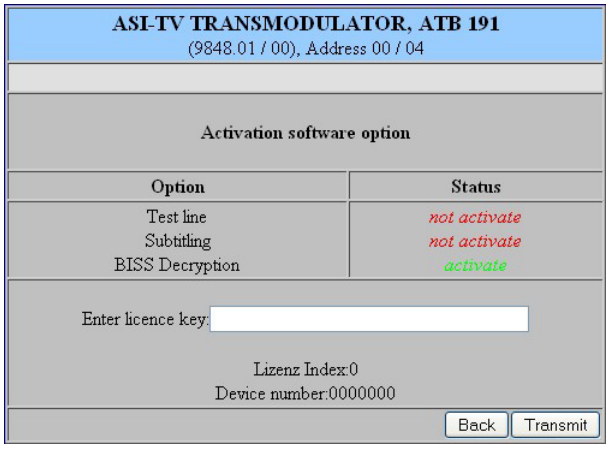
Software option see menu 1

Extended settings see menu 3

Status see menu 6

Default set see menu 5

9.2 Software option (menu 1)



Name of device, item number, address in head end

Dialogue for entering code to activate the "test line" (CKB 101), "subtitling" (CKB 102) and "BISS decryption" (CKB 104) software options. When the page is called up, the current state of activation for the relevant option will be displayed.

* Further details on this are to be found in the HCB manual

9.3 Loading the program list (menu 2)

ASI-TV TRANSMODULATOR, ATB 191
(9848.01 / 00), Address 00 / 04

Program listing

Program name	Status	Service type	Service-ID	Audio Language	Subtitle language	Selection
rbb Brandenburg	free	TV	28205	0;ger	missing	Set
rbb Berlin	free	TV	28206	0;ger	missing	Set
ARD-Online-Kanal	free	TV	28218	0;—	missing	Set
ARD-TEST-1	free	TV	28221	0;---	missing	Set
ARD-TEST-2	free	TV	28222	0;ger	missing	Set
NDR FS MV	free	TV	28224	0;ger	missing	Set
NDR FS HH	free	TV	28225	0;ger	missing	Set
NDR FS NDS	free	TV	28226	0;ger	missing	Set
NDR FS SH	free	TV	28227	0;ger	missing	Set
MDR Sachsen	free	TV	28228	0;ger	missing	Set
MDR S-Anhalt	free	TV	28229	0;ger	missing	Set
MDR Thüringen	free	TV	28230	0;ger	missing	Set
SWR Fernsehen RP	free	TV	28231	0;ger	missing	Set

Update Back

This menu contains a list of all services contained in the data stream. Language selection can take place here if available. Any service is adopted or given new settings by clicking the relevant “Set” button.

9.4 Extended settings (menu 3)

ASI-TV TRANSMODULATOR, ATB 191 (9848.01 / 00), Address 00 / 04		
Video		
Video output	On	
Colour bar	Off	
Colour system	PAL	
Video format	letterbox	
Audio settings		
Audio gain	0	dB
Audio mode	auto	
Output		
Sound deviation	30	kHz
Sound carrier2	On	
Picture carrier frequency	224250	kHz
VPS settings		
CNI code	0x000	
Source audiomode	MPEG	
Source PIL	A056 (PDC)	
Complementary data		
Teletext	On	
WSS insertion	On	
Subtitling		
Mode	Off	
Settings DVB subtitling		
DVB language index	0	
DVB language code	---	
Use extended ID's	yes	
Composition Page ID	0	dez
Ancillary Page ID	0	dez
Settings Teletext subtitling		
Teletext site	0	
Background	opaque	
Character mode	auto	
The following settings are used only in the manual character mode!		
Basic character	Latin	
Supplementary character	Latin	
National table	standard table	
Test lines		
Line 17	Off	
Line 18	Off	
Line 330	Off	
Line 331	Off	
Extended monitoring options		
Internal AVsync info	On	
	Manual settings	
	Update / Clear / Transmit	
	Back	

Name of device, item number, address in head end

Video — for setting the video parameters
Video output — selection: On, auto off, auto colour palette bar
Colour bar — selection: On, Off
Colour system — selection: PAL, SECAM, NTSC
Video format — selection: Letterbox, center cut, 1:1, pillarbox, 4:3 vertical cut, 20:9 letterbox

