GOING FUTURE TODAY.

U 118, U 118 (AC-3)
U 118-X, U 118-X (AC-3)

IP to PAL (NTSC) converters

Operating Manual

Version 07-2019A

Contents

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.

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.

Copyright information

Parts of the software used with this product originate from third-party vendors and were developed under a variety of licensing conditions. Detailed information on the licences can be found on the device's web user interface. If you select the menu item “Licensing” on the web browser interface of the device, you will find a link to a page with detailed information.
You can obtain the source code for licence-free parts of the software upon request and against payment of a processing fee.
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All other parts of the software used with this product are subject to the copyright owned by
.

Proper use

The devices of the U 1xx- and U 2xx series are only used for converting signals of different modulation to / from IP data streams in multimedia cable networks. The power supply unit U 100 SNT eco / U 100 SNT eco+ may only be used for the power supply of the U 1xx- and U 2xx units within the base unit U 100-230. 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 60065. Unqualified person 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 60065 is not necessary for configuration.

Device description

The delivery is comprised of the following parts:

- ☐ U 118 resp. U 118-X Edge FM module and backplane
- ☐ Operating manual

The U 118 resp. U 118-X plug-in module and the U 100 base unit feature a CE marking. This confirms that the products conform to the relevant EC directives and adheres to the requirements specified therein.

Figure 1, top:
U 118 resp. U 118-X, installed in the U 100 base unit (fitted with three plug-in modules)

Figure 1, middle:
U 118 resp. U 118-X, front panel
[1] Display for management IP addresses, data IP addresses, status messages, etc.
[2] Status display
[3] Control and data knob, menu switch

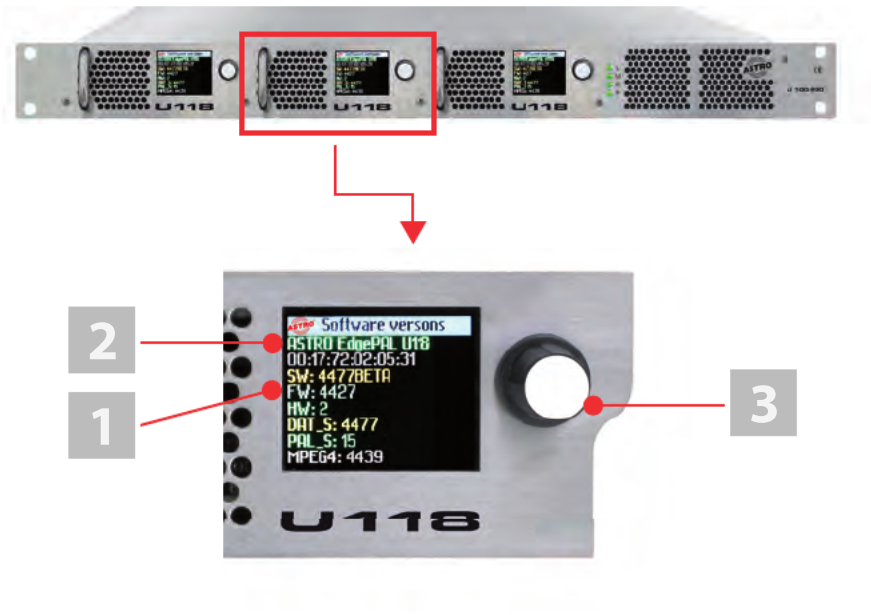
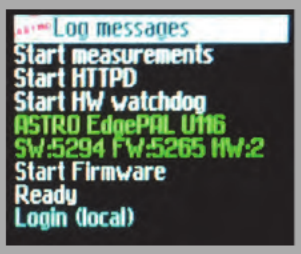
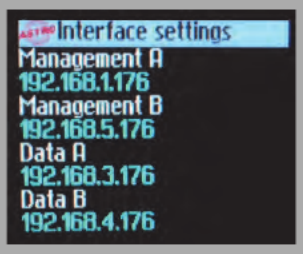
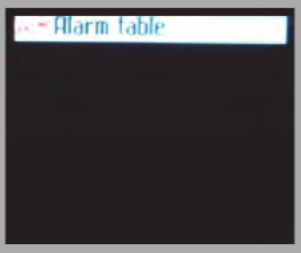
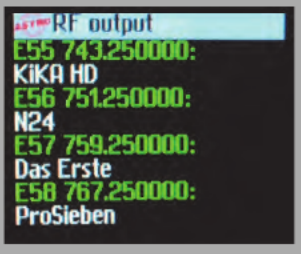


