BLANKOM®

Professional Headend Solutions

Operating instructions

TWIN ASI Transmodulator

ASI-TS → CI → ATV (AM)

Contents

ATC 199
Part N°: 9613.01

...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 [1] is necessary!

2. Device variants

ATC 199 9613.01 ASI-TS → CI → ATV (AM)

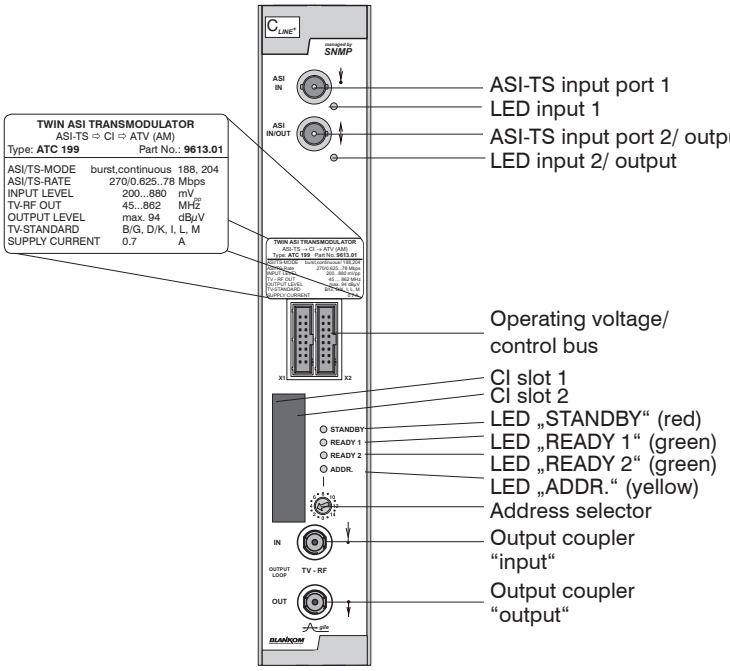
Minimum software requirements for Headend Controller HCB x00:
9650.03: version 2.34*
9650.04/.05: version 3.18*
9652.01: version 3.23*
9653.01 version 3.27*

*) Updates: www.blankom.de

3. General

The TWIN ASI Transmodulator is a module of the head end system C-LINE+, which is conceived as a complete system for small and middle sized network. The device converts one respective two ASI TS into analogue cable TV signals. All the components are programmed via a central control unit and will work independently thereafter. 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 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. The transport stream will be fed directly to the DVB module or via the Common Interface.* The DVB module consists of the demultiplexer and the MPEG decoder. The DVB module generates an analogue video- and audio signal. The ATC 199 supports services like Teletext, VPS, WSS, optional test lines, the flash of subtitles, the insertion of black bars and BISS decryption. The BISS mode 1 and the BISS mode E with input of the necessary Injected ID are supported, but not the BISS mode E with the additional input of the optional Buried ID.
Using the black-bar-option it can be selected, where the black bar will be inserted (left, right, above or below the image). The width of the bar can be selected in % related to standard 4:3 format. Different values for 16:9- and special 16:9 format can be adjusted. The activation of the black bar is only possible when adjusted colour system is PAL and the video format is letterbox. A timer-controlled activation of this option is supported by HCB 100 (9650.04/.05) or HCB 200/ 300 with software version 3.26 or higher.
The analogue signals feed the IF modulators. After IF filtering follows the conversion into the wanted output channels.
Two independent adjustable channels (output frequency and level) are available at the output. The second ASI port can be adjusted as input or loop trough output by software. Outputs are performed in loop through technology therefore distribution and combining are realized within the module.

* 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 ATC 199 parameters (see chapter 9) → green LED is switched on
- After the programming the ATC 199 will be automatically switched into the operating mode
  → yellow LED flashes shortly/ green LED is switched on

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

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 provided 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 enter provided 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.

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 [2].
- 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. Meaning of the LED`s

