

Operating instructions

SAT - TV Transmodulator

DVB-S (QPSK) → ATV (AM)



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STB 29x
Part N°: 9818.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 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 [2] is necessary!

2. Device variants

STB 291	9818.01	DVB-S (QPSK) → ATV (AM) standard B/G (without BISS decryption)
STB 291	9818.02	DVB-S (QPSK) → ATV (AM) standard B/G
STB 291	9818.08	DVB-S (QPSK) → ATV (AM), A/V standard B/G
STB 291	9818.09	DVB-S (QPSK) → IFI → ATV (AM) standard B/G
STB 292	9818.21	DVB-S (QPSK) → ATV (AM) standard D/K 1*
STB 292	9818.22	DVB-S (QPSK) → ATV (AM) standard D/K 2*
STB 292	9818.24	DVB-S (QPSK) → ATV (AM), A/V standard D/K 2*
STB 292	9818.25	DVB-S (QPSK) → ATV (AM), A/V standard D/K 1*
STB 292	9818.28	DVB-S (QPSK) → IFI → ATV (AM) standard D/K 2*
STB 292	9818.29	DVB-S (QPSK) → 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**

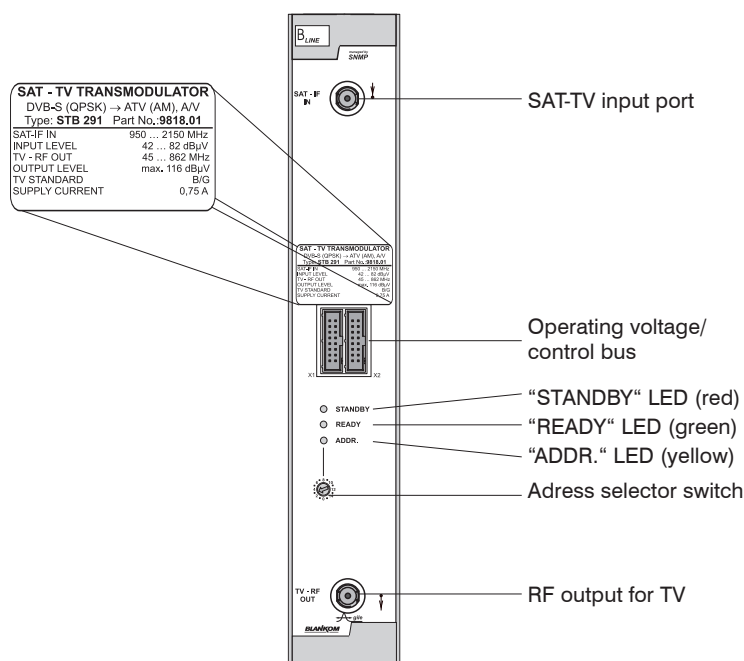
9652.01: version 3.23**

**) Updates: www.blankom.de

3. General

The STB 29x SAT -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 a DVB-S 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 „LED's on front panel“).

4. Front view



managed by
SNMP

5. Function description

The digital SAT IF signal (transponder) passes through an input amplifier and then will be transported to the frontend, where it will be selected and demodulated to the transport stream level. From the transport stream, the succeeding MPEG decoder selects a programme 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; this 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.*

* BISS decryption isn't available in the device variant 9818.01!

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 will be lit up til the beginning of the parameter adjustment
- Adjustment of the STB 29x parameter (see chapter 10) → green LED is lit up
- After the programming the STB 29x will be automatically switched into the operating
 - yellow LED lights up briefly / green LED is lit up

6.2 Adjustment with the PC / Laptop

- Condition for the remote programming is an "online - connection" after 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 IP - address input (e.g. 192.168.001.001)
- For "direct connection" between a PC and HCB x00 use a crossed patch cable (RJ 45)
- For connection over a deviation use an uncrossed patch cable
- HTML - browser start-up and put in IP - address as target address
- If connected correctly the HTML - control surface at the PC will open up and a blue LED (LINK) at the HCB x00 will be lit up).
- All adjustment of the modules are specified at the control surface.