Figure 1: U 118 resp. U 118-X









HINWEIS: Turning the data knob [3] (fig. 2, above) allows you to navigate through the individual menu items in the U 118 resp. U 118-X display. Press the data knob to activate the display.

The ASTRO logo will be the first display to appear following activation.

Turning the data knob clockwise allows to you access the individual displays:

- ☐ Log messages: The last messages entered in the log book are displayed.
- ☐ Interface settings: IP addresses of the network interface
- ☐ Software versions: The version of the plug-in module software currently installed is displayed.
- ☐ Alarm table: The current error messages are displayed.
- ☐ RF output: The programs currently selected are displayed.

The different text colours refer to:

- ☐ Red: Error (the corresponding display in the web interface log book is: “error”)
- ☐ Yellow: Warning (the corresponding display in the web interface log book is: “warning”)
- ☐ Purple: Critical error (the corresponding display in the web interface log book is: “critical / alert / emergency”)
- ☐ Light blue: Info (the corresponding display in the web interface log book is: “info”)
- ☐ Light green: Notice (the corresponding display in the web interface log book is: “notice”)

Important safety information

To avoid any potential risks to the greatest 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 and operation

- ☐ The device may only be installed and operated by qualified persons (in accordance with EN 60065) or by persons who have been instructed by qualified persons. Maintenance work may only be carried out by qualified service personnel.
- ☐ The module can only be installed in U 100-230 and U 100-48 base units. The safety information in the operating manuals of the base units must be obeyed in addition to the safety information described in this manual.
- ☐ The installation site must be planned in a way that prevents children from playing with the device and its connections.
- ☐ In order to prevent inadmissible operating statuses from occurring, only the components described in this manual, or components approved by the manufacturer for the base unit, may be used.
- ☐ 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 a niche or covering the ventilation openings 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 splash water or drip water, condensation or similar effects of water, as this may impair the isolation from the mains voltage.
- ☐ Do not install the unit in locations with excessive dust formation, as this may impair the isolation from the mains voltage.

Electromagnetic compatibility (EMC)
In order to avoid malfunctions from occurring when operating radio and telecommunications equipment, as well as other operating units or broadcasting services, the following points must be observed:

- ☐ Before installation, the device must be checked for mechanical damage. Damaged or bent covers or housings may not be used.
- ☐ During operation, the device must always be covered by the components provided for this purpose. Operation with an opened cover is not permitted.
- ☐ The braided line or the contact springs may not be damaged or removed.

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. There may still be voltages in the device that are dangerous to touch. You may therefore not open the device.
- Read carefully: EN 60728-11 – Part 1, Safety requirements / No service tasks during electrical storms!

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.

General information

- Store or use the device in a safe location, well out of reach of small children. It may contain small parts that can be swallowed or inhaled. Dispose of any small parts that are not needed.
- Plastic bags may have been used for packaging the device. Keep these plastic bags away from babies and children in order to avoid any danger of suffocation. Plastic bags are not toys.
- Do not store the device near chemicals or in places in which a leakage of chemicals may occur. Organic solvents or fluids in particular may cause the housing and/or cables to melt or disintegrate, presenting a danger of fire or electric shock. They may also cause device malfunctions.

Warranty conditions

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

Disposal

All our packaging materials (cardboard boxes, insert sheets, plastic films and bags) are fully recyclable. After use, this device must be disposed of as electronic waste in an orderly manner according to the current disposal regulations of your district / country / state.

