Assembly Instructions

English

Grundig SAT Systems

Head-End 5 to 1 Multiplexer
5xASI/IP to 1xASI/MPTS

HADA 5100

KLASSE A CLASS

CE

GSS
Grundig SAT Systems GmbH
Beuthener Strasse 43
D-90471 Nuremberg

Phone: +49 (0) 911 / 703 8877
Fax: +49 (0) 911 / 703 9210
E-mail: info@gss.de
Internet: http://www.gss.de

Contents

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 IEC/EN/DIN EN 50083 and 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".**

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 HADA 5100
6 BNC cable
1 LAN cable
1 Brief assembly instructions

2.2 Meaning of the symbols used

 Important note

—> General note

• Performing works

2.3 Technical data

The devices meet the following EU directives:
2006/95/EC, 2004/108/EC
The product fulfils the guidelines and standards for CE labelling.

Unless otherwise noted all values are specified as “typical”.

LAN interface

Standard: ..... 10-BASE-T, IEEE 802.3i
100-BASE-TX, IEEE 802.3u
1000-BASE-X , IEEE 802.3z
Data rate: ..... ≤ 180 MBit
Protocols: ..... UDP (User Data Protocol),
RTP (Real-Time Transport Protocol)

ASI interfaces

Standard: ..... DIN EN 50083-9
Format: ..... MPEG ISO IEC 13818-1
User data rate: ..... 2 … 90 Mbit/s
Impedance: ..... 75 Ω
Max. data rate: ..... 180 MBit/s
Level (input / output): ..... 800 mV_{PP} ± 10%
Return loss (input): ..... > 17 dB (5 … 270 MHz)

Connections

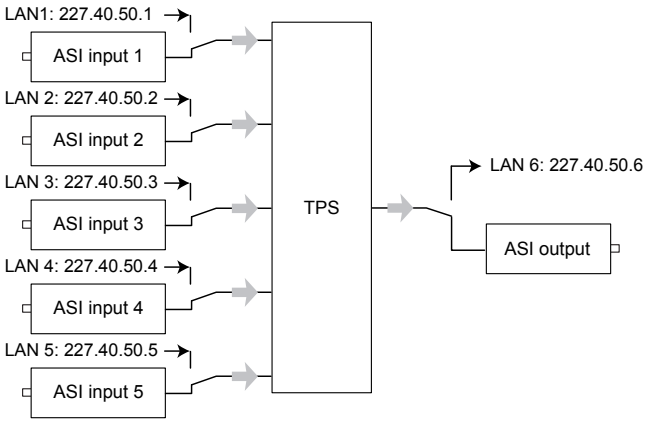
LAN: ..... 1 RJ 45 socket
ASI inputs: ..... 5 BNC sockets, 75 Ω
ASI output: ..... 1 BNC socket, 75 Ω
Connection strip (10-pin): .....for supply voltages and control circuits
RS 232 socket: ..... serial interface for software update

2.4 Description

The cassette is a 5 to 1 multiplexer. It converts 5 ASI/SPTS/MPTS input channels into one ASI/MPTS output channel. Each input channel has (selectively) one ASI input (ASI – Asynchronous Serial Interface according to DIN EN 50083-9) and one LAN interface (1 input IP address).
The fed in transport streams can be edited individually and will be combined into one transport stream in the TPS module. This transport stream is emitted at the ASI output or the LAN interface (1 output IP address). For operating the cassette in a LAN network it can be assigned its own hardware IP address.

—> **Two IP address ranges are used:**
"Hardware" IP addresses (menu ETHERNET), which are used to connect the cassettes in the network **(e.g. 192.168.0.x).**
"IPTV" IP addresses (menus OUT-IP, IP-INPUT), which are used to send and receive the IPTV channels (multicast range **e.g. 227.40.50.x**).

Principle signal path:



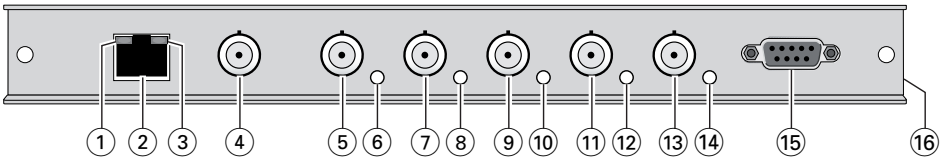
The cassette is controlled with the head-end station control unit.

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 42" or higher. You can find the current operating software for the control unit and the cassette, the software "BE-Flash" and the current assembly instructions on the website "www.gss.de".
The cassette is designed for use in the following head-end stations:
STC 1200, STC 816 and PST 19-1.

Five LEDs (⑥, ⑧, ⑩, ⑫, ⑭) indicate by their colour whether an input signal is present:

LED colour	Indication
Green	Signal present
Red	no Signal



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 42" appears.

