

GOING FUTURE TODAY.



DVB-T BOX
QAM BOX
QAM BOX 12 neo
QAM BOX 16 neo
QAM BOX eco
QAM BOX eco FM
QAM BOX eco AACFM



Compact Head-ends

Operating Manual

Before starting operation of the device

HINWEIS: *Read this operating manual attentively! It contains important information about installation, ambient conditions and maintenance of the device. Keep this operating manual for future use and for handover in the event of a change of owner. A PDF version of this manual is available to download on the ASTRO website (there may be a more recent version). The ASTRO company confirms that the information in this manual was correct at the time of printing, but it reserves the right to make changes, without prior notice, to the specifications, the operation of the device and the operating manual.*

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Symbols and conventions used

Symbols used in these instructions

Pictograms are visual symbols with specific meanings. You will encounter the following pictograms in this installation and operating manual:



Warning about situations in which electrical voltage and non-observance of the instructions in this manual pose a risk of fatal injuries.



Warning about various dangers to health, the environment and material.



Warning about thermal dangers (risk of burns).



Recycling symbol: indicates components or packaging materials which can be recycled (cardboard, inserts, plastic film and bags). Used batteries must be disposed of at approved recycling points. Batteries must be completely discharged before being disposed of.



This symbol indicates components which must not be disposed of with household rubbish.

Proper use

The QAM BOX or DVB-T BOX compact headends are only used for converting a DVB-S2 input signal into 16 or 12 independent output channels, while the QAM BOX can convert the signal into 16 FM channels.

Modification of the devices or use for any other purpose is not permitted, and will immediately void any guarantee provided by the manufacturer.

Target group of this manual

Installation and starting operation

The target group for installation and starting operation of the ASTRO headend technology are qualified experts who have training enabling them to perform the work required in accordance with EN 60728-11 and EN 62368-1. Unqualified persons are not allowed to install and start operation of the device.

Device configuration

Target group for the configuration of the ASTRO headend are persons who have received instructions and have training enabling them to perform a configuration. Knowledge of EN 60728-11 and EN 62368-1 is not necessary for configuration.

Device description

Before using the device, read the operating manual carefully and store it for future reference.

The delivery is comprised of the following parts:

- QAM BOX or QAM BOX 12 neo or QAM BOX 16 neo QAM BOX 12 eco, QAM BOX 16 eco, QAM BOX eco FM or DVB-T BOX
- 4 screws (M4) with wall plugs (6 mm)
- 4 x terminating impedance FUR 75
- patch cable with RJ-45 connectors, 1 m
- Operating manual

SAT input sockets:

- [1] Vertical
- [2] Horizontal
- [3] Vertical (High/Low)
- [4] Horizontal (High/Low)

SAT output loop-through sockets:

- [5] Horizontal
- [6] Vertical
- [7] Horizontal
- [8] Vertical

[9] Test point -20 dB

[10] Output socket for RF signal

[11] Earth terminal

[12] Mains power cable

[13] Operating status lamps for the 16 QAM channels

[14] LAN connection socket (RJ45)

[15] Bus connection socket 1

[16] Bus connection socket 2

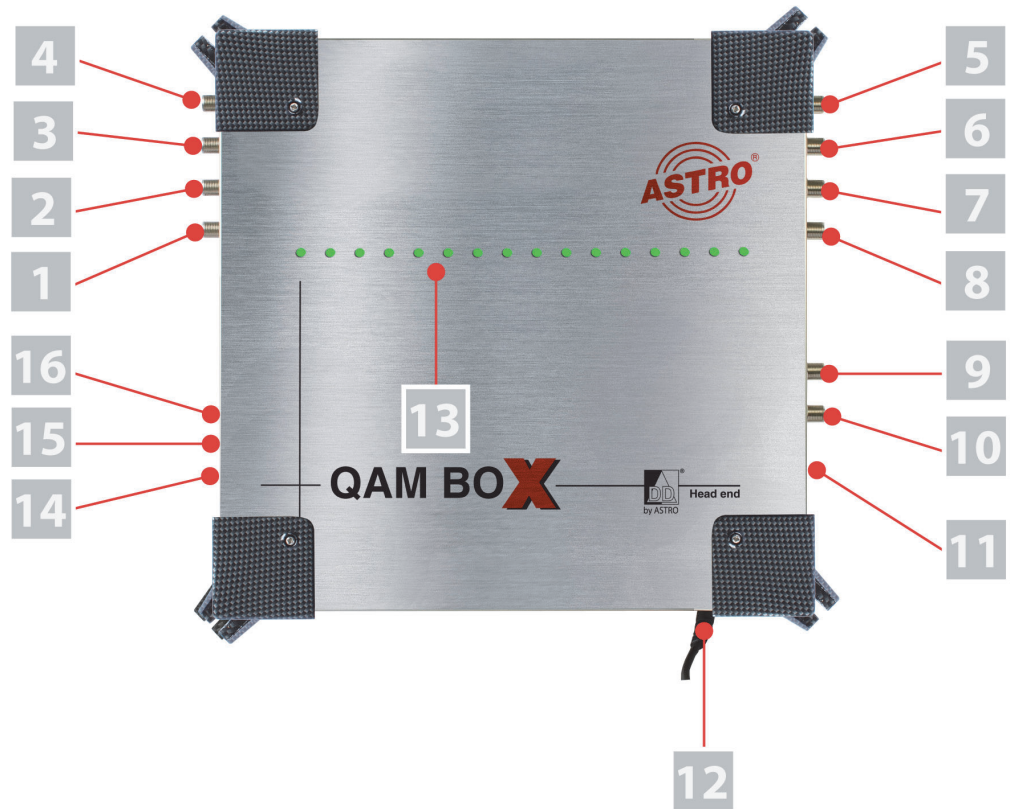


Figure 1: Terminal assignment (example: QAM BOX, similar on DVB-T BOX)

The QAM BOX device series and the DVB-T BOX feature a CE marking. This confirms that the products comply with the relevant EC directives and adhere to the requirements specified therein.



Important safety information

To avoid any hazardous situations to the extent possible, you must adhere to the following safety information:

ACHTUNG: *Failure to observe this safety information may result in personal injury due to electrical and thermal dangers!*

Proper use

- Only use the device at the approved operating sites and in the ambient conditions allowed (as described in the following), and only for the purpose described in the section "Proper use".

Before starting operation of the device

HINWEIS: *Read this operating manual attentively! It contains important information about installation, ambient conditions and maintenance of the device. Keep this operating manual for future use and for handover in the event of a change of owner or operator. A PDF version of this manual is available to download on the ASTRO website (there may be a more recent version).*

- Check the packaging and the device for transport damage immediately. Do not start operation of a device that has been damaged.
- Transporting the device by the power cable may damage the mains cable or the strain relief, and is therefore not permitted.

Installation, operation, maintenance

- The device may only be installed and operated by qualified persons (in accordance with EN 62368-1) or by persons who have been instructed by qualified persons. Maintenance work may only be carried out by qualified service personnel.
- The installation site must be planned in a way that prevents children from playing with the device and its connections.
- To avoid inadmissible operational states, only components described within this manual or components that are approved by the manufacturer can be used.
- The electrical connection conditions must correspond to the specifications on the device type plate.
- To avoid damage due to overheating, the device may only be installed on vertical surfaces. The installation basis should be level and non-flammable. Operating position: Device vertical, with power cable outlet at the bottom.
- The ambient temperatures specified in the technical data must be complied with, even when climatic conditions change (e.g. due to sunlight). If the device overheats, the insulation used to isolate the mains voltage may be damaged.
- The device and its cable may only be operated away from radiant heat and other sources of heat.
- To avoid trapped heat, ensure there is good ventilation on all sides (minimum interval of 20 cm to other objects). Installing the device in recesses or covering the installation location, e.g. with curtains, is not permitted. Ventilation openings may not be covered.
- If the device is installed in a cabinet, ensure adequate air convection is possible to avoid exceeding the maximum ambient temperature permitted for the device.
- According to EN62368-1 a mounting height of < 2 m above ground level must be aimed to avoid personal injury.
- No objects may be placed on the device.
- The subscriber network must be earthed in accordance with EN 60728-11 and must remain earthed even when the device is removed. In addition, the earth connection on the device can be used. Devices within hand's reach must also be integrated into the potential equalisation. Operating the device without an earth conductor, without earthing the device or without equipotential bonding of the device is not permitted.
- The device does not feature protection against water and may therefore only be operated and connected in dry rooms. It must not be exposed to spraying or dripping water, to condensation, or to similar sources of moisture.
- Housing components near the cooling fins at the rear, or actual the cooling fins, may become very hot. You should therefore not touch these parts.





- The electrical system supplying current to the device, e.g. a house installation, must incorporate safety devices against excessive current, earth leakages and short-circuiting in accordance with EN 62368-1.
- To operate the device (protection class I), it must be connected to mains power sockets with a protective earth conductor.
- All adhere to all applicable national safety regulations and standards.
- The mains plug is used as a mains voltage disconnect unit in the event of servicing and danger, and must therefore be accessible and be able to be operated at any time. The device is operational when connected to the mains power.
- Excess mechanical loads (e.g. falling, impacts, vibrations) may damage insulation used to provide protection from mains voltage.
- High excess currents (lightning strike, surges in the power utility grid) may damage insulation used to provide protection from mains voltage.
- Do not insert any objects through the ventilation slots.
- If there is no information about intended use (e.g. operating site, ambient conditions), or the operating manual does not include the corresponding information, then you must consult the manufacturer of this device to ensure that the device may be installed. If you do not receive any information on this from the manufacturer, do not start operating the device.

Maintenance

- The operating display only shows whether the DC current, which supplies the device components, has been disconnected. However, operating displays (on the power supply unit or the device) that are not lit up in no way indicate that the device is completely disconnected from the mains.
- Read carefully: EN 60728-11 Safety requirements: No service work during thunderstorms.

Repair

- Repairs may only be performed by the manufacturer. Improperly performed repairs may result in considerable dangers for the user.
- If malfunctions occur, the device must be disconnected from the mains and authorised experts must be consulted. The device may need to be sent to the manufacturer.

Performance description

The QAM BOX or DVB-T BOX compact headends feature the following performance characteristics:

- 4 SAT levels for selection for 16 or 12 QAM, or 12 DVB-T, output channels
- 16 x DVB-S in FM (QAM BOX only)
- HDTV-compatible (MPEG-2 and MPEG-4)
- Easy configuration using web browser interface

Warranty conditions

The general terms and conditions of ASTRO Strobel GmbH apply. You will find these in the current catalogue or on the Internet under "www.astro-kom.de".

Disposal



All of our packaging material (cardboard boxes, inserts, plastic film and bags) is completely recyclable. Electronic devices must not be disposed of with household waste, but rather – according to DIRECTIVE 2012/19/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL from 4 July 2012, on waste electrical and electronic equipment – must be properly disposed of. When it is no longer of use, please bring the device for disposal to one of the public collection points for this purpose.

ASTRO Strobel is a member of the Elektro system solution for the disposal of packaging materials. Our contract number is 80395.

Installing and connecting

Observe all instructions about installation and mains connection described in the section "Important safety information".

Start by holding the device in front of the installation location and align it using a spirit level. Then draw markings for the bore holes through the holes in the feet of the device.

Use a drill bit with a diameter of 6 mm to drill the holes. Insert the wall plugs provided with the device and use the screws to screw the device in place.

