

MIP 800 | MIP 1600 MIP 806CI | MIP 1606CI

Multituner | IP streamers

Operation instructions

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MARNING

- → Observe the safety instructions supplied with the device! They are also available at the following Internet address: https://download.axing.com/BAs/Sicherheitshinweise-9sprachig.pdf
- → Use the device only as described in these operating instructions and in particular in accordance with the state of the art. If the device is used for other purposes, no warranty will be assumed!



Herewith AXING AG declares that the marked products comply with the valid guidelines.



WEEE Nr. DE26869279 | Electrical and electronic components must not be disposed of as residual waste, it must be disposed of separately.



1. Product description

1.1. General

MIP 8-00 Eight independent multituner inputs

Transmodulates 8 × DVB-S/S2/S2x/T/T2/C into 512 SPTS (Single Program Transport Stream) or 8 MPTS (Multi

Program Transport Stream)

MIP 8-06 Like MIP 8-00, with 6 CI slots

MIP 16-00 16 independent multituner inputs

Transmodulates 16 × DVB-S/S2/S2x/T/T2/C into 512 (Single Program Transport Stream) or 16 MPTS (Multi

Program Transport Stream)

MIP 16-06 Like MIP 16-00, with 6 CI slots

Common Features:

GbE-interface with max. 800 Mbps

- Web-based configuration, remote maintenance (SMARTPortal)
- Supports SNMPv1 and SNMPv2c
- M3U playlist for the TV/radio programs of the transport stream
- Class A according to EN 50083-2
- 19" housing, 1RU
- Two redundant power supplies (hot pluggable)

1.2. Scope of delivery

1 × IP Streamer

2 × AC power cord

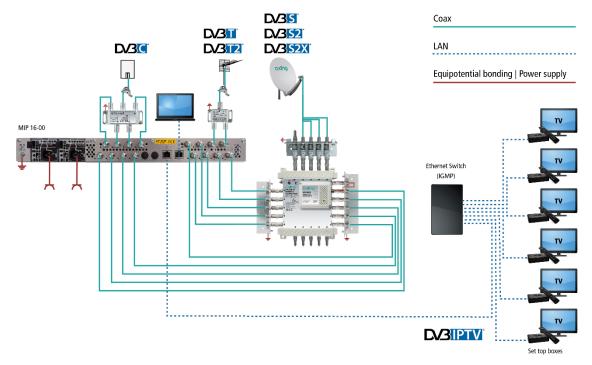
1 × Quick start guide

1.3. Inputs/multituner

Devices with multituner can receive DVB-S/S2/S2x, DVB-T/T2 or DVB-C.

⚠ CAUTION

For receiving DVB-T/T2 or DVB-C the LNB power has to be switched off before connecting a antenna cabel to one of the HF inputs (see 4.1.2 on page 16)!



Direct connection to the LNBs

The devices have a remote supply voltage for the LNB and DiSEqC 1.0 functionalities at the inputs. The inputs can be connected directly to the LNB.

Multiswitches as input distributors (recommended)

Optionally, you can also use multiswitches as input distributors. The advantage of this solution is that you can set both the polarization and the satellite via the user interface. Changes in the list of programmes can be made using remote maintenance, so that it is not necessary to change or modify the input distribution on site.

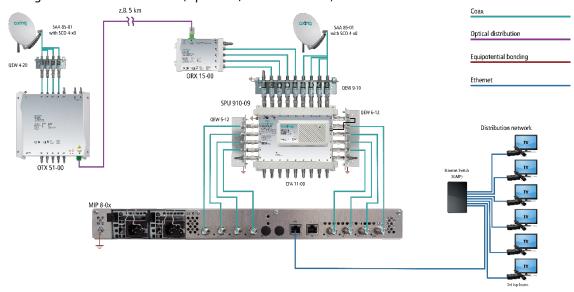
Demodulation of the data stream

The selection of the frequency and the demodulation of the data stream are both done in the tuner.



Feeding-in a redundant input signal (function on request)

The AXING MIP-headend series can be fed from an additional redundant input signal source. Switching can be be triggered through various selectable criteria (input level, bit error rate etc.).



In the example the DiSEqC command is used to switch from the main antenna to the redundant backup antenna. Both satellite antennas must be aligned to the same satellite reception position.

The backup antenna should be located far away from the main antenna. A fiber-connection is suitable to bridge the distance between the two antennas. In bad weather conditions at the main antenna, the system can switch to the backup antenna to ensure seamless reception.

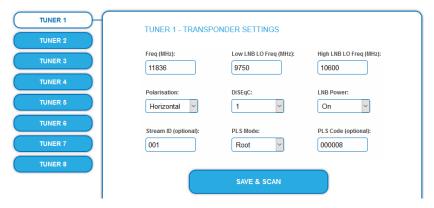
1.4. Output transport stream

As output transport stream 512 SPTS or 8 MPTS (MIP 8-0x) or 16 MPTS (MIP 16-0x) can be choosen.

SPTS: each program is attached to one transport stream. **MPTS**: multiple programs are attached to a transport stream, using remux or crossmultiplex mode.

1.5. Graphical user interface

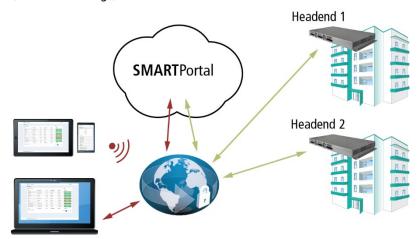
The settings can be changed via the user interface of the integrated web interface. To access the user interface and thus configure the devices, you need a standard PC/laptop with a network interface and the actual version of the installed web browser.



The configuration interface is "mobile ready" and can therefore also be used from the smartphone or tablet.

1.6. SMARTPortal

The AXING SMARTPortal connects each AXING headend device with a cloud-based portal and thus provides worldwide access to the devices. The connection is password-saved and scrambled. The only requirement on site is an internet connection of the device e. g. via LAN, EoC, EoC-WLAN-Bridge, 3G/LTE-Router.



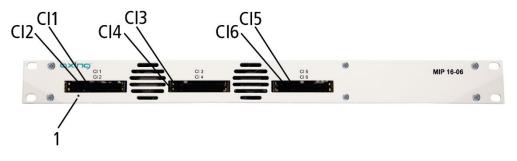
With AXING's SMARTPortal a worldwide configuration of all settings or software updates can be ensured. On customer request AXING can provide the necessary support.

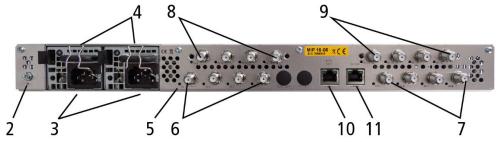
In addition, the SMARTPortal also sends error messages to a configured e-mail address. This makes monitoring the devices simple and safe. Error messages occur in the following cases, for example:

- Power supply failure
- Processor temperature > 90 °C
- Airflow temperature > 50 °C
- Power supply temperature >85 °C
- Failure of the input signal
- CAM failure



1.7. Display elements and connectors





1. LED IPTV stream:

Green (blinking) = No IPTV stream (no input signal, tuner not configured, no program

selected, no program configured for output)

Green = IPTV stream ok Red = IPTV stream overload.