Cassette

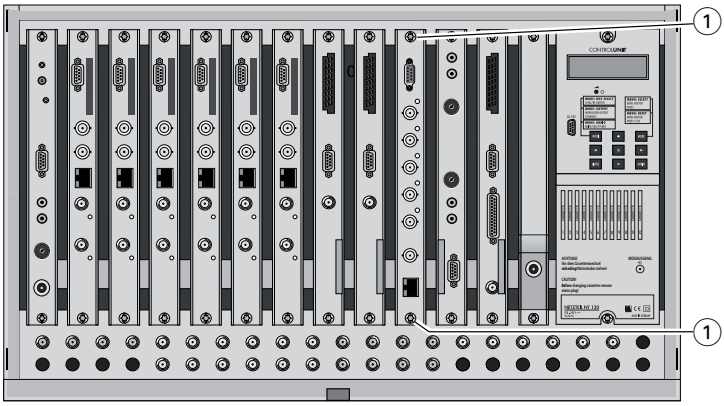
After activating the cassette the software version of the cassette is displayed (see page 15).

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.

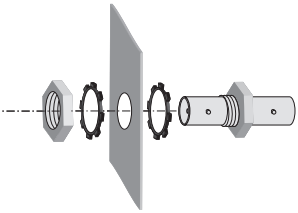
- Remove the fastening screws (1) of an unoccupied slot from the bracket of the head-end station.
- Insert the cassette in this slot and push it into the housing.
- Align the cassette and apply slight pressure to connect it to the connections of the board and the HF bus bar.
- Fasten the cassette with 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.

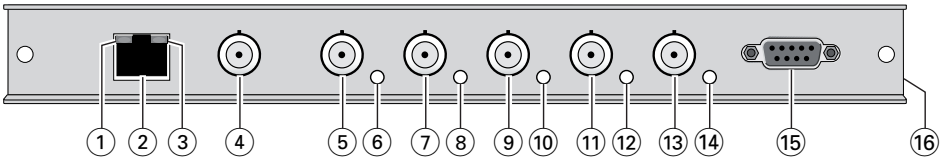
The attenuation of shielding of the connection lines for ASI and antenna must meet the requirements for "Class A".



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

Tighten the nuts on the cable terminals until the teeth on the lock washer have penetrated the exterior coating and a good connection is made between the housing and cable terminals.

3.3 Cassette overview



(1) Status LED of the LAN interface (data transfer)
(2) LAN socket
(3) Status LED of the LAN interface (network connection)
(4) ASI output
(5) ASI input 5
(6) Status LED ASI input 5
(7) ASI input 4
(8) Status LED ASI input 4
(9) ASI input 3
(10) Status LED ASI input 3
(11) ASI input 2
(12) Status LED ASI input 2
(13) ASI input 1
(14) Status LED ASI input 1
(15) D-SUB socket “RS 232”

—> The operating software of the cassette can be updated via the 9-pin D-SUB socket “RS 232” using a PC or notebook and the software “BE-Flash”. You can find the current operating software on the website "www.gss.de".

(16) Type label + MAC address

3.4 Connecting the cassette

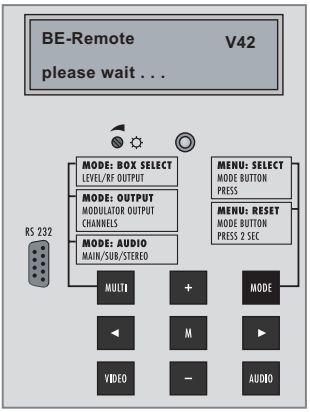
- Connect the LAN socket (2).
- Connect the ASI inputs (5), (7), (9), (11), (13) and the ASI output (4) to the peripheral ASI devices.

4 The control panel at a glance

4.1 Menu items

Programme 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** key to select the following main menu items:

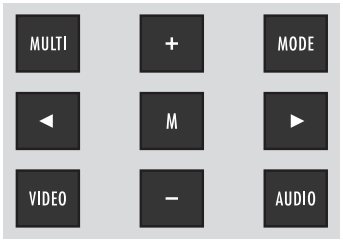
- Ethernet parameter
- Output parameter
- Input parameter
- Transport stream and ORGNET-ID
- Displaying the data rate
- Factory reset