Ensure that the mains voltage, signal sources etc. are properly connected to the device using the corresponding connections. The local mains voltage must be the same as the supply voltage required to operate the device (see section "Technical data").

ACHTUNG: SAT inputs which are not used must each be connected to a terminating impedance FUR 75 DC prof (required due to the remote feed of galvanic isolation!)

Connecting the device to a set-top box on a tuner (example: QAM BOX, DVB-T BOX is similar)

HINWEIS: Your PC or laptop must be configured accordingly using the network settings in the operating system! As soon as the device has been connected to your PC or laptop using your network connection, you can start with configuration using the web browser interface.

HINWEIS: SAT outputs that are not required must be sealed using a 75 ohm terminating impedance (type: FUR 75 DC prof).

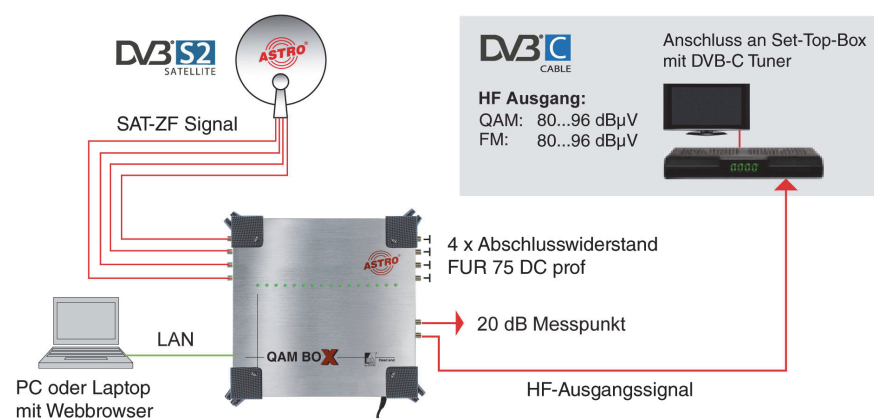


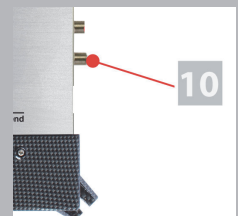
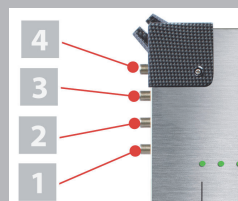
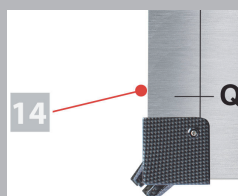
Figure 2: Connecting the QAM BOX

AUFGABE

1. In order to configure the device using the web browser interface, connect your network, or laptop/PC, to the RJ 45 socket on the device (see position [14] in the figure at the left).
2. Connect the SAT input sockets (see positions [1] - [4] at the left) to the corresponding SAT levels of the SAT-IF signal using a coaxial cable (see figure 2). When doing so, observe the labelling on the inputs on the device.
3. Connect the RF output socket (see position [10], left) on the device with a set-top box or a TV set with DVB-C tuner (QAM BOX) or DVB-T tuner (DVB-T BOX) or with several tuners or set-top boxes by interconnecting the corresponding distributors and splitters.
4. Seal the SAT output sockets (see positions [5] - [8]) with 4 terminal impedances (FUR 75 DC prof).

ERGEBNIS:

The device has now been connected, and you can start with the configuration using the web browser interface.



Connecting two cascading devices (example: QAM BOX, DVB-T BOX is similar)

You can cascade up to 4 modules. An example of a cascade circuit with 2 modules can be seen in figure 3 below:

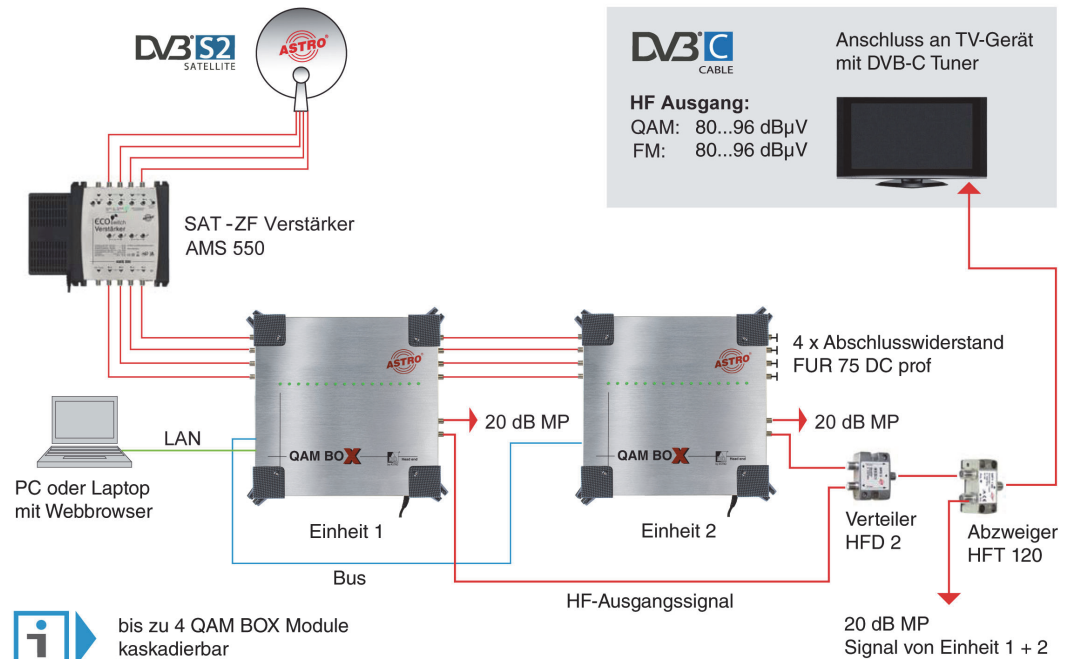


Figure 3: Connecting several cascading devices (example: QAM BOX)

AUFGABE

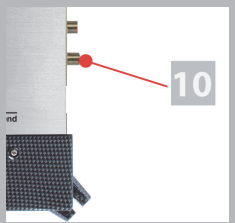
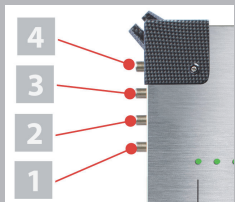
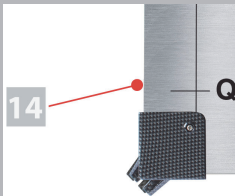
1. In order to configure the device using the web browser interface, connect your network, or laptop/PC, to the RJ 45 socket on the device (see position [14] in the figure at the left).
2. Connect the SAT input sockets (see positions [1] - [4] at the left) to the corresponding SAT levels of the SAT-IF signal using a coaxial cable (see figure 2). When doing so, observe the labelling on the inputs on the device.
3. Connect the bus connection sockets on the devices to each other.
4. Connect the RF output socket (see position [10], left) on the device with set-top boxes or a TV sets with DVB-C tuners (QAM BOX) or DVB-T tuners (DVB-T BOX) by connecting the corresponding distributors and splitters to each other.
5. Connect each of the SAT output sockets (see positions [5] - [8]) to the SAT input sockets of the subsequent module.
6. Seal the SAT output sockets of the last module (see positions [5] - [8]) using 4 terminal impedances (FUR 75 DC prof).

ERGEBNIS:

The devices have now been connected, and you can start with the configuration using the web browser interface.

HINWEIS: If cascading devices are configured using a switch, then all cascaded devices must have an IP address of their own.

IP addresses can be changed under the menu item "Network" providing you are logged on as the administrator.



First steps using the web browser interface

General information on the structure of the web browser interface

The configuration interface is divided into the following sub-areas:

- Status line (header):** shows general information about the QAM BOX.
 SW: Software status
 FW: Current version of the software installed
 HW: Hardware version
 Up: Connection time since the system was booted
 Time: Date and time
 Name, location, contact: corresponds to the settings which were made in the “User” configuration area
- Navigation menu (left column):** Displays the individual configuration areas, which you can select by clicking the mouse. A detailed description of these areas can be found on the following pages of this chapter.
- Content area (middle):** The respective configuration form – depending on the menu item selected – is displayed here.

Logging in

To log in, enter the IP address of the device (169.254.1.1) in the address line of the browser. The input mask for the log in should then appear (see figure 4, below). In delivery state, you must use the following log-in data:

- User name:** “user” or “admin” (input without inverted commas)
- Password:** astro

***HINWEIS:** If you wish to change the IP address, then the settings on the PC must be changed accordingly.*

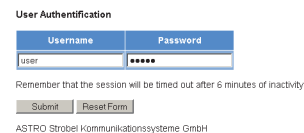


Figure 4: Log in

Once log in is successful, the menu item “log in” changes to “log out”. You will now see the start page for the QAM BOX with all the relevant system information. The navigation menu and the log-in status display will appear at the left.

The device status is indicated by a green or red circle. If a green circle is displayed, the device is operational. If the circle is red, then a fault has occurred.

Only one user can be logged into the user interface of the device at a time. The current user is displayed in the column at the left, below the menu.

***HINWEIS:** For security reasons, you should change the access data valid upon delivery (user name and password) to prevent unauthorised access!*

Logging out

Click on the item “Log out” in the menu on the left.

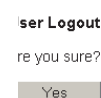


Figure 5: Logging out

Click on the “Yes” button in the content area to log out of the system as a user.

Changing user data

Click on the menu item “User settings” in the menu at the left to have the corresponding input screen displayed. The input mask shown in figure 6 now appears.

Figure 6: User administration

You can create up to four users for the user interface of the device. The following three users have been created as the default setting:

- user
- admin
- controller

The password for all three users is “astro”.

To change the access data for a user account, or to create a new one, enter the required user name in the input field `User name`. Then enter the password of your choice in the input field `New Password` and confirm it by entering the password again in the input field `Retype New Password`.

HINWEIS: A password must contain at least 5 characters.

To delete a user account, tick the corresponding checkbox `Delete` in the right-hand column of the table.

The following settings can also be entered:

- Timeout:** You can enter a time for the automatic logout, in minutes, in this input field. If no more inputs are made in the user interface, then automatic logout will occur once the time entered here has elapsed.
The time remaining until the automatic log out is shown in the left-hand column, under the menu.
- Name, location, contact:** You can save a name for the system, the location and the contact data for a person in these input fields.
- Language:** Choose English or German as the menu language here.
- Expert mode:** Activate this option to obtain additional setting options.
- Enforce password policy:** Tick this checkbox when additional rules should apply for password selection (a minimum of 8 characters, including at least one lower-case letter, one upper-case letter, one number and one special character.). If this option is not selected, the password must only be 5 characters in length.
- Disallow anonymous access:** Tick this checkbox to prevent unauthorised access.

WICHTIG: All changes will only be applied after you have clicked the “Submit” button below the input screen! Click on the “Reset form” button to delete the values which have been entered.