7.1 LED‘s at the ASI ports

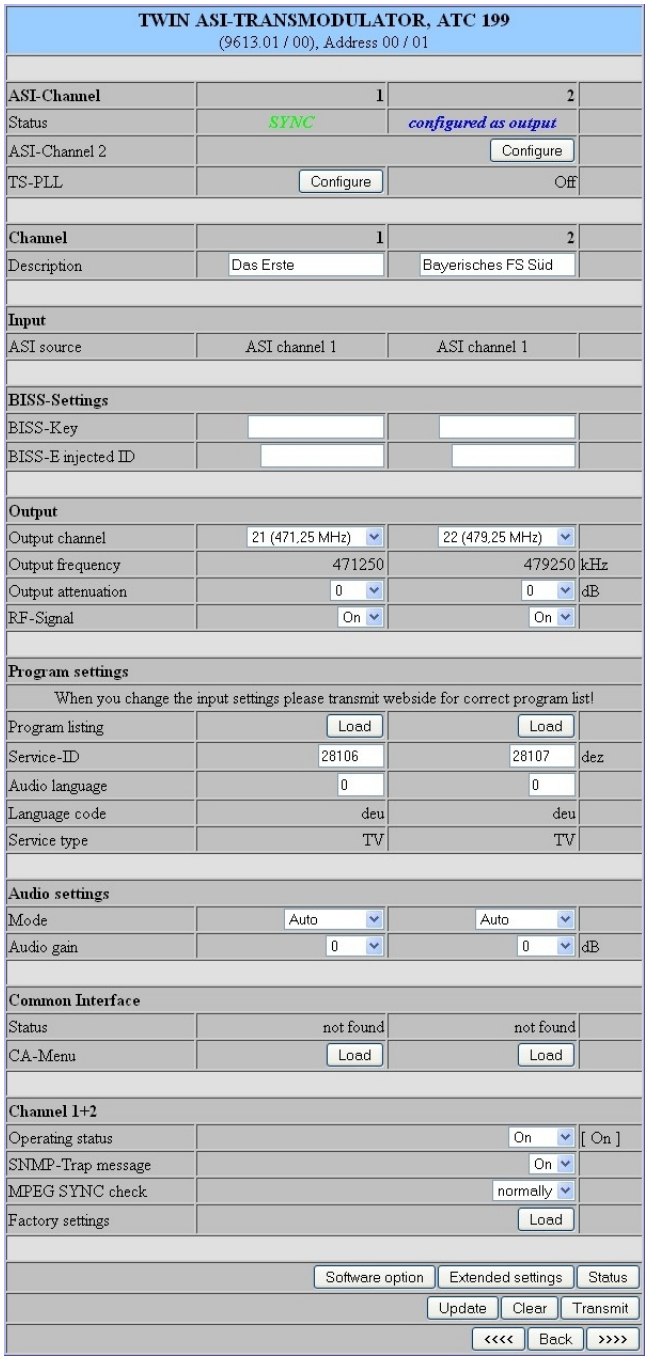
Colour	Status	Meaning of display
green	permanently on	ASI channel has been configured as input
	flashing	no ASI signal
yellow	permanently on	ASI channel has been configured as output
	flashing	no ASI signal

7.2 Status LED‘s

Designation (colour)	Status	Meaning of display
STANDBY (red)	permanently on	Module is in standby
	flashing	Module faulty (hardware error)
READY 1/ 2 (green)	permanently on	Module working properly
	flashing	Error warnings, depending on signal: - ASI without sync (e.g. when there is no input signal) - Error of decryption - service settings are not valid
ADDR. (yellow)	illuminated/ flashing	remote control connection/ data being exchanged

8. Programming by web server*

8.1 Main menu



TWIN ASI-TRANSMODULATOR, ATC 199
(9613.01 / 00), Address 00 / 01

ASI-Channel	1	2	
Status	*SYNC*	*configured as output*	
ASI-Channel 2		Configure	
TS-PLL	Configure	Off	
Channel	1	2	
Description	Das Erste	Bayerisches FS Süd	
Input			
ASI source	ASI channel 1	ASI channel 1	
BISS-Settings			
BISS-Key			
BISS-E injected ID			
Output			
Output channel	21 (471,25 MHz)	22 (479,25 MHz)	
Output frequency	471250	479250	kHz
Output attenuation	0	0	dB
RF-Signal	On	On	
Program settings			
When you change the input settings please transmit webside for correct program list!			
Program listing	Load	Load	
Service-ID	28106	28107	dez
Audio language	0	0	
Language code	deu	deu	
Service type	TV	TV	
Audio settings			
Mode	Auto	Auto	
Audio gain	0	0	dB
Common Interface			
Status	not found	not found	
CA-Menu	Load	Load	
Channel 1+2			
Operating status		On	[On]
SNMP-Trap message		On	
MPEG SYNC check		normally	
Factory settings		Load	

Software option | Extended settings | Status

Update | Clear | Transmit

<<<< | Back | >>>>

name of device, item number, address in head end

ASI-Channel displays the respective ASI channel (1/ 2**)**

Status If channel is an input (channel 1 always, channel 2 after configuration), there is displays whether **SYNC**hronization or **noSYNC**hronization with input. If channel 2 is configured as output, there is displayed: "configured as output"

ASI-Channel 2 configuration button of ASI channel 2 (see menu 1)

TS-PLL configuration button to enable or disable of the TS-PLL 1 (see menu 2)

Channel displays the respective modulator channel

Description name of programme (max. 30 characters)

Input

ASI source displays which ASI channel is used as source of the TS. If ASI port 2 is configured as input, it will be the source of the modulator channel automatically. Otherwise the ASI port 1 is the TS source of both modulator channels.

BISS-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 3

Service-ID adjustment range: 0...65535

Audio language adjustment range: 0...255

Language code displays the code for the language selected

Service type displays the type of service selected (TV, radio)

Audio settings

Mode selection: monoL+R, monoL, monoR, dual, dual invers, stereo, auto

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

Common Interface

Status displays the type of the CA module per slot

CA-Menu see menu 4

Channel 1+2

Operating status selection: On, Off, Reset

SNMP-Trap mess. On/ Off, if SNMP option in HCB x00 enabled, otherwise "locked" displays

MPEG SYNC check selection: fast, normally, slowly

Factory settings see menu 5

Routing to the appropriate adjustment menu:

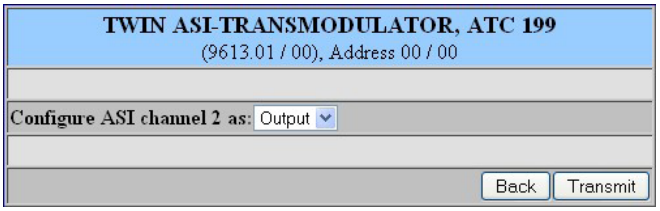
Extended settings see menu 7

Software option see menu 6

Status see menu 9

* For further details see the HCB manual

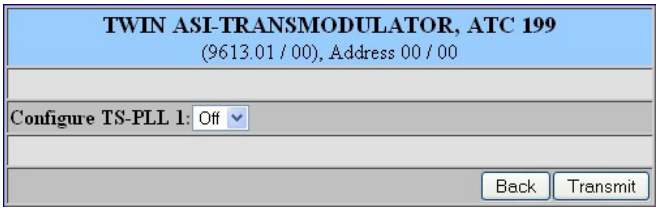
8.2 Configuration of ASI channel 2 (menu 1)



name of device, item number, address in head end

In this menu, the ASI channel 2 can be separately configured as an input or as an output to loop throught the ASI input stream.