2. Equipotential bonding connection

3. Mains connection

4. Locking bow for inlet connector

5. 8 bzw. 16 HF input LEDs:

Yellow = MPEG data stream present
Off = MPEG data stream not present

6. RF input 1...4

7. RF input 5...8

8. RF input 9...12 (MIP 16-0x only)

9. RF input 13...16 (MIP 16-0x only)

10. RJ-45 Ethernet connector IPTV output

11. RJ-45 Ethernet connector Control

MIP 8-06/16-06

MIP 8-06 and MIP 16-06 each have 6 common interfaces (CI1 \dots CI6).

Which encrypted program you decrypt with which interface, you determine in the configuration.

2. Mounting and Installation

- → Installation must be performed by authorized and skilled electricians only.
- → Before mounting and installation, pull the mains plug (1)!
- → The antenna system must be installed and grounded according to the EN 60728-11 standard.

2.1.1. Mounting in a 19" rack

Note: For 19-inch rack mounting, there must be at least 5 cm clearance in front of and behind the unit.



- → Slide the device into the 19 "rack.
- → Screw the device with four screws (1).
- → Observe the standard EN 60728-11.

2.2. Equipotential bonding

- → The device must be connected to the equipotential bonding according to EN 60728-11. Use the equipotential bonding connection at the device.
- → To connect the outer conductor of the coaxial cable to the equipotential bonding, use e.g. QEW earthing angles or CFA earth connection blocks at the inputs and output (see 2.4 on page 11).

2.3. Power supply

The devices are equipped with two redundant power supplies to connect them e.g. to different power sources (e.g. a normal mains socket and a UPS). The LEDs show the status of the power supply.

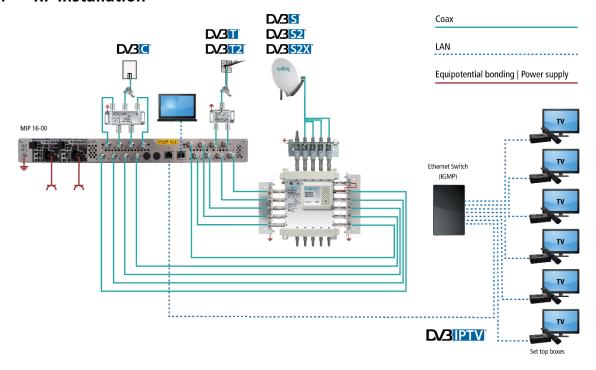


If a power supply fails, the unit will start with an alarm tone. If you operate the device only with one power supply unit, you can deactivate the alarm tone in the configuration (see 5 on page 31). Alternatively, you can remove the unused power supply from the device.

→ Connect both power supplies with the enclosed cables to 230 V AC. Open the pull-out protection, insert the plug of the power supply unit and secure it with the pull-out protection.



2.4. RF Installation



2.4.1. Connection to DVB-S/S2/S2x

Connection to the LNBs

On the SAT-IF input the devices have a remote supply voltage for the LNB and use DiSEqC 1.0 functionalities. Therefore, they can be connected directly to the LNB.

Multiswitches as input distributors

Optionally, you can also use multiswitches as input distributors. The advantage of this solution is that you can set both the SAT IF level and the satellite via the user interface. Changes in the list of programmmes can be made using remote maintenance, so that it is not necessary to change or modify the input distribution on site.

2.4.2. Connection to DVB-T/T2 or DVB-C

⚠ CAUTION

Before connecting the antenna cabel, the LNB power has to be switched off (see 4.1.2 on page 16). Active DVB-T antennas have to be supplied by an external power supply.

3. Configuration

The device is configured via the graphical user interface of the integrated web interface.

To access the user interface, you need a standard PC/laptop with a network interface and the actual version of the installed web browser. To connect the network interface of the device to the computer, you need a commercially available network cable.

The HTTP protocol is used for communication allowing a worldwide remote maintenance of the systems at various locations via the Internet. Access protection is implemented by means of the password prompt.

IP address:	192.168.0.145
Subnet mask:	255.255.255.0.

The computer and the device must be in the same subnetwork. The network part of the IP address of the computer must be set to 192.168.0. and the subnet mask must be set to 255.255.255.0.

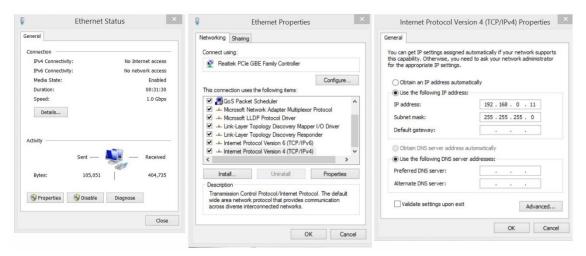
The host part of the network address is required for the identification of the devices and can be assigned in the subnetwork only once. You can allocate to the computer any not allocated host address between 0 and 255.

Hint:

Change the IP address and the subnet mask of your computer accordingly.

(e.g.: IP address:192.168.0.11 and subnet mask: 255.255.255.0)

Control panel > Network connections > LAN connection > Properties > Internet protocol version 4 TCP/IPv4 > Properties > Use the following IP address:



- → Click OK to save.
- → Start your web browser and enter the IP address of the device: 192.168.0.145.



3.1. Login and logout

The web-based user interface is protected against unauthorized access. When accessing the user interface, the first thing is the password request.



- → Enter the default password: Ramsen8262
- → Click ENTER PASSWORD.
- → If you are not automatically forwarded to the start page, click OPEN PAGE.

The standard language of the user interface is English. In the header, the the language of the user interface can be changed. The possibilities are German (DE) and English (EN). The chose Language ntil the end of the session.



→ To log out, click LOG OUT.

Notes:

- If the browser is closed while you are still logged in, an automatic logout occurs 2.5 minutes later.
- If the browser window stays open, there is no automatic logout. It allows monitoring the installation via the web browser.

Changing the password:

- → Please change the password immediately after the first commissioning and choose a sufficiently safe password. Keep this password at a safe place.
- → Menu item: MAINTENANCE > SET NEW PASSWORD (see 5.3.2 on page 35).

Changing the IP address:

If needed, the devices can be integrated in a network. For this application, some changes must be applied to the network configuration.

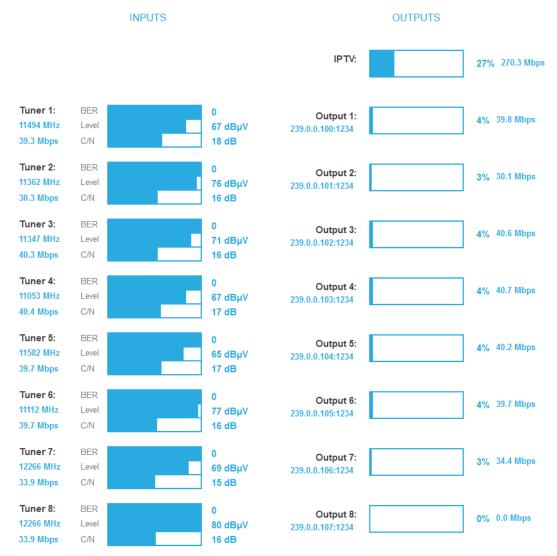
→ Menu item MAINTENANCE > SYSTEM.