User Administration		
Property	Username	New Password
Admin account	admin	
User account 1	user	
User account 2	controller	
User account 3		

Timeout	6 minutes
Name	Wohnanlage 18
Location	Musterstadt
Contact	Hans Mustermann, mustermann@examp
Language	<input type="radio"/> german <input checked="" type="radio"/> english
Expert mode	<input checked="" type="radio"/> on <input type="radio"/> off

Language	<input type="radio"/> german <input checked="" type="radio"/> english
Expert mode	<input type="radio"/> on <input checked="" type="radio"/> off
Enforce password policy	<input type="checkbox"/>

Enforce password policy	<input type="checkbox"/>
Disallow anonymous access	<input type="checkbox"/>

Monitoring the device status

To display the current settings for the output channels and FM channels (QAM BOX only), click on the entry **Status** in the menu at the left. You can now see the overview shown in figure 7

QAM Channels								
Chan.	Transponder	C/N	C/N Reserve	Power	BER	Frequency	RF-En.	Status
1	ARD Digital_1 (TP071)	12.3 dB	5.4 dB	76 dBuV	0	D306 (S21) / 306.0 MHz	on	ok
2	ARD Digital2 (TP085)	11.3 dB	4.4 dB	73 dBuV	0	D314 (S22) / 314.0 MHz	on	ok
3	ARD Digital3 (TP101)	11.8 dB	4.9 dB	75 dBuV	0	D322 (S23) / 322.0 MHz	on	ok
4	ARD Digital4 (TP093)	12.5 dB	5.6 dB	76 dBuV	0	D330 (S24) / 330.0 MHz	on	ok
5	ARD Digital5 (TP111)	11.8 dB	4.3 dB	74 dBuV	0	D338 (S25) / 338.0 MHz	on	ok
6	ZDF Vision (TP077)	11.4 dB	4.5 dB	77 dBuV	0	D346 (S26) / 346.0 MHz	on	ok
7	Pro7/SAT1 (TP107)	12.8 dB	5.3 dB	73 dBuV	0	D354 (S27) / 354.0 MHz	on	ok
8	RTL Group (TP089)	12.4 dB	5.5 dB	76 dBuV	0	D690 (K48) / 690.0 MHz	on	ok
9	unassigned	-	-	-	-	D370 (S29) / 370.0 MHz	off	-
10	unassigned	-	-	-	-	D378 (S30) / 378.0 MHz	off	-
11	unassigned	-	-	-	-	D386 (S31) / 386.0 MHz	off	-
12	unassigned	-	-	-	-	D394 (S32) / 394.0 MHz	off	-
13	unassigned	-	-	-	-	D402 (S33) / 402.0 MHz	off	-
14	unassigned	-	-	-	-	D410 (S34) / 410.0 MHz	off	-
15	unassigned	-	-	-	-	D418 (S35) / 418.0 MHz	off	-
16	unassigned	-	-	-	-	D426 (S36) / 426.0 MHz	off	-

FM Channels						
FM	Transponder	Service	PIDs	Frequency/Level	Status	Dynamic RDS
1	ARD Digital5 (TP111) (Chan. 5)	Radio Horeb SID:7289	PKT:7289, Audio:1289 128 (129) kbit/s, 48 kHz, Mono	88.00 MHz 0.0 dB	ok	
2	ARD Digital5 (TP111) (Chan. 5)	Radio neue Hoffnung SID:7292	PKT:7292, Audio:1292 84 (84) kbit/s, 48 kHz, Mono	89.00 MHz -3.0 dB	ok	
3	ZDF Vision (TP077) (Chan. 6)	DKULTUR SID:26912	PKT:700, Audio:710 256 (257) kbit/s, 48 kHz, Stereo	90.00 MHz -3.0 dB	ok	RT: Kultur ist ueberall
4					-	

Figure 7: Status display

Output channel properties in the display:

- Channel: Channel number (1 - 16)
- Transponder: Transponder currently selected
- C/N: Signal-to-noise ratio
- C/N Reserve: Reserve until the tuner switches off
- Power: Input power
- BER: Bit error rate of the input signal
- Frequency: Output frequency set for the QAM channel
- RF-En: Activated or deactivated (on/off)
- Status: OK (no errors) or error message

FM channel properties in the display (applies for QAM BOX only):

- FM: Channel number (1 - 16)
- Transponder: Transponder currently selected
- Service: Station selected
- PIDs: Packet identifier of the station selected
- Frequency / level: Set output frequency and level reduction
- Status: OK (no errors) or error message
- Dynamic RDS: Current radio data service (if available)

Licensing

A number of functions of the device (e.g. the TS Analyzer) can only be used after being enabled by means of a licence key.

The licence key with the respective function can be purchased via the ASTRO customer service. Post the MAC address of your device there. You will then receive a licence key with which you can activate the functions using the web browser interface.

The format of the licence key is a text document (e.g. Lic001772000222.txt).

To activate the functions, start by clicking on the “Licensing” item in the menu at the left. The following input mask now appears:

Active Licenses for HW-ID 00:17:72:06:00:00

License	Value
QAM Channels	8, 12, 16
SID/PID-Filter	disabled, enabled

Install License(s):

Submit

Reset

Figure 8: Unlocking licenses by using a license key

Available licenses

Depending on the type, the following licenses are available:

- QAM BOX : no licenses
- QAM BOX neo : SID/PID Filter
- QAM BOX eco (except FM Type) : number of QAM channels (8, 12 or 16), SID/PID Filter
- QAM BOX eco FM: additional AAC decoding for FM radio programmes

Now enter the licence key sent to you in the input field. The key or keys can be entered in the input mask using “Copy & Paste”. Then click on the “Submit” button to transmit the text to the device. If the licence is valid, this is confirmed with the message “License is valid”. An error message is displayed for an invalid licence.

Configuring input properties

Setting SAT inputs

To configure the SAT inputs, click on the entry `SAT inputs` in the menu at the left. You can now see the input screen shown in figure 9:

Configuration

Property	Value
LNB Type	Universal (LO=9750/10600 MHz)
JESS / EN50607	Input 1

Submit Reset Form

Input Settings

Property	Satellite	Polarisation/Band	Voltage (18V)	Voltage (14V)	Frequency (22kHz)	Status (Voltage)
Input 1	Astra_19,2GO.sat		<input checked="" type="radio"/> on <input type="radio"/> off	<input type="radio"/> on <input checked="" type="radio"/> off	<input type="radio"/> on <input checked="" type="radio"/> off	ok
	open					
	open					
	open					
	open					
	open					
	open					
	open					
Input 2	open	horizontal / High	<input type="radio"/> on <input checked="" type="radio"/> off	<input type="radio"/> on <input checked="" type="radio"/> off	<input type="radio"/> on <input checked="" type="radio"/> off	ok
Input 3	open	horizontal / Low	<input type="radio"/> on <input checked="" type="radio"/> off			ok
Input 4	open	vertical / Low		<input type="radio"/> on <input checked="" type="radio"/> off		ok

Userband Frequencies (JESS / EN50607)

UB-Ch: Freq.	UB-Ch: Freq.	UB-Ch: Freq.	UB-Ch: Freq.
1: 1375 MHz	9: 1775 MHz	17: 1530 MHz	25: 1860 MHz
2: 1425 MHz	10: 1825 MHz	18: 1566 MHz	26: 1896 MHz
3: 1475 MHz	11: 1875 MHz	19: 1602 MHz	27: 1932 MHz
4: 1525 MHz	12: 1925 MHz	20: 1638 MHz	28: 1968 MHz
5: 1575 MHz	13: 1975 MHz	21: 1716 MHz	29: 2004 MHz
6: 1625 MHz	14: 2025 MHz	22: 1752 MHz	30: 2076 MHz
7: 1675 MHz	15: 2075 MHz	23: 1788 MHz	31: 2112 MHz
8: 1725 MHz	16: 2125 MHz	24: 1824 MHz	32: 2148 MHz

Figure 9: Configuring SAT inputs

Selecting the external unit

Start by selecting the preferred LNC type from the drop-down list. The following options are available:

- Quatro-Switch:** Select this value if you wish to use a power supply unit with an integrated multiswitch.
- Other:** Select this value if you wish to use a quatro universal power supply unit.

JESS Mode (only applicable for QAM BOX eco types)

In the second row of the table you can select, if input 1 respectively input 2 will be operated in JESS mode, in order to connect JESS-compatible multiswitches or LNCs to the device.

- Input 1:** Only input 1 is configured for the JESS protocol.
- Input 1 and 2:** Input 1 and input 2 are configured for the JESS protocol.

Once you have selected the preferred value, click on "Submit" to save the selection. Click on the "Reset form" button to delete the values which were entered beforehand.

Configuration

Property	Value
LNB Type	Universal (LO=9750/10600 MHz)
JESS / EN50607	Input 1

Submit Reset Form

Submit Reset Form

Entering input assignment

You can make the settings for the four SAT inputs in the “Input settings” table (see figure 10, below).

Input Settings						
Property	Satellite	Polarisation/Band	Voltage (18V)	Voltage (14V)	Frequency (22kHz)	Status (Voltage)
Input 1	Astra_19,2GO.sat	(Pos A)	<input type="radio"/> on <input type="radio"/> off	<input type="radio"/> on <input type="radio"/> off	<input type="radio"/> on <input type="radio"/> off	ok
	open	(Pos B)				
	open	(Pos C)				
	open	(Pos D)				
	open	(Pos E)				
	open	(Pos F)				
	open	(Pos G)				
	open	(Pos H)				
Input 2	open	horizontal / High	<input checked="" type="radio"/> on <input type="radio"/> off	<input type="radio"/> on <input type="radio"/> off		ok
Input 3	open	horizontal / Low	<input type="radio"/> on <input type="radio"/> off			ok
Input 4	open	vertical / Low	<input type="radio"/> on <input type="radio"/> off			ok

Figure 10: Input settings

The following setting options can be selected for each input:

- Satellite:** Selection of the satellite for reception from the drop-down list
If „JESS mode“ is selected in the table „Configuration“, it is possible to choose 8 satellites via the appropriate drop down list for each satellite.
- Polarisation:** Selection of the polarisation level from the drop-down list
- Voltage (18 V):** LNC voltage supply: for inputs 1 and 3 only; activate this setting by clicking the radio button “on”; deactivate this setting by clicking the radio button “off”.
- Voltage (14 V):** LNC voltage supply: for inputs 2 and 4 only; activate this setting by clicking the radio button “on”; deactivate this setting by clicking the radio button “off”.
- Frequency (22 kHz):** 22 kHz generator: activate this setting by clicking the radio button “on”; deactivate this setting by clicking the radio button “off”.
- Status:** Shows the operating status; when functioning properly, “OK” is displayed.

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

Inserting userband frequencies (only applicable for QAM BOX eco types)

JESS-compatible multiswitches or LNCs can be connected to SAT input 1 or SAT input 1 and 2. You can insert the user band frequencies for the connected multiswitch or LNC in the table „Userband Frequencies“ (see figure 11, below).

Userband Frequencies (JESS / EN50607)

UB-Ch: Freq.	UB-Ch: Freq.	UB-Ch: Freq.	UB-Ch: Freq.
1: 1375 MHz	9: 1775 MHz	17: 1530 MHz	25: 1860 MHz
2: 1425 MHz	10: 1825 MHz	18: 1566 MHz	26: 1896 MHz
3: 1475 MHz	11: 1875 MHz	19: 1602 MHz	27: 1932 MHz
4: 1525 MHz	12: 1925 MHz	20: 1638 MHz	28: 1968 MHz
5: 1575 MHz	13: 1975 MHz	21: 1716 MHz	29: 2004 MHz
6: 1625 MHz	14: 2025 MHz	22: 1752 MHz	30: 2076 MHz
7: 1675 MHz	15: 2075 MHz	23: 1788 MHz	31: 2112 MHz

Bild 11: userband frequencies

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

HINWEIS: If you selected “Quatro-switch” as a value in the “Configuration of the external unit” table, then only the drop-down list for the satellite for input 1 is available for selection.

