

Assembly Instructions

English



Grundig SAT Systems

PROFESSIONAL

Head-End DVB-T Converter to IP DVB-T to MPTS

PTIM 1000



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1 SAFETY REGULATIONS AND NOTES



- Assembly, installation and servicing should be carried out by authorised electricians.
- Switch off the operating voltage of the system before beginning with assembly or service work or pull out the mains plug.
- Do not perform installation and service work during thunderstorms.
- Install the system so it will not be able to vibrate...
 - in a dust-free, dry environment
 - in such a manner that it is protected from moisture, fumes, splashing water and dampness
 - somewhere protected from direct sunlight
 - not within the immediate vicinity of heat sources
 - in an ambient temperature of 0 °C to +50 °C. In case of the formation of condensation wait until the system is completely dried.
- Ensure that the head-end station is adequately ventilated. Do not cover the ventilation slots.
- Beware of short circuits
- No liability is accepted for any damage caused by faulty connections or inappropriate handling.
- Observe the relevant standards, regulations and guidelines on the installation and operation of antenna systems.
- The standards EN/DIN EN 50083 resp. IEC/EN/DIN EN 60728 must be observed.
- **For further information please read the assembly instructions for the head-end station used.**
- **Test the software versions of the head-end station and the cassette and update them if necessary. The current software versions can be found at "www.gss.de/en".**



Take action to prevent static discharge when working on the device!



Electronic devices should never be disposed of in the household rubbish. In accordance with directive 2002/96/EC of the European Parliament and the European Council from January 27, 2003 which addresses old electronic and electrical devices, such devices must be disposed of at a designated collection facility. At the end of its service life, please take your device to one of these public collection facilities for proper disposal.

2 GENERAL INFORMATION

2.1 PACKING CONTENTS

1	Cassette PTIM 1000	2	RF cables
1	Brief assembly instructions	1	Measuring log

2.2 MEANING OF THE SYMBOLS USED



Important note



General note



Performing works

2.3 TECHNICAL SPECIFICATIONS

The devices meet the following EU directives:
2006/95/EC, 2004/108/EC

The product fulfils the guidelines and standards for CE labelling (page 42).

Unless otherwise noted all values are specified as "typical".

RF input

Channels:C05 ... C12, C21 ... C69
Frequency range: 177.5 ... 226.5, 474 ... 858 MHz
Input level: 60 dB μ V ... 80 dB μ V
Return loss: > 8 dB
Impedance: 75 Ω
Symbol rateacc. to EN 300744

LAN interface

Standard: 100-BASE-T
Data rate: \leq 80 MBit
Protocols: UDP (User Data Protocol), RTP (Real-Time Transport Protocol)

—> Live Streaming/Multicast Streaming requires specially designed and configured networks. Minimum Requirements include:
Layer-3 Switched Ethernet, Multicast Enabled, IGMPv2/3, Network and Multicast Routing Supported.

ASI interfaces

Standard: DIN EN 50083-9
Format: MPEG ISO IEC 13818-1
User data rate: 2 ... 90 Mbit/s
Impedance: 75 Ω
Level (input / output): 800 mV_{pp} \pm 10%
Return loss (input): > 17 dB (5 ... 270 MHz)

Connections

RF inputs: 2 IEC sockets
RF loop-through outputs: 2 IEC sockets
RF output: 1 IEC socket (no function)
LAN: 1 RJ 45 socket
ASI input: 1 BNC socket
ASI output: 1 BNC socket
Connection strip (10-pin): for supply voltages and control circuits
RS 232 socket: serial interface for software update
Common Interface: 1 (several services can be descrambled).

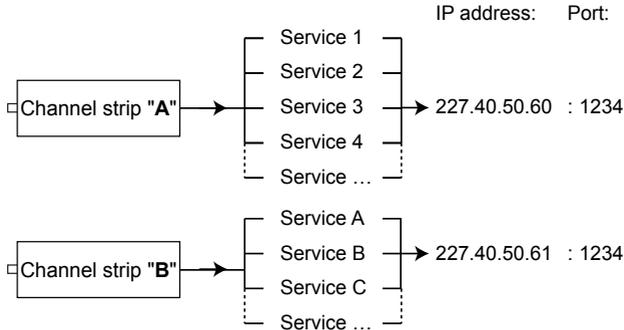
Remote maintenance

Remotely controllable (via PSW 1000*): yes
Remote update (via BEflash*): yes
(* and a corresponding management unit)

2.4 DESCRIPTION

The cassette is a DVB-T / MPTS converter which combines COFDM-modulated services (programmes) and transport streams supplied via the ASI interface into two transport streams in the TPS module. The transport streams are emitted, equipped with IP addresses via the LAN interface.

Principle signal path:



For operating the cassette in a LAN network it can be assigned its own IP address.

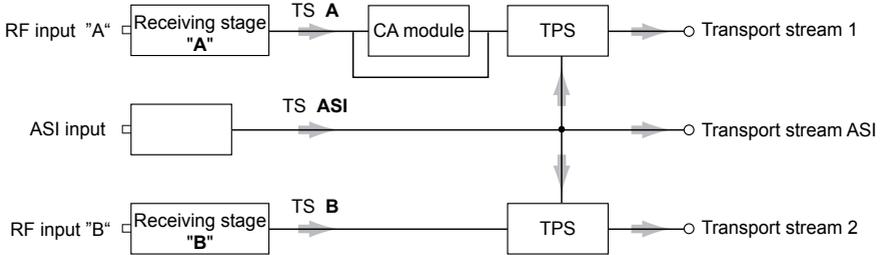
The cassette has two RF inputs and one LAN interface. Additionally is equipped with one ASI input and one ASI output (ASI – Asynchronous Serial Interface according to DIN EN 50083-9).

The transport stream fed via the ASI socket can be inserted into the transport streams of the receiving stages via the TPS module. The signal path is set in the menu items input signal path "**INROUTE**" and output signal path "**OUTROUTE**".

INPUT SIGNAL PATH "INROUTE"

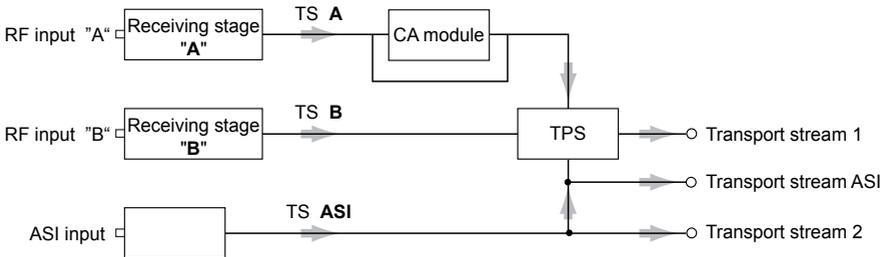
MENU SETTING "A+ASI=1 B+ASI=2"

The transport streams of the receiving stage of channel strip "A" "TS A" and of the ASI input "TS ASI" generate the transport stream 1. The transport streams of the receiving stage of channel strip "B" "TS B" and of the ASI input "TS ASI" generate the transport stream 2.