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

Description of performance

The U 118 resp. U 118-X is a plug-in module, which is only intended for use in the base units U 100-230 and U 100-48. It can receive up to 8 MPEG data streams and channels encapsulated in accordance with Internet Protocol (IP). These are converted in up to 8 standard-compliant PAL output signals and are output through the two HF outputs in the U 118 resp. U 118-X.

To use the devices properly, read the following safety and operating instructions attentively.

The U 118 resp. U 118-X plug-in module features the following performance characteristics:

- Conversion of up to 8 IP gigabit Ethernet multicast groups
- PAL programs are fed out as four adjacent channel pairs
- Outstanding output parameters due to Direct Digital Technology (video S/N typically 63 dB for U 118, 61 dB for U 118-X; residual carrier accuracy: 1%)
- only U 118-X: 4 channels per output freely configurable within a bandwidth of 80 MHz (U 118 up to 32 MHz, only the first channel of each output freely assignable)
- only U 118: output channel filter pluggable

Connecting and installing the module

HINWEIS: How to prepare the base unit for installing the module is described in the operation manual of the U 100 base unit!

Coding and installing the backplane

A backplane is included with every U 1xx signal converter. This is used to establish a mechanical connection between the signal converter and the base unit. Both the mains HF connections and the network connections are connected to this
backplane. There is usually a temperature-controlled fan for cooling the signal converter on the backplane. This can be replaced while the device is operating.
To ensure the position of the backplane, and therefore the position of the respective signal converter in the U 100 base unit, is correct, you must plug a corresponding jumper into the circuit board on the backplane. Proceed as described in the following.

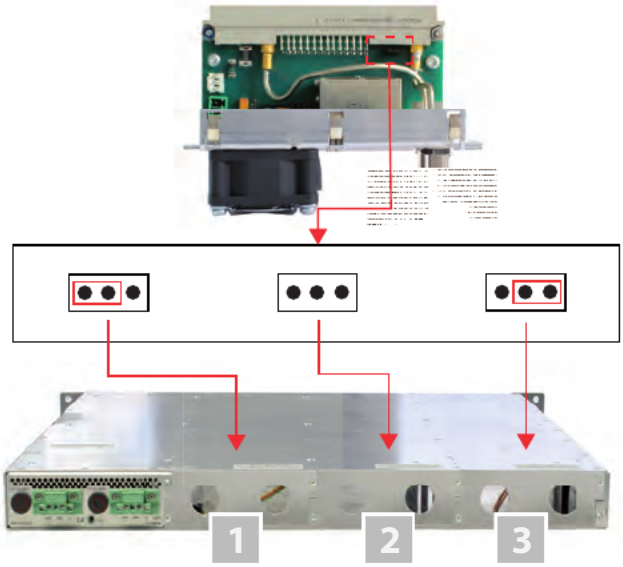


Figure 2a: Coding the backplane by plugging in the bridge

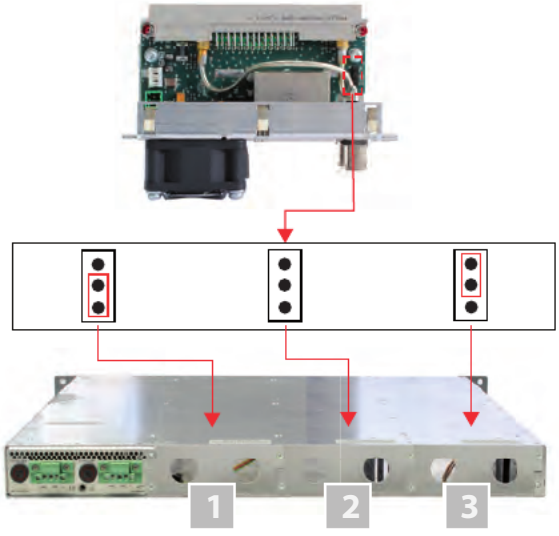


Figure 2b: Coding the backplane by plugging in the bridge

[1] Left slot
[2] Middle slot
[3] Right slot

To prepare the backplane for installation, proceed as follows:

Plug the bridge into the installation position provided in accordance with figure 2a and 2b (page 8). Depending on your harware version you may have to follow the installation instruction of figure 2a or 2b.