4.2 Control panel

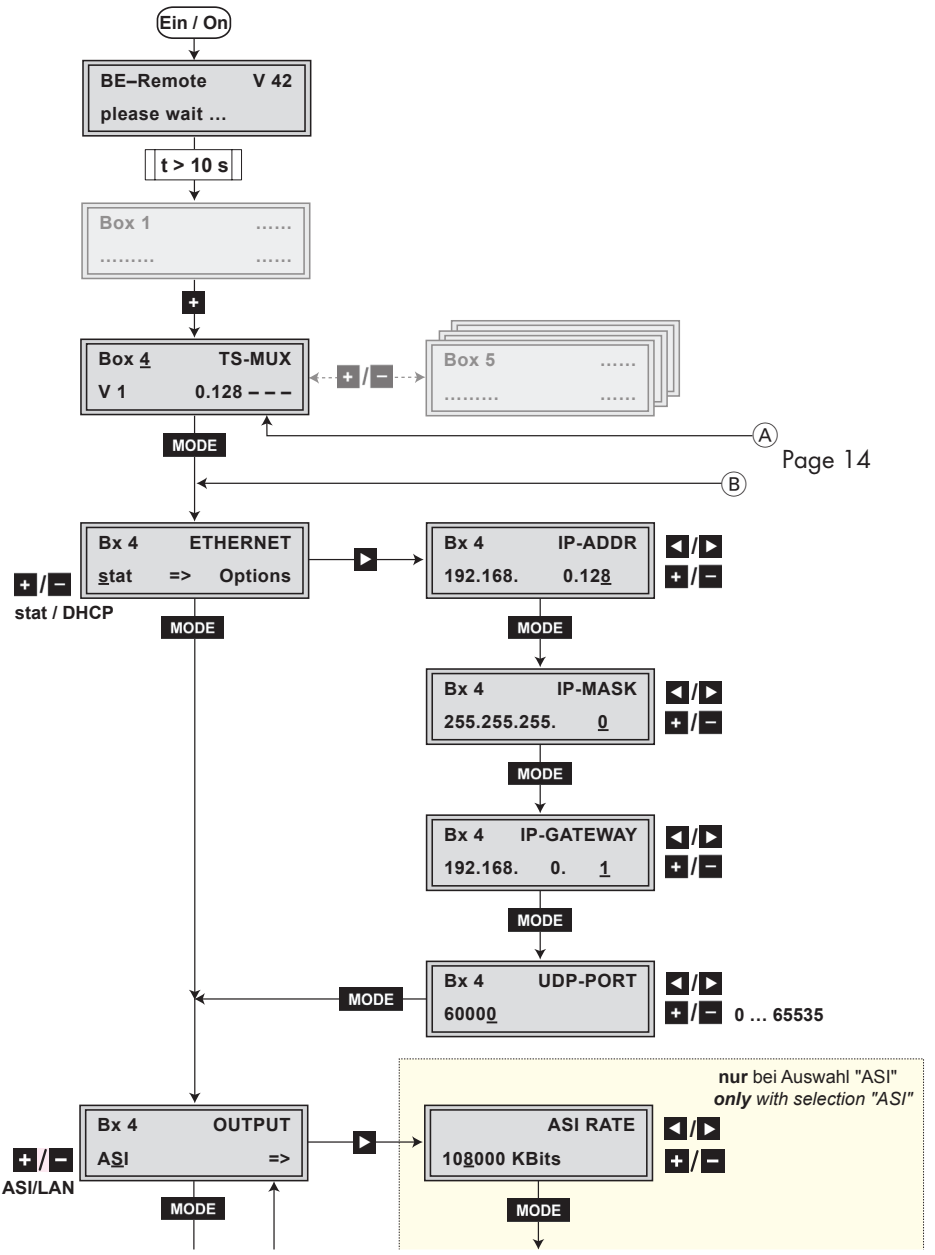
The key pad on the head-end station is used to scroll through the menus:

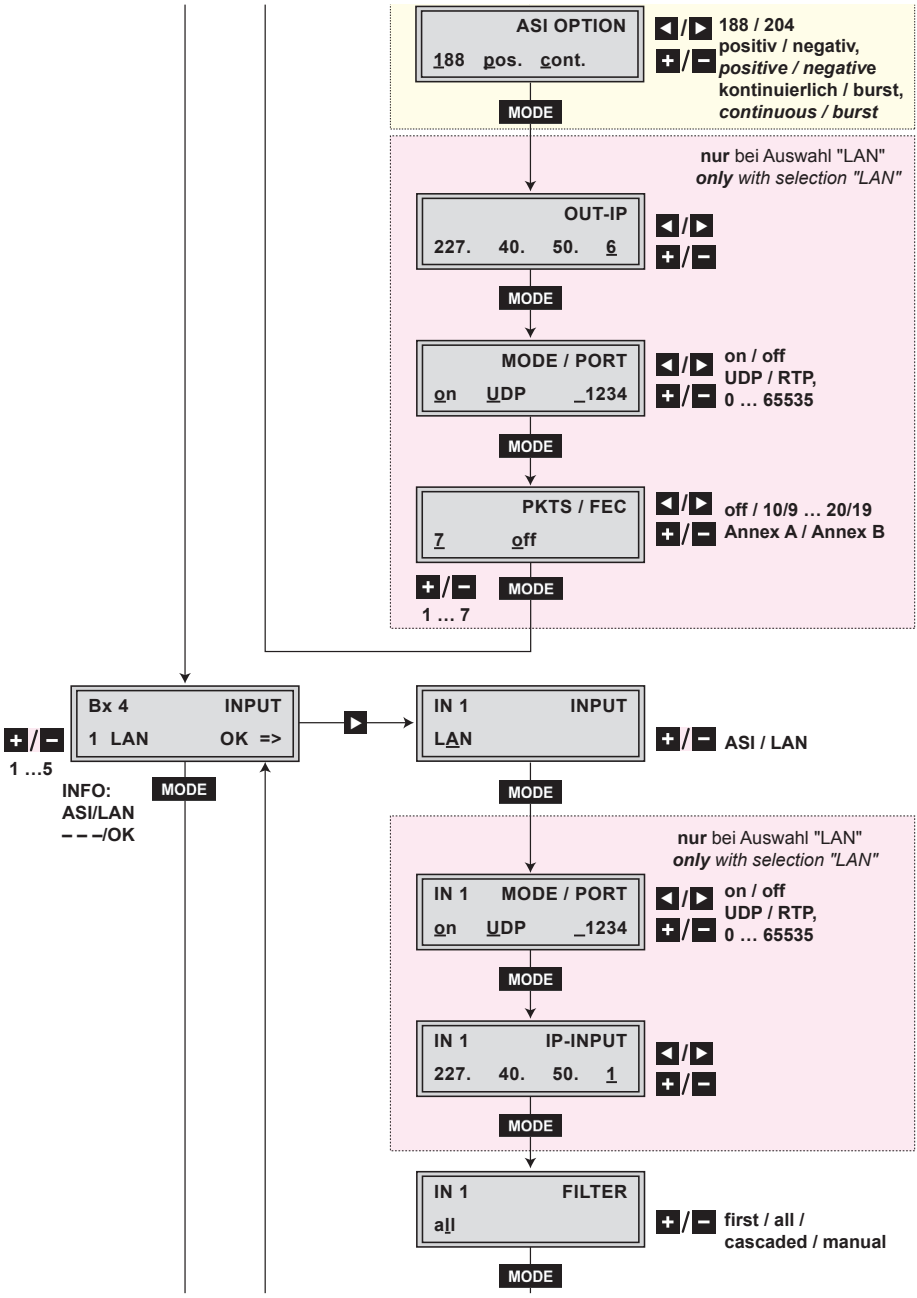
MODE scrolls forward through the menus.
◄ / **►** select parameters in the menus.
+ / **-** set values, initiate actions.
MULTI selects sub-menus.
AUDIO scrolls backward through the menus.
M saves all entries.

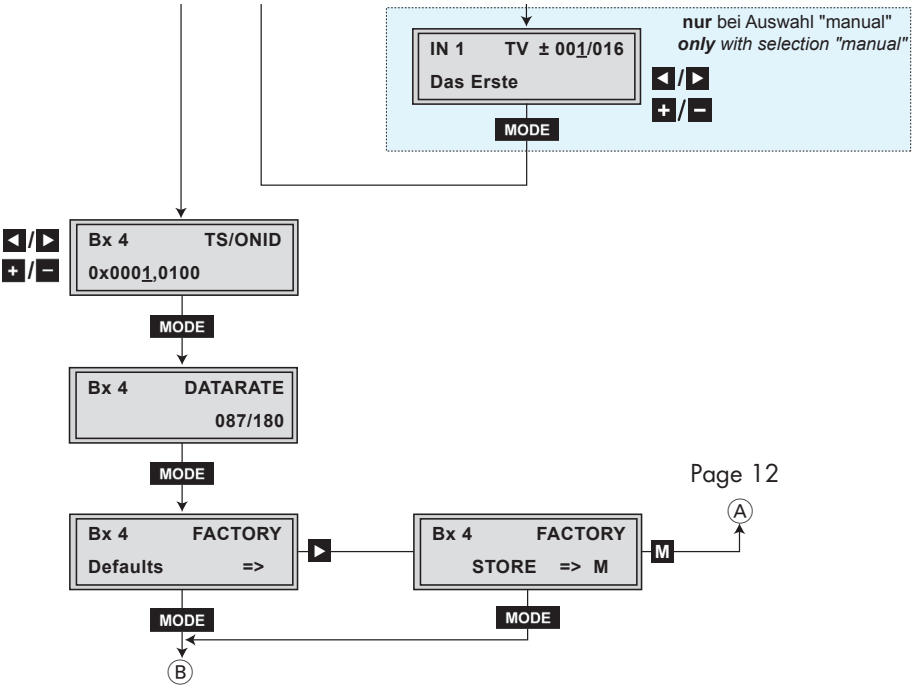


5 Programming

5.1 Programming procedure



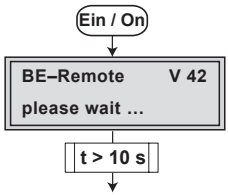

ASI OPTION
188 pos. cont.
MODE
188 / 204
positiv / negativ,
positive / negative
kontinuierlich / burst,
continuous / burst
nur bei Auswahl "LAN"
only with selection "LAN"
OUT-IP
227. 40. 50. 6
MODE
MODE / PORT
on UDP 1234
MODE
on / off
UDP / RTP,
0 … 65535
PKTS / FEC
7 off
MODE
off / 10/9 … 20/19
Annex A / Annex B
1 … 7
Bx 4 INPUT
1 LAN OK =>
1 …5
INFO:
ASI/LAN
– – –/OK
MODE
IN 1 INPUT
LAN
MODE
ASI / LAN
nur bei Auswahl "LAN"
only with selection "LAN"
IN 1 MODE / PORT
on UDP 1234
MODE
on / off
UDP / RTP,
0 … 65535
IN 1 IP-INPUT
227. 40. 50. 1
MODE
IN 1 FILTER
all
MODE
first / all /
cascaded / manual