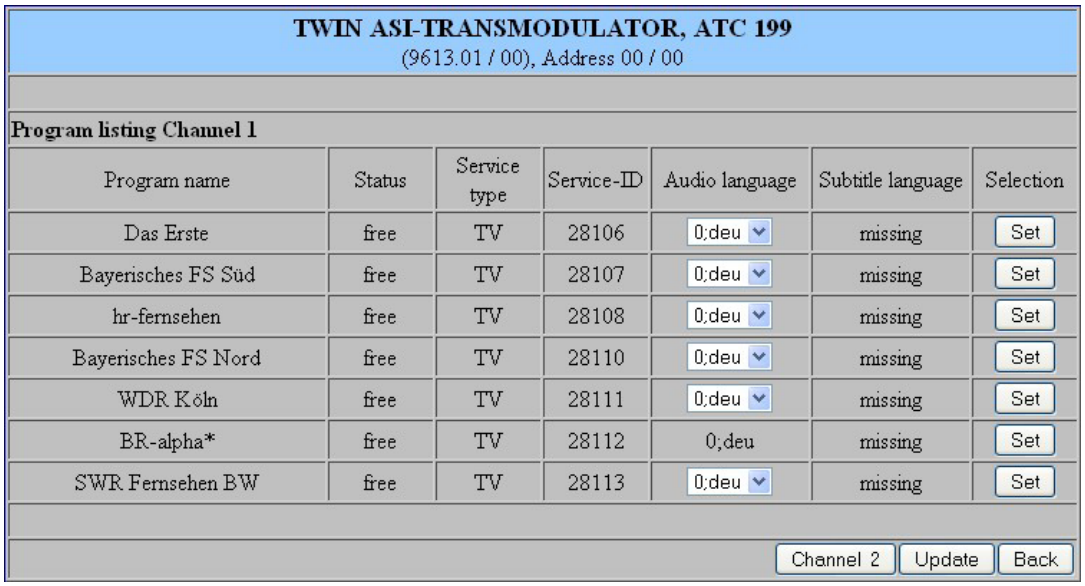
8.3 Configuration of TS-PLL 1 (menu 2)



name of device, item number, address in head end

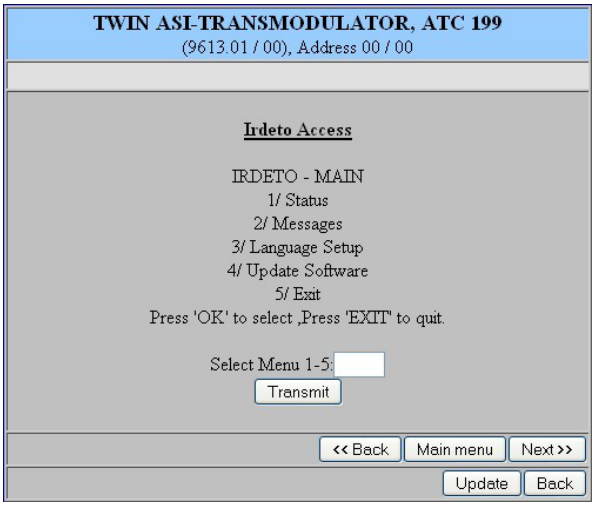
Sources with normal distributed PCR jitter may be improved by this option. For those reasons the ASI front end channel 1 contains a TS stabilization based on a PLL. This functionality can be enabled or disabled in this menu (default: off). Multiplexers and IP gateways used for feeding adjust the PCR themselves, therefore the PLL should remain deactivated in those cases.

8.4 Loading the programme list (menu 3)



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.

8.5 CA menu (menu 4)

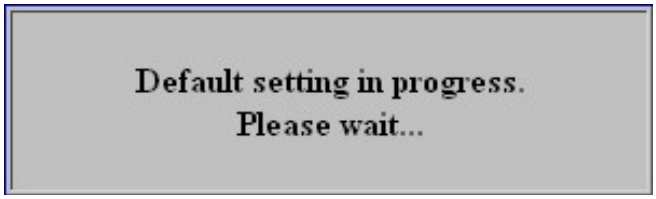


name of device, item number, address in head end

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.