Audio settings
Audio gain — adjustment range +6...-20 dB
Audio mode — selection: auto, monoL, monoR, stereo, dual, dual invers (2 sound carriers) auto, monoL, monoR, monoL+R (only 1 sound carrier)

Output
Sound deviation — selection: 30 kHz (2 sound carriers) 30 kHz, 50 kHz (only 1 sound carrier)
Sound carrier 2 — selection: On, Off
Picture carrier frequency — frequency input in kHz, automatic rounding up or down to next 10 kHz on adoption

VPS settings
CNI code — adjustment range: 0x000…0xFFF hex.
Source audiomode — selection: MPEG, A056(MPEG)
Source PIL — selection: A056(PDC), A056, PDC, TimerControlCode

Complementary data
Teletext — selection: On, Off
WSS insertion — selection: On, Off

Subtitling
(will only be available if “Subtitling” option is on)
Mode — selection: Off, Teletext, DVB

Settings DVB Subtitling
(will only be available if “Subtitling” option is on)
DVB languages index — adjustment range: 0...15
DVB language code — displays the code for the language selected
Use extended ID‘s — selection: yes, no
Composition Page ID — displays the ID (decimal figure)
Ancillary Page ID — displays the ID (decimal figure)

Settings Teletext subtitling
(will only be available if “Subtitling” option is on)
Teletext site — adjustment range: 0...899
Background — selection: not transparent, semi-transparent, transparent, black transparent
Character mode — selection: auto, manual

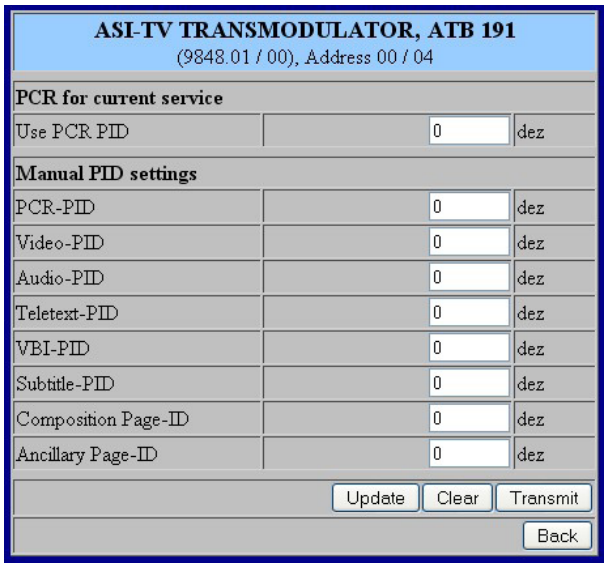
The following parameters only apply if the manual mode has been selected for the font:
Basic character — selection: Latin,Cyrillic-1,Cyrillic-2, Cyrillic-3, Arabic, Greek, Hebrew
Supplementary character — selection: Latin, Cyrillic, Arabic, Greek, Hebrew
National table — selection: standard table, alternative table, no country code, English, German, Swedish, Italian, French,Spanish, Czech, Rumanian, Polish, Estonian, Latvian, Serbian, Turkish, Danish

Test lines
(will only be available if “Test lines” option is on)
Line 17 / Line 18 / Line 330 / Line 331 — a test signal can be sent on all four of these lines,the signal selection is: off, CCIR17, CCIR 18, CCIR 330m, CCIR331, Sinus (x)/x, Ramp

Extended monitoring options
Internal AVsync Info — displays option on status page (menu 6), selection: On, Off

Routing to the appropriate adjustment menu:
Manual settings — see menu 4

9.5 Manual settings (menu 4)



Name of device, item number, address in head end

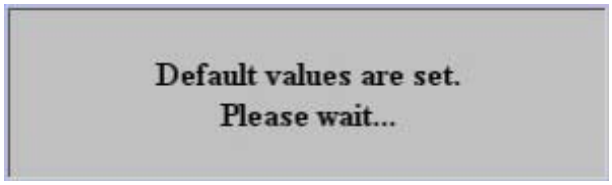
PCR for current service

Use PCR PID	adjustment range: 0..8191

Manual PID settings

PCR-PID	adjustment range: 0..8191
Video-PID	adjustment range: 0..8191
Audio-PID	adjustment range: 0..8191
Teletext-PID	adjustment range: 0..8191
VBI-PID	adjustment range: 0..8191
Subtitle-PID	adjustment range: 0..8191
Composition Page-ID	adjustment range: 0..65535
Ancillary Page-ID	adjustment range: 0..65535

9.6 Factory settings (menu 5)



When this menu is called up, all the settings made on the EEPROM will be deleted and replaced by the default settings. The modul will go back to these default values. Once the setting process is over, there will be automatic return to the main menu.