nur bei Auswahl "manual"
only with selection "manual"
IN 1 TV ± 001/016
Das Erste
MODE
Bx 4 TS/ONID
0x0001,0100
MODE
Bx 4 DATARATE
087/180
MODE
Page 12
Bx 4 FACTORY
Defaults =>
Bx 4 FACTORY
STORE => M
M
A
MODE
MODE
B
Page 12

5.2 Programming the cassette

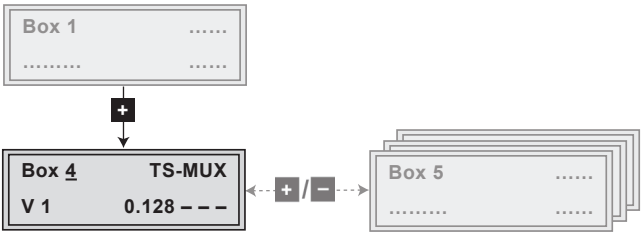
—> Pressing the **MODE** button for longer than 2 seconds cancels the programming procedure. This takes you back to the program item "Selecting the cassette" from any menu. Any entries that have not been saved are reset to the previous settings.
—> Entries in the menus can be saved by pressing the **M** 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 42)
—> The processor reads the cassettes' data (approx. 10 seconds).

Selecting the cassette



- 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 TS-MUX**":

"**Box 4**"	stands for slot 4,
"**TS-MUX**"	type of cassette
"**V 1**"	software version of the cassette
192.168."**0.128**"	hardware IP address of the cassette

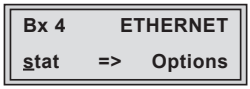
- Press the **MODE** button.

—> The "Ethernet parameters" – "**ETHERNET**" main 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.



—> To skip the setting of the Ethernet parameter press the **MODE** button. The "Output parameters" – "**OUTPUT**" main menu is activated (page 18).

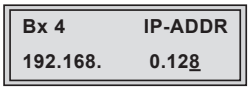
- Press the **+** / **-** buttons to select manual setting ("**stat**") or automatic setting ("**DHCP**") of the Ethernet parameters.

- Press the **►** button to activate the setting options ("**Options**").

—> The "Hardware IP address" – "**IP-ADDR**" sub menu is activated.

Hardware IP address

To operate the cassette in a network, an IP address must be assigned to each IPTV cassette. If a manually setting of the Ethernet parameters is selected, 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 DHCP server, e.g. "192.168. 0.128*". The star " * " in the display means that the data is provided by a DHCP server. If no server is connected, " **0. 0. 0. 0**" appears in the corresponding menu.



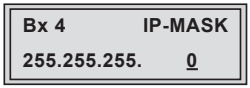
- Use the ◄/► buttons to place the cursor under the digit of the IP address displayed to be set and use +/- to set the IP address wished.

- Press the **MODE** button.

—> The "Address range" – "**IP-MASK**" sub menu is activated.

Address range

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



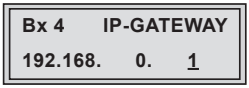
- Use the ◄/► buttons to place the cursor under the digit of the IP mask displayed to be set and use +/- to set the IP mask wished.

- Press the **MODE** button.

—> The "Address of the gateway" – "**IP-GATEWAY**" sub menu is activated.

Address of the gateway

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



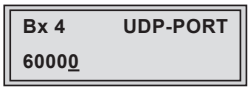
- Use the ◄/► buttons to place the cursor under the digit of the IP address displayed to be set and use +/- to set the IP address wished.

- Press the **MODE** button.

—> The "UDP port" – "**UDP-PORT**" sub menu is activated.

UDP port

The UDP port setting is required if the cassette shall be controlled via remote access and the standard port 60000 can not be used.



- Use the ◄/► buttons to place the cursor under the digit of the port number displayed to be set and use +/- to set the port number wished ("**0**" … "**65535**").

- Press the **MODE** button.

—> The "Output parameters" – "**OUTPUT**" main menu is activated.

Output parameters

In this menu you select whether you whish to output the output transport stream via the ASI output or the LAN. In addition you can set the output parameters in the submenus.

- Use the +/- buttons to select the output wished ("**ASI**" or "**LAN**").

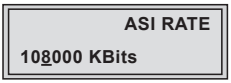
—> To skip the settings of the output parameters press the **MODE** button. The "Input parameters" – "**INPUT**" main menu is activated (page 23).

- Press the ► button.