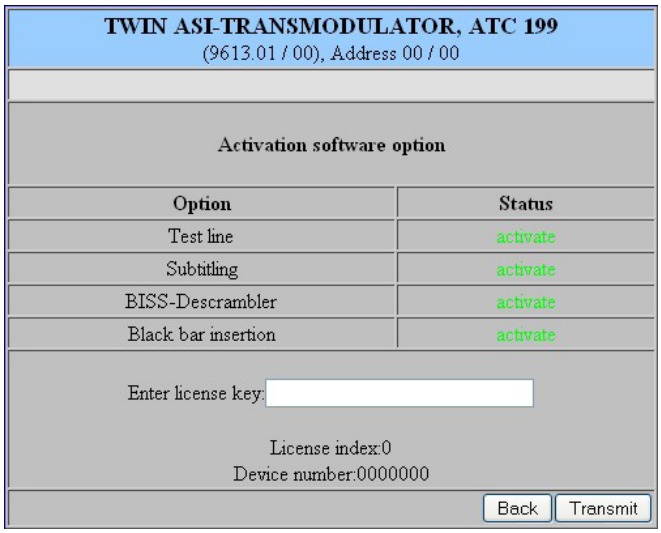
8.6 Factory settings (menu 5)

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 (see chapter 9). 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. It takes about one minute.

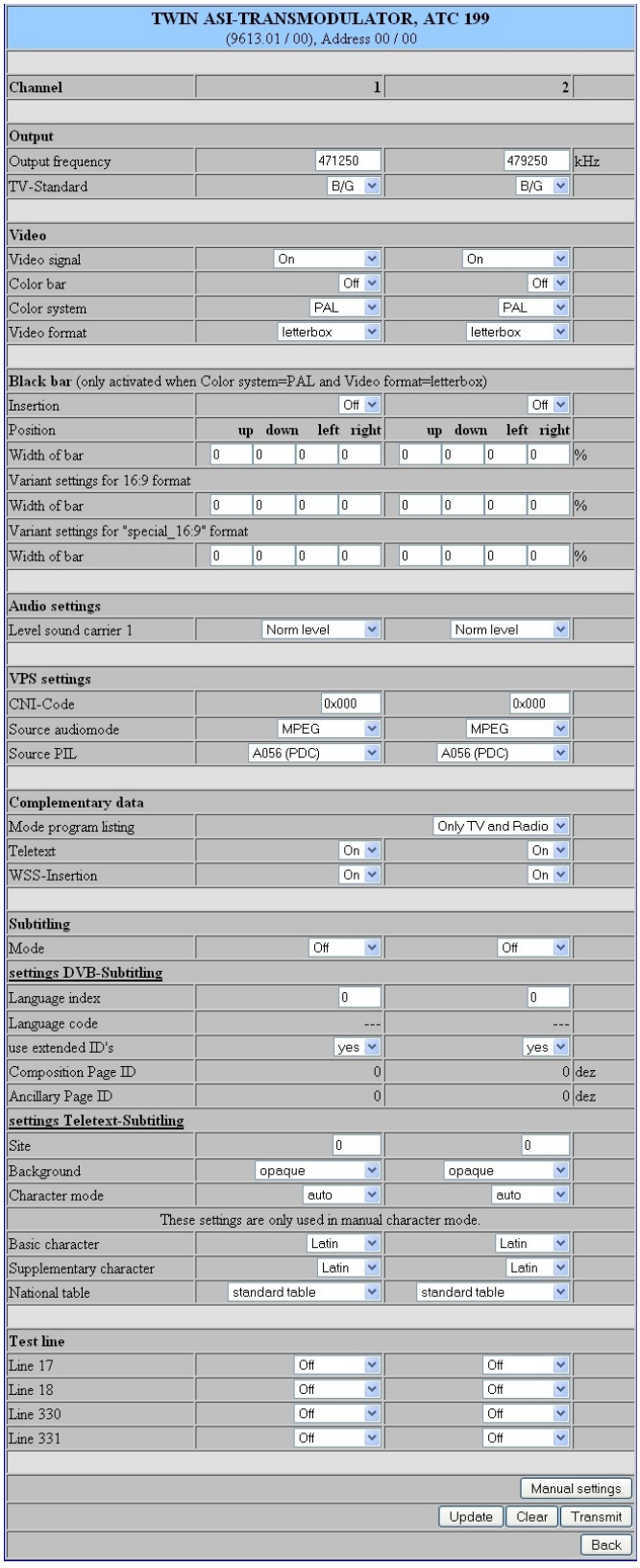
8.7 Software options (menu 6)



name of device, item number, address in head end

Dialogue for entering code to activate the “test line” (CKB 101), “subtitling” (CKB 102), “BISS decryption” (CKB 104) and “black bar insertion“ (CKB 106) software options. When the page is called up, the current state of activation for the relevant option will be displayed.

8.8 Extended settings (menu 7)



TWIN ASI-TRANSMODULATOR, ATC 199
(9613.01 / 00), Address 00 / 00

Channel				**1**					**2**			
Output												
Output frequency				471250					479250			kHz
TV-Standard				B/G					B/G			
Video												
Video signal				On					On			
Color bar				Off					Off			
Color system				PAL					PAL			
Video format				letterbox					letterbox			
Black bar (only activated when Color system=PAL and Video format=letterbox)												
Insertion				Off					Off			
Position			up	down	left	right		up	down	left	right	
Width of bar			0	0	0	0		0	0	0	0	%
Variant settings for 16:9 format												
Width of bar			0	0	0	0		0	0	0	0	%
Variant settings for "special_16:9" format												
Width of bar			0	0	0	0		0	0	0	0	%
Audio settings												
Level sound carrier 1				Norm level					Norm level			
VPS settings												
CNI-Code				0x000					0x000			
Source audiomode				MPEG					MPEG			
Source PIL				A056 (PDC)					A056 (PDC)			
Complementary data												
Mode program listing									Only TV and Radio			
Teletext				On					On			
WSS-Insertion				On					On			
Subtitling												
Mode				Off					Off			
settings DVB-Subtitling												
Language index				0					0			
Language code				---					---			
use extended ID's				yes					yes			
Composition Page ID				0					0			dez
Ancillary Page ID				0					0			dez
settings Teletext-Subtitling												
Site				0					0			
Background				opaque					opaque			
Character mode				auto					auto			
These settings are only used in manual character mode.												
Basic character				Latin					Latin			
Supplementary character				Latin					Latin			
National table				standard table					standard table			
Test line												
Line 17				Off					Off			
Line 18				Off					Off			
Line 330				Off					Off			
Line 331				Off					Off			