3.2. Front page

The relevant information required for the function of the system are shown on the front page. The decisive thing is the quality of the signals at the INPUT and the utilization of the OUTPUT.

Input

The bit error rate **BER** of all four tuners is shown on the left side. The amount of bit errors for the last 1,000,000 transferred bits is calculated. Also the **Level** and the **C/N** ratio are shown.



Outputs

The fill level of the output is shown.

Note: The figure shows the start page of a device that outputs the output signals as **MPTS** (Multi Program Transport Stream). Here, the levels of the outputs (**Output 1** to **Output 8/16**) are shown separately. For a device that provides the output signals as **SPTS** (Single Program Transport Stream), only the total fill level of **IPTV** is displayed on the start page.

If the current fill level exceeds the maximal fill level, it may cause image disturbances, e.g. mosaic images. From a fill level of 95%, this is indicated in red.

Recommendation: As the data rate of the transmitters can vary depending on the picture content and transmission quality, it is essential to keep a reserve. We recommend a **maximum fill level of 90%** to ensure interference-free reception.



4. Initialization



→ Choose INITIALIZATION from the main menu.

4.1. Phase 1



During the first phase of the initialization, the tuner settings required for the scan are made and the station scanning is carried out. The tuners work independently from each other and after the same principle.

4.1.1. DVB-S/S2/S2x

- → Click TUNER 1...8 or TUNER 1...16 to select one tuner.
- → Configure the needed settings for all tuners.



The SAT IF frequency of the transponder is entered in the input field **Freq (MHz)**.

The input fields **Low LNB LO Freq (MHz)** and **High LNB LO Freq (MHz)** correspond to the oscillator frequencies of the LNB in low and high band. The default settings of the oscillator frequencies are 9,750 MHz for the low band and 10,600 MHz for the high band.

In the optional field **Polarisation**, you can switch from horizontal to vertical.

In the optional field **DiSEqC**, the DiSEqC command signals can be turned off or set to switch a DiSEqC-enabled multi switch on the positions 1 to 4.

If required, the operating voltage for the LNB can be switched off via the optional field LNB Power.

If **mutistreams** are to be received, then the **PLS mode** must be set to root or gold. In addition, the correct **Stream ID** (three digits) and the **PLS code** (six digits) must be entered.

→ After all settings have been made, click SAVE & SCAN.

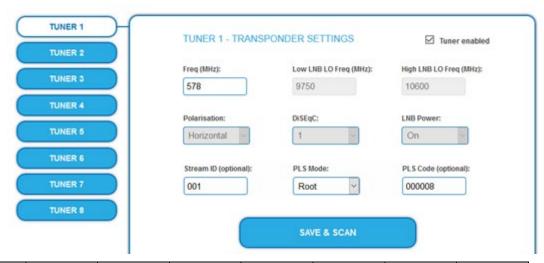
A rotating circle is shown during the scanning process.

4.1.2. DVB-C, DVB-T or DVB-T2

⚠ CAUTION

Before connecting an antenna cable to a tuner, the LNB Power has to be set to Off!

- → Click TUNER 1...8/16 to select one tuner.
- → In the field LNB power choose the option Off.
- → Enter the center frequency (see table below) for the receiving channel into the field Freq (MHz).



Channel	Input	Channel	Input	Channel	Input	Channel	Input
S 21	306	21	474	41	634	61	794
S 22	314	22	482	42	642	62	802
S 23	322	23	490	43	650	63	810
S 24	330	24	498	44	658	64	818
S 25	338	25	506	45	666	65	826
S 26	346	26	514	46	674	66	834
S 27	354	27	522	47	682	67	842
S 28	362	28	530	48	690	68	850
S 29	370	29	538	49	698	69	858
S 30	378	30	546	50	706		
S 31	386	31	554	51	714		
S 32	394	32	562	52	722		
S 33	402	33	570	53	730		
S 34	410	34	578	54	738		
S 35	418	35	586	55	746		
S 36	426	36	594	56	754		
S 37	434	37	602	57	762		
S 38	442	38	610	58	770		
S 39	450	39	618	59	778		
S 40	458	40	626	60	786		
S 41	466						

Note: The center frequeny of channels using a bandwith of 7MHz will be rounded down to 3 full digits. For example: center frequency of CH 5 = 177.5 MHz, the according input = 177.

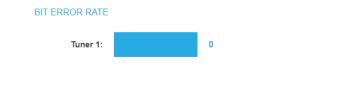
Note: All other entry fields are not relevant. Modulation and all other important parameter for reception are detected automatically.

- → If mutistreams are to be received, then the PLS mode must be set to root or gold. In addition, the correct Stream ID (three digits) and the PLS code (six digits) must be entered.
- → After all settings have been made, click SAVE & SCAN.



4.1.3. Bit error rate

The BIT ERROR RATE is shown. The amount of bit errors for the last 1,000,000 transferred bits is calculated.



4.1.4. Found programmes

After a successful station scanning, the radio and TV stations are shown in the area FOUND PROGRAMS. The table contains information about the Program Name, the Type and the Encryption.

FOUND PROGRAMS

Program Name	Туре	Encryption
Das Erste HD	TV	FTA
arte HD	TV	FTA
SWR BW HD	TV	FTA
SWR RP HD	TV	FTA

4.1.5. Deactivating a tuner

If a tuner is not needed, it can be deactivated. The tuner then no longer searches for stations. In phase 2 and in the station list, which can be printed as PDF, no programs are displayed for the tuner.



- → Click TUNER 1...8/16 to select one tuner.
 The **Tuner enabled** check box is set at the factory.
- → To deactivate a tuner, deselect the **Tuner enabled** check box.
- → Then click SAVE AND SCAN. This deactivates the tuner.

4.2. Initialization phase 2

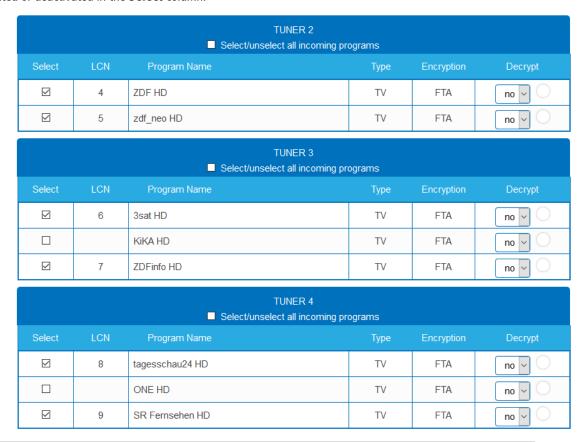
In the initialization PHASE 2, the found programmes are subdivided by tuner.



Depending on which transport stream output has been selected (SPTS or MPTS, see 5.2.1 on page 33), the programs are selected in phase 2.

4.2.1. SPTS

If SPTS (Single Program Transport Stream) is selected as the transport stream output (see 5.2.1 on page 33), programs can be activated or deactivated in the **Select** column.



IMPORTANT

- → With each programme you asign to an output, the data rate rises.
- → The performed modifications are only taken over by the system when you click on SAVE CHANGES.