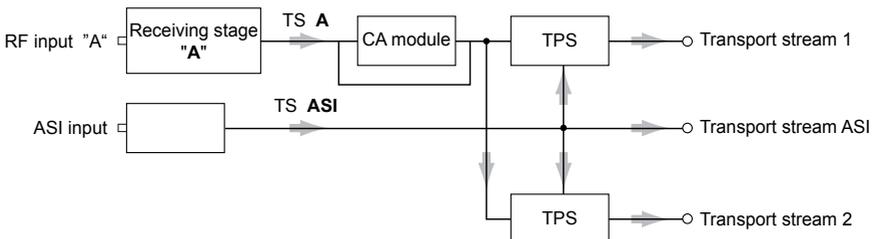
MENU SETTING "A+B+ASI=1 ASI=2"

The transport streams of the receiving stages of channel strips "A" "TS A", "B" "TS B" and of the ASI input "TS ASI" generate the transport stream 1. The "TS ASI" transport stream fed via the ASI input generates the transport stream 2.



MENU SETTING "A+ASI = 1 A+ASI = 2"

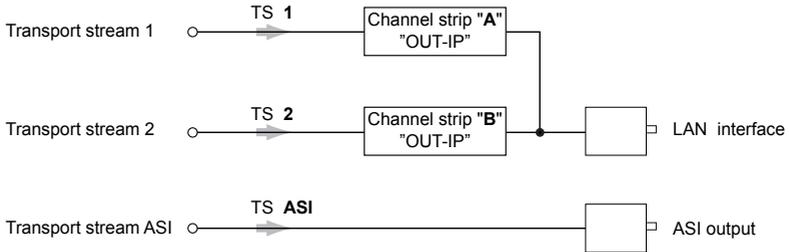
The transport streams of the receiving stage "A" "TS A" and of the ASI input "TS ASI" are split into transport stream 1 and 2. Receiving stage "B" is not used.



OUTPUT SIGNAL PATH "OUTROUTE"

MENU SETTING "ASI => ASI"

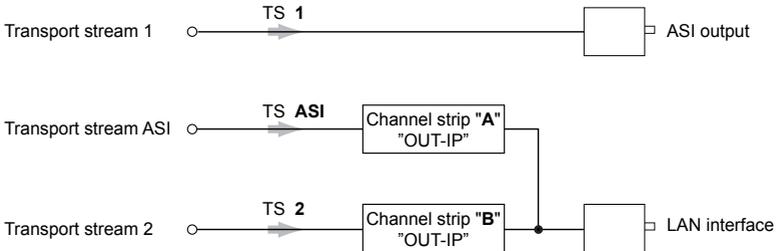
The transport streams 1 (channel strip "A") and 2 (channel strip "B") equipped with IP addresses are provided at the LAN interface. The transport stream from the ASI input "TS ASI" is made available via the ASI output.



MENU SETTING "1=>ASI ASI=>MA"

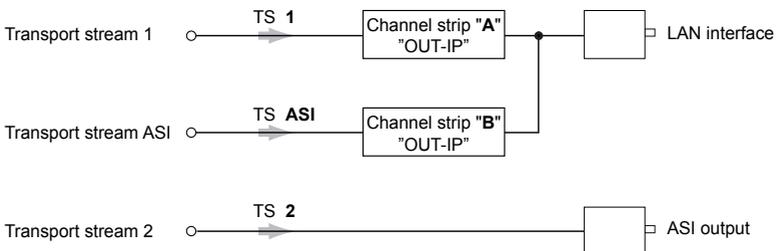
The transport stream 1 is made available via the ASI output.

The transport stream 2 (channel strip "B") and the transport stream fed via the ASI input (channel strip "A", "MA") are provided at the LAN interface equipped with IP addresses.



MENU SETTING "2=>ASI ASI=>MB"

Transport stream 1 (channel strip "A") and the transport stream fed via the ASI input (channel strip "B", "MB") are provided at the LAN interface equipped with IP addresses. The transport stream 2 is made available via the ASI output.



The cassette is equipped with two channel strips ("**A**" and "**B**"). The channel strips consist of the digital tuners and the digital signal processing levels. In the head-end station display, the channel strips of the cassette are indicated with "**Bx ...A**" or "**Bx ...B**". The channel strip "**A**" can decode encoded services via a corresponding CA module. The cassette is programmed using the head-end station control unit.

Two LEDs in the channel strips provide an indication with their colour whether an RF signal is present or not.

The LEDs for the LAN interface show whether a network connection exists and whether a data transfer is in progress.

When the head-end station is switched on, the two-line LC display shows the software version of the control unit.

To operate this cassette the software version of the control unit must be "**V 44**" or higher. You can find the current operating software for the control unit and the cassette, the required update software "**BE-Flash**" and the current assembly instructions on the website "www.gss.de/en".

The cassette is designed for use in head-end stations of the profi line.

2.5 SOFTWARE QUERY

Control unit

If necessary, you can activate the indication of the software version of the control unit manually:

- Press any two keys on the control unit of the head-end station simultaneously until the display goes dark and the software version, e.g. "**V 44**" appears.

Cassette

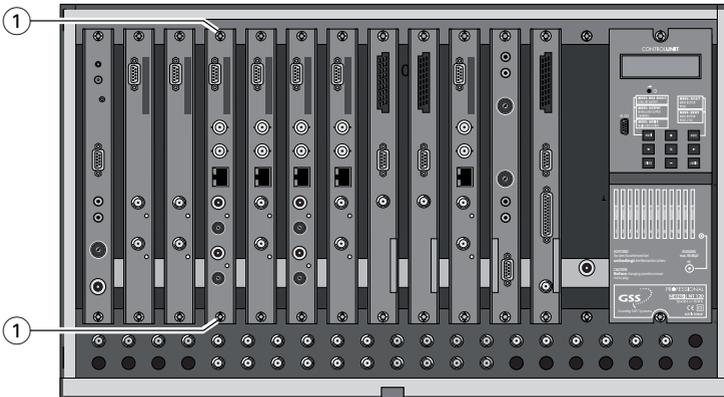
After activating the cassette the software version of the cassette is displayed (see page 21).

3 ASSEMBLY

3.1 INSTALLING THE CASSETTE



- Ensure the head-end station is mounted so it will not be able to vibrate. Avoid, for example, mounting the head-end station onto a lift shaft or any other wall or floor construction that vibrates in a similar way.
 - Before installing or changing a cassette unplug the power cable from the mains power socket.
-
- Remove the fastening screws ① of an unoccupied slot from the bracket of the head-end station.
 - Insert the cassette in this slot and push it into the housing.
 - Align the cassette and apply slight pressure to connect it to the connections of the board and the RF bus bar.
 - Fasten the cassette with the screws ①.



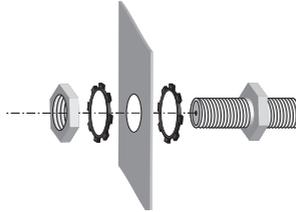
3.2 EMC REGULATIONS



To comply with the current EMC regulations, it is necessary to connect the lines leading in and out of the head-end station using cable terminals. When mounting the cassette in a head-end station which is installed in a 19" cabinet, make sure the connections leading in and out for the 19" cabinet are made using cable terminals.