Configuring output properties for the QAM BOX types

Setting QAM channels

To configure the QAM channels, click on the entry **QAM Channels** in the menu at the left. You can now see the input screen shown in figure 10:

QAM Channels

Chan.	UB-Ch	Transponder - [Freq. - Input - TS-ID - ON-ID]	G/N	Channel - Frequency	Modulation	Level	RF-Enable	Status
1	1	[089] MG RTL - [12188-2-1089-0001]	16.1 dB	D474 (K21) 474.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
2	2	[085] ARD Digital - [12110-2-1073-0001]	14.3 dB	D314 (S22) 314.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
3	3	[093] ARD Digital - [12266-2-1093-0001]	14.2 dB	D322 (S23) 322.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
4	4	[101] ARD Digital - [12422-2-1201-0001]	14.6 dB	D602 (K37) 602.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
5	5	[077] ZDF Vision - [11954-2-1079-0001]	16.1 dB	D778 (K59) 778.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
6	6	[107] Pro7Sat1 - [12545-2-1107-0001]	15.4 dB	D786 (K60) 786.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
7	7	unassigned	-	D794 (K61) 794.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
8	8	unassigned	-	D802 (K62) 802.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
9	9	unassigned	-	D810 (K63) 810.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
10	10	unassigned	-	D818 (K64) 818.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
11	11	unassigned	-	D826 (K65) 826.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
12	12	unassigned	-	D762 (K57) 762.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
13	13	unassigned	-	D402 (S33) 402.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
14	14	unassigned	-	D410 (S34) 410.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
15	15	unassigned	-	D418 (S35) 418.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
16	16	unassigned	-	D426 (S36) 426.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-

Submit Reset Form

Figure 12: Configuring QAM channels

You can enter the settings for the 12 or 16 QAM channels in the “QAM Channels” table (see figure 11, below).

Chan.	UB-Ch	Transponder - [Freq. - Input - TS-ID - ON-ID]	G/N	Channel - Frequency	Modulation	Level	RF-Enable	Status
1	1	[089] MG RTL - [12188-2-1089-0001]	16.1 dB	D474 (K21) 474.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
2	2	[085] ARD Digital - [12110-2-1073-0001]	14.3 dB	D314 (S22) 314.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
3	3	[093] ARD Digital - [12266-2-1093-0001]	14.2 dB	D322 (S23) 322.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
4	4	[101] ARD Digital - [12422-2-1201-0001]	14.6 dB	D602 (K37) 602.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
5	5	[077] ZDF Vision - [11954-2-1079-0001]	16.1 dB	D778 (K59) 778.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
6	6	[107] Pro7Sat1 - [12545-2-1107-0001]	15.4 dB	D786 (K60) 786.0 MHz	256 QAM	0.0 dB	<input checked="" type="radio"/> on <input type="radio"/> off	ok
7	7	unassigned	-	D794 (K61) 794.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
8	8	unassigned	-	D802 (K62) 802.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
9	9	unassigned	-	D810 (K63) 810.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-
10	10	unassigned	-	D818 (K64) 818.0 MHz	256 QAM	0.0 dB	<input type="radio"/> on <input checked="" type="radio"/> off	-

Figure 13: Setting output properties (excerpt)

The following setting options can be selected for each channel:

- UB-Ch (only for QAM BOX eco types): In JESS mode a userband channel must be assigned to each QAM channel. The assignment can be done via the „SAT inputs“ menu.
- Transponder: Selection of a transponder (frequency, input, TS-ID, ON-ID) from the drop-down list
- C/N: Display of the signal-noise ratio
- Channel-Frequency: Selection of a channel from the drop-down list; you can select channel settings from the channel list provided here. If a value is selected from the drop-down list, then the input screen for the output frequency remains inactive in the detailed view and the corresponding channel centre frequency is displayed. If the option “manual” is selected, then you have the option of entering a channel centre frequency.
- Modulation: Setting the modulation; the options “64 QAM” and “256 QAM” are available for selection.
- Level: The level of the output signal is equalised here. Enter the preferred signal level in dB in the input field. The input can be made in increments of 0.1 dB. The range which can be set depends on the type of modulation selected (QAM 64 up to +3 dB, QAM 256 up to +3 dB). If an inadmissably high value is set, an error message appears. As soon as the error message is confirmed by clicking the “OK” button, the maximum value will be entered. This will only be saved once the “Submit” button under the table has been clicked.
- RF ENABLE: Activate this output by clicking the radio button “on”; deactivate this setting by clicking the radio button “off”.
- Status: Shows the operating status; when functioning properly, “OK” is displayed.

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

You can have a detailed view of the settings for a QAM channel displayed by clicking on the channel number in the first column of the “QAM channels” table. You will then see the following overview:

Figure 14: QAM channels - Detailed view

SAT Input Selection									
Property	Value								
input	1 - Astro_19.2GO.sat - horizontal / High								
Transponder	APD Digital_1 (TP071)								
Manual Settings	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Symbol Rate</th> <th>TS-ID</th> <th>ON-ID</th> </tr> </thead> <tbody> <tr> <td>11836 MHz</td> <td>27500 kBaud</td> <td>1101 dec.</td> <td>1 dec.</td> </tr> </tbody> </table>	Frequency	Symbol Rate	TS-ID	ON-ID	11836 MHz	27500 kBaud	1101 dec.	1 dec.
Frequency	Symbol Rate	TS-ID	ON-ID						
11836 MHz	27500 kBaud	1101 dec.	1 dec.						
Status	ok								

SAT input properties

The “SAT Input Selection” table allows you to set the following properties manually, provided a manual selection was made beforehand:

- Frequency: Enter the frequency in MHz in the input field.
- Symbol rate: You can modify the input symbol rate here by entering the required value (in kBaud) in the input field.
- TS-ID: Enter the required transport stream ID (decimal) in the input field.
- ON-ID: Enter the required ON-ID (decimal) in the input field.

Save the changes by clicking on the “Submit” button. Delete any settings entered previously by clicking on the “Reset Form” button.

Submit

Reset Form

Submit

Reset Form

Output Settings	
Property	Value
Modulation	64 QAM
Symbol Rate	6.900 MBaud
	<input type="checkbox"/> Apply settings to all channels
Status	ok

Submit
Reset Form

Output properties

You can enter the following properties manually in the “Output Settings” table:

- Modulation:** Select the required modulation from the drop-down list; the options available are “64 QAM”, “256 QAM” (see the “QAM channels” table further above).
- Symbol rate:** You can modify the output symbol rate here by entering the required value (in kBaud) in the input field.
- Apply settings to all channels:** Tick the checkbox if you wish to apply the values entered to all the QAM channels.

Save the changes by clicking on the “Submit” button. Delete any settings entered previously by clicking on the “Reset Form” button.

Transport stream processing (for QAM BOX neo and eco versions only applicable after license upgrade)

Transport Stream Processing

Property	Value
S-ID/ON-ID Replacement	<input type="radio"/> on <input checked="" type="radio"/> off TS-ID 1 ON-ID 1
SID/PID-Filter	<input type="radio"/> on <input checked="" type="radio"/> off <input type="radio"/> Drop-Filter <input checked="" type="radio"/> Pass-Filter Pass-SID Please select SID Add
	<input type="checkbox"/> 12090 (n-TV, CBC) <input type="checkbox"/> Only Video/Audio <input type="checkbox"/> time controlled: 0:00 to 0:00
	SID-List Remove selected SIDs Remove all SIDs
	Pass-PID Please select PID Add

Figure 15: Transport stream processing

You can enter the following properties manually in the “Transport Stream Processing” table:

- TS-ID/ON-ID Replacement on/off:** Click on the corresponding radio button when you wish to change the IDs. Enter the preferred IDs in the input field.
- SID/PID Filter on/off:** Click on the corresponding radio button to activate or deactivate the filter function.
- Drop-filter/Pass-filter:** When using the filter function, click the corresponding radio button here to make a setting to determine whether selected IDs are removed from the list, or only the IDs selected should be used. Then select the preferred SIDs or PIDs from the drop-down list, or enter the ID in the input field and then click on the “Add” button. Clicking the “Remove selected SIDs” or “Remove all SIDs” allows previously selected IDs to be removed from the list. If you only wish to gate out e.g. unwanted station content (e.g. “night programme”) for a certain period of the day only, then you can tick the “time controlled” checkbox here and enter the preferred start and end time in the corresponding input fields.
- Video/Audio:** When this checkbox is activated, elementary streams without video or audio content are dropped, e. g. video text.
- time controlled:** If you only wish to gate out e.g. unwanted station content (e.g. “night programme”) for a certain period of the day only, then you can tick the “time controlled” checkbox here and enter the preferred start and end time in the corresponding input fields.

Save the changes by clicking on the “Submit” button. Delete any settings entered previously by clicking on the “Reset Form” button.

HINWEIS: You will see a list of the currently filtered IDs in the “SID Filter Status” table that follows.

Submit
Reset Form

Setting FM channels (only applicable for QAM BOX and QAM BOX eco FM versions)

To configure the FM channels, click on the entry **FM Channels** in the menu at the left. You can now see the input screen shown in figure 13:

Ch.	Decoder	Radio-Service	Frequency	Level	RF-Enable	Status
1	AAC	hr1 (SID:10465 - AAC-Radio)	88.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
2	AAC	hr2 (SID:10466 - AAC-Radio)	89.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
3	AAC	YOU FM (SID:10469 - AAC-Radio)	90.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
4	AAC	hr-INFO (SID:10470 - AAC-Radio)	91.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
5	AAC	MDR KULTUR (SID:10477 - AAC-Radio)	92.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
6	AAC	MDR JUMP (SID:10478 - AAC-Radio)	93.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
7	AAC	radioeins (SID:10488 - AAC-Radio)	94.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
8	AAC	Inforadio (SID:10484 - AAC-Radio)	95.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
9	AAC/MPEG	Radio Horeb (SID:7289 - MPEG-Radio)	96.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
10	AAC/MPEG	RTL RADIO (SID:7931 - MPEG-Radio)	97.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
11	AAC/MPEG	rbbKultur (SID:10485 - AAC-Radio)	98.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
12	AAC/MPEG	Manual SID (SID:0)	99.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	-
13	AAC/MPEG	Manual SID (SID:0)	100.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	-
14	AAC/MPEG	Manual SID (SID:0)	101.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	-
15	AAC/MPEG	Manual SID (SID:0)	102.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	-
16	AAC/MPEG	Manual SID (SID:0)	103.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	-

Figure 16: Setting FM channels

You can make the settings for the 16 radio stations in the “FM Channels” table (see figure 17, below).

FM Channels

Ch.	Decoder	Radio-Service	Frequency	Level	RF-Enable	Status
1	AAC	hr1 (SID:10465 - AAC-Radio)	88.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
2	AAC	hr2 (SID:10466 - AAC-Radio)	89.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
3	AAC	YOU FM (SID:10469 - AAC-Radio)	90.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
4	AAC	hr-INFO (SID:10470 - AAC-Radio)	91.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
5	AAC	MDR KULTUR (SID:10477 - AAC-Radio)	92.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok
6	AAC	MDR JUMP (SID:10478 - AAC-Radio)	93.00 MHz	-3.0 dB	<input type="radio"/> on <input type="radio"/> off	ok

Figure 17: Setting FM channels (excerpt)

The following setting options can be selected for each channel:

- Radio-Service:** Select a radio service from the drop-down list.
The QAM BOX eco AACFM version, as well as the QAM BOX eco FM version with activated AAC license, allow additionally selection of AAC coded services. The decoder of each service is displayed in the second column of the table.
- Frequency:** Enter the frequency in MHz in the input field.
- Level:** Enter the preferred signal level in dB in the input field.
- RF ENABLE:** Activate this output by clicking the radio button “on”; deactivate this setting by clicking the radio button “off”.
- Status:** Shows the operating status; when functioning properly, “OK” is displayed.