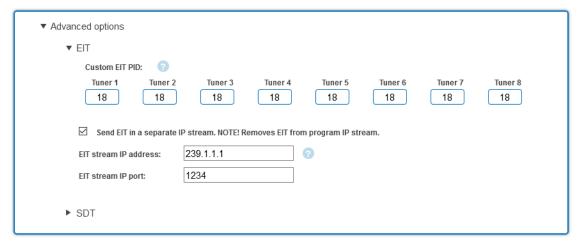
4.2.2. SPTS – Advanced options

Below the settings for tuners 1 to 8 or 16, advanced options for the transport streams can be configured.

Specify a special PID for the Event Information Table (EIT).

In some countries the EIT is not transmitted with PID 18 (e.g. Israel PID 90). In this case, the headend can change this PID to PID 18.

- → Open the **Advanced options** option field and below it the **EIT option** field.
- → For tuners 1 to 8 or 16, enter the PIDs used to transmit the EIT. The entered PID of the EIT is then converted to PID 18.



By default, each SPTS stream contains an Event Information Table (EIT) for the program that is transmitted in the stream. Alternatively, an EIT from all programs can be muxed to a separate SPTS stream.

- → Enable the option Send EIT in a separate IP stream.
- → Enter the IP address of the EIT stream. Important, the IP address must not be used by another stream.
- → Enter the port of the EIT stream.

If a separate EIT data stream is configured...

then it will be displayed in Phase 3. The data rate is also displayed. The mode is always UDP and cannot be changed

229.1.1.1

1234

EIT Stream

UDP

3.1

... then the other STPS streams no longer contain EIT.

Query EIT information

For example, the following HTTP requests can be used to retrieve EIT information. Requests can be made to either the control port or the IPTV port.

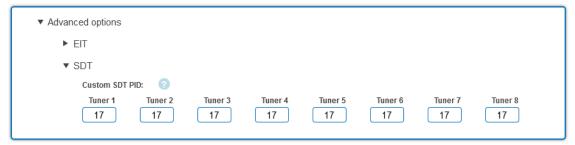
http://[ip_address]/satip.m3u = EIT information in m3u format

 $http:\!/\![ip_address]\!/LCNLIST = EIT\ information\ in\ JSON\ format$

Specify a special PID of the Service Description Table (SDT).

The Service Description Table (SDT) contains information about the transmitted programmes (services). It is usually transmitted with the PID 17. However, if the SDT is transmitted with a different PID, the headend can change this other PID to PID 17.

- → Open the Advanced Options option panel, and below that, the SDT option panel.
- → The currently used SDT PIDs of the individual tuners are displayed (PID 17 ex works).



→ For tuners 1 to 8 or 16, enter the PIDs used to transmit the SDT. Permissible values are 32 to 8190. The entered PID of the SDT is then converted to PID 17.



4.2.3. MPTS

If MPTS (Multi Program Transport Stream) is selected as the transport stream output (see 5.2.1 on page 33), then the programs can be assigned to the 8 or 16 output transport streams.

All lines of the programme table have colored buttons M1, M2 The buttons correspond to the MPTS. The allocation of the buttons is given in the COLOR CODES legend.

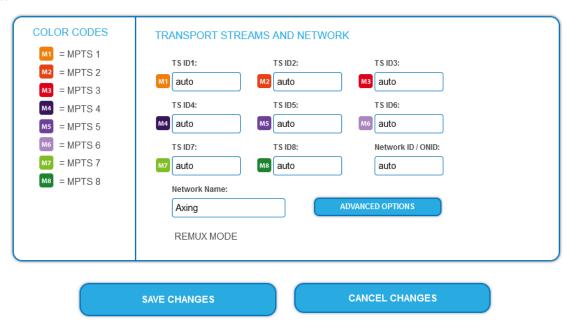
You can assign programmes in REMUX MODE or in CROSS MULTIPLEX MODE.

IMPORTANT

- → With each programme you asign to an MPTS, the data rate rises.
- → The performed modifications are only taken over by the system when you click on SAVE CHANGES.

4.2.4. MPTS – Remux mode

If the Network ID are set on auto, the device works in the Remux mode. In this mode, the IDs from the set transponder and from the satellite are used and forwarded with virtually no changes. The TS ID1 to TS ID8/16 of the MPTSs, are also set on auto.



Note:

- → If the device is already set to CROSS MULTIPLEX MODE, set the Network ID to auto.
- Click on SAVE CHANGES.

The device ist set back to REMUX MODE.

Assigning programmes

Every tuner is assigned to an MPTS. The programmes of the tuner can only be assigned to the associated MPTS.

→ For example, click in table TUNER 1 on M1.

The program is assigned to MPTS 1. The button of the MPTS is highlighted in color (a new click on a MPTS allow the assignment to be canceled. The button fades then again).



- → Choose the programs for TUNER 1 to TUNER 8/16.
- → Click on SAVE CHANGES.

 The assignment is saved to the device.

Note: If the option is activated, then no settings can be made in the columns LCN, decrypt etc.

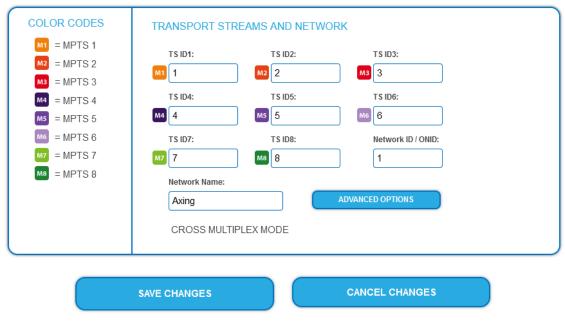
4.2.5. MPTS – Cross Multiplex Mode

The cross multiplex mode is used:

- To split the programmes of a transonder to several MPTS.
- To merge pogams of several transponders into one MPTS.

Transmission capacities in the distribution networks can be optimized.

→ Change the Network ID to a value greater than zero.



→ Click on SAVE CHANGES.

The IDs of the transport streams **TS ID1** to **TS ID8[16]** are automatically incremented by one to eight[16], the cross multiplex mode is activated.

Important:

If you use several MIP in a network, then the network IDs must be the same and the network name should also be the same. Transport stream IDs, on the other hand, may only be assigned once in the network.



Assigning programmes to the MPTS

In the cross multiplex mode, the tuners are no longer assigned to one MPTS.

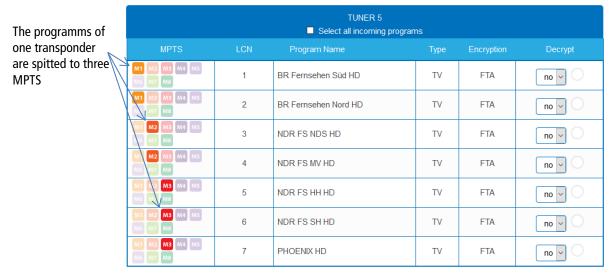


→ Click e.g. in the table TUNER 2 to TUNER 3 on M1.

The programs are assigned to MPTS 2.

Spliting the programmes of a transonder

If there are to much programms transmitted in one transponder, they can be splitted to several MPTS.