The attenuation of shielding of the connection lines for ASI and antenna must meet the requirements for "Class A".

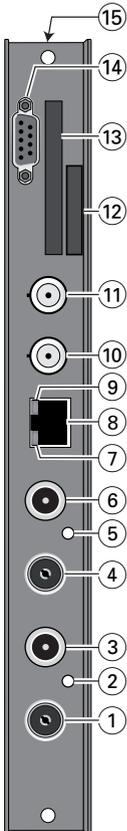


- Insert the required number of cable terminals in the openings provided in the head-end station or in the 19" cabinet.



Tighten the nuts of the cable terminals until the teeth on the lock washers put under have penetrated the exterior coating and a good connection is made between the housing / 19" cabinet and cable terminals.

3.3 OVERVIEW OF THE CASSETTE



- ① RF input (channel strip "B")
- ② Status LED of the channel strip "B"
- ③ Loop-through output of RF input ①
- ④ RF input (channel strip "A")
- ⑤ Status LED of the channel strip "A"
- ⑥ Loop-through output of RF input ④
- ⑦ Status LED of the LAN interface
(yellow LED – data transfer)
- ⑧ LAN socket
- ⑨ Status LED of the LAN interface
(green LED – network connection)
- ⑩ ASI input
- ⑪ ASI output
- ⑫ Type label
- ⑬ Slot for a CA module
- ⑭ D-SUB socket "RS 232"
- ⑮ MAC address

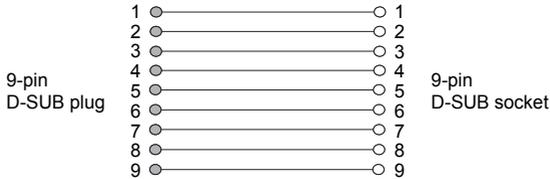
3.4 CONNECTING THE CASSETTE

- Connect the RF connections to the inputs ④ (channel strip "A") and ① (channel strip "B").
- Connect the LAN socket ⑧.
- Connect the ASI input ⑩ and the ASI output ⑪ to the peripheral ASI devices.

3.5 UPDATING THE SOFTWARE

The RS 232 interface of the cassette (14) enables you to use a PC or a notebook and the "**BE-Flash**" software to update the software of the cassette. You can find the "**BE-Flash**" software and the current operating software of the cassette at the website "www.gss.de/en".

- Use a "one-to-one cable" to connect the cassette's RS 232 interface and the PC according to the wiring scheme below.



—> For PCs with USB connector (without serial interface), we recommend the DeLOCK "USB 2.0 to Serial adapter" (Product No. 61460).

- Start the "**BE-Flash**" software and update the software of the cassette.

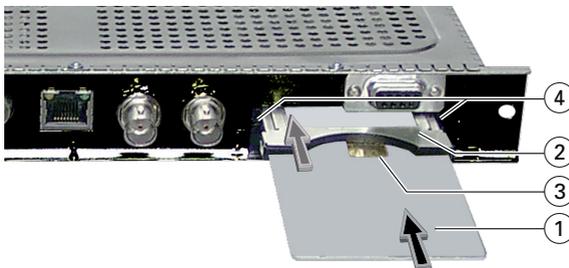
3.6 RETROFITTING A CA MODULE

The cassette is equipped with a common interface. It allows you to connect a CA module for various encryption systems and service providers. Scrambled services can only be descrambled with a CA module suitable for the scrambling system and the corresponding smart card. The smart card contains all the information for authorisation, descrambling and subscription.



- Check with the distributor or manufacturer of the CA module to be used to ensure that it is suitable for descrambling several services.
- **The hardware and software of this cassette have been thoroughly prepared and tested.**
Any changes made by service providers in the data structures might impair or even prevent this function.
- When working with the CA module, please read the corresponding operating manual from the respective provider.

- Insert the smart card (1) into the CA module (2) so that the chip (3) on the smart card faces the thicker side (top) of the CA module.
- Insert the CA module into the guide rails of the CA slot (4) with the top side of the CA module facing the top side of the cassette.
- Push the CA module without canting into the guide rails of the CA slot (4) and contact it to the common interface.



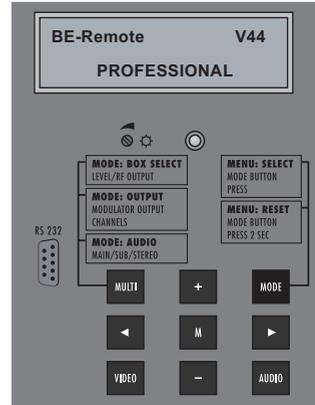
4 THE CONTROL PANEL AT A GLANCE

4.1 MENU ITEMS

Program the cassette using the buttons on the control unit of the head-end station. The two-line display of the control unit then shows the menus. The parameters and functions to be set are underlined>.

Use the **MODE** button to select the following main menu items:

- Ethernet parameters
- Input signal path
- Output signal path
- Channel strip
- IP address, transmission protocol, port number
- Number of data packets, forward error correction, transmission channel
- Output IP address
- LAN output data rate
- Input channel
- Hierarchical modulation
- Station filter
- CA module (if available)
- Output data rate
- Network Information Table (NIT)
- Deleting a PID
- Renaming a PID
- Factory reset