Manual settings
Update Clear Transmit
Back

name of device, item number, address in head end

Channel displays the modulator channel

Output
Output frequency — frequency input in kHz, automatic rounding up or down to next 10 kHz on adoption
TV-Standard — selection: B/G, B, D/K1, D/K2, D/K3, M, I, L

Video — settings of the video parameters
Video signal — selection: On, auto off, auto color bar
Color bar — selection: On, Off
Color system — selection: PAL, SECAM, NTSC
Video format — selection: letterbox, center cut, 1:1, pillarbox, 4:3 vertical cut, 20:9 letterbox

Black bar
(will only be available if "black bar insertion" option is on)
Insertion — selection: On, Off
The width of the bar can be selected in % related to standard 4:3 format. Different values for 16:9- and special 16:9 format can be adjusted.

Audio settings
Level sound carrier 1 — selection: Norm level, Norm level - 4 dB

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
Mode program listing — selection: only TV and Radio, all progr.
Teletext — selection: On, Off
WSS-Insertion — selection: On, Off

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

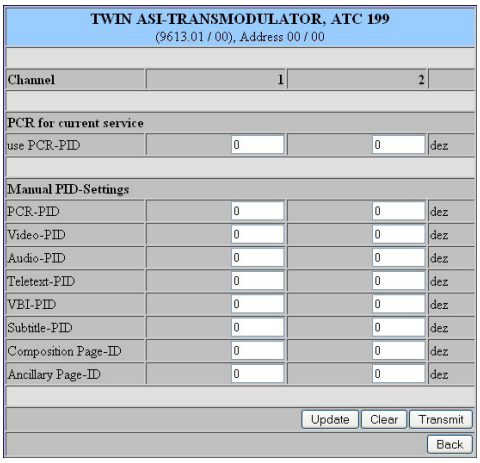
settings DVB-Subtitling
(will only be available if "Subtitling" option is on)
Language index — adjustment range: 0...255
Language code — displays the code for the language selected
use extended ID's — selection: yes, no
Composition Page ID — displays the ID (decimally)
Ancillary Page ID — displays the ID (decimally)

settings Teletext-Subtitling
(will only be available if "Subtitling" option is on)
Site — adjustment range: 0...65535
Background — selection: opaque, semi-transparent, transparent, black transparent
Character mode — selection: auto, manually
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 line
(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

Routing to the appropriate adjustment menu:
Manual settings — see menu 8

8.9 Manual settings (menu 8)



TWIN ASI-TRANSMODULATOR, ATC 199 (9613.01 / 00), Address 00 / 00			
Channel	**1**	**2**	
PCR for current service			
use PCR-PID	0	0	dez
Manual PID-Settings			
PCR-PID	0	0	dez
Video-PID	0	0	dez
Audio-PID	0	0	dez
Teletext-PID	0	0	dez
VBI-PID	0	0	dez
Subtitle-PID	0	0	dez
Composition Page-ID	0	0	dez
Ancillary Page-ID	0	0	dez
	Update Clear Transmit		
	Back		

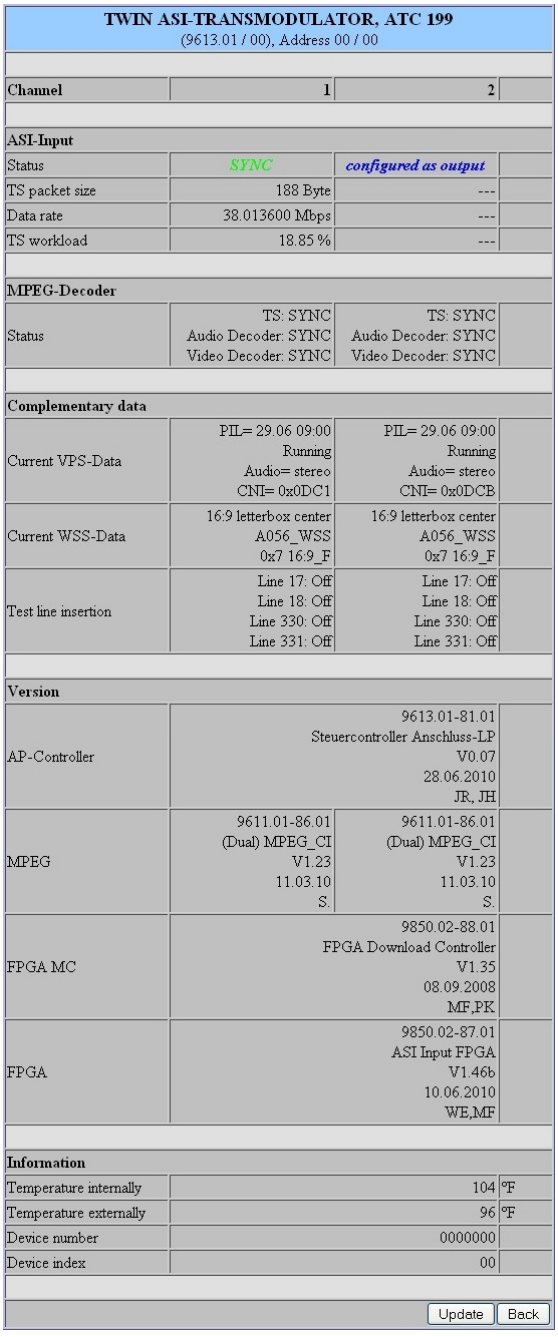
name of device, item number, address in head end