→ For example: choose MPTS 1 for two programmes and MPTS 2 for two other programmes and MPTS 3 for three other programmes.

4.2.6. MPTS – Advanced options

→ In Phase 2 click on ADVANCED OPTIONS.

ADVANCED OPTIONS

A dialog with options will open.

Specify a special PID for the Event Information Table (EIT).

In some countries the EIT is not transmitted with PID 18 (e.g. Israel PID 90). In this case, the headend can change this PID to PID 18

→ Open the **Advanced options** option field and below it the **EIT option** field.



→ For tuners 1 to 8 or 16, enter the PIDs used to transmit the EIT. The entered PID of the EIT is then converted to PID 18.

Specify a special PID of the Service Description Table (SDT).

The Service Description Table (SDT) contains information about the transmitted programmes (services). It is usually transmitted with the PID 17. However, if the SDT is transmitted with a different PID, the headend can change this other PID to PID 17.

→ Open the Advanced Options option panel, and below that, the SDT option panel. The currently used SDT PIDs of the individual tuners are displayed (PID 17 ex works).



→ For tuners 1 to 8 or 16, enter the PIDs used to transmit the SDT. Permissible values are 32 to 8190. The entered PID of the SDT is then converted to PID 17.



Add non-referenced PIDs

To enable an Over-the-Air upgrade, non-referenced PIDs can be manually added to the output modulators. Notes:

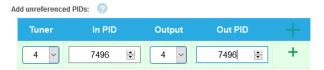
- The function requires a valid license for "PID-Filtering" (see 5.11 on page Fehler! Textmarke nicht definiert.).
- In PHASE 1 a transport stream must already be selected which contains the unreferenced PID/PIDs.

To enable an Over-the-Air upgrade, non-referenced PIDs can be manually added to the output modulators.

→ Open the PIDs option.



→ Under **Add unreferenced PIDs**, click the green plus sign in the table header. A line for entering the PID is inserted.



- → Under **Tuner**, select one of the available input tuners.
- → Under In PID, enter an unreferenced PID.
- → Select the Output.
- → Under Out PID, enter the output PID.

 The output PID can be the same or different from the input PID.
- Click on the green plus sign next to the line. The entered data are inserted.



- → If necessary, enter additional non-referenced PIDs.
 - The same input PID can be added to multiple outputs if needed. Output PID value can be set separately for each output. In the example below, PID 7496 from the input stream 239.0.0.1:1234 is added to three outputs.
- → Click SAVE after completing the entries. This saves the entries in the headend.

Editing or deleting entries

- → Click on the **pencil icon** to the right of the line. You can now change Input, In PID, Modulator and Out PID
- → To delete, click on the trashcan icon to the right of the line. The line is deleted.

4.2.7. Select all programs

→ Activate the option **Select all incoming programs**, with each program of the tuner the button is activated.



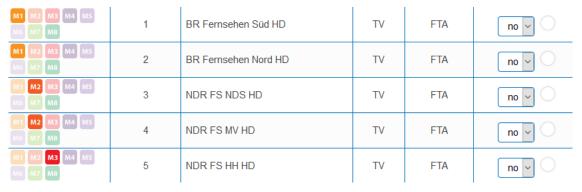
4.2.8. LCN (Logical Channel Numbering)

The LCN function enables channel allocation for the station scan of the TV devices. The TV device must support the LCN function. An LCN can only be entered for programs assigned to an SPTS or MPTS.

→ Click on the **LCN** column for the corresponding program.



- → Enter the LCN with the keyboard or increase / decrease the LCN with the arrow buttons right of the number.
- → Enter a separate LCN for each desired program.



- → To clear the LCN, enter 0 in the LCN column.
- → Click SAVE CHANGES.

 The numbers of the channels are saved.

4.2.9. Changing Program Name

The name of a program can be changed. The entered program name will later appear in the channel list of the connected TV sets.

→ Click on one of the programs.

The table with the Information opens.



- → Click right of the field **Program Name**.
- → Enter an individual program name and click on the green check mark.

 This first completes the entry.
- → After you have changed the desired program name(s), click SAVE CHANGES.

 The entered program name(s) are stored in the headend.



4.2.10. PID Filtering (with MKS 1-01)

The transport streams consist of packets that are identified by PIDs (Packet Identifier). With the fee-based software extension MKS 1-01, individual packages can be filtered out of the transport stream.

→ Click on one of the programs.

The table with the packages contained in the program is opened.

Stream type	IN PID	OUT PID	FIXED	BLOCK		
Stream type	IN FID	OUTFID	LIVED	BLOCK		
PMT	100	100				
MPEG2 Video	101	101				
MPEG1 Audio (deu)	102	102				
MPEG1 Audio (mis)	103			☑		1
Teletext (deu)	104			☑		1
AC-3 Audio (deu)	106	106				2
Private data	84	84				
Subtitles (deu)	105	105				
DSM-CC	1176	1176				
Private data	2070	2070				
DSM-CC	2171	2171				

→ For the PIDs that you want to filter out of the transport stream, place a checkmark in the BLOCK column (1). The package is no longer transferred in the transport stream. The OUT PID column is empty for these PIDs (2).

4.2.11. Edit Service ID

You can edit the Service ID.

⚠ CAUTION

Not provided modifications will cause problems!

Changes of the SID are only necessary for STBs using fix preset IDs. These STBs are used of some providers to suppress reception for external devices. Modifications should only be done after consulting the provider.

Programmname:	Das Erste HD	
Service-ID:	10301	✓ X

- → Enter the Service ID with the keyboard or increase / decrease the ID with the arrow buttons right of the number.
- → Click on the green check mark to accept the ID or on the red cross to discard the entry.

4.3. Initialization phase 3

In PHASE 3, the output transport streams are configured.



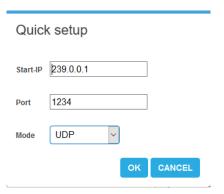
4.3.1. SPTS

If **SPTS** (Single Program Transport Stream) is selected as the transport stream output (see 5.2.1 on page 33), then to each transport stream is assigned a destination address. You also define the port and the transmission protocol.



Since there are up to 512 transport streams, there is the possibility of quick setup.

→ Click on QUICK SETUP.



- → Enter the start IP.

 The other IP addresses are incremented by this Start IP (239.0.0.1, 239.0.0.2, 239.0.0.3 ...).
- → Enter the **port** and as **mode** the transmission protocol.
- Click OK. All transport streams are configured accordingly.



4.3.2. MPTS

If **MPTS** (Multi Program Transport Stream) is selected as the transport stream output (see 5.2.1 on page 33), then each of the 8/16 output MPTS is individually configured.



Output mode

Choose between the following options:

- Disabled = no output transport stream
- UDP = User Datagram Protocol
- RTP = Real-Time Transport Protocol

Output Rate

Choose between the following options:

- VBR = compression method for variable bit rate audio and video data
- CBR (auto) = compression method for constant bit rate audio and video data. The bitrate is assigned automatically.
- CBR (manual) = The bit rate is assigned manually.

Manual Rate

Constant bitrate input when CBR (manual) is selected.

Source port

Port of the source

Destination IP

IP address that must be entered as a multicast IP address for the set-top boxes or

IPTV terminals.