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

You can have a detailed view of the settings for an FM channel displayed by clicking on the channel number in the first column of the “FM Channels” table. You will then see the following overview:

Service Settings

DKULTUR (digital radio sound)	
Transport Stream	SID
RX2 TSID:1079 ONID:1 Alias:ZDF Vision (TP077)	28012
ES	PIDs
Audio	0
RDS	0

Note: Use SID = 0 for manual PID selection.

Modulation

Audio	
Deviation	0.0 dB

Radio Data System (RDS)		
<input checked="" type="radio"/> on <input type="radio"/> off		<input type="button" value="Refresh"/>
Property	Value	Info
Programme Service Name (PS)	<input checked="" type="radio"/> dynamic <input type="radio"/> static	DKULTUR
Programme Identification (PI)	<input checked="" type="radio"/> dynamic <input type="radio"/> static	0x0000
Programme Type (PTY)	<input checked="" type="radio"/> dynamic <input type="radio"/> static	2 Current Affairs
Music Speech Switch (MS)	<input checked="" type="radio"/> dynamic <input type="radio"/> static	Music
Radiotext (RT)	<input checked="" type="radio"/> dynamic <input type="radio"/> static	Studio 9: 8 - 9 Uhr

Figure 18: FM channels - Detailed view

Service settings

In the “Service Settings” overview, you can enter detailed settings for a radio station. The following, specific options are available:

- Transport Stream:** Select the required transport stream here.
- SID:** Enter the required SID in the input field.
- Audio:** Enter the required PID in the input field (the service ID must be set to 0).
- RDS:** Enter the required PID in the input field.

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

Modulation

Radio Data System (RDS)		
<input type="radio"/> on <input checked="" type="radio"/> off		<input type="button" value="Refresh"/>
Property	Value	Info
Programme Service Name (PS)	<input type="radio"/> dynamic <input checked="" type="radio"/> static	MDR JUMP
Programme Identification (PI)	<input type="radio"/> dynamic <input checked="" type="radio"/> static	0x0000
Programme Type (PTY)	<input type="radio"/> dynamic <input checked="" type="radio"/> static	0 None
Music Speech Switch (MS)	<input type="radio"/> dynamic <input checked="" type="radio"/> static	Music
Radiotext (RT)	<input type="radio"/> dynamic <input checked="" type="radio"/> static	MDR JUMP - DAS IST ECHTE ABWECHSLUNG
Traffic Programme Identification (TP)	<input type="radio"/> on <input checked="" type="radio"/> off	
Clock Time and Date (CT)	<input type="radio"/> on <input checked="" type="radio"/> off	
Property	Static Value	
Programme Service Name (PS)	MDR JUMP <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	PS change time 3 <input type="text"/> s
Programme Identification (PI)	0x <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
Programme Type (PTY)	0 None <input type="button" value="v"/>	
Music Speech Switch (MS)	<input type="radio"/> Music <input checked="" type="radio"/> Speech	
Radiotext (RT)	<input type="text"/>	

Figure 19: Modulation settings

In the “Modulation” overview, you can set the following modulation properties:

- Audio:** Enter the preferred audio hub (dB) in the input field.
- Radio Data System (RDS):** Activate RDS by clicking the radio button “on”; deactivate the output by clicking the radio button “off”.
- Programme Service Name (PS):** Activate dynamic generation of the channel name when the PS information is provided in the transport stream. To do so, click on the radio button “dynamic”. Activate static generation if no PS is provided in the transport stream. To do so, click on the radio button “static”.
Then enter the information to be displayed in alternation (up to 8 characters) further down in the individual input fields. In the input field “PS change time”, you can enter a time value in seconds, after which the respective display of information will change.
If PS data is provided in the transport stream, then the transport stream data will be processed with priority.
- Programme Identification (PI):** If the PI is transmitted by the station, then this will also be transmitted on the output side if the radio button “dynamic” is activated here.
If you activate the radio button “static” and enter a station ID in the field further down, then this setting will be transmitted until a PI is provided by the station.
- Programme Type (PTY):** Set the transmission of the channel type ID here.
Activate dynamic generation of the channel type ID when the information is provided in the transport stream. To do so, click on the radio button “dynamic”.
Activate static generation if no channel type ID is provided in the transport stream. To do so, click on the radio button “static” and enter a station ID in the input field further down.
If data for the station type ID is provided in the transport stream and the radio button “dynamic” has been activated at the same time, then the transport stream data will be processed with priority in this case as well.

- Music Speech Switch (MS)** : If available on the station side, an ID can be transmitted which provides information about whether speech or music is being broadcast. Some terminal devices can adapt the volume control automatically using this ID.
Activate dynamic generation of the music ID when the information is provided in the transport stream. To do so, click on the radio button “dynamic”.
Activate static generation if no music ID is provided in the transport stream. To do this, click either the radio button “Speech” or “Music” further down.
If data for music identification is provided in the transport stream, then the transport stream data will be processed with priority.
- Radio text** : If provided by the station, then radio text can be transmitted.
Activate dynamic generation of the radio text when the information is provided in the transport stream. To do so, click on the radio button “dynamic”.
Activate static generation if no radio text is provided in the transport stream. To do so, click on the radio button “static”. Enter the preferred radio text in the input field further down. As soon as radio text data is transmitted by the transport stream, it will be given priority in the display.
- Traffic Programme Identification (TP)** : Activate transmission of the traffic programme ID by activating the checkbox “on”.
- Clock Time and Date (CT)** : Activate the radio button “on” to allow the current time to be displayed in the reception device. Activate the radio button “off” if the current time should not be displayed in the reception device.

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

Configuring output properties for the DVB-T box

Setting COFDM channels

To configure the COFDM channels, click on the entry **COFDM Channels** in the menu at the left. You can now see the input screen shown in figure 20:

COFDM Channels

Chan.	Transponder - [Freq. - Input - TS-ID - ON-ID]	C/N	Channel - Frequency	Modulation	Level	RF-Enable	Status
1	ARD Digital4 (TP093) - [12266-1-1093-0001]	15.6 dB	D114 114.0 MHz	64 QAM	2.0 dB	on off	ok
2	Pro7/SAT1 (TP107) - [12545-1-1107-0001]	17.2 dB	D122 122.0 MHz	64 QAM	2.0 dB	on off	ok
3	ARD Digital1 (TP071) - [11836-1-1101-0001]	16.7 dB	D130 130.0 MHz	64 QAM	-0.5 dB	on off	ok
4	ARD Digital2 (TP085) - [12110-1-1073-0001]	14.4 dB	D138 138.0 MHz	64 QAM	-0.5 dB	on off	ok
5	ARD Digital6 (TP051) - [10744-3-1051-0001]	11.7 dB	D146 146.0 MHz	64 QAM	-0.5 dB	on off	ok
6	ARD HD1 (TP019) - [11494-3-1019-0001]	12.8 dB	D154 154.0 MHz	64 QAM	-0.5 dB	on off	ok
7	ARD HD4 (TP039) - [11053-3-1039-0001]	15.7 dB	D162 162.0 MHz	64 QAM	-0.5 dB	on off	ok
8	ARD HD2 (TP025) - [11582-3-1025-0001]	17.3 dB	D170 170.0 MHz	64 QAM	-0.5 dB	on off	ok
9	ARD HD3 (TP061) - [10891-3-1061-0001]	12.0 dB	D178 178.0 MHz	64 QAM	-0.5 dB	on off	ok
10	ARD Digital3 (TP101) - [12422-1-1201-0001]	15.7 dB	D186 186.0 MHz	64 QAM	-0.5 dB	on off	ok
11	ZDF Vision (TP077) - [11954-1-1079-0001]	16.0 dB	D194 194.0 MHz	64 QAM	-0.5 dB	on off	ok
12	SES-ASTRA (TP091) - [12226-1-1091-0001]	15.8 dB	D202 202.0 MHz	64 QAM	-0.5 dB	on off	ok

Figure 20: Configuring COFDM channels

You can make the settings for the 12 COFDM channels in the “COFDM Channels” table.

The following setting options can be selected for each channel:

- Transponder**: Selection of a transponder (frequency, input, TS-ID, ON-ID) from the drop-down list
- C/N**: Display of the signal-noise ratio
- Channel-Frequency**: Selection of a channel from the drop-down list; you can select channel settings from the channel list provided here. If a value is selected from the drop-down list, then the input screen for the output frequency remains inactive in the detailed view and the corresponding channel centre frequency is displayed. If the option “manual” is selected, then you have the option of entering a channel centre frequency.
- Modulation**: Setting the modulation; the options “QPSK”, “16 QAM” and “64 QAM” are available for selection.
- Level**: The level of the output signal is equalised here. Enter the preferred signal level in dB in the input field. The input can be made in increments of 0.1 dB. If an inadmissably high value is set, an error message appears. As soon as the error message is confirmed by clicking the “OK” button, the maximum value will be entered. This will only be saved once the “Submit” button under the table has been clicked.
- RF ENABLE**: Activate this output by clicking the radio button “on”; deactivate this setting by clicking the radio button “off”.
- Status**: Shows the operating status; when functioning properly, “OK” is displayed.

Submit Reset Form

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

You can have a detailed view of the settings for a COFDM channel displayed by clicking on the channel number in the first column of the “COFDM channels” table. You will then see the following overview:

SAT Input Selection

Property	Value	Status								
Input	1 - Astra_19,2GO.sat - horizontal / High	ok								
Transponder	ARD Digital4 (TP093)									
Manual Settings	<table border="1"> <tr> <th>Frequency</th> <th>Symbol Rate</th> <th>TS-ID</th> <th>ON-ID</th> </tr> <tr> <td>12266 MHz</td> <td>27500 kBaud</td> <td>1093 dec.</td> <td>1 dec.</td> </tr> </table>		Frequency	Symbol Rate	TS-ID	ON-ID	12266 MHz	27500 kBaud	1093 dec.	1 dec.
Frequency	Symbol Rate		TS-ID	ON-ID						
12266 MHz	27500 kBaud	1093 dec.	1 dec.							
<input type="button" value="Submit"/> <input type="button" value="Reset Form"/>										

Output Settings

Property	Value	Status - D114
Modulation	64 QAM	warning Stuffing Rate: 0.638 Mbit/s <input type="button" value="Refresh"/>
Bandwidth	8 MHz	
Guard Interval / FEC	1/32 / 7/8	
<input type="checkbox"/> Apply settings to all channels		
<input type="button" value="Submit"/> <input type="button" value="Reset Form"/>		

Transport Stream Processing

Property	Value
TS-ID/ON-ID Replacement	<input type="radio"/> on <input checked="" type="radio"/> off TS-ID 1 ON-ID 1
SID/PID-Filter	<input type="radio"/> Drop-Filter <input checked="" type="radio"/> Pass-Filter Drop-SID Please select SID <input type="text"/> <input type="button" value="Add"/>
	<input checked="" type="checkbox"/> SID:28487 (ARD-alpha, ARD) <input type="checkbox"/> time controlled: 0:00 to 0:00 <input type="button" value="Remove selected SIDs"/> <input type="button" value="Remove all SIDs"/>
	Drop-PID Please select PID <input type="text"/> <input type="button" value="Add"/>
	PID-List
<input type="button" value="Submit"/> <input type="button" value="Reset Form"/>	

SID-Filter Status		
Bayern 1, ARD BR	28400	passed
Bayern 2, ARD BR	28401	passed
BAYERN 3, ARD BR	28402	passed
BR-KLASSIK, ARD BR	28403	passed

Figure 21: COFDM channels - Detailed view

SAT input properties

The “SAT Input Selection” table allows you to set the following properties manually, provided a manual selection was made beforehand:

- Frequency: Enter the frequency in MHz in the input field.
- Symbol rate: You can modify the input symbol rate here by entering the required value (in kBaud) in the input field.
- TS-ID: Enter the required transport stream ID (decimal) in the input field.
- ON-ID: Enter the required ON-ID (decimal) in the input field.