Channel displays the modulator channel

PCR for current service
use PCR PID adjustment range: 0...65535

Manual PID settings
PCR-PID adjustment range: 0...65535
Video-PID adjustment range: 0...65535
Audio-PID adjustment range: 0...16383
Teletext-PID adjustment range: 0...65535
VBI-PID adjustment range: 0...65535
Subtitle-PID adjustment range: 0...65535
Composition Page-ID adjustment range: 0...65535
Ancillary Page-ID adjustment range: 0...65535

8.10 Status of the device (menu 9)



TWIN ASI-TRANSMODULATOR, ATC 199 (9613.01 / 00), Address 00 / 00			
Channel	**1**	**2**	
ASI-Input			
Status	*SYNC*	*configured as output*	
TS packet size	188 Byte	---	
Data rate	38.013600 Mbps	---	
TS workload	18.85 %	---	
MPEG-Decoder			
Status	TS: SYNC Audio Decoder: SYNC Video Decoder: SYNC	TS: SYNC Audio Decoder: SYNC Video Decoder: SYNC	
Complementary data			
Current VPS-Data	PIL= 29.06 09:00 Running Audio= stereo CNI= 0x0DC1	PIL= 29.06 09:00 Running Audio= stereo CNI= 0x0DCB	
Current WSS-Data	16:9 letterbox center A056_WSS 0x7 16:9_F	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	Line 17: Off Line 18: Off Line 330: Off Line 331: Off	
Version			
AP-Controller	9613.01-81.01 Steuercontroller Anschluss-LP V0.07 28.06.2010 JR, JH		
MPEG	9611.01-86.01 (Dual) MPEG_CI V1.23 11.03.10 S.	9611.01-86.01 (Dual) MPEG_CI V1.23 11.03.10 S.	
FPGA MC	9850.02-88.01 FPGA Download Controller V1.35 08.09.2008 MF,PK		
FPGA	9850.02-87.01 ASI Input FPGA V1.46b 10.06.2010 WE,MF		
Information			
Temperature internally	104	°F	
Temperature externally	96	°F	
Device number	0000000		
Device index	00		
	Update Back		

name of device, item number, address in head end

Channel displays the ASI or modulator channel

ASI-Input
Status displays whether **SYNC**hronization or **noSYNC**hronization with input
TS packet size in byte
Data rate in Mbps
TS workload in %

MPEG-Decoder
Status synchronization status of the TS and the audio and video decoder

Complementary data
Current VPS-Data displays detailed informations about current VPS data
Current WSS-Data displays detailed informations 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

Version
displays the software versions for the controllers as follows:

- Controller of terminals board

- MPEG Controller

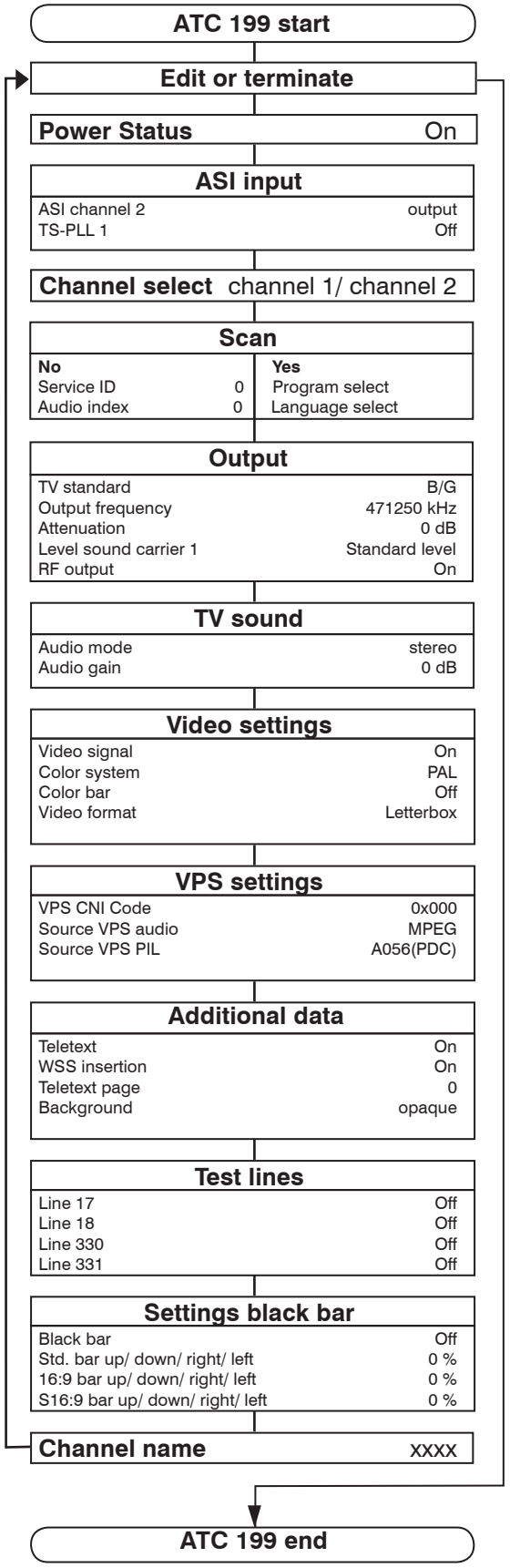
- Download controller for FPGA ASI input