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

7. LED`s on front panel

Designation (Colour)	Status	Meaning of display
STANDBY (red)	permanently illuminated	Component is on standby
	flashing	Component faulty (hardware) or level fault
READY (green)	permanently illuminated	Component working, everything ok
	flashing	error warnings, depending on signal: - tuner not sync (e.g. when there is no input signal) - service settings are not valid - service is decrypted
ADDR. (yellow)	illuminated or flashing	remote control making contact / data being exchanged

8. Optional hardware variants

8.1 IF interface

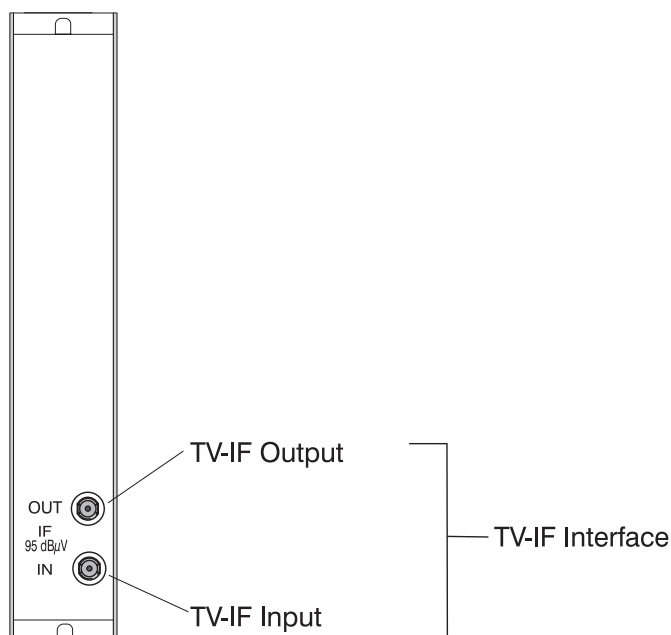
The IF interface is an optional additional function/equipment for the modules of the head end system B - LINE. The IF - interface separates the internal analogue TV- IF - signal - path and enables the lead out, the external processing and the re-feeding of the IF- signal into the module. The connection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

9818.09

9818.28

9818.29

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 dB μ V). 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 ohm (e.g. RG 179 B/U with 75 ohm - 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 dB μ V
Impedance	75 Ω
Connector	2 x SMA socket
IF decoupling	≥ 80 dB

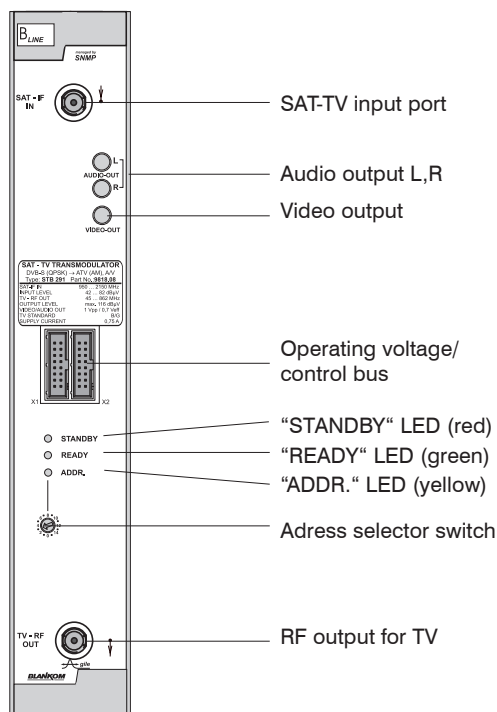
8.2 Additional A/V monitor outputs

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:

9818.08
9818.24
9818.25

Front view



Technical data

Audio output	0,7 V _{eff} at 10 k Ω
Connector	MCX socket
Video output	1 V _{SS} at 75 Ω
Connector	MCX socket