Save the changes by clicking on the “Submit” button. Delete any settings entered previously by clicking on the “Reset Form” button.

Output properties

You can enter the following properties manually in the “Output Settings” table:

- Modulation: Select the required modulation from the drop-down list; the options available are “QPSK”, “16 QAM”, “64 QAM” (see the “COFDM channels” table further above).
- Symbol rate: You can modify the output symbol rate here by entering the required value (in kBaud) in the input field.
- Apply settings to all channels: Tick the checkbox if you wish to apply the values entered to all the COFDM channels.

Save the changes by clicking on the “Submit” button. Delete any settings entered previously by clicking on the “Reset Form” button.

Submit Reset Form

Submit Reset Form

Transport stream processing

Transport Stream Processing

Property	Value	
TS-ID/ON-ID Replacement	<input type="radio"/> on <input type="radio"/> off	TS-ID <input type="text" value="1"/> ON-ID <input type="text" value="1"/>
SID/PID-Filter	<input type="radio"/> on <input type="radio"/> off	Drop-SID <input type="text" value="Please select"/> SID <input type="text" value=""/> <input type="button" value="Add"/>
	<input type="radio"/> Drop-Filter <input type="radio"/> Pass-Filter	<input type="checkbox"/> SID:28487 (ARD-alpha, ARD) <input type="checkbox"/> time controlled: <input type="text" value="0:00"/> to <input type="text" value="0:00"/> <input type="button" value="Remove selected SIDs"/> <input type="button" value="Remove all SIDs"/>
	SID-List	Drop-PID <input type="text" value="Please select"/> PID <input type="text" value=""/> <input type="button" value="Add"/>
	PID-List	

Figure 22: Transport stream processing

You can enter the following properties manually in the “Transport Stream Processing” table:

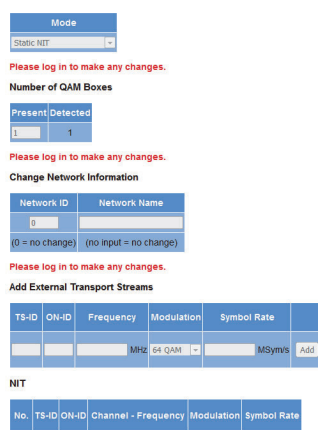
- TS-ID/ON-ID Replacement on/off: Click on the corresponding radio button if you wish to change the IDs. Enter the preferred IDs in the input fields.
- SID/PID Filter on/off: Click on the corresponding radio button to activate or deactivate the filter function.
- Drop-filter/Pass-filter: When using the filter function, click the corresponding radio button here to make a setting to determine whether selected IDs are removed from the list, or only the IDs selected should be used. Then select the preferred SIDs or PIDs from the drop-down list, or enter the ID in the input field and then click on the “Add” button. Clicking the “Remove selected SIDs” or “Remove all SIDs” allows previously selected IDs to be removed from the list. If you only wish to gate out e.g. unwanted station content (e.g. “night programme”) for a certain period of the day only, then you can tick the “time controlled” checkbox here and enter the preferred start and end time in the corresponding input fields.

Save the changes by clicking on the “Submit” button. Delete any settings entered previously by clicking on the “Reset Form” button.

HINWEIS: You will see a list of the currently filtered IDs in the “SID Filter Status” table that follows.

NIT Processing

To display the input screen “NIT Processing”, click on the entry “NIT Processing” in the menu at the left. You will now see the following table:



The screenshot shows the NIT Processing interface with the following elements:

- Mode:** A dropdown menu set to "Static NIT".
- Number of QAM Boxes:** A field with the value "1".
- Change Network Information:** Fields for "Network ID" (value "0") and "Network Name".
- Add External Transport Streams:** A table with columns: TS-ID, ON-ID, Frequency, Modulation, Symbol Rate, and an Add button. The Modulation dropdown is set to "64 QAM".
- NIT Table:** A table with columns: No., TS-ID, ON-ID, Channel - Frequency, Modulation, Symbol Rate, and a Remove button.

Figure 23: NIT Processing

The interface for NIT processing is divided into the following sub-areas:

Selecting the mode

Select the entry “Static NIT” from the drop-down list if you wish to generate a static NIT.

Entering the number of devices

Enter the number of QAM BOX devices used in the input field.

Changing network information

Enter the network ID and the network name in the respective input field here.

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

Adding external transport streams

Should you wish to integrate other devices made by other manufacturers in your system in addition to the QAM BOX or DVB-T BOX, then you can add the transport stream for these devices manually. The following options are provided here:

- TS-ID:** Enter the transport stream ID of the device in the input field.
- ON-ID:** Enter the ON-ID in the input field.
- Frequency:** Enter the frequency in MHz in the input field.
- Modulation:** Select the required modulation from the drop-down list; the options available are “64 QAM”, “256 QAM”.
- Symbol rate:** Enter the symbol rate in MS/s in the input field.

Click on the “Add” button once you have made all the settings. The transport stream will then be added to the NIT (see table “NIT”).

NIT

The NIT is automatically generated using the transponders which have been set. If several QAM BOX modules are being cascaded using the bus connection, then the NIT will be displayed for all cascaded modules. In the “Info” column, “local” will no longer be displayed, but rather the IP address for the respective module.

If external transport streams are added to the NIT, then a checkbox will be displayed in the “Remove (external TS)” column for these streams. Tick this box if you wish to remove an external transport stream from the NIT.

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

Submit

Reset Form

Sorting programmes - the LCN table

If receivers with LCN support are being used in your system, you can define the station sequence with the help of the input screen "LCN table". To do so, start by clicking on the entry "LCN" in the menu at the left. You will see the following table:

Service selection for creation of LCN Table

LCN	Service name
4	No service selected
5	No service selected
6	No service selected
7	No service selected
8	No service selected

Add LCN for an external program

LCN	Service name	Serv-ID	TS-ID	ON-ID	
					Add

LCN Table

LCN	Service name	Type	Serv-ID	TS-ID	ON-ID	Visible	Re

Submit Reset Form

Figure 24: LCN table

Service selection for creation of the LCN table

In the left column, enter the LCN digit which you wish to add to the LCN table. Select the preferred service from the drop-down list in the right column.

Once you have selected all services that you wish to add to the LCN table, click on the "Add selected services to LCN Table" button.

HINWEIS: When there are cascading modules which are already connected by bus, the service information for all devices will be displayed and can be selected.

Adding LCN for external service

You can also add external services to the list. To do so, enter the preferred LCN digit to the left of the table. You will then need to enter the service name, the service ID, the transport stream ID and the ON ID respectively in the input field provided for this. Then click on the "Add" button.

LCN table

Use the arrow buttons in the "Sort" column to move individual services further up or down in the list.

Once you have selected the preferred value, click on "Submit" to save the selection. Click on the "Reset form" button to delete the values which were entered beforehand.

Network settings

To have the network settings displayed, click on “Network” in the menu at the left. You will then see the following overview:

Figure 25: Network settings

You can check or configure the following properties individually:

IP Interface settings

- MAC: Shows the MAC address.
- Mode: Displays the available bandwidth (100 Mbit/s).
- Address: Shows the IP address (can only be edited when logged in as Admin).
- Subnet: Shows the subnet mask (can only be edited when logged in as Admin).
- Broadcast: Broadcast address of the subnet. This may not be used as the IP address of the device.
- Gateway: Interface to the Internet (e.g. IP address of the router).
- DNS: Name server; input required when e.g. updates are to be deployed using the FTP server (“ftp.astro-firmware.de”).

HINWEIS: *Input fields shown in grey can only be edited when you are logged in as Administrator.*

Time setting

Select a station as a time source from the drop-down list.

Once you have selected the preferred value, click on “Submit” to save the selection. Click on the “Reset form” button to delete the values which were entered beforehand.

IP Interface Settings	
Property	Management
MAC	00:17:72:06:00:fa
Mode	100 Mbit/s, full duplex
Address	192 168 1 194
Subnet	255 255 255 0
Broadcast	192.168.1.255
Gateway	192 168 1 100
DNS	192 168 1 100

Checking individual processes - the system log

To have the system log displayed, click on “System Log” in the menu at the left. You will then see the following overview:

Figure 26: System log

You can check or configure the following properties individually:

Property	Value 1	Value 2	Value 3	Value 4
Log file filter	<input type="checkbox"/> Emergency	<input type="checkbox"/> Alert	<input type="checkbox"/> Critical	<input type="checkbox"/> Error
System server	192.168.1.41	0.0.0.0	0.0.0.0	0.0.0.0
System filter	<input type="checkbox"/> Emergency	<input type="checkbox"/> Alert	<input type="checkbox"/> Critical	<input type="checkbox"/> Error
	<input type="checkbox"/> Warning	<input type="checkbox"/> Notice	<input type="checkbox"/> Info	<input type="checkbox"/> Debug

System log settings

You can activate or deactivate filters for displaying the log entries here. To have messages from a corresponding category displayed, tick the checkbox allocated to the category.

System log

System Log

Check box to clear log on refresh

Check box to show full log (this might cause this page to load slowly)

System log in CSV format: [log.csv](#)

time	uptime	user	source	severity	message
24 Sep 2015 08:59:15	1d 21h 16m 24s	admin	0.0.0.0	info	Login (local)
24 Sep 2015 08:59:06	1d 21h 16m 15s	system	0.0.0.0	info	Login timeout
24 Sep 2015 08:48:56	1d 21h 06m 05s	admin	0.0.0.0	info	Login (local)
24 Sep 2015 08:22:01	1d 20h 39m 10s	system	0.0.0.0	debug	alive - free: 55925324 45 55 55
24 Sep 2015 07:21:01	1d 19h 38m 10s	system	0.0.0.0	debug	alive - free: 55925196 45 55 55
24 Sep 2015 06:21:00	1d 18h 38m 09s	system	0.0.0.0	debug	alive - free: 55925212 45 55 55

Figure 27: Logfiles

Click on the “Refresh” button to update the system log display. The entries in the system log are sorted chronologically according to the time at which the event occurred.

If you no longer wish to have the existing entries displayed following a refresh, then tick the checkbox “Clear log on refresh”. Once the checkbox has been activated, then after a refresh, the process of deleting the old log entries is listed as the first entry (specified the user account and the current time upon deletion).

If you selected the service log entry in the main menu at the left, only the first 100 rows will be shown at first. If you wish to see all entries, click on the “Show full log” checkbox.