4.2 CONTROL PANEL

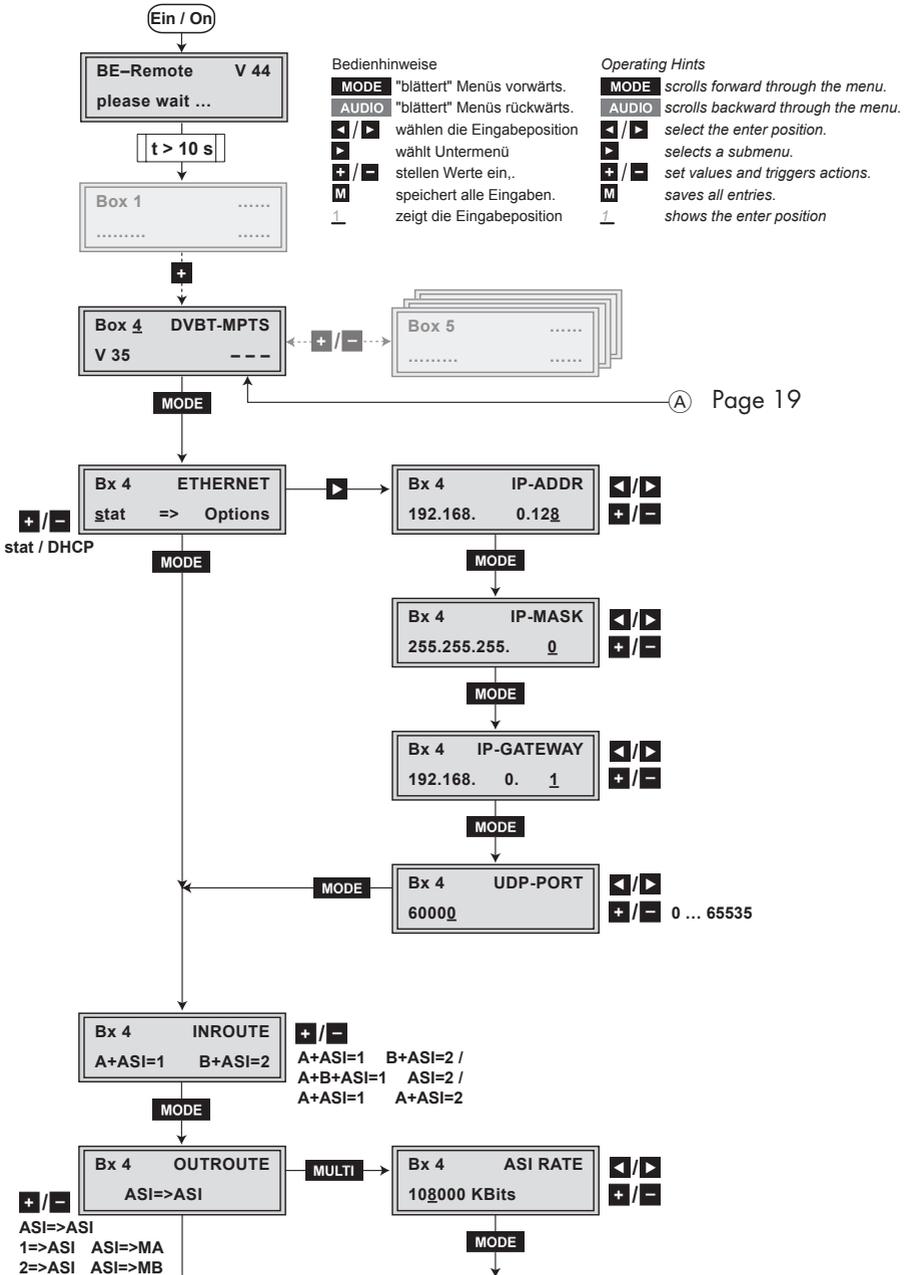
The key pad on the head-end station is used to scroll through the menus:

- MODE** scrolls forward through the menus.
- < / >** select parameters in the menus.
- + / -** set values, initiate actions.
- MULTI** selects sub-menus.
- AUDIO** scrolls backward through the menus.
- M** saves all entries.



5 PROGRAMMING

5.1 PROGRAMMING PROCEDURE



◀/▶ 188 / 204
 +/- positive / negative
 continuous / burst

ⓑ Page 19

MODE

Bx 4 ASI OPTION
 188 pos. cont.

MODE

Bx 4 LINE
 Line A <= => Line B
 ◀/▶ Line A/Line B

◀/▶

Bx 4A/B MODE/PORT
 on UDP _1234
 ◀/▶ on / off
 +/- UDP / RTP,
 0 ... 65535

MODE

+/-
 1 ... 7

Bx 4A/B PKTS / FEC
 Z off
 ◀/▶ off / 10/9 ... 20/19
 +/- Annex A / Annex B

MODE

Bx 4A/B OUT-IP
 227. 40. 50. 60
 ◀/▶
 +/-

MODE

Bx 4A LAN RATE
 !! auto
 ◀/▶ auto / 2...80.0 Mbits
 +/-

MODE

Bx 4A/B INPUT
 C60 (786.0) OK
 ◀/▶ Frequenzanzeige / Feinabstimmung
 Frequency display / Fine tuning
 +/- C5...C12, C21...C69
 -64...+64

MODE

Bx 4A/B INPUT
 Priority: high
 ◀/▶ high / low
 +/-

MODE

Bx 4A/B PROGRAM
 Filter off
 ◀/▶ on -> off
 +/-

MODE

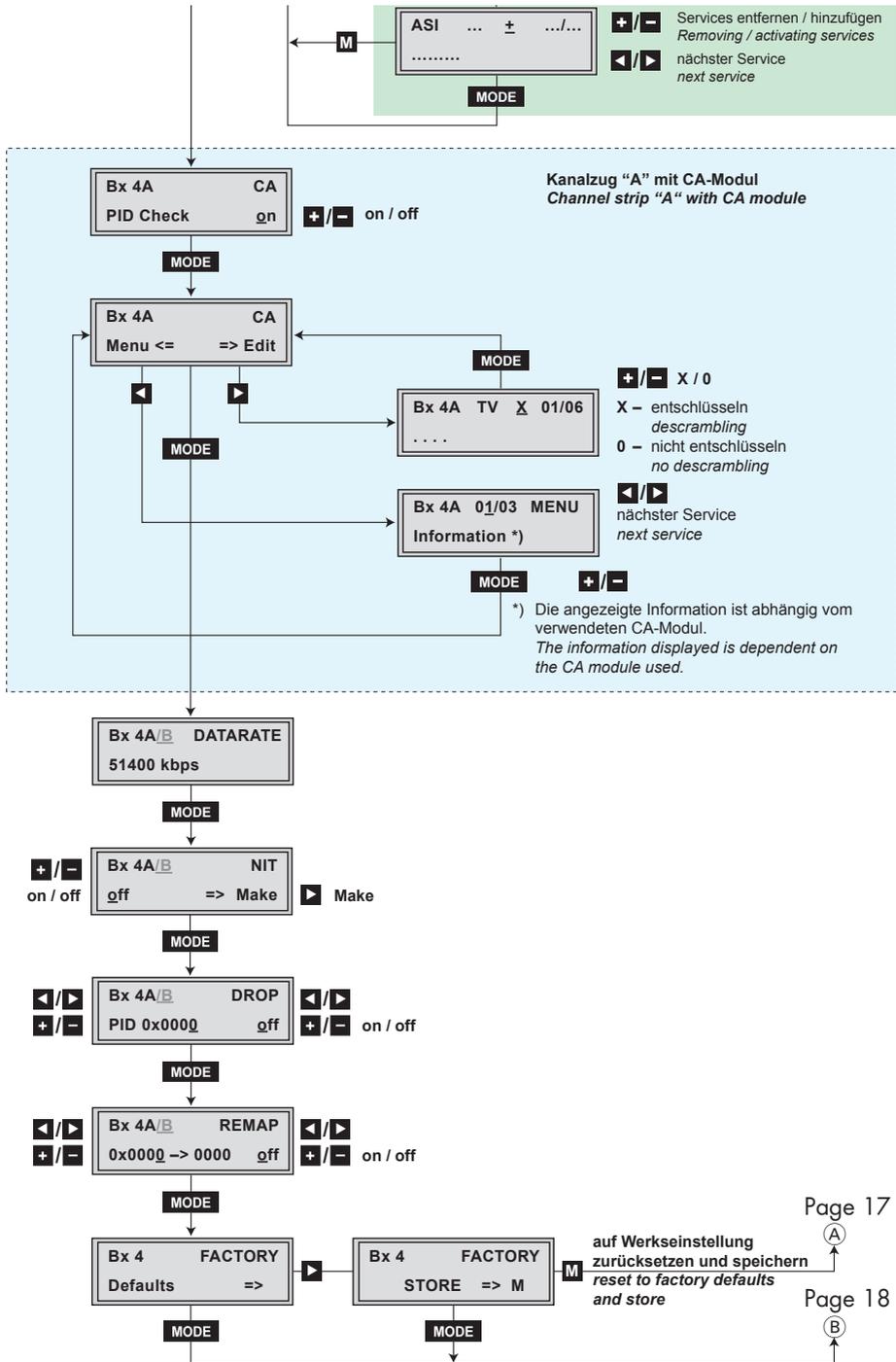
abhängig von Einstellung INROUTE / dependent on setting INROUTE