9. Programming by Web server*

9.1 Main menu

SAT-TV TRANSMODULATOR, STB 291 (9818.02 / 00), Address 00 / 03	
Description	MDR Thüringen
Input	
SAT IF	1510 MHz
QPSK Symbol rate	27500 kSps
FEC	auto
Status	SYNC
Decryption settings	
BISS key	*****
BISS-E injected ID	
Program settings	
On changes of the input attitudes please to side send before program list one loads!	
Program listing	Load
Service ID	28230 dez
Language	0
Language code	ger
Service type	TV
Output	
Frequency table TV standard B/G	S21 (303.250 MHz)
Attenuation	20 dB
Module settings	
Operating status	On [On]
Transmit trap	On
SYNC control	normally
Level monitoring	On
Software Option Extended settings Status Default set Update Clear Transmit <<<< Back >>>>	

Name of device, item number, address in head end

Description Name of programme (max. 30 characters)
Input
SAT IF adjustment range 950 ... 2150 MHz
QPSK Symbol rate adjustment range 1000 ... 45000 kSps
FEC selection: 1/2, 2/3, 3/4, 5/6, 7/8, auto
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 freely selectable (0...65535)
Language freely selectable (0...255)
Language code shows the code for the language selected
Service type shows the type of service selected (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)

SAT-TV TRANSMODULATOR, STB 291 (9818.02 / 00), Address 00 / 03	
Activation software option	
Option	Status
Test line	activate
Subtitling	activate
BISS Decryption	activate
Enter licens key:	
Lizenz Index:0 Device number:0000000	
Back Transmit	

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. The option „BISS decryption“ is not available in the device variant 9818.01!

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

9.3 Loading the programme list (menu 2)

SAT-TV TRANSMODULATOR, STB 291 (9818.02 / 00), Address 00 / 03						
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-TEST-1	free	TV	28221	0;---	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)

SAT-TV TRANSMODULATOR, STB 291	
(9818.02 / 00), Address 00 / 03	
Video	
Video output	On
Color bar	Off
Color 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	303250 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	Off
Manual settings	
Update Clear Transmit	
Back	

Name of device, item number, address in head end

Video

Video output selection: On, auto off, auto colour palette 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 freely selectable hex. (0x000...0xFFFF)
 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 freely selectable (0...255)

DVB language code shows the code for the language selected

Use extended ID's selection: yes, no

Composition Page ID shows the ID (decimal figure)

Ancillary Page ID shows the ID (decimal figure)

Settings Teletext subtitling

(will only be available if "Subtitling" option is on)

Teletext site freely selectable (0...65535)

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 a test signal can be sent on all four of these lines, the signal selection is:

Line 18 off, CCIR17, CCIR 18, CCIR 330m,

Line 330 off, CCIR17, CCIR 18, CCIR 330m,

Line 331 CCIR331, Sinus (x)/x, Ramp

Extended monitoring options

Internal AVsync Info display 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)

SAT-TV TRANSMODULATOR, STB 291 (9818.02 / 00), Address 00 / 03		
PCR for current service		
Use PCR PID	0	dez
Manual PID settings		
PCR-PID	0	dez
Video-PID	0	dez
Audio-PID	0	dez
Teletext-PID	0	dez
VBI-PID	0	dez
Subtitle-PID	0	dez
Composition Page-ID	0	dez
Ancillary Page-ID	0	dez
		Update Clear Transmit
		Back

Name of device, item number, address in head end

PCR for current service

Use PCR PID freely selectable (0...65535))

Manual PID settings

PCR-PID freely selectable (0...65535)

Video-PID freely selectable (0...65535)

Audio-PID freely selectable (0...16383)

Teletext-PID freely selectable (0...65535)

VBI-PID freely selectable (0...65535)

Subtitle-PID freely selectable (0...65535)

Composition Page-ID freely selectable (0...65535)

Ancillary Page-ID freely selectable (0...65535)

9.6 Factory settings (menu 5)

Default values are set. Please wait...