If you wish to save the service log locally, right-click the mouse and select “Save page”.

You can also download the following logfiles:

System log (in CSV format)

Expert mode

If you activated the radio button “Expert mode” under the menu item “User Administration”, then you can access additional information and change settings.

Displaying statistics

When expert mode has been activated, you will also see the entry “Statistics” in the navigation menu at the left. When you click the menu item, the following overview will appear:

Data transmission by the SAT input channels

SAT Channels

Tuner	Status	Frequency (Hz)	Symbol Rate (Baud)	Mode	Modulation	Roll Off	BER	C/N	Power
1	locked	1236272	27490604	DVB-S1 Rate = 3/4	QPSK	0.35	0	12.3 dB	0 dBuV
2	locked	1510813	27490275	DVB-S1 Rate = 3/4	QPSK	0.35	0	11.4 dB	0 dBuV
3	locked	1821045	27490709	DVB-S1 Rate = 3/4	QPSK	0.35	0	11.8 dB	0 dBuV
4	locked	1666866	27490811	DVB-S1 Rate = 3/4	QPSK	0.35	0	12.5 dB	0 dBuV
5	locked	2003260	21992568	DVB-S1 Rate = 5/6	QPSK	0.35	0	11.9 dB	0 dBuV
6	locked	1354739	27491010	DVB-S1 Rate = 3/4	QPSK	0.35	0	11.5 dB	0 dBuV
7	locked	1944280	21992650	DVB-S1 Rate = 5/6	QPSK	0.35	0	12.8 dB	0 dBuV
8	locked	1588809	27491010	DVB-S1 Rate = 3/4	QPSK	0.35	0	12.4 dB	0 dBuV
9	not locked								
10	not locked								
11	not locked								

Figure 28: SAT input channel statistics

For each tuner, the following values for the data transmission properties are displayed for analysis purposes:

- Status: Locked or unlocked
- Symbol rate: Symbol rate of the SAT transponder
- Mode: DVB-S or DVB-S2
- Modulation: QPSK or 8PSK
- Roll Off: Filter characteristics of the DVB-S-(2) transponder
- BER: Bit error rate of the data stream received
- C/N: Signal to noise ratio of the input signal
- Power: Power of the input signal at the front end

Data transmission by the QAM or COFDM channels

QAM Channels

Chan.	TS Rate	Total Packets IN	Stuffing IN	Total Packets OUT	Stuffing OUT
1	38.153 Mbit/s	38.015 Mbit/s	3.104 Mbit/s	38.153 Mbit/s	3.243 Mbit/s
2	38.153 Mbit/s	38.015 Mbit/s	0.021 Mbit/s	38.153 Mbit/s	0.159 Mbit/s
3	38.153 Mbit/s	38.015 Mbit/s	8.089 Mbit/s	38.153 Mbit/s	8.227 Mbit/s
4	38.153 Mbit/s	38.015 Mbit/s	0.033 Mbit/s	38.153 Mbit/s	0.171 Mbit/s
5	38.153 Mbit/s	33.792 Mbit/s	8.326 Mbit/s	38.153 Mbit/s	12.688 Mbit/s

Figure 29: Statistics for QAM channels

For each QAM or COFDM channel, the following values for the data transmission properties are displayed for analysis purposes:

- TS Rate: Bit rate of the output channel
- Total Packets IN: Input data rate of the transport stream
- Stuffing IN: Data rate of the null packets in the input signal
- Total Packets OUT: Total data rate of the output channel
- Stuffing OUT: Data rate of the null packets in the output signal

Timer Setting	
Property	Value
Time Source	ARD Digital_1 (TP071)
SNTP Server 1	0.0.0.0
SNTP Server 2	0.0.0.0

Additional network settings: SNTP server

When expert mode is activated, you will see additional properties in the “Time settings” table under the menu item “Network settings”. You can enter the IP address of a time server, if available, in the input fields SNTP Server 1 and SNTP Server 2. (see figure at the left)

Displaying the active alarm table

When expert mode has been activated, you will also see the entry “Active alarms” in the navigation menu at the left. When you click the menu item, the following overview will appear:

Active Alarm Table

Device	Ident	Code	Type	Message	Severity	Count	Status	Username	User IP	TSID	SID	Alias
SAT RX4	0x07040003	0x07000003	1	SAT RX4 not Locked	3	41	2	system	local	-1	-1	
SAT RX6	0x07060003	0x07000003	1	SAT RX6 not Locked	3	43	2	system	local	-1	-1	
FM1	0x09010100	0x09000100	1	FM 1 error	3	51	2	system	local	1111	7289	Radio Horeb
FM2	0x09020100	0x09000100	1	FM 2 error	3	52	2	system	local	1111	7292	Radio neue Hoffnung
FM3	0x09030100	0x09000100	1	FM 3 error	3	53	2	system	local	1079	28012	DKULTUR

Figure 30: Active alarm table

The table provides information about error messages currently active. The “Message” column shows the error message in plain text.

Additional service log settings

When expert mode is activated, you will see additional properties in the “System Log Settings” table under the menu item “System Log”.

The columns Value 1 - 4 each refer to the syslog server, the trap receiver and the trap community.

Figure 31: Advanced system log settings

In particular, the SNMP settings can be made here.

The following additional properties are displayed in detail:

- Syslog server:** The IP addresses for a maximum of four SysLog servers can be set.
- Syslog filter:** By ticking the corresponding checkbox, you can define which events will be logged in the service log.

Software update and configuration files

You can deploy a firmware update and download configuration files under the menu item “Update/Config.”. To do so, click on the menu item “Update/Config.”. The following input mask now appears:

Figure 32: Loading software update and configuration files

Default settings / reboot

In order to reboot the system or reset it to the default settings, select the corresponding option from the drop-down menu and then click on the “Execute” button.

HINWEIS: Once you have clicked the “Execute” button after selecting the “Load factory settings” option, all settings made up to this point will be deleted, except for the network and user settings!

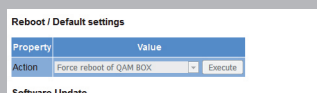
Software update from a local storage location

Software Update

Property	Value
File	<input type="button" value="Durchsuchen..."/> <input type="text" value="Keine Datei ausgewählt."/> <input type="button" value="Execute"/>
Software archive	qboxxxx.up

Figure 33: Software update

If the software update file is on your local PC or laptop, you can run the update by first clicking the “Search” button and then selecting the appropriate file. As soon as you have selected the file, you can click the “Execute” button to start the update process.



Uploading and downloading configuration files

Config files (download/upload)

Property	Value
File	<input type="text" value="Durchsuchen..."/> <input type="button" value="Keine Datei ausgewählt."/> <input type="button" value="Upload"/>
QAM BOX Configuration (incl. NIT & LCN)	qam_box_config.xml
Local NIT	nit.xml
Local LCN	lcn.xml
Channel list	chlist.xml
SAT database of 14.08.2015	sat_db.xml

Figure 34: Loading configuration files

Configuration files can be uploaded and downloaded. To upload files, use the “Search” button to select the preferred file. Then click on the “Upload” button to start the uploading process.

The following files are available for download:

- QAM BOX configuration (XML format)
- Local NIT (XML format)
- Local LCN (XML format)
- Channel list (XML format)
- SAT database (XML format)

Simply click on the corresponding file link to download the file.

Downloading configuration/status files

Config/status files (download)

Property	Value
IP configuration	ip.xml
System status	status.xml
Local stream info	streaminfo.xml

Figure 35: Loading status files

The following files are available for download:

- IP configuration (XML format)
- System status (XML format)
- Local stream info (XML format)

Simply click on the corresponding file link to download the file.

Installing a firmware update via (T)FTP

Firmware update and configuration via server

Property	Value
(T)FTP Server address	astro-firmware.de
Protocol	<input checked="" type="radio"/> FTP <input type="radio"/> TFTP
FTP Username (e.g. anonymous)	anonymous
FTP Password (e.g. guest)
Path	/Headend-Firmware/qbox
Version	4826
Mode	Update firmware from server

Figure 36: Firmware update via (T)FTP

You can perform a variety of actions via (T)FTP using the table “Firmware update and configuration via server”. To configure the device for these activities, you must enter values for the following properties:

- (T) FTP Server address: Usually “astro-firmware.de”
- Protocol: Activate the radio button “FTP” if you wish to use the more comprehensive FTP protocol. Activate the radio button “TFTP” if you wish to use the more elementary TFTP protocol.
- FTP Username (e.g. anonymous): This depends on the settings for the FTP server used (for astro-firmware.de e.g. “anonymous”).
- FTP Password (e.g. guest): This depends on the settings for the FTP server used (for astro-firmware.de e.g. “astro”).
- Path: Path to the location where data are saved, or from where the data can be loaded. The path must be specified in relation to the root directory of the FTP server, and must always begin with a “/” and end with a “/” as well (enter without quotation marks).
- Version: Enter the version number of the software which you wish to download or save here.
- Mode: Select the action to be performed from the drop-down list. The action can only be carried out when the server path specified does actually exist. Furthermore, any firewalls that have been installed must be configured in a way that allows (T)FTP communication. The following actions can be selected individually:

Action: “Load configuration”: A configuration stored on the (T)FTP server is transmitted to the device and can be activated immediately. The IP settings for the data and management interfaces on the device are not changed. The files “settings.xml” and “nit.xml” are written to the device.

Action: “Save configuration”: The current configuration of the QAM BOX is written to the (T)FTP server. The configuration includes the following files:

- “ip.xml” (IP settings for the data and management interfaces)
- “settings.xml” (all other settings, e.g. IP receiver and modulator settings)
- “status.xml” (current operating status)
- “nit.xml” (NIT for import into an output channel)
- “lcn.xml” (LCN for import into an output channel)
- “streaminfo.xml” (local stream information)
- “chlist.xml” (allocation of the channel names to the picture carrier frequencies)
- “sat_db.xml” (SAT database)

Action: “Firmware update”: If you select this action, you must specify the preferred software version under *Version* (a 4-character maximum applies). Once the update is successful, the message “Firmware update OK. Please reboot to use the new firmware version” appears.

Update using a TFTP server for Windows as an example

If no fixed (T)FTP server is set up for updating the device, you also have the option of transferring locally saved update files onto the device. You can use a TFTP programme for this. The procedure for using the programme “Tftpd32” is described in the following.

Name	Änderungsdatum	Typ	Größe
tftpd32.exe	15.09.2009 21:19	Anwendung	183 KB
tftpd32.chm	15.09.2009 21:53	Kompilierte HTML...	362 KB
tftpd32.ini	24.08.2009 09:42	Konfigurationsein...	1 KB
dat_s.bin	23.03.2010 16:29	VLC media file (.bi...	553 KB
man_e.bin	23.03.2010 16:29	VLC media file (.bi...	1.050 KB
man_s.bin	23.03.2010 16:29	VLC media file (.bi...	511 KB
mpeg.bin	23.03.2010 16:29	VLC media file (.bi...	1.379 KB
pal_s.bin	18.03.2010 18:31	VLC media file (.bi...	612 KB

Figure 37: Example view of the update folder with update files and “tftpd32” programme

You can file and launch the “tftpd32” programme directly in the folder in which the update files for the QAM BOX are found (see figure 31, above).

Launch the programme by clicking on the file symbol “tftpd32.exe”. The start window for the programme then opens.

Click on the “Settings” button to open the window with the detailed settings (see figure 32, below).