Bx 4A TV ± 01/07
 Das Erste
 ◀/▶ Services entfernen / hinzufügen
 Removing / activating services
 ◀/▶ nächster Service (Programm)
 next service (station)

MODE

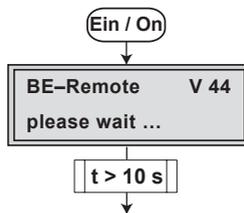
Bx 4B TV ± 01/09
 ZDF
 ◀/▶ Services entfernen / hinzufügen
 Removing / activating services
 ◀/▶ nächster Service
 next service

MODE



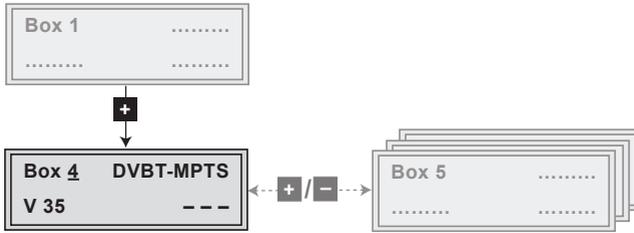
- Pressing the **MODE** button for longer than 2 seconds cancels the programming procedure. This takes you back to the program item "Selecting the cassette" from any menu. Any entries that have not been saved are reset to the previous settings.
- Entries in the menus can be saved by pressing the **M** key. You are taken back to the "Selecting the cassette" menu item.
- Pressing the **AUDIO** button returns to the previous menus.

- Switch on the head-end station



- The display shows the software version (e.g. V 44)
- The processor reads the cassettes' data (approx. 10 seconds).

SELECTING THE CASSETTE, DISPLAYING THE SOFTWARE VERSION



- Select the cassette you want to program (e.g. **Box 4**) by repeatedly pressing the button **+** if necessary.

—> The display shows e.g. the menu "**Box 4 DVBT-MPTS**":
"Box 4" stands for slot 4
"DVBT-MPTS" type of cassette
"V 35" software version of the cassette

- Press the **MODE** button.

—> The "Ethernet parameters" – "**ETHERNET**" menu is activated.

ETHERNET PARAMETERS

In this menu you specify whether the Ethernet parameters for the cassette are entered automatically by a connected server ("**DHCP**"), or whether you want to enter them manually ("**stat**"). To assign the cassette uniquely, each IPTV cassette must be allocated its own IP address.



- Press the **+ / -** buttons to select manual setting ("**stat**") or automatic setting ("**DHCP**") of the Ethernet parameters.
- Press the **▶** button to activate the setting options ("**Options**").

—> The "IP address of the cassette" – menu "**IP-ADDR**" is activated.

IP ADDRESS OF THE CASSETTE

If you choose to enter the Ethernet parameters manually, set the IP address of the cassette in this menu. If "DHCP" is selected, the "IP-ADDR", "IP-MASK" and "IP-GATEWAY" sub-menus display the parameters that were assigned automatically by a connected server. If a server is not connected, " 0. 0. 0. 0*" appears in the corresponding menu. The star " * " in the display means that the data is provided by a DHCP server.

Bx 4	IP-ADDR
192.168.	0.128

- Use the ◀/▶ buttons to place the cursor under the digit of the IP address displayed to be set and use +/− to set the desired IP address.
- Press the **MODE** button.

→ The "Address range" – "IP-MASK" menu is activated.

ADDRESS RANGE

In this menu you define the address range for the cassettes connected to the LAN network.

Bx 4	IP-MASK
255.255.255.	0

- Use the ◀/▶ buttons to place the cursor under the digit of the IP address displayed to be set and use +/− to set the desired IP address.
- Press the **MODE** button.

→ The "Address of the gateway" – "IP-GATEWAY" menu is activated.

ADDRESS OF THE GATEWAY

The address of a gateway (server) can be set in this menu. If no gateway is used you can skip this setting.

Bx 4	IP-GATEWAY
192.168.	0. 1

- Use the ◀/▶ buttons to place the cursor under the digit of the IP address displayed to be set and use +/− to set the desired IP address.
- Press the **MODE** button.

→ The "UDP port" – "UDP-PORT" menu is activated.

UDP PORT

The UDP port setting is required if the cassette needs to be reached externally to make the setting, such as from another input frequency. This setting is intended for future functions and can be skipped for this cassette.

Bx 4	UDP-PORT
6000	

- Use the ◀/▶ buttons to place the cursor under the digit of the port number displayed to be set and use +/− to set the desired port number ("0" ... "65535").
- Press the **MODE** button.

→ The "Input signal path" – "INROUTE" menu is activated.

INPUT SIGNAL PATH

In this menu you define the signal path of the input transport streams.

Menu setting "A+ASI=1 B+ASI=2" (page 8).

Menu setting "A+B+ASI=1 ASI=2" (page 8).

Menu setting "A+ASI=1 A+ASI=2" (page 8).

Bx 4	INROUTE
A+B+ASI=1	ASI=2

- Use the **+**/**-** buttons to select the desired signal path.
- Press the **MODE** button.

→ The "Output signal path" – "**OUTROUTE**" menu is activated.

OUTPUT SIGNAL PATH

In this menu you define the signal path of the output transport streams.

Menu setting "ASI=>ASI" (page 9).

Menu setting "1=>ASI ASI=>MA" (page 9).

Menu setting "2=>ASI ASI=>MB" (page 9).

Bx 4	OUTROUTE
1=>ASI	ASI=>MA

- Use the **+**/**-** buttons to select the desired signal path.
- If you do not want to do ASI settings, press the **MODE** button.

→ The "Selecting the channel strip" – "**LINE**" menu is activated (page 26).

- Press the **MULTI** button.

→ The "ASI transfer rate" – "**ASI RATE**" menu is activated.

ASI TRANSFER RATE

In this menu you set the transfer rate for the ASI component connected.
For this setting please take the required information from the documentation (technical data) of the ASI component to be connected.

Bx 4	ASI RATE
108000 KBits	

- Use the ◀/▶ buttons to place the cursor under the digits to be set for the transfer rate then use the +/- buttons to set the desired transfer rate.
- Press the **MODE** button.

—> The "ASI options" – "ASI OPTION" menu is activated.

ASI OPTIONS

In this menu you define the size of the data packets, their polarity and the type of transmission.

For this setting please take the required information from the documentation (technical data) of the ASI component to be connected.

Bx 4	ASI OPTION
188 pos. cont.	

- Press the +/- buttons to set the size of the data packets ("188" or "204" bits).
- If the polarity of the data to be transmitted has to be changed, press the ◀/▶ buttons to place the cursor under "pos." (positive – standard) and using the +/- buttons set to "neg." (negative).
- To change the type of transmission press the ◀/▶ buttons to position the cursor under "cont." (continuous – standard) and using the +/- set to "burst".