- ASI input FPGA

Information
Temperature intern. displays internal temperature of the device
Temperature extern. displays external temperature of the device
Device number displays of the device number
Device index displays of the device index (hardware)

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

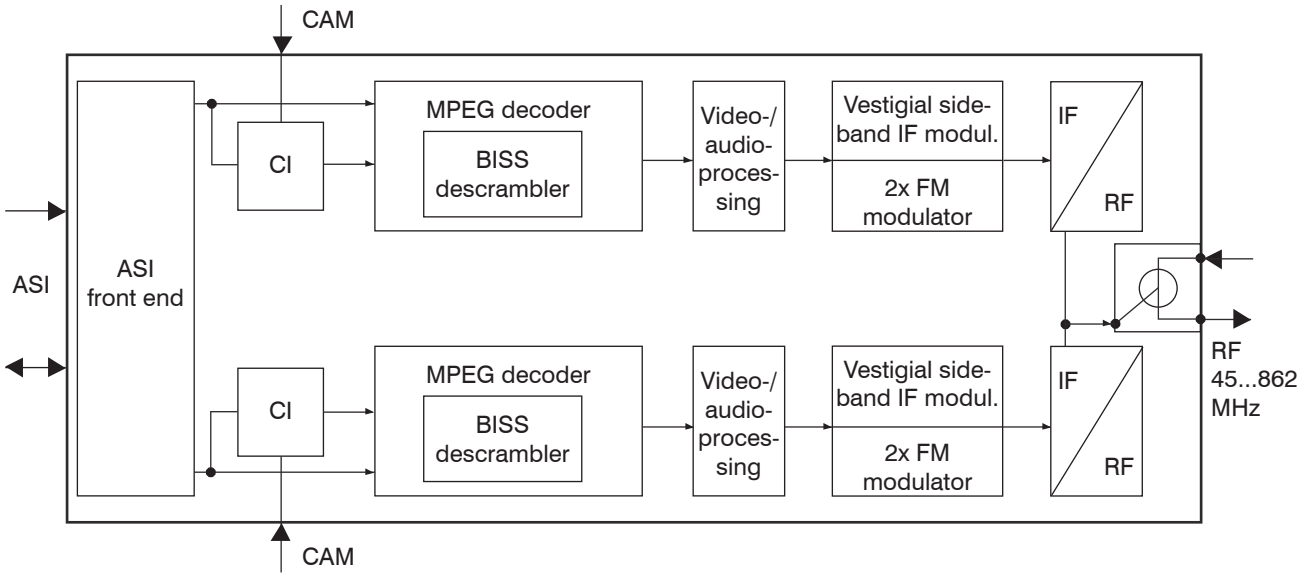
The values in the blocks setting are the default values. After pushing the button “default“ settings on the main page, all settings stored in the EEPROM are erased and reset to default values. The device is set to these values again (see also chapter 8.6).



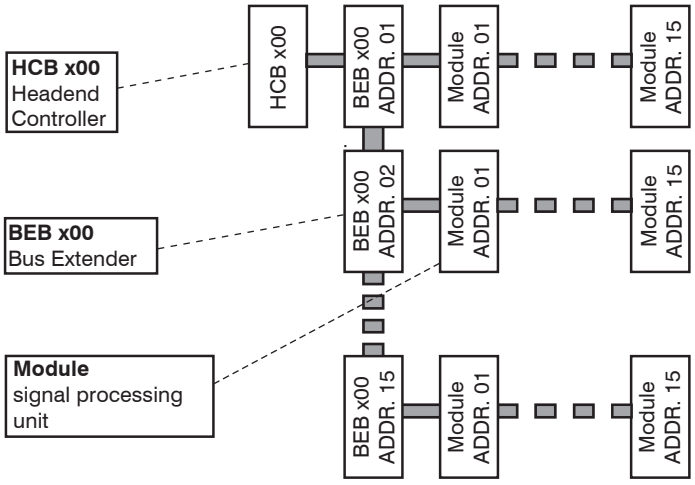
10. Trap messages

Item.	Message	Message type	Explanation
01	Signal OK	INFORMATION	input synchronized
02	Input not sync	WARNING	input not synchronized
03	MPEG error	CRITICAL	MPEG error
04	IIC Error	CRITICAL	IIC bus or hardware error
05	System reset	WARNING	reset by internal error
06	MPEG-Decoder not sync	WARNING	MPEG decoder not synchronized
07	Power fail	CRITICAL	power supply error
08	Audio mode=mono	INFORMATION	Audio mode is set as mono
09	Audio mode=summ mono	INFORMATION	Audio mode is set as mono total
10	Audio mode=mono1	INFORMATION	Audio mode is set as mono 1
11	Audio mode=mono2	INFORMATION	Audio mode is set as mono 2
12	Audio mode=stereo	INFORMATION	Audio mode is set as stereo
13	Audio mode=dual	INFORMATION	Audio mode is set as dual