9.7 Status of device (menu 6)

ASI-TV TRANSMODULATOR, ATB 191 (9848.01 / 00), Address 00 / 04		
ASI input		
Status	*SYNC*	
Information	TS packet size: 188 Byte MPEG data rate: 38.15104 Mbps	
MPEG Decoder		
Status	TS: SYNC Audio Decoder: SYNC Video Decoder: SYNC	
SysClock	PcrPID,iSync,DPLL/set, ok, 7ppm	
AudioSync	AvgDiff,SR,updSync,fill/-24, 1, ok, 3056	
Videosync	Diff,SR,nUpdSync/1759, 1, 804	
Complementary data		
Current VPS data	PIL= 07.10 07:45 Running Audio= stereo CNI= 0x0DFE	
Current WSS data	4:3 full A056_WSS 0x8 4:3	
Test line insertion	Line 17: Off Line 18: Off Line 330: Off Line 331: Off	
Status output		
Signal level	ok	
Status PLL 1 / 2	ok / ok	
Sound carrier 1 / 2	5,5 / 5,74	MHz
Software versions		
AP Controller	9848.01-81.01 AP-Controller V1.00 06.10.2008 JH	
MPEG	9611.01-86.01 (Dual) MPEG_CI V1.17 08.09.08 SS	
Internal controller	9199.01-88.01 internal Controller V1.03 06.04.2008 JH	
FPGA MC	9850.02-88.01 FPGA Download Controller V1.35 08.09.2008 MF,PK	
FPGA	9848.01-87.01 ASI Input FPGA V1.02 07.08.2008 WE,MF	
Information		
Temperature AP	29 °C	
Device number	0222128	
Device index	00	
	Update Back	

Name of device, item number, address in head end

ASI input

Status	synchronization status
Information	details of TS packet length and MPEG data rate

MPEG Decoder

Status	synchronization status for the TS and the audio and video decoder

The following will only be displayed if the internal AVsync info option is switched on (see menu 3)

SysClock	details of system timing
AudioSync	extended details of synchronization status of the audio decoder
VideoSync	extended details of synchronization status of the video decoder

Complementary data

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

The following will only be displayed if the “test lines” option is switched on:

Test line insertion	displays which test signal is set for the 4 lines

Status output

Signal level	displays status of signal level at output (ok, too high, too low)
Status PLL1/2	displays whether or not PLL1 (or PLL2) is activated (ok, not ok)
Sound carrier 1/2	displays frequency of sound carrier 1 or 2

Software versions

displays the software versions for the controllers as follows:

- Controller of terminals board

- MPEG Controller

- Controller IF converter

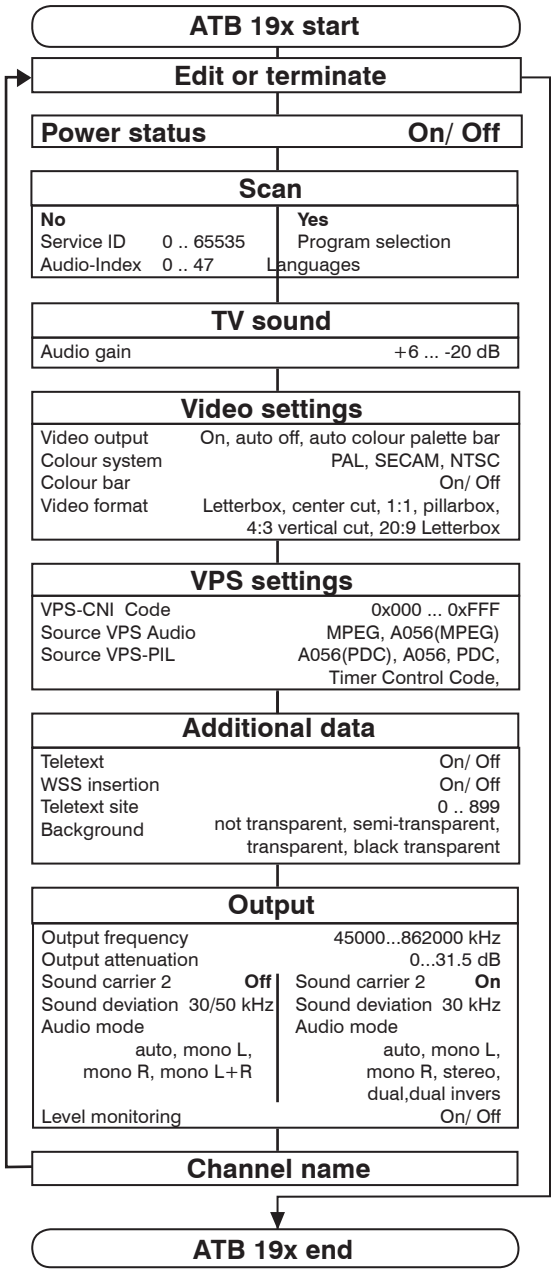
- Download controller for FPGA ASI input