—> Setting "cont."

The data packets of the user data are spaced out evenly in the transport stream.

—> Setting "**burst**"

The data packets of the user data are collected to a great data packet in the transport stream.

- Press the **MODE** button.

—> The "Selecting the channel strip" – "**LINE**" menu is activated.

SELECTING THE CHANNEL STRIP

In this menu select the channel strip for which the following settings have to be done.

Bx 4	LINE
Line A <=	=> Line B

- By pressing  select channel strip "**A**" ("**Line A**") or select channel strip "**B**" ("**Line B**") by pressing the  button.

—> The "Switching the IP address off or on, transmission protocol, port number" – "**MODE / PORT**" menu is activated.

SWITCHING THE IP ADDRESS OFF OR ON

TRANSMISSION PROTOCOL

PORT NUMBER

In this menu you can switch off or on the output IP address of the channel strip, and define the transmission protocol and the port number.

Bx 4A	MODE/PORT
on	UDP _1234

Switching the IP address off or on

- Press the  /  buttons to switch "**off**" or "**on**" the output IP address of the channel strip.

Selecting the transmission protocol

- Press the **▶** button to position the cursor under "UDP" or "RTP".
- Using the **+**/**-** buttons to select the desired transmission protocol:

- "UDP" – The User Datagram Protocol is for the connectionless transmission of data to a certain application. The port number of the service is also sent which the data should obtain.
- "RTP" – The Real-time Transport Protocol is for continuously transmitting multimedia data streams in an IP network. Unlike UDP, the header is transmitted which makes the data transmission more robust.

Setting the port number

- Press the **▶** button to position the cursor under the port number e.g. "_1234".
- Use the **◀**/**▶** buttons to position the cursor under the digit of the port number displayed to be set.
- Using the **+**/**-** buttons set the desired port number ("0" ... "65535").
- Press the **MODE** button.

- The "Quantity of data packets, Forward error correction, Transmission channel" – "PKTS / FEC" menu is activated.

QUANTITY OF DATA PACKETS

FORWARD ERROR CORRECTION

TRANSMISSION CHANNEL

In this menu you set the quantity of the data packets to be transmitted, the forward error correction FEC and the transmission channel. If the forward error correction is used the data to be transmitted is encoded in a redundant way so that the addressee can correct transmission errors.

Bx 4A	PKTS / FEC
7	off

Defining the quantity of data packets

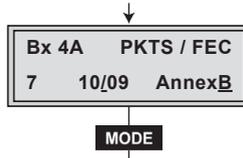
- Using the **+**/**-** buttons define the quantity of MPEG data packets in one IP data packet ("1" ... "7").

Setting the forward error correction

- Press the  button to position the cursor under "**off**".

—> In position "**off**" the forward error correction (FEC) is switched off.

- Using the  /  buttons set the desired value of the FEC ("**off, 10/9**" ... "**20/19**").



Setting the transmission channel

- Press the  button to position the cursor under "**Annex...**".
- Use the  /  buttons to set the desired transmission channel ("**AnnexA**" / "**AnnexB**").
- Press the **MODE** button.

—> The "Output IP address" – "**OUT-IP**" menu is activated.

OUTPUT IP ADDRESS

In this menu you set the output IP address for the channel strip selected. To this IP address the desired services are allocated in the station filter.



—> Allocate different IP addresses to the channel strips.

- Press the  /  buttons to position the cursor under the digit of the IP address to be set.
- Using the  /  buttons set the desired IP address.
- Press the **MODE** button.

—> The "LAN data rate" – "**LAN RATE**" menu is activated.

LAN DATA RATE

In this menu you adjust the LAN output data rate.



- Press the **◀/▶** buttons to position the cursor under the digit of the data rate to be set.
- Using the **+/-** buttons set the desired data rate (2 MBit... 80 MBit, "auto").

—> The sum of the data rates of the lines A + B must not exceed 80 MBit

- Press the **MODE** button.

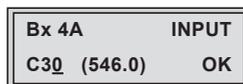
—> The "Input channel" – "INPUT" menu is activated.

INPUT CHANNEL



Once the RF receiving stage has synchronised to the input signal, "OK" is displayed.

If "–" appears in the second line of the display, there is no input signal present. Check the configuration of the antenna system and the head-end station as well as the preceding settings of the cassette.



- Use the **+/-** buttons to set the desired input channel ("C5" ... "C12", "C21" ... "C69").

—> Beside the input channel set the relevant input frequency is displayed.

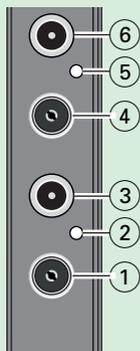
- If necessary use the **▶** button to activate the menu item "Fine tuning".

—> "0" is displayed instead of the frequency display.



- Use **+**/**-** for fine tuning the input channel ("-64" ... "+64").

→ In addition to the indicator in the display, there is also a status LED which indicates whether a transport stream is received or not:



- ② Status LED of channel strip "B"
- ⑤ Status LED of channel strip "A"

LED indicator	Indication
Green	Signal available
Red	No signal

- Press the **MODE** button.

→ The menu "Hierarchical modulation" – "**INPUT Priority:**" is activated.

HIERARCHICAL MODULATION

In order to attain with less field strength a greater range for broadcasters, with DVB-T so-called "hierarchical modulation" is used. In this process, several data streams are modulated onto a DVB-T data stream using "Quadrature Amplitude Modulation" (QAM). The robust "High Priority" data stream (HP) with a lower data rate is modulated onto the more sensitive "Low Priority" data stream, which possesses a higher data rate. In good reception conditions, the receivers can receive both data streams; in poorer reception conditions, only the "HP" portion.



- By pressing **+/ -** set to "high" or "low".

—> Not relevant in the case of standard modulation.



If the input signal path "**A+B+ASI=1 ASI=2**" is selected the station filter of channel strip "**B**" is used in the channel strip "**A**". Therefore perform the settings for channel strip "**B**" according to the pages 30 ... 32 (Setting the input channel, Setting the hierarchical modulation) before activating the "Setting the station filter" – "**PROGRAM**" menu.

If the input signal path "**A+ASI=1 B+ASI=2**" or "**A+ASI=1 A+ASI=2**" is selected the channel strips can be programmed one after the other.

- Press the **MODE** button.

—> The "Station filter" – "**PROGRAM**" menu is activated.

STATION FILTER

The default setting for the station filter is "**off**". In this menu you define the services received to be transmitted. If services are activated the output data rate increases.

If the station filter is switched off (factory default) all services of the transport stream passes the station filter.