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)

SAT-TV TRANSMODULATOR, STB 291 (9818.02 / 00), Address 00 / 03		
Tuner		
Status	SYNC	
BER	< 1 E-6	
Noise margin	7.7	dB
Gain margin	35	dB
FEC	3/4	
Input frequency offset	0.650	MHz
MPEG Decoder		
Status	TS: SYNC Audio Decoder: SYNC Video Decoder: SYNC	
SysClock	PcrPID,iSync,DPLL/set, ok, 7ppm	
AudioSync	AvgDiff,SR,updSync,fill/0, 1, ok, 3048	
Videosync	Diff,SR,nUpdSync/511, 1, 17031	
Complementary data		
Current VPS data	PIL= 05.03 07:40 Running Audio= stereo CNI= 0x0DFE	
Current WSS data	16:9 letterbox center A056_WSS 0x7 16:9_F	
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	9818.02-81.01 AP-Controller V1.02 24.02.2009 JH	
MPEG	9611.01-86.01 (Dual) MPEG_CI V1.19 28.01.09 SS	
Internal controller	9199.01-88.01 internal Controller V1.03 06.04.2008 JH	
Information		
Temperature AP	91 °F	
Device number	0000000	
Device index	00	
Update Back		

Name of device, item number, address in head end

Tuner

Status synchronisation status
 BER shows the bit error ratio
 Noise margin ... in dB
 Gain margin ... in dB
 FEC shows the FEC of the transponder
 input frequency shows the frequency departure from
 offset adjusted input frequency

MPEG Decoder

Status Synchronisation 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 synchronisation sta-
 tus of the audio decoder
 VideoSync extended details of synchronisation sta-
 tus of the video decoder

Complementary data

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

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

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

Status output

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

Software versions

Shows the software versions for the controllers as follows:

- Controller of terminals board

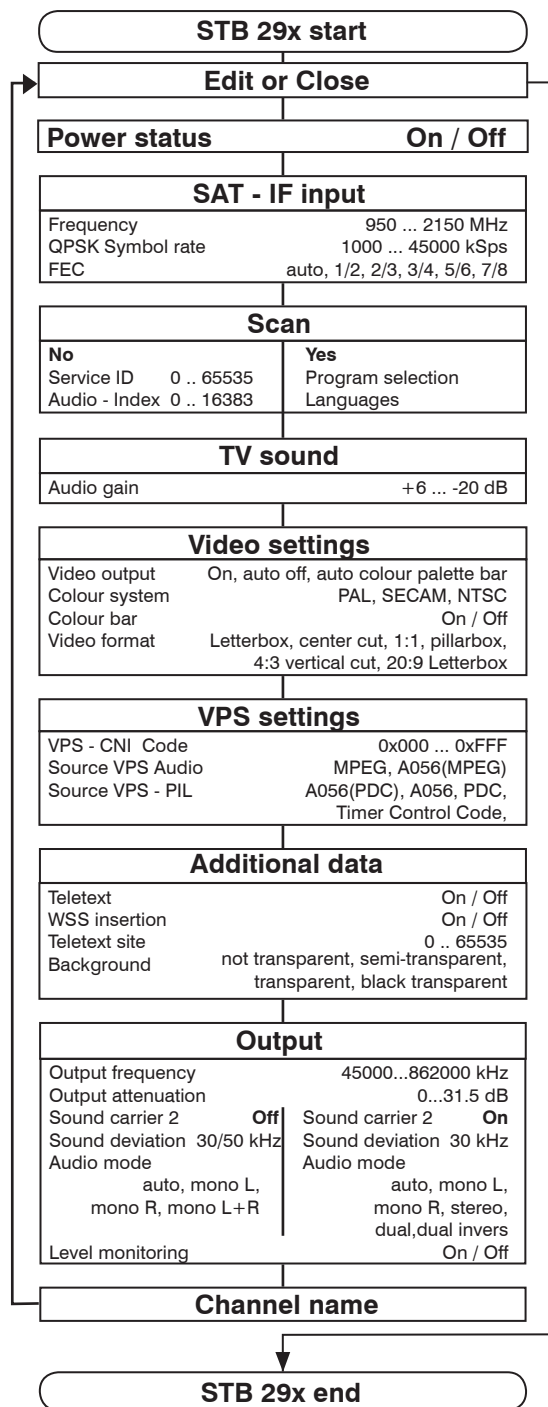
- MPEG Controller

- Controller IF converter

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)