HINWEIS: A bridge which has not been correctly plugged into the corresponding installation position will result in incorrect LED displays on the front of the U 100 base unit (see section "Device description"). Furthermore, the correct position cannot be displayed on the web browser user interface.

You can now install the backplane in the base unit. To do so, proceed as follows:

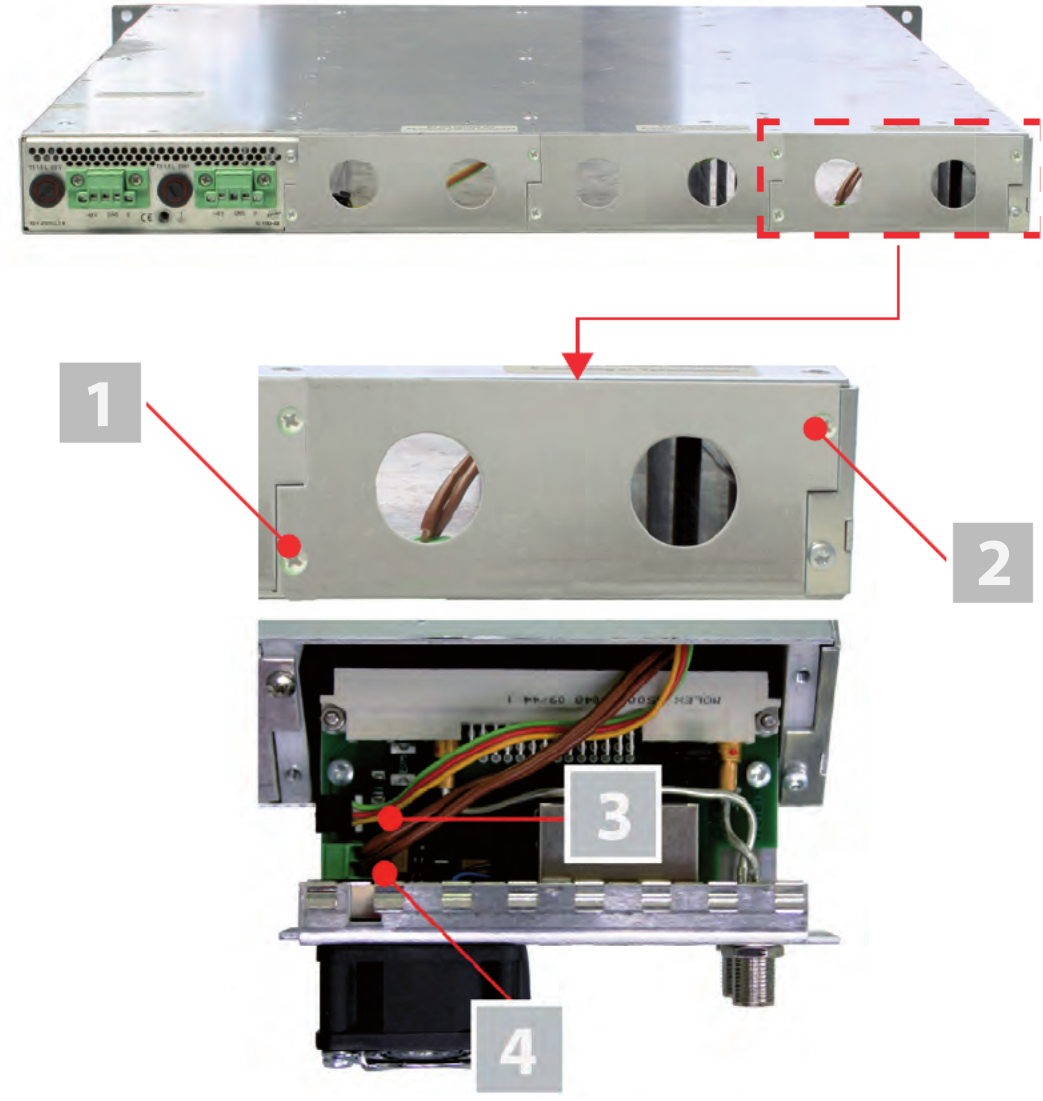


Figure 3: Installing the backplane in the base unit

[1, 2] Phillips-head screws
[3] Cable for signal supply
[4] Cable for power supply