—> If "ASI" is selected, the "ASI transmission rate" – "**ASI RATE**" submenu is activated.
—> If "LAN" is selected, the "Output IP address" – "**OUT-IP**" submenu is activated (page 20).

ASI transmission rate

In this menu you set the output transmission 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.



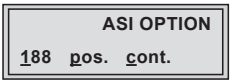
- Use the ◄/► buttons to place the cursor under the digits to be set for the transmission rate then use the + / - buttons to set the transmission rate wished.

- Press the MODE button.

—> The "ASI options" – "**ASI OPTION**" sub 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.



- 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 collected to a great data packet in the transport stream.

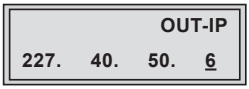
—> Setting “burst”
The data packets of the user data are spaced out evenly in the transport stream.

- Press the **MODE** button.

—> You will be returned to the “Output parameters” – “**OUTPUT**” main menu (page 18).

Output IP address

In this menu you set the IP address for the IP output.



—> Use an IP address of the multicast range (e.g. 227.40.50.x).

- Press the **◄**/**►** buttons to position the cursor under the digit of the IP address to be set.
- Using the **+**/**-** buttons set the IP address wished.

- Press the **MODE** button.

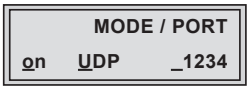
—> The “Switching the IP address off or on, transmission protocol, port number” – “**MODE / PORT**” submenu is activated.

Switching the IP address off or on

Transmission protocol

Port number

In this menu you can switch off the IP address displayed, and define the transmission protocol and the port number.



Switching the IP address off or on

- Press the **+**/**-** buttons to switch off ("**off**") or ("**on**") the IP address and the service referred.

Selecting the transmission protocol

- Press the **►** button to position the cursor under "**UDP**".
- Using the **+**/**-** buttons to select the transmission protocol wished:

—> "**UDP**"– The User Datagram Protocol is for the connectionless transmission of data without acknowledgement from the receiver.
"**RTP**" – The Real-time Transport Protocol additional transmits time informations for runtime error correction at receiver side.

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 port number wished.

- Press the **MODE** button.

—> The "Quantity of data packets, Forward error correction, Transmission channel" – "**PKTS / FEC**" submenu 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 additional redundant data are transmitted, so that the addressee can correct transmission errors.

Defining the quantity of data packets

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

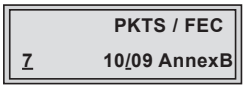
—> Setting "**7**" results the smallest overhead.

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 value of the FEC wished ("**off, 10/9**" … "**20/19**").



Setting the transmission channel

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

- Press the **MODE** button.

—> You will be returned to the "Output parameters" – "**OUTPUT**" main menu (page 18).

- Press the **MODE** button.

—> The "Input parameters" – "**INPUT**" main menu is activated.

Input parameters

In this menu you select the input, for which you would like to set the input parameters in the submenus.

—> The indications "**LAN**" and "**OK**" serve for information:
LAN - LAN is already set for input 1.
OK - input signal is present at input 1.

- Use the **+**/**-** buttons to select the input ("**1**" … "**5**"), for which you would like to set the input parameters.

—> To skip the settings of the input parameters press the **MODE** button. The "Transport stream and ORGNET-ID" – "**TS/ONID**" main menu is activated (page 27).

- Press the **►** button.

—> The "Signal source" – "IN x **INPUT**" submenu is activated.

Signal source

In this menu you select the signal source wished for the selected input.

- Use the **+**/**-** buttons to select the signal source wished ("**LAN**" or "**ASI**").

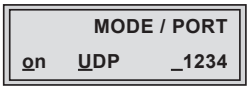
—> If "ASI" is selected, the "Station filter" – "IN x **Filter**" submenu is activated (page 25).
—> If "LAN" is selected, the "Switching the IP address off or on, Transmission protocol, Port number" – "IN x **MODE / PORT**" submenu is activated.

Switching the IP address off or on

Transmission protocol

Port number

In this menu you can switch off the IP address displayed, and define the transmission protocol and the port number.



Switching the IP address off or on

- Press the **+**/**-** buttons to switch off ("**off**") or ("**on**") the IP address and the service referred.

Selecting the transmission protocol

- Press the **►** button to position the cursor under "**UDP**".
- Using the **+**/**-** buttons to select the transmission protocol wished:

—> "**UDP**" – The User Datagram Protocol is for the connectionless transmission of data without acknowledgement from the receiver.
"**RTP**" – The Real-time Transport Protocol additional transmits time informations for runtime error correction at receiver side.

Setting the port number

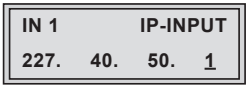
- Press the **►** button to position the cursor under the port number e.g. "_**1234**".
- Use the **◄**/**►** buttons to position the cursor under the digit of the port number displayed to be set.
- Using the **+**/**-** buttons set the port number wished.

- Press the **MODE** button.

—> The "Input IP addresses" – "IN x **IP-INPUT**" submenu is activated.