Destination Port

Port number of the destination

4.3.3. Fill level

The fill level depends on the number of activated channels in Phase 2.

The data rate of the channels on the DVB-S/S2/S2x transponders may vary depending on the image contents and on the transmission quality. To ensure an undisturbed reception, a reserve must absolutely be observed.



We recommend you to set the maximum fill level to 95%. If the current fill level exceeds the maximal fill level, it may cause image disturbances, such as mosaic images. The error LEDs on the front panel will light up in red in this case.

4.3.4. Selected Programmes

The programme table SELECTED PROGRAMS shows the programmes that were activated in phase 2.

SELECTED PROGRAMS

Program Name	Туре	Encryption
Das Erste HD	TV	FTA
SWR BW HD	TV	FTA

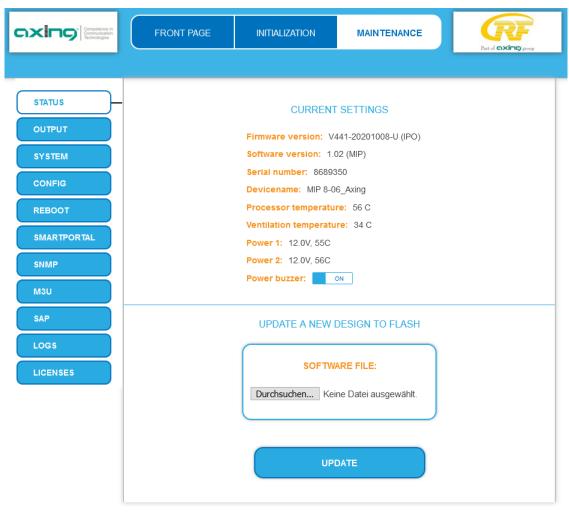


5. Maintenance

In the menu item MAINTENANCE, status information of the head-end can be viewed and the technical conditions can be configured.

5.1. STATUS

5.1.1. Current Settings



Under Current Settings, you will find the following information:

- Firmware version: Displays the firmware version
- Software version: Displays the version of the interface
- Serial number of the device
- Device name entered under SYSTEM
- Processor temperature
- Ventilation temperature
- Output voltage and temperature of the power supplies
- → You can additionally switch off the alarm tone (**Power buzzer**) of the power supply monitoring.

Important: If you stay on the maintenance page for more than 2.5 minutes, an automatic logout will occur and you will have to repeat the login procedure.

5.1.2. Updating software

NOTICE

- → After an update, initialization data saved with older Software versions can be loaded into the device with a newer Software version.
- → Initialization data saved with the current Software versions can **not be loaded** into devices with an **older Software** version.
- → Therefore, if possible, make a Software update of all devices.

 We recommend the AXING SMARTPortal for easier handling and overview (see 1.6 on page 8)

Download

You can find software/firmware updates for download by entering the article in the search field on www.axing.com. On the product page you will find the current software/firmware in the Downloads tab.

→ Download the current version of the file to your computer and unpack it.

Update

New software for the graphical user interface can be installed under SOFTWARE FILE.



- → Click under SOFTWARE FILE on "Browse…".
- → Browse for the file on your computer.
- → Click on UPDATE.

The file will be uploaded to the device.



After this the update of the device begins, the remaining time ist shown as a countdown.



The device will be automatically rebooted after an update. The PLEASE ENTER PASSWORD dialog will be displayed.

→ After the Update, log in again.

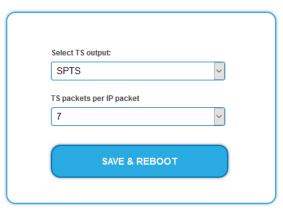


5.2. OUTPUT

5.2.1. Select transport stream output

Under TS OUTPUT, the type of transport stream and the number of transport stream packets are selected. Depending on the configured transport stream, the output signals are output as MPTS (Multi Program Transport Stream) or as SPTS (Single Program Transport Stream). You will configure in PHASE 2 and PHASE 3 according to your selection.





- → In the **Select TS Outbox** box, select MPTS or SPTS.
- → In the TS packets per IP packet field, select the number of TS packets.
- → Click SAVE & REBOOT.

 The changes are made. The remaining time is displayed.



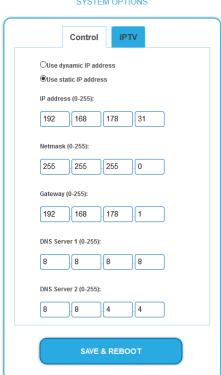
→ After rebooting log in again.

5.3. SYSTEM

5.3.1. Changing the IP addresses

The network options are configured under the menu item SYSTEM OPTIONS.

- In the Control tab, the Control interface to which the computer is connected to configure the MIP is configured.
- In the IPTV tab, the interface of the IPTV transport stream is configured.



SYSTEM ODTIONS

Dynamic IP adress

→ Use dynamic IP address to connect the device to a network with a DHCP server.

Static IP adress

- → Use a static IP address to connect the device to a network with a fixed IP address. The IP address, netmask and the gateway can be changed here. In addition, DNS server 1 and DNS server 2 can be entered.
- → Click SAVE & REBOOT to confirm and save the changes.

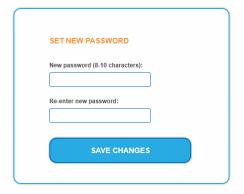
 When the changes are saved, the device will reboot automatically.
- → If you change the IP address of the **Control** interface, you must enter the new IP address in the browser after rebooting and log in again.



5.3.2. Changing the password

The default password is: Ramsen8262.

The default password should be changed right after commissioning the device.



- → Type an new password with 8-10 characters (letters and/or digits).
- → Re-enter the password.
- → Click SAVE CHANGES to confirm and save the changes. When the changes are saved, the frontpage will be shown.

5.3.3. Device name

In the section DEVICE NAME you can set a new device name.



- → Enter a name in the field SET NEW DEVICE NAME.
- → Click on SAVE CHANGES.

 The new device name is shown at the login.

5.4. CONFIG

5.4.1. Erasing service data

In the section ERASE SERVICE DATA you can erase the settings from phase 2. The transponder data must be read again for tuners 1-4 by executing a scan.



Click on erase. The frontpage will be shown.

5.4.2. Save Initialization Data

In the section SAVE SYSTEM INITILIZATION DATA TO FILE you can save the current initilization data from phase 1 to 3 into a file on your computer.





→ Click on SAVE.

The config.dat file is generated. You can save these on your computer.

→ Click on PDF TO PRINT.

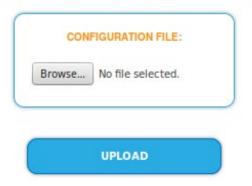
A PDF of the configuration is generated that can be opened or saved.

Note: Password and IP adress will not be saved.

5.4.3. Upload Initialization Data

In the section UPLOAD SYSTEM INITILIZATION DATA FROM FILE you can upload the initiaization data from a file to the device.

UPLOAD SYSTEM INITIALIZATION DATA FROM FILE



- → Choose a CONFIGURATION FILE.
- → Click on UPLOAD.

The upload will take a few seconds.

→ After the upload you must log in again.