11. Block diagram



12. Head end bus structure

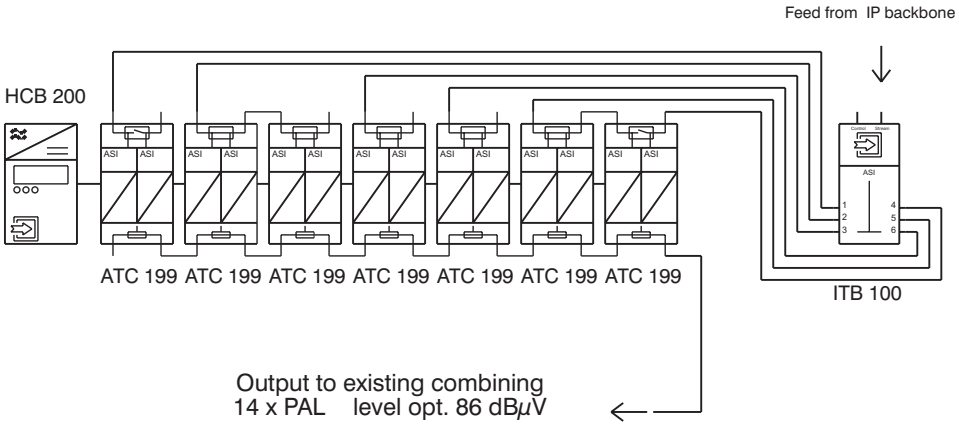


The number of the possible module connections (00 ... 15) to a BEB x00 depends on the total power consumption of this line!

13. Application example

Integration in existing C-LINE configuration

Conversion of different programs of different multi program transport streams into PAL



14. 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 [3]

Decryption interface

Common Interface	per channel PCMCIA-slot according to EN 50221 [4]
Operating voltage	5 V

TV output

TV standards	B/G, D/K, I, L, M
Sound procedure (B/G, D/K)	FM dual carrier
Sound (B/G, D/K)	mono/ stereo/ dual/ auto
Sound (I, L, M)	mono
Max. output level	94 dBµV
Level adjustment range	20 dB (0.5 dB steps)
Impedance	75 Ω
Connector	F socket
Through loss	≤ 1.5 dB
Output frequency range	45 … 862 MHz
Tuning step	125 kHz

Operating parameters

Voltage/ current	12 V (± 0.2 V) / 700 mA (without CA module)
Residual ripple of the supply voltage	≤ 10 mV_{pp}

Environmental conditions

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

Miscellaneous

Dimensions (l x w x h)	
without 19”-adapter	50 x 276 x 148 mm
with 19”-adapter	50 x 301 x 148 mm
Weight	1,130 g

Delivery content

1 x bus connector
1 x F connecting cable 140 mm

Software options

Test lines	CKB 101	9650.51
Subtitling	CKB 102	9650.52
BISS decryption	CKB 104	9650.54
Insertion of black bars	CKB 106	9650.56

15. Glossary

AM	**A**mplitude **m**odulation
AP	**A**nschluss**pl**atte (terminals board)
ASI	**A**synchronous **S**erial **I**nterface
BISS	**B**asic **I**nteroperable **S**crambling **S**ystem
CA	**C**onditional **A**ccess
CAM	**C**onditional **A**ccess **M**odule
CI	**C**ommon **I**nterface
DIN	**D**eutsches **I**nstitut für **N**ormung (german standards institute)
DVB	**D**igital **V**ideo **B**roadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
EMC	**E**lectro**m**agnetic **c**ompatibility
EN	**E**uropäische **N**orm (European Standard)
FIFO	**F**irst **I**n–**F**irst **O**ut
FM	**F**requency **m**odulation
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
ID	**Id**entifier
IF	**I**ntermediate **F**requency
IIC	**I**nter-**I**ntegrated **C**ircuit (I^2C-Bus)
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
NTSC	**N**ational **T**elevision **S**ystems **C**ommittee*
PAL	**P**hase **A**lternating **L**ine*
PCMCIA	**P**ersonal **C**omputer **M**emory **C**ard **I**nternational **A**ssociation
PCR	**P**rogram **C**lock **R**eference
PDC	**P**rogram **D**elivery **C**ontrol
PID	**P**acked **I**dentifier
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
TS	**T**ransport **s**tream
TV	**T**ele**v**ision
UHF	**U**ltra **H**igh **F**requency
VBI	**V**ertical **B**lanking **I**nformation
VHF	**V**ery **H**igh **F**requency
VPS	**V**ideo **P**rogramming **S**ystem
WSS	**W**ide **S**creen **S**ignalling

*colour-encoding systems of analogue television

16. Bibliography

[1] 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

[2] RFC 1157 Request for Comments (RFC): RFC Database URL: http://www.rfc-editor.org/rfc.html

[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] EN 50083-2: Cable networks for television signals, sound signals and interactive services Part 2: Electromagnetic compatibility for equipment, German version EN 50083-2:2006

17. Document history

Version	Date	Modification	Author
1.00	23.06.2010	Basic document	Häußer

Options available upon request! Subjects to changes due to technical progress.

CE 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 ASI Transmodulator
Type:	ATC 199
Product number:	9613.01

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: 23.06.2010

Signature:

(Managing Director)