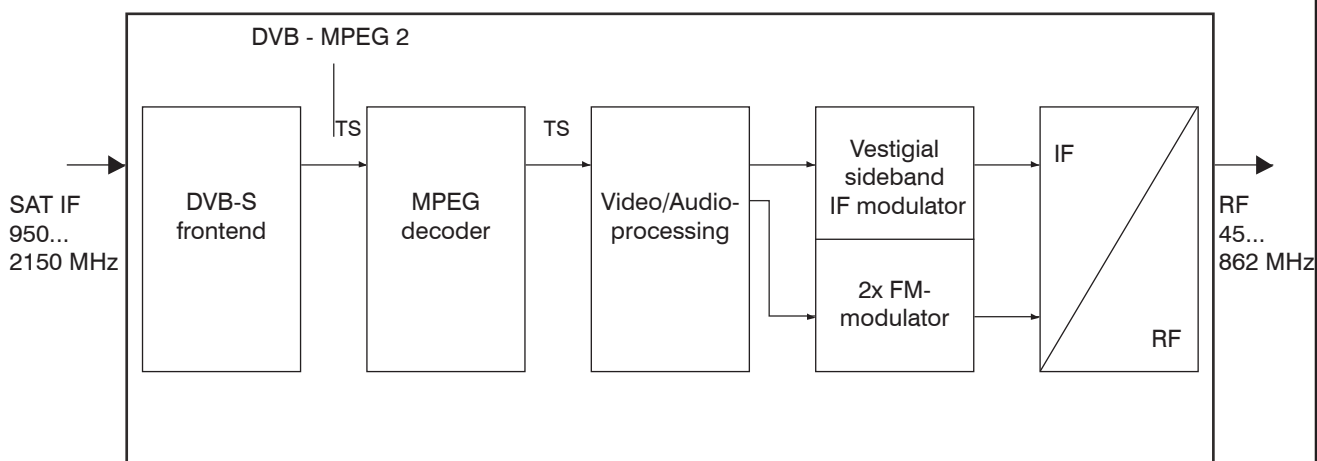


11. Trap messages

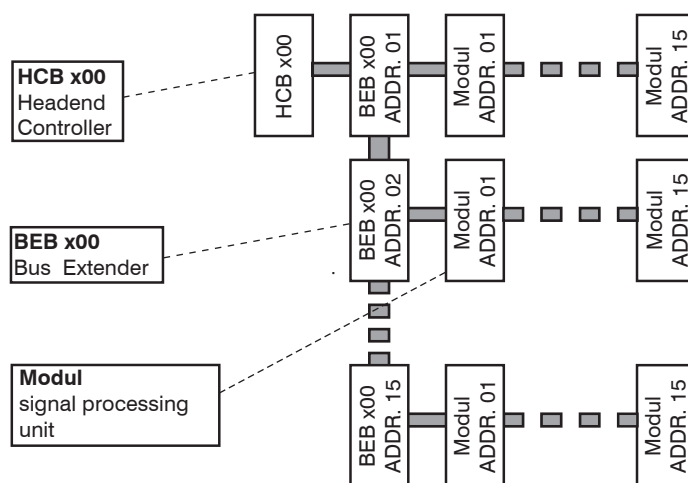
Item	Message	Message Typ	Explanation
01	Signal OK	INFORMATION	Component working, everything ok
02	Input not sync	WARNING	Input not synchronised
03	MPEG Error	CRITICAL	MPEG error
04	System reset	WARNING	System has been reset after internal error
05	MPEG-Decoder not sync	WARNING	MPEG decoder not synchronised
06	Power fail	CRITICAL	Error in power supply
07	Tuner PLL out of range	WARNING	Tuner PLL not locked
08	IIC Error	CRITICAL	Error in IIC or internal hardware