5.4.4. Output list for all devices

You can create a common output list for all devices in the network.

OUTPUT LIST FOR ALL DEVICES:



→ Select the headends to be included in the channel list.

Notes: The device to which you are logged on is named "This device" and is always selected.

→ Click on EXPORT TO CSV.

A CSV file is generated which you can open or save.

1	Α	В	С	D	E	F	G	Н
1	IP	Port	LCN	Program Name	ServiceId	Type	Crypt	Device Name
2	239.0.0.5	1234		ZDF HD	11110	TV	FTA	MIP 8-06
3	239.0.0.6	1234		zdf_neo HD	11130	TV	FTA	MIP 8-06
4	239.0.0.7	1234		tagesschau24 HD	10375	TV	FTA	MIP 8-06
5	239.0.0.8	1234		ONE HD	10376	TV	FTA	MIP 8-06
6	239 0 0 9	1234		ARD alpha HD	10377	TV	FΤΔ	MIP 8-06

5.5. Reboot

5.5.1. Rebooting

Under REBOOT THE SYSTEM the device can be rebooted.



→ Click on REBOOT.

After rebooting, the password must be entered again.

Note: If input signals are temporarily unavailable (e.g. due to snow), the device will reboot every 10 minutes. This ensures that all configured programmes will be available once the input signal becomes available again.

5.6. SMARTPORTAL

5.6.1. Access to SMARTPortal

If you are a registered user of the SMARTPortal, then you can remotely control the device via the SMARTPortal and, if necessary, receive support from AXING (see also https://axing.com/en/produkte/smartportal/).

Prerequisite is an internet connection for the device.





- → In the State field, select Enabled.
- → Activate, if required, the option **AXING support allowed**.
- → In the field **Location**, enter a name for the location of the device. This name will appear later in the SMARTPortal to help you identify the device.
- → In the field Email address, enter the e-mail address with which you are registered at SMARTPortal.
- → In the field **User key**, enter the user key that you received when registering at SMARTPortal.
- → Click on SAVE & REBOOT. The data is saved, the device is rebooted and the connection to the SMARTPortal is established. Where required, you have to adjust the connection data (see 5.2.1 on page 33).

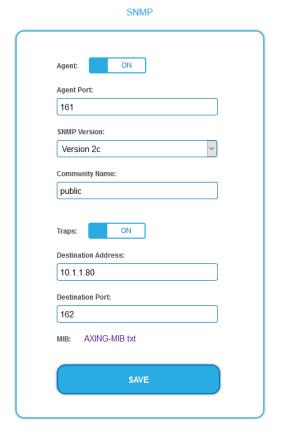


5.7. SNMP

5.7.1. SNMP (Simple Network Management Protocol)

The Simple Network Management Protocol (SNMPv1 or SNMPv2c) is supported. With the help of a Network Management Station (NMS) information can be read or alarms can be received.

Supported SNMP message types are GET-REQUEST, GETNEXT-REQUEST and TRAP.



SNMP Agent

- → Set the **Agent** switch to **ON** to use GET-REQUEST and GETNEXT-REQUEST.
- → The **Agent Port** is by default 161, if necessary, enter another port.
- → In the **SNMP Version** field, select version SNMPv1 or SNMPv2c. SNMPv2c is recommended.
- → The **Community Name** (the SNMP "password") is public by default, if necessary, enter a different community name.

Traps

Traps can also be output independently of the SNMP agent.

- → If traps are to be transmitted from the headend, then set the **Traps** switch to **ON**.
- → Enter the **Destination Address** of the NMS receiving traps.
- → Enter **Destination Port** of NMS, by default 162 is used.

MIB object definition

The MIB object definition is stored in the device.

→ Click AXING-MIB.txt to open the definition.

If you are connected to the device in the network, then you can download the file from the device.

URL = [IP address of device] /MIB/AXING-MIB.txt

For example: 192.168.0.145/MIB/AXING-MIB.txt

Notes on support for OpManager and Paessler PRTG Network Monitor

→ When adding a device, check that the credentials ("password") has been used.

By default, the headend supports the "SNMP v1/v2 Public" profile (community name "public").

The following SNMP settings must be changed to also display the CPU load:

- → Select Axing Device → Settings
- → Scroll down to "SNMP Compatibility Options".
- → Disable "Inherit from".
- → Change the Walk Mode value to: "Use GETNEXT requests".
- → Click Save.

5.8. M3U

5.8.1. Download client configuration files

Under DOWNLOAD THE CONFIGURATION FILES you can download an M3U list for Panasonic SMART TV devices to your PC. Afterwards, you import the configuration file into your TV set.

You can also determine the IP address of the M3U list. With the help of the IP address, the SMART TV finds the programme list of the IPTV streamer and can read in the programmes via channel scan.

Notes:

- The dialog is only available if you have selected SPTS (Single Program Transport Stream) as transport stream.
- Panasonic only supports the network protocol RTP not UDP, therefore in phase 3 must be set as output mode forcing RTP (see 4.3.1 on page 28).



DOWNLOAD CLIENT CONFIGURATION FILES

M3U Playlist

→ Click M3U PLAYLIST. An M3U file is generated which contains the programs of the IPTV streamer configured for the transport stream.

SATIP Multicast.txt

→ Click SATIP_MULTICAST.TXT. A text file is generated containing the IP address of the M3U-List. With the help of the IP address, the TV set can find the program list of the IPTV streamers and can read the programs by channel search (for example "http://192.168.178.31/satip.m3u").



5.8.2. Adding further streams to the M3U list

The M3U list initially contains only streams of the MIP headend. If additional streams, e.g. from an HKI headend, are fed in, then these streams can be added under Other Services. These are then also contained in the M3U file and can be read out by the set-top boxes or Smart TVs.

OTHER SERVICES





5.9. SAP

5.9.1. Session Announcement Protocol (SAP)

The MIP supports the Session Announcement Protocol (SAP). It is defined in RFC 2974. It uses multicast to announce streams efficiently on a LAN: any computer on the network can receive announces from all others without any manual configuration. SAP conveys SDP's to describe streams parameters. This can include an RTSP control URL to use for setting up the stream, or a

SAP conveys SDP's to describe streams parameters. This can include an RTSP control URL to use for setting up the stream, or a multicast group address to subscribe to. The SDP also includes port numbers and audio/video codecs parameters, and a stream name, etc.

SAP (SESSION ANNOUNCEMENT PROTOCOL)



- → Slide the status switch to ON.
- → Configure an announcement interval in seconds.

5.10. Logs

5.10.1. Log entries



Under LOGS you can see the log entries of the headend.

- The system log is written to the flash memory, so it is still available after rebooting the headend.
- The status log is written to RAM and is empty after rebooting the headend.
- → Choose **Statuslog**.

The entries of the status log are displayed.

→ Choose **Systemlog**.

The entries of the system log are displayed.

- → Click SAVE LOG to save the respective log entries as a txt file.
- → Click on ERASE LOG to delete the respective log entries.

Tuner monitoring

Under TUNER TO MONITOR you select the tuners that are to write log entries.

5.11. Licenses

5.11.1. Licenses for Software Extensions

Software extensions can be used to extend the functions of a headend. You require a license for a software extension.