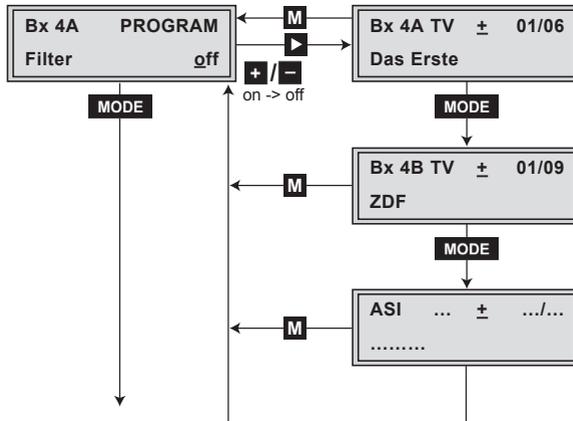
The figure of the menu below is dependent on the setting of the "Input signal path" "**INROUTE**" menu (page 24).

The programming procedure shown below corresponds to the setting "**A+B+ASI = 1 ASI = 2**".

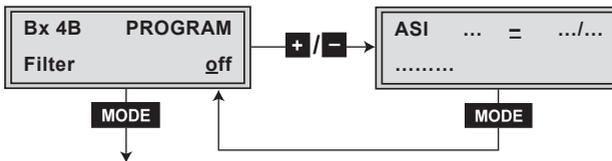
With this setting the transport stream of channel strip "**B**" is routed to the transport stream of channel strip "**A**" and therefore cannot be set in channel strip "**B**". Programming channel strip "**B**" the transport stream coming from the ASI input can be processed only.

"INROUTE" SETTING "A+B+ASI=1 ASI=2"

Channel strip "A"



Channel strip "B"



- Press the **+ / -** button.

→ All services from the channel strip will be read, and then displayed with name and type of the service.

→ If no services are found, the following error message will appear in the display: "**FILTER no Service**".

In this case, check the configuration of the antenna system and head-end station, as well as the previously adjusted settings for the cassette and the components connected to the ASI input.

→ The display shows e.g.: **Bx 4A TV + 01/06**
Das Erste

Meaning of the indicators in the example:

- "Bx 4A" Slot 4, channel strip "A"
- "TV" Type of service "Television"
- " + " The currently selected service is activated.
- "01/06" The 1st of 6 services is being displayed .
- "Das Erste" Name of the service

Further possible terms displayed:

"RA"	Type of the service "Radio" For radio stations, the background of the screen of the connected TV or test receiver is darkened.
" - "	The currently selected service is switched off.
" * "	The star means that the service selected is encoded. To enable the service, the CA module and the appropriate smart card of the provider are required.

—> If a service number (e.g. "131") appears instead of "TV" or "RA", this indicates that an unnamed service or an undefined transport stream is being received.

- Use the / buttons to call up the services in sequential order, then use / to activate (indicated by " + ") or to deactivate them (" - ").

—> Pressing the **MULTI** button all services can be activated or deactivated.

- Press the **MODE** button.
- Set the station filters of channel strip "B" and "ASI" in the same way as channel strip "A".
- To save changes and to activate the station filter press the **MODE** button.

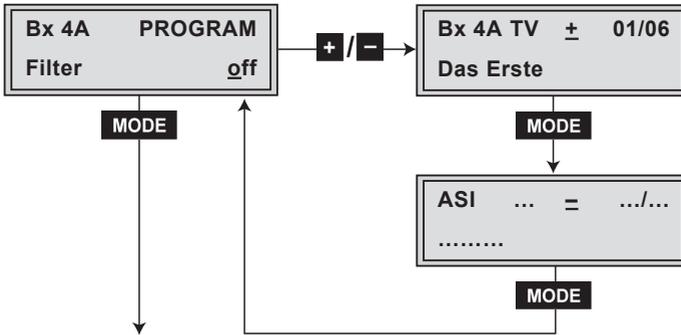
—> The filter is activated.
The display shows "**PROGRAM Filter on**".
—> If services are activated the corresponding PIDs (audio, video, text) are inserted into the transport stream and the PAT and SDT tables are updated.

Test the status of the individual services:

- If the filter is switched on, press the  button. In this mode you can test the settings of the station filter again or change them if necessary.
- In the "**PROGRAM Filter on**" menu the station filter switched on can be switched "**off**" using the buttons / if necessary.

"INROUTE" SETTING "A+ASI=1 B+ASI=2" AND "A+ASI=1 A+ASI=2"

Channel strip "A"



- Set the channel strip "A" or channel strip "B".

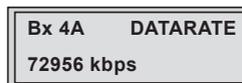
—> The setting of the channel strips "A" and "B" is identical and follows the description above.

- Press the **MODE** button.

—> The "Output data rate" – "DATARATE" menu is activated when the channel strips "A" without a CA module installed and "B" are programmed. Programming the channel strip "A" with a CA module installed the "PID monitoring" – "CA" menu is activated (page 38).

OUTPUT DATA RATE

In this menu the current data rate is displayed.



- Press the **MODE** button.

—> The "Network Information Table" – "NIT" menu is activated.

NETWORK INFORMATION TABLE (NIT)

Bx 4A	NIT
off	=> Make

- To switch NIT on/off ("on"/"off") press the **+** / **-** buttons.
- Press the **▶** button to activate NIT "**Make**".



For all cassettes able to output a NIT:

- All these cassettes must be set and ready for reception.
- The NIT of all cassettes are switched on.
- The cassette fetches all the information (output frequencies, output symbol rates, etc.) it needs from all cassettes in order to generate the cable NIT. This process may take a few seconds. Then the NIT is generated, added and sent to all cassettes. The other cassettes also add this new cable NIT. The status of all cassettes in the NIT menu changes to "**on**". The display shows: "**read ... / copy ...**".

- To switch off the new NIT ("**off**") press the **-** button.



- The NITs of the other cassettes will stay switched on. When the NIT of the cassette is switched on again ("**on**") by pressing the **-** button, the previously generated NIT is added again. If you have changed parameters in the meantime, you must first select "**Make**" to generate a new, up-to-date NIT.

- Press the **MODE** button.

- The "Deleting a PID" – "**DROP**" menu is activated.

DELETING A PID

In this menu a PID of the transport stream can be deleted.

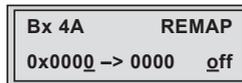
Bx 4A	DROP
PID 0x000 <u>0</u>	off

- Use the **◀/▶** buttons to place the cursor under the respective digit of the hexadecimal number of the PID to be deleted ("0x0000") and set the hexadecimal number using **+/-**.
- Use **▶** to set the cursor to "off" and switch to "on" (delete) using the **+/-** buttons.
- Press the **MODE** button.

—> The "Renaming a PID" – "REMAP" menu is activated.

RENAMING A PID

In this menu you can allocate a new address to a PID retaining the complete data content.

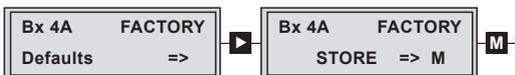


- Use the **◀/▶** buttons to place the cursor under the respective digit of the hexadecimal number of the PID to be changed ("0x0000") and set the hexadecimal number using **+/-**.
- Use the **◀/▶** buttons to place the cursor under the respective digit of the hexadecimal number of the new PID ("-> 0000").
- Set the hexadecimal number using **+/-**.
- Use **▶** to set the cursor to "off" and switch to "on" (rename) using the **+/-** buttons.
- Press the **MODE** button.

—> The "Factory reset" – "FACTORY Defaults" menu is activated.