Item	Message	Message Type	Explanation
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
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

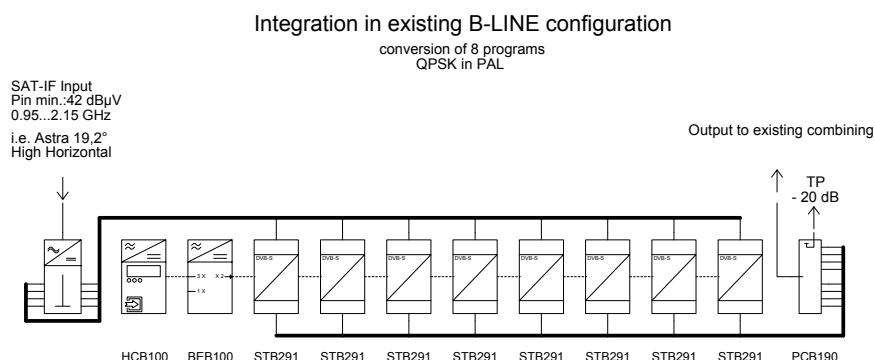


13. Head end BUS structure



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

14. Example of use



15. Technical data

SAT - IF Input

Frequency range	950 ... 2150 MHz
Frequency step	1 MHz
AFC range	± 3 MHz
AGC level range	42 ... 82 dBμV
Connector	F socket
Impedance	75 Ω

QPSK demodulator / decoder

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

TV output

9818.01/.02/.08/.09:	
TV standard	B/G
Sound carrier frequencies	5.5 / 5.742 MHz above pic.carr.
9818.21/.25/.29:	
TV standard	D/K
Sound carrier frequencies	6.5 / 6.25 MHz above pic.carr.
9818.22/.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
Impedance	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
Output level stability	typ. 62/ 56 dB
Frequency stability	max.1 dB _{pp} ± 30 kHz

Operating parameters

Current / voltage	12 V (0.2 V)/ 750 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

Physical information

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	1,250 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)*

* not available for device variant 9818.01

16. Glossary

AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AM	Amplitude modulation
AP	Anschlussplatte (Terminals board)
ATV	Analogue Television
AV	Audio/Video
BER	Bit Error Ratio
BISS	Basic Interoperable Scrambling System
BW	Bandwidth
CCIR	Comité Consultatif International des Radiocommunications
C/N	Carrier to Noise ratio
D/A	Digital-/ Analog-
DVB	Digital Video Broadcasting (-C Cable, -S Satellit, -S2 Satellite 2, -T Terrestrial)
ETSI	European Telecommunications Standards Institute
FEC	Forward Error Correction
FIFO	First In – First Out
FPGA	Field Programmable Gate Array
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
I/Q	In-phase/Quadrature-phase
ID	Identifier
IF	Intermediate Frequency
IFI	Intermediate Frequency Interface
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
NIM	Network Interface Module
NTSC	National Television Systems Committee*
PAL	Phase Alternating Line*
PCR	Program Clock Reference
PDC	Program Delivery Control
PID	Packed Identifier
PMT	Program Map Table
PLL	Phase-locked loop,
RF	Radio Frequency
SECAM	Séquentiel couleur à mémoire*
SNMP	Simple Network Management Protocol
SPI	Serial Peripheral Interface
SPTS	Single Program Transport Stream
TS	Transport Stream
TV	Television
VPS	Video Programming System
WSS	Wide Screen Signalling

* 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 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. History

Version	Date	Modification	Author
1.00	04.03.2009	basic document	Häußer

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

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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: SAT - TV Transmodulator

Type: STB 29x

Product number: 9818.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.

Datum: 25.02.2009

Unterschrift:



(Geschäftsführer)