Input IP addresses

In this menu you set the IP address for the IP input selected.



—> Use an IP address of the multicast range (e.g. 227.40.50.x).

- Press the ◄/► buttons to position the cursor under the digit of the IP address to be set.
- Using the + / - buttons set the IP address wished.

- Press the MODE button.

—> The "Station filter" – "IN x **Filter**" submenu is activated.

Station filter

In this menu you select the stations (services) of the input transport stream which shall be used.

- Use the + / - buttons to select the option wished.

—> "**all**" - all stations are used.

"**cascaded**" - setting for the "downstreamed" HADA 5100 when using several HADA 5100 cascaded – observe the following hints about the service IDs (SIDs) as well as chapter "cascading" (page 31).

"**first**" - only the first station of the transport stream is used.

"**manual**" - the additional submenu "Manually selection" will be displayed next.

Service IDs (SID)
New SIDs will be assigned to the **selected** services.

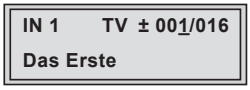
At settings "all", "first" und "manual" the assignment of the SIDs is done "dynamically" according to the following scheme :
Input **1** - services 1 ... 64—> SIDs **1**01 ... **1**64
Input **2** - services 1 ... 64—> SIDs **2**01 ... **2**64
Input **3** - services 1 ... 64—> SIDs **3**01 ... **3**64
Input **4** - services 1 ... 64—> SIDs **4**01 ... **4**64
Input **5** - services 1 ... 64—> SIDs **5**01 ... **5**64
—> If more than 64 services per input are selected, this "overflow" is assigned from SID 601 upwards.
—> At setting "**cascaded**" the assignment of the SIDs is done "statically". Therefore an example is shown in chapter "**cascading**" page 31.

- Press the **MODE** button.

—> Is "all", "cascaded" or "first" selected, you will be returned to the "Input parameters" – "**INPUT**" main menu (page 23).
—> Is "manual" selected, The "Manually selection" – "IN x **xxx/yyy**" submenu is activated.

Manually selection

In this menu you select the stations (services) of the input transport stream which shall be used.



—> All stations (Services) of the input transport stream will be read, and then displayed with name and station type.

—> If no station is found, the following 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/LAN input.

—> The display shows e.g.: **IN 1 TV + 001/016**
Das Erste

Meaning of the indicators in the example:

"**IN 1**"	Number of the selected input
"**TV**"	Station type "Television"
"**+**"	The currently selected station is activated.
"**001/016**"	The 1st of 10 stations is being displayed.
"**Das Erste**"	Station name

Further possible terms displayed:

"**RA**"	Radio channel type For radio stations, the background of the screen of the connected TV or test receiver is darkened.
"**—**"	The currently selected station is deactivated.
"**HD**"	HD reception

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

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

If no station is found, the display shows "– – –" instead of the station name. In this case, check the previously adjusted settings for the cassette and the components connected to the ASI/LAN input.

- Press the **MODE** button.

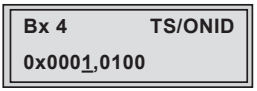
—> You will be returned to the "Input parameters" – "**INPUT**" main menu (page 23).
—> If necessary set further inputs.

- Press the **MODE** button.

—> The "Transport stream / ORGNET-ID" – "**TS/ONID**" main menu is activated.

Transport stream / ORGNET-ID

If the stations (services) of several transponders are merged to one transport stream, a new identification (ORGNET-ID) must be allocated to the transport stream, to realise the channel search of the settop boxes connected without mistakes.



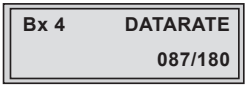
- Use the ◄/► buttons to position the cursor under the digit of the hexadecimal number to be set.
- Press + / - to set the respective digit of the hexadecimal number.
- Repeat the procedure by the quantity of the digits to be set.

- Press the **MODE** button.

—> The "Output data rate" – "**DATARATE**" main menu is activated.

Output data rate

In this menu the current output data rate is displayed.



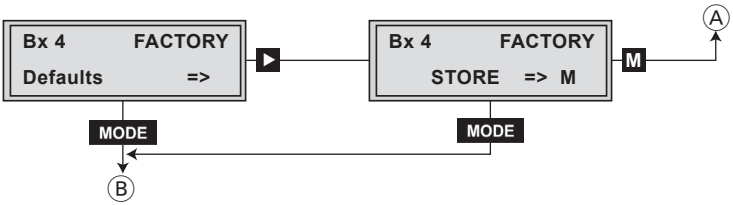
—> "087" - current data rate.
"180" - maximum data rate
—> The maximum Data rate depends on the used/available output:
– 1 GBit LAN - 180 MBit
– 100 MBit LAN - 80 MBit
– ASI - ASI RATE setting (page 19)

- Press the **MODE** button.

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

Factory reset

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



- Press the ▶ button.