- FPGA ASI input

Information

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

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

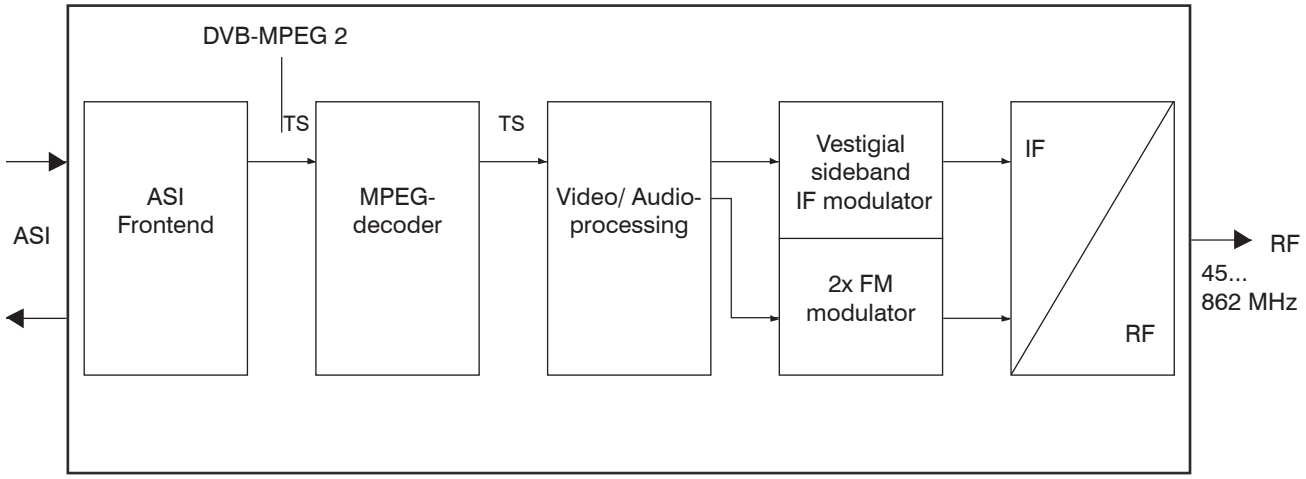


11. Trap messages

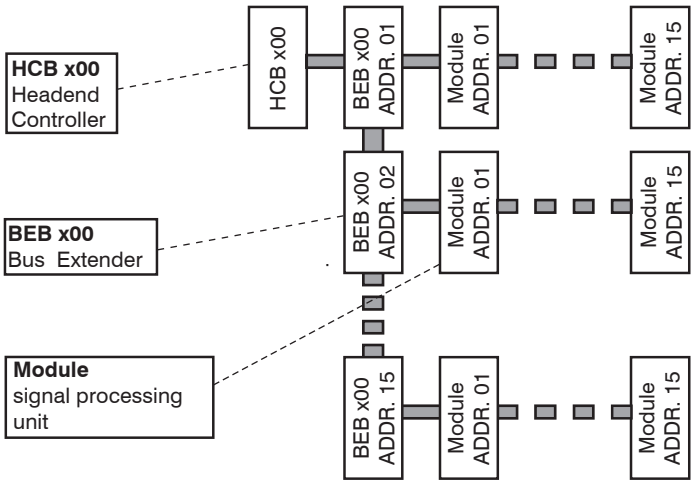
Item	Message	Message Typ	Explanation
01	Signal OK	INFORMATION	Module working, everything ok
02	Input not sync	WARNING	Input not synchronised
03	MPEG Error	CRITICAL	MPEG error
04	System reset	WARNING	System has been reset after internal error
05	MPEG-Decoder not sync	WARNING	MPEG decoder not synchronised
06	Power fail	CRITICAL	Error in power supply
08	IIC Error	CRITICAL	Error in IIC or internal hardware
09	Output Signallevel too small	WARNING	Level of output signal too low
10	Output Signallevel too large	WARNING	Level of output signal too high
11	Output Signallevel ok	INFORMATION	Level of output signal ok
12	PLL error	CRITICAL	PLL at output not activated