Purchase licenses

You can purchase a license by ordering the appropriate software extension from AXING. When ordering, you must provide the serial number of the headend. A license file will be generated for you to match exactly this serial number. Important: The license is bound to the serial number and is not transferable to other devices!

Load license file

Licenses can be loaded onto the headend in different ways:

By AXING support via remote maintenance software (e.g. TeamViewer):

- The headend must be connected to a PC/notebook via Ethernet.
- The notebook requires Internet access.
- You need a valid software license and the current version of the remote maintenance software.

By the user or AXING support via SMART Portal:

- The headend must be integrated into the SMART Portal and requires Internet access.
- If AXING support should upload the license file, the option Allow AXING support must be activated for the headend.

By the user in the configuration interface:

- You have ordered a software extension and received a license file by e-mail.
- You upload the license file (SN.lic) in the configuration interface of the headend under MAINTENANCE>LICENSES.

Note: The new function is only available after a restart of the headend.

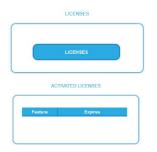
Click on LICENCES. The dialog ACTIVATED LICENSES will be opened.

The already activated licenses and their expiration date are displayed (permanent means that the license never expires).











- → Under UPLOAD A NEW LICENSE, select a LICENSE FILE.
- Click on UPLOAD. The upload will take a few seconds. The new license is listed in the ACTIVATED LICENSES dialog.



→ Reboot the device and log in again. The new function is only available after a restart of the headend.

6. Use of CA modules (MIP 08-06 and MIP 16-06)

6.1. Insertion of CA modules

Up to six CA modules can be inserted into the CI slots at the front side of the MIP 8-06 or MIP 16-06.

→ Carefully insert the CA modules to the corresponding CI slot without exerting force.



6.2. CI menu

In the CI menus, settings of CA modules can be made. The buttons for opening the CI menu will be activated after the modules have been plugged in and initialized.



→ Click one of the buttons.

The corresponding CI menu is displayed.



6.2.1. Using CI menu and rebooting the CAM

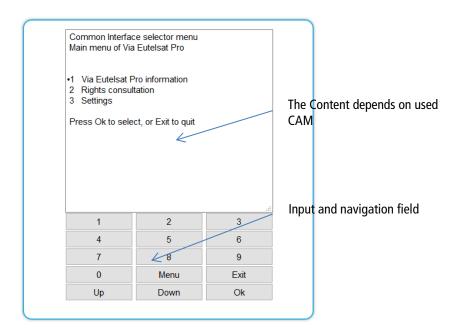
The content of the CI menu depends on the CAM manufacturer and the card being used. Depending on the manufacturer, various settings are possible. Information on validity and authorisation are the most important.

→ Please observe the operating instructions provided by the manufacturer.

According to the used CAM different settings can be done. Most important is getting information about authorisation.

The input and navigation field is used for navigation within the CI menu.

- → Use **Up** or **Down** to reach a higher or lower selection point.
- → Use **Ok** to enter a corresponding sub menu or confirm a selection.
- → Use **Menu** to come back to the next superordinate level.
- → Use Exit to leave the menu.



Bit rate

The bit rate is factory set to "Auto". The bitrates of the most common CAM are thus recognized. If necessary, the bit rate can also be set manually.

- → Select the desired bitrate in the **Bitrate** field.
- → For example, select 105 Mbps for a high-speed CAM



Reboot the CAM

The CAM can be rebooted if necessary.

→ Click CI1...6 to reboot it.

6.3. Decryption of programmes

Scrambled programs are indicated by the abbreviation CA in the column **Encryption** of the TUNER table.

By default, in the column **Decrypt** the option **no** is choosen.

If CA modules are plugged in, the corresponding programs can be decrypted.

Choose a CI slot SRF 1 HD CI 1 ALL M1 M2 M3 M4 M5 46 M7 M8 ALL SRF zwei HD M1 M2 M3 M4 M5 A4 M7 M8 ALL RTS Un HD CA M1 M2 M3 M4 M5 M5 M2 M8 TV ALL RTS Deux HD CA M3 M4 M5 (M) M8 ALL

→ Choose CI 1...CI 6 in the column Decrypt.

The programm will be transferred to the transport stream in decrypted form.



7. Technical specifications

Туре	MIP 8-00	MIP 8-06	MIP 16-00	MIP 16-06				
Inputs								
Number of tuners	8 × DVB- S/S2/S2x/T/T2/C	8 × DVB- S/S2/S2x/T/T2/C	16 × DVB- S/S2/S2x/T/T2/C	16 × DVB- S/S2/S2x/T/T2/C				
Connector	8 × F-female	8 × F-female	16 × F-female	16 × F-female				
Frequency range	9002150 MHz @ DVB-S/S2/S2X 50898 MHz @ DVB-C 50898 MHz @ DVB-/T/T2							
Input level	4384 dBμV @ DVB-S/S2/S2X 4984 dBμV @ DVB-C 3984 dBμV @DVB-/T/T2							
LNB voltage	13/17 V; 22 kHz on/off; DiSEqC 1.0							
Max. LNB current	250 mA per input 1000 mA per device							
CI slots	-	6	-	6				
Input modulation	Input modulation							
Туре	QPSK/8PSK/ 8APSK/16APSK/32APSK @ DVB-S/S2/S2X QAM16, QAM32, QAM64, QAM128, QAM256 @ DVB-C QPSK, QAM16, QAM66 @ DVB-T QPSK, QAM16, QAM64, QAM256 @ DVB-T2							
Compliance	DVB-S = EN 300 421 DVB-S2 = EN 302 307-1V1.4.1 DVB-S2X = EN 302 307-2V1.1.1 DVB-C = EN 300 429/ITU-TJ.83 Annex A/C DVB-T = EN 300 744 DVB-T2 = ETSI EN 302 755							
Supported input transport streams	MPEG-2 ISO/IEC 13818 MPEG-4 ISO/IEC 14496							
Error correction	auto							
Symbol rate	1.545 MS/s (<40MSymbol/s in 32APSK) @ DVB-S 17.2 Mbaud @ DVB-C							
IPTV output	IPTV output							
Transport streams SPTS MPTS	512 8	512 8	512 16	512 16				
Total net data rate	et data rate 800 Mbps							
Data rate per tuner	125 Mbps							
Supported transport protocols	UDP							
Supported application protocols RTP								

Interfaces						
IPTV output	1×RJ-45					
Compliance IPTV interface	IEEE 802.3, 1000 Base-T /1 GbE					
Configuration interface	1 × RJ-45					
Compliance configuration interface	IEEE 802.3, 100 Base-T					
Supported configuration protocols	HTTP, SNMP v1, SNMP, v2c, AXING SMARTPortal*					
General						
Operating voltage	100240 VAC/5060 Hz					
Power consumption	70 W					
Redundant power supply	2 × Hot pluggable					
Operating temperature range (acc. to EN 60065)	-10°C+50°C					
Dimensions (W \times H \times D) appr.		480 × 47	× 253 mm			
Weight	3.550 kg	3.750 kg	3.750 kg	3.950 kg		
Comments	* encrypted, cloud-based application for configuration, monitoring and remote maintenance					