—> The submenu "**FACTORY STORE**" is invoked.
—> By pressing the **MODE** button, you will be returned to the menu item "Ethernet parameters" – "**ETHERNET**" **without** invoking the factory defaults (page 16).

- Press the **M** button.

—> The factory defaults are saved. The display shows "STORE"
—> Back to "Selecting the cassette" (page 15).
—> By pressing the **MODE** button, you will be returned to the menu item "Ethernet parameters" – "**ETHERNET**" **without** invoking the factory defaults (page 16).

Saving settings

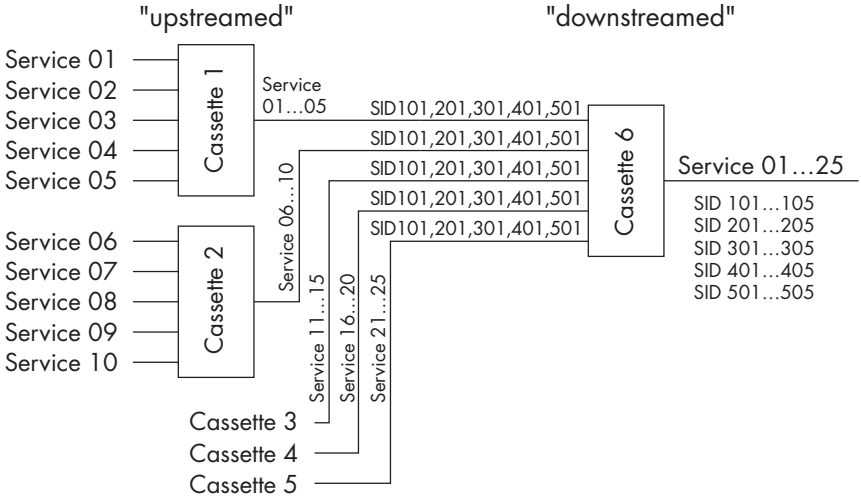
- Press the **M** button.

—> Back to "Selecting the cassette" (page 24).
—> The settings are saved.

Cascading

If several HADA 5100 are cascaded, at the "downstreamed" cassette (cassette 6 of the example) the station filter (page 25) **must** be set to "**cascaded**". Cascading, for example, is used to combine many transport streams **each containing one service** to one transport stream.

Example:



At setting "cascaded" the assignment of the SIDs is done "statically", so that the SIDs of the services at the output of the "downstreamed" cassette (6) will not change, if the input signal of one input of the "upstreamed" cassettes (1…5) is discontinued.

"Static" SID assignment at setting "cascaded"
(for cassette 6 of the example)**:**

	Input				
	1	2	3	4	5
Input SID	SID at the output				
101	10**1**	20**1**	30**1**	40**1**	50**1**
201	10**2**	20**2**	30**2**	40**2**	50**2**
301	10**3**	20**3**	30**3**	40**3**	50**3**
401	10**4**	20**4**	30**4**	40**4**	50**4**
501	10**5**	20**5**	30**5**	40**5**	50**5**

Example: SID 301 at input 2 —> SID 203 at the output

Table for "static" SID assignment at station filter setting "cascaded"

	Input				
	1	2	3	4	5
Input SID	SID at the output				
101	101	201	301	401	501
102	111	211	311	411	511
103	121	221	321	421	521
104	131	231	331	431	531
105	141	241	341	441	541
106	151	251	351	451	551
201	102	202	302	402	502
202	112	212	312	412	512
203	122	222	322	422	522
204	132	232	332	432	532
205	142	242	342	442	542
206	152	252	352	452	552
301	103	203	303	403	503
302	113	213	313	413	513
303	123	223	323	423	523
304	133	233	333	433	533
305	143	243	343	443	543
306	153	253	353	453	553
401	104	204	304	404	504
402	114	214	314	414	514
403	124	224	324	424	524
404	134	234	334	434	534
405	144	244	344	444	544
406	154	254	354	454	554
501	105	205	305	405	505
502	115	215	315	415	515
503	125	225	325	425	525
504	135	235	335	435	535
505	145	245	345	445	545
506	155	255	355	455	555

If more than one services are present at one input of the upstreamed cassettes (cassettes 1…5 of the example), in the downstreamed cassette (cassette 6 of the example) the SIDs will be assigned "statically" according to the table beside.
According to this table up to 6 services per input (cassettes 1…5) can be processed.

Example:
If at input 2 of cassette 2 two services are present, SID 202 is assigned to the 2nd service at the output of cassette 2 (according to the "dynamic" scheme at page 26). This SID 202 is present at input 2 of cassette 6.
According to the table beside the SID is transformed in cassette 6 to SID 212.

From the 7th service at one input of the cassettes 1…5 on the SIDs will be transformed "dynamically" in Cassette 6.

6 Final procedures

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 using an appropriate open-ended spanner.
- Mount the front cover (see assembly instructions of the head-end station).

Service:

Phone: +49 (0) 911 / 703 2221
Fax: +49 (0) 911 / 703 2326
Email: service@gss.de