Item	Message	Message Typ	Explanation
13	Tonmode Mono L+R	INFORMATION	Sound mode set as mono total
14	Tonmode Mono L	INFORMATION	Sound mode set as mono on left
15	Tonmode Mono R	INFORMATION	Sound mode set as mono on right
16	Tonmode Stereo	INFORMATION	Sound mode set as stereo
17	Tonmode Dual	INFORMATION	Sound mode set as dual
18	Tonmode Dual invers	INFORMATION	Sound mode set as dual inverse

12. Block diagram

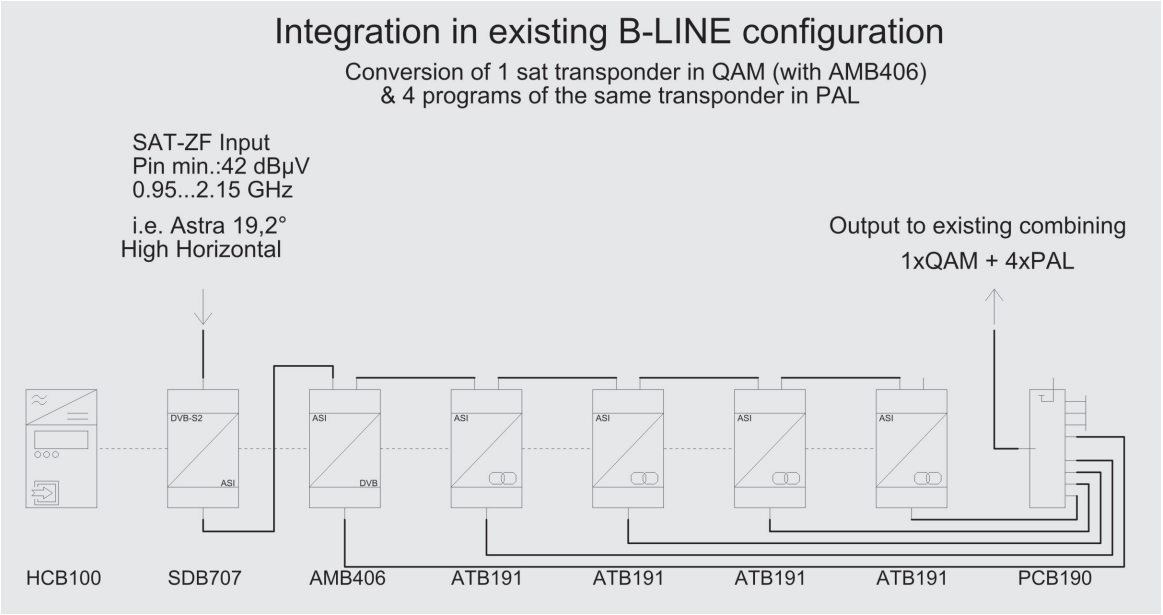


13. Head end bus structure



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

ASI input

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

ASI output

Level	800 mV_{pp} (± 10 %)
Data rate	270 Mbps
Connector	BNC socket
Impedance	75 Ω
ASI polarity	normal

ASI signal processing

Data rate	0.625…78 Mbps
ASI transfer format	
Input	continuous, burst
Output	burst
TS transfer format	
Input	188, 204 Byte
Output	188, 204 Byte
Signal processing	EN 50083-9 [1]

TV ouput

9848.01/.08/.09:	
TV standard	B/G
Sound carrier frequencies	5.5/ 5.742 MHz above pic.carr.
9848.21/.25/.29:	
TV standard	D/K
Sound carrier frequencies	6.5/ 6.25 MHz above pic.carr.
9848.22/.24/.28:	
TV standard	D/K
Sound carrier frequencies	6.5/ 5.742 MHz above pic.carr.
Sound type	double carrier FM
Sound mode	mono / stereo / dual /auto (PDC 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 steps	10 kHz
Output level	max. 116 dBµV
Range for level adjustment	0...31.5 dB (0.5 dB steps)
Channel allocation	adj.channel compatible
Connector	F socket
Impedace	75 Ω
Return loss	≥ 18 dB 45 MHz
	-1.5 dB/ Octave