FACTORY RESET

In this menu you can reset all settings to the factory defaults.



- Press the **▶** button.

- The factory defaults are invoked ("FACTORY STORE").
- By pressing the **MODE** button, you will be returned to the menu item "Selecting the channel strip" **without** invoking the factory defaults (page 26).

- Press the **M** button.

- The factory defaults are saved. The display shows "STORE"
- Back to "Selecting the cassette" (page 21).
- By pressing the **MODE** button, you will be returned to the menu item "Selecting the channel strip" **without** saving the factory defaults (page 26).
- If necessary set channel strip "B".

SAVING SETTINGS

- Press the **M** button.

- Back to "Selecting the cassette" (page 21).
- The settings are saved.
- If functions of the TPS module are activated, their status is shown in the second line of the display:
"M" – Station filter is switched on.
- By pressing the **MODE** button, you will be returned to the menu item "Selecting the channel strip" **without** saving the programmed data (page 26).
- If necessary set channel strip "B".

OPERATION WITH A CA MODULE

In order for this function of the CA module to be possible, in the "Station filter" – "**PROGRAM**" menu (page 31) services must be selected which can be descrambled by the CA module you are using and your smart card. Where both scrambled and unscrambled services are transmitted, short-term picture loss may occur when switching between scrambled and unscrambled services.

PID MONITORING

The factory default of the PID monitoring is switched on.

If particular PIDs are not descrambled the CI module is reset. Additionally dropouts may occur if several services are descrambled. To prevent this the PID monitoring can be switched off.

Bx 4A	CA
PID Check	on

- Use the **+**/**-** buttons to switch "off" or "on" the PID monitoring.
- Press the **MODE** button.

→ The "CA module" – "CA" menu is activated.

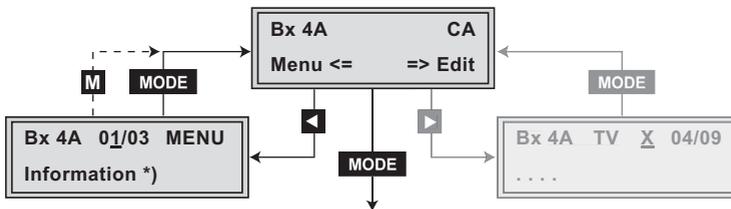
CA MODULE

The menu varies according to which CA module you are using. For this reason, please refer to the operating manual of your particular CA module. The relevant information is shown in the display of the head-end station. This may appear as a fixed display or as scrolling text according to display capabilities.

Bx 4A	CA
Menu <=	=> Edit

→ By pressing the **MODE** button you can skip the "CA module" – "CA" menu and activate the "Output data rate" – "DATARATE" menu (page 34).

- Press the **◀** button to activate the "MENU" menu of the CA module.



→ The display shows e.g.: **Bx 4A 01/03 MENU**

Information

Meaning of the indicators:

- "**Bx 4A**" Slot 4, channel strip "**Tuner A**"
- "**01/03**" The first of three menu items is activated.
- "**MENU**" The menu of the CA module is activated.

For the explanation of further details please use the operating instructions of the CA module used.

- Use the **+**/**-** buttons to activate the menu desired.
- Press the **▶** button to activate the menu.
- Use the **+**/**-** buttons to select the function desired.
- To set the CA module use the **◀**/**▶** and **+**/**-** buttons.
- All settings are saved by pressing the **M** button.

→ You will be returned to the "CA module" – "**CA**" menu item.

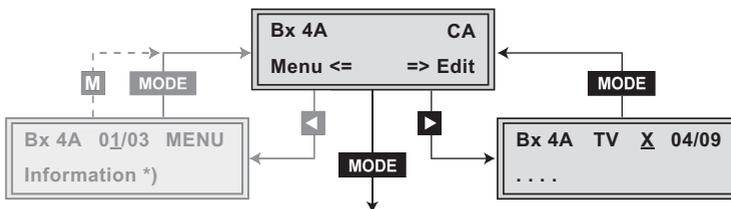
→ By pressing the **MODE** button you can cancel the settings in the menu of the CA module and are returned to the "CA module" – "**CA**" menu.

- Press the **▶** button.

→ The "Descrambling services" – "**Edit**" menu is activated.

DESCRAMBLING SERVICES

In this menu you select the desired services from the scrambled input transport stream, which are to be descrambled.



—> The display shows e.g.: **Bx 4A TV X 04/09**

. . . .

Meaning of the indicators in the example:

" Bx 4A "	Slot 4, channel strip " A "
" TV "	"Television" (type of service)
" X "	Descrambling is set for the currently selected station.
" 04/09 "	The 4th of 9 services is being displayed.
". . . ."	Name of the service

Further possible terms displayed:

" RA "	"Radio" (type of service)
" 0 "	The currently selected service remains unchanged.

- Use the **◀/▶** buttons to call up the services in sequential order which are to be decoded, then use **+/-** to decrypt ("**X**") or not to decrypt them ("**0**").
- Press the **MODE** button to save changes and activate the filter.

—> The filter is activated.

The display shows the "CA module" – "**CA**" menu.

Bx 4A	CA
Menu <=	=> Edit

- Press the **MODE** button.

—> The "Output data rate" – "**DATARATE**" menu is activated (page 34).



After installing the head-end station, upgrading accessories or installing cassettes it is necessary to tighten all cable connections, cable terminals and cover screws in order to maintain compliance with current EMC regulations securely.

- Securely tighten the cable bolted connections fingertight using an appropriate open-ended spanner.
- Mount the front cover (see assembly instructions of the head-end station).

Declaration of CE conformity

	Konformitätserklärung Declaration of Conformity 08/13		
Der Hersteller/Importeur The manufacturer/importer	GSS Grundig SAT Systems GmbH		
Anschrift / Address / Adresse	Beuthener Straße 43, D-90471 Nürnberg, Germany		
erklärt hiermit eigenverantwortlich, daß das Produkt: declare under their sole responsibility that the product:			
Bezeichnung / Name / Description	Head-End DVB-T Converter to IP DVB- T to MPTS		
Type / Model / Type	GSS PTIM 1000		
Bestell-Nr. / Order-No.	GAP 1810		
folgenden Normen entspricht: is in accordance with the following specifications:			
EN 50083-2:	2012	EN 60065:	2002
ETSI EN 300386 :	2010	EN 60065 + A1:	2006
EN 50581 :	2012	EN 60065 + A11:	2008
		EN 60065 + A2:	2010
		EN 60065+ A12:	2011
Das Produkt erfüllt somit die Forderungen folgender EG-Richtlinien: Therefore the product fulfils the demands of the following EC-Directives:			
2006/95/EG	Richtlinie betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen Directive relating to electrical equipment designed for use within certain voltage limits		
2004/108/EG	Richtlinie über die elektromagnetische Verträglichkeit Directive relating to electromagnetic compatibility		
2011/65/EG	Richtlinie zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronik Altgeräten Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment		
Nürnberg, 11. Juni 2013			
			 Michael Bierschneider <i>Leiter Entwicklung</i> <i>Manager Development / Directeur Développement</i>

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