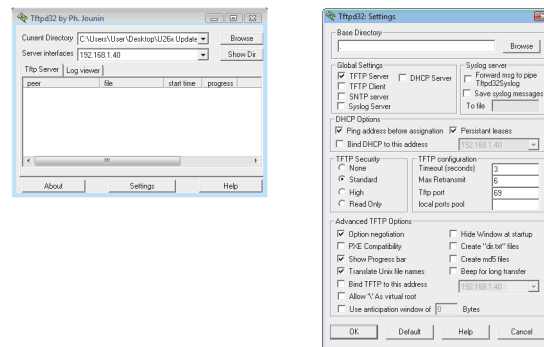


Figure 38: Start window and detailed settings for “tftpd32”

Define the same settings as shown in figure 37 (below).

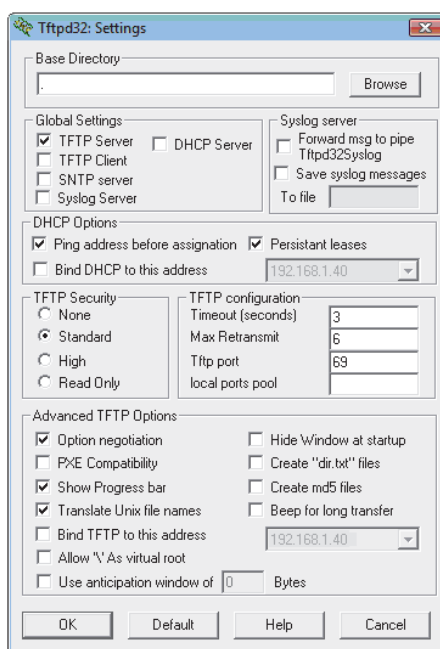


Figure 39: Detailed settings in “tftpd32”

To launch the update, proceed as follows:

- Open the “Update” area in the web browser interface by clicking on the corresponding entry in the menu at the left.
- Enter the IP address of the local PC in the line (T)FTP Server address and select “TFTP” as the protocol. Entering a user name and a password is not required.
- You must now select the option “Update” in the line File .
- Start the update by clicking on the “Submit” button.

Troubleshooting

If the device is not functioning correctly, please perform the following checks:

- Check whether the device has been connected to the required mains voltage (230 V~, 50 Hz).
- Check whether the signal cable is connected correctly, and that there are no breaks or short circuits in the connectors.

If the problem cannot be resolved, please contact the ASTRO customer service.

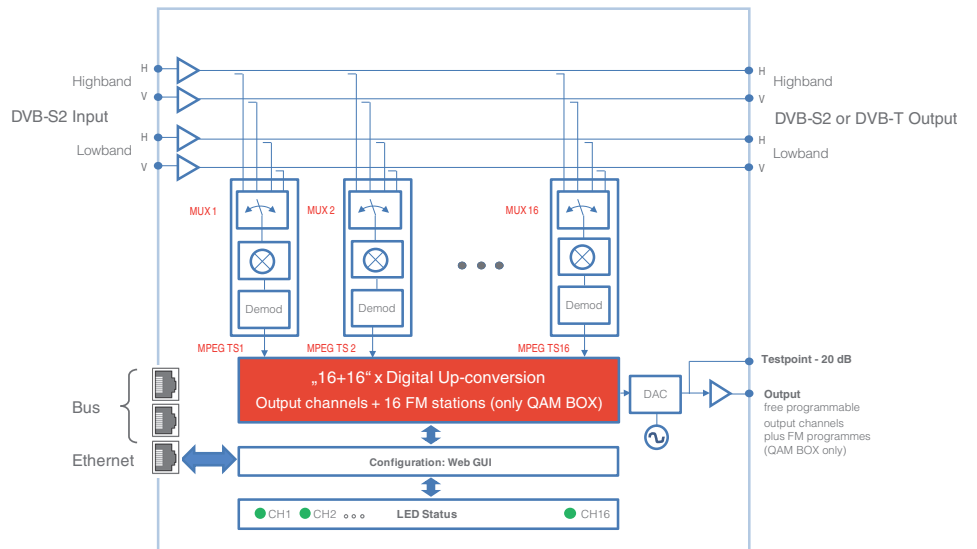
Maintenance and repair

ACHTUNG: The following safety information must be observed when performing maintenance and repair work. Failure to observe this safety information may result in personal injury due to electrical and thermal dangers!

- The operating display only shows whether the DC current, which supplies the device components, has been disconnected from the mains voltage. If the operating display (for the power supply unit or the device) does not light up, this does not mean that the device has been fully disconnected from the mains voltage. There may still be voltages in the device that are dangerous to touch. You may therefore not open the device.
- The cover for the power supply unit is designed to prevent accidental contact with voltages that are dangerous to touch, and must not be removed.
- Housing components near the cooling fins at the rear, or actual the cooling fins, may become very hot.
- Read carefully: EN 60728-11 Safety requirements: No service work during thunderstorms.
- A defective device may only be repaired by the manufacturer to ensure that components with the original specification are used (e.g. power cable, fuse). Improperly performed repairs may result in considerable dangers for the user or installer. If malfunctions occur, the device must therefore be disconnected from the mains and authorised experts must be consulted. The device may need to be sent to the manufacturer.



Signal flow diagram



Technical data

Type		QAM BOX 12 eco	QAM BOX 16 eco	QAM BOX eco FM	QAM BOX 12 neo	QAM BOX 16 neo	QAM BOX
Order number		380 055	380 056	380 057	380 006	380 008	380 002
EAN-Code		4026187195717	4026187195724	4026187195731	4026187191740	4026187191757	4026187161071
Connectors							
Sat input	Ω	4 x F-jack, 75					
Sat loop through output, 0 dB	Ω	4 x F-jack, 75					
Sat remote feed		14 V, 18 V and 22 kHz switchable					
RF output	Ω	1 x F-jack, 75					
Testpoint, -20 dB	Ω	1 x F-jack, 75					
Management		100 Base-T Ethernet (RJ 45)					
Bus		2 x RJ 45 jack					
Demodulator							
Input frequency range	MHz	950 – 2150, 4 polarizations free selectable					
Input symbol rate	MS/s	DVB-S: 1 - 45; DVB-S2: 2 - 47 (QPSK), 2 - 31,5 (8PSK)					
Input level	dBμV	60 – 90					
QAM modulator							
Anzahl QAM Ausgangskanäle		12	16	16	12	16	16
Modulation		64-, 256-QAM					
Frequency range	MHz	47 – 862, digital modulated					
Signal processing		according DVB-C standard					
C/N (BW 8MHz) @ system level 100 dBμV	dB	> 60					
Phase error dynamic	°	< 0,2					
MER (EQ)	dB	≥44					
Data rate adjustment		<input checked="" type="checkbox"/>					
NIT-handling		<input checked="" type="checkbox"/>					
Output level	dBμV	80...96					
FM modulator							
Frequency range	MHz	-	-	87 – 108, digital modulated	-	-	87 – 108, digital modulated
RDS		-	-	static / dynamic (PS / RT / PI / PTY / MS / CT	-	-	static / dynamic (PS / RT / PI / PTY / MS /
Signal to noise ratio	dB	-	-	> 60 dB	-	-	> 60 dB
Output level	dBμV	-	-	80...96	-	-	80...96
Common data							
Power consumption	W	typ. 31, maximum 44 including LNB-supply	typ. 33, maximum 46 including LNB-supply	typ. 35, maximum 50 including LNB-supply	typ. 45, maximum 52 including LNB-supply	typ. 52, maximum 58,5 including LNB-supply	typ. 55, maximum 62 including LNB-supply
Supply Voltage	V~/Hz	230 / 50					
Dimensions (W x H x D)	mm	305 x 289 x 63					
Weight	kg	3,42					
Installation height	m	≤ 2000 N.N.					
Ambient temperature	°C	0 ... +50					

Type		QAM BOX eco AACFM
Order number		380 062
EAN-Code		4026187240875
Connectors		
Sat input	Ω	4 x F-jack, 75
Sat loop through output, 0 dB	Ω	4 x F-jack, 75
Sat remote feed		14 V, 18 V and 22 kHz switchable
RF output	Ω	1 x F-jack, 75
Testpoint, -20 dB	Ω	1 x F-jack, 75
Management		100 Base-T Ethernet (RJ 45)
Bus		2 x RJ 45 jack
Demodulator		
Input frequency range	MHz	950 – 2150, 4 polarizations free selectable
Input symbol rate	MS/s	DVB-S: 1 - 45; DVB-S2: 2 - 47 (QPSK), 2 - 31,5 (8PSK)
Input level	dB μ V	60 – 90
QAM modulator		
Anzahl QAM Ausgangskanäle		16
Modulation		64-, 256-QAM
Frequency range	MHz	47 – 862, digital modulated
Signal processing		according DVB-C standard
C/N (BW 8MHz) @ system level 100 dB μ V	dB	> 60
Phase error dynamic	°	< 0,2
MER (EQ)	dB	≥44
Data rate adjustment		<input checked="" type="checkbox"/>
NIT-handling		<input checked="" type="checkbox"/>
Output level	dB μ V	80...96
FM modulator		
Frequency range	MHz	87 – 108, digital modulated
AAC Encoder		<input checked="" type="checkbox"/>
RDS		static / dynamic (PS / RT / PI / PTY / MS / CT)
Signal to noise ratio	dB	> 60 dB
Output level	dB μ V	80...96
Common data		
Power consumption	W	typ. 35 without LNB supply maximum 55 including LNB-supply
Supply Voltage	V~/Hz	230 / 50
Dimensions (W x H x D)	mm	305 x 289 x 63
Weight	kg	3,42
Installation height	m	≤ 2000 N.N.
Ambient temperature	°C	0 ... +50

Type		DVB-T BOX
Order number		380 027
EAN-Code		4026187194390
Connectors		
Sat input	Ω	4 x F-jack, 75
Sat loop through output, 0 dB	Ω	4 x F-jack, 75
Sat remote feed		14V, 18V and 22kHz switchbale
RF output	Ω	1 x F-jack, 75
Testpoint, -20 dB	Ω	1 x F-jack, 75
Management		100/1000 Base-T Ethernet (RJ 45)
Bus		2 x RJ 45 jack
Demodulator		
Input frequency range	MHz	950 – 2150, 4 polarizations free selectable
Input symbol rate	MS/s	DVB-S: 1 - 45; DVB-S2: 2 - 47 (QPSK), 2 - 31,5 (8PSK)
Input level	dBμV	60 – 90
OFDM modulator		
Modulation		2k OFDM with modulation according ETSI EN 300 744
Frequency range	MHz	47 – 862, digitally modulated
Signal processing		according DVB-T standard
Phase error dynamic	°	< 0,2
MER (EQ)	dB	40
Data rate adjustment		<input checked="" type="checkbox"/>
NIT-handling		<input checked="" type="checkbox"/>
TS Editing		time scheduled service pass / drop filter, PID pass / drop, Adjustment of TSID and ONID (except EIT)
Output level	dBμV	80...96
Common data		
Power consumption	W	typ. 45 including LNB-supply, maximim 52 W / 80 VA incl. LNB-supply
Supply Voltage	V-/Hz	230 / 50
Dimensions (W x H x D)	mm	305 x 289 x 63
Weight	kg	3,42
Installation height	m	≤ 2000 N.N.
Ambient temperature	°C	0 ... +50



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