Signal quality

Single channel intermodulation	≥ 66 dB
Signal to noise ratio (S/N)	
3rd order	≥ 60 dB
Spurious 45 ... 862 MHz	≥ 60 dB
C/N in channel (BW = 4.8 MHz)	typ. 69 dB
C/N (> 25 MHz, distance from centre of channel;BW=4.8 MHz)	typ. 80 dB
S/N ratio parallel sound unweighted/ weighted	typ. 62/ 56 dB
Output level stability	max.1 dB_{pp}
Frequency stability	± 30 kHz

Operating parameters

Current/ voltage	12 V (±0.2 V)/ 700 mA
Residual ripple of supply voltage	≤ 10 mV_{pp}

Enviromental 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	1,300 g

Delivery content

1 x bus connector

Software options

Test lines	CKB 101 (9650.51)
Subtitling	CKB 102 (9650.52)
BISS decryption	CKB 104 (9650.54)

16. Glossary

AM	**A**mplitude **m**odulation
AP	**A**nschluss**pl**atte (Terminals board)
ASI	**A**synchronous **S**erial **I**nterface
ATV	**A**nalogue **Tel**e**v**ision
AV	**A**udio/**V**ideo
BISS	**B**asic **I**nteroperable **S**crambling **S**ystem
BW	**B**and**w**idth
CCIR	**C**omité **C**onsultatif **I**nternational des **R**adiocommunications
C/N	**C**arrier to **N**oise ratio
D/A	**D**igital-/ **A**nalog-
DVB	**D**igital **V**ideo **B**roadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
ETSI	**E**uropean **T**elecommunications **S**tandards **I**nstitute
FIFO	**F**irst **I**n – **F**irst **O**ut
FPGA	**F**ield **P**rogrammable **G**ate **A**rray
HTML	**H**yper**t**ext **M**arkup **L**anguage
HTTP	**H**yper**t**ext **T**ransfer **P**rotocol
I/Q	**I**n-phase/**Q**uadrature-phase
ID	**Id**entifier
IF	**I**ntermediate **F**requency
IFI	**I**ntermediate **F**requency **I**nterface
IIC	**I**nter-**I**ntegrated **C**ircuit (I^2C bus, data bus within device)
IP	**I**nternet **P**rotocol
LED	**L**ight **E**mitting **D**iode
MC	**M**icro**c**ontroller
MIB	**M**anagement **I**nformation **B**ase
MPEG	**M**oving **P**icture **E**xperts **G**roup
NIM	**N**etwork **I**nterface **M**odule
NTSC	**N**ational **T**elevision **S**ystems **C**ommittee*
PAL	**P**hase **A**lternating **L**ine*
PCR	**P**rogram **C**lock **R**eference
PDC	**P**rogram **D**elivery **C**ontrol
PID	**P**acked **I**dentifier
PMT	**P**rogram **M**ap **T**able
PLL	**P**hase-**l**ocked **l**oop,
RF	**R**adio **F**requency
SECAM	**Sé**quentiel **c**ouleur **à m**émoire*
SNMP	**S**imple **N**etwork **M**anagement **P**rotocol
SPI	**S**erial **P**eripheral **I**nterface
SPTS	**S**ingle **P**rogram **T**ransport **S**tream
TS	**T**ransport **S**tream
TV	**Tel**e**v**ision
VPS	**V**ideo **P**rogramming **S**ystem
WSS	**W**ide **S**creen **S**ignalling

* colour-encoding systems of analogue television

17. 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] 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	18.07.2008	basic document	Poch
1.01	26.02.2009	revision (BISS, options)	Häußer
1.02	21.03.2011	revision (chapter 9)	Häußer

Options and other TV standards available upon request! Changes due to technical progress possible!

CE Declaration of Conformity

The Manufacturer

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

herewith declares the conformity of the product group

Product name:	ASI-Transmodulator
Type:	ATB 19x
Product number:	9848.xx

according to the following regulations

EN 50083-2
EN 60728-11 (as far as relevant)

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

Date: 25.02.2009

Signature:

(Managing Director)