AUFGABE

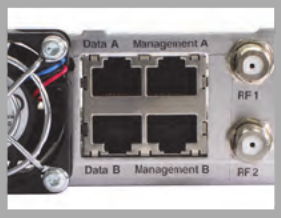
1. When the U 100 base unit is in its delivery state, the three installation slots for the backplanes are covered by dummy plates (see figure 3, above). Start by removing the Phillips-head screws [1] and [2] from the dummy plate at the required installation position (left, middle or right) and remove the dummy plate.
2. You can now see the two connection cables for the selected slot (power supply and signal cable). Connect the cables to the backplane as shown in figure 3 (above).
3. Now carefully insert the backplane into the slot of the U 100. Make sure the cables are not jammed. You can push the backplane into the housing by applying light pressure.

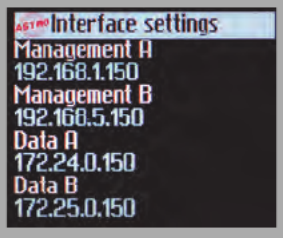
ERGEBNIS:

The backplane is now connected and installed. Once installed, it should correspond to the figure at the left.

HINWEIS: You can learn how to connect a plug-in module to your PC or laptop by reading the operating manual for the respective signal converter.

Quick start - starting operation of the U 118 resp. U 118-X





Connecting the U 118 resp. U 118-X to a PC or laptop

To be able to configure the U 118 resp. U 118-X, you now need to connect the network sockets (Management A or Management B) on the backplane of the device (see figure at left) to your PC or laptop using a network cable.

Once you have connected the base unit to the power supply, the U 118 resp. U 118-X will switch on automatically. Once it has booted (approx. 180 seconds), the ASTRO logo initially appears in the display.
Turn the knob to the right of the display clockwise until the menu item “Interface settings” is displayed. The two management IP addresses (Management A and Management B) for the device now appear in the upper lines.
Make a note of the address of the management connection which you are using for your PC or laptop to ensure you can enter this in the address line of your web browser later on.

HINWEIS: Please note that your PC or laptop must be in the same sub-network as the U 118 resp. U 118-X! The sub-network mask of the U 118 resp. U 118-X is set to 255.255.255.0 upon delivery. The PC or laptop which is connected must therefore be assigned an IP address 192.168.1.x.

You can now start the configuration using the web browser user interface.

General information on the structure of the web browser interface

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

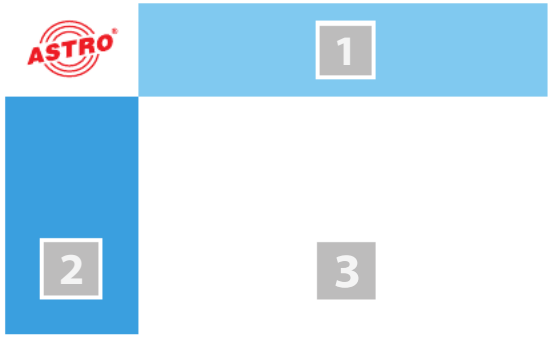


Figure 4: Structure of the web browser interface

- **Status line (header) [1]:** Displays general information on the module.
  SW: Software status
  FW: Current version of the software installed
  HW: Hardware version
  Up: Runtime since the system was booted
  Time: Date and time
  Name, location, contact: Corresponds to the settings made in the configuration area “User settings”
- **Navigation menu [2]:** 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 [3]:** The respective configuration form – depending on the menu item selected – is displayed here.

HINWEIS: The browser display is not updated automatically. Use the corresponding button in the menu of your browser to update the display.

Logging in

To log in, copy the IP address of the U 118 resp. U 118-X shown in the device display into the address line of the browser. The menu page “Status” will then appear. Select the item “Log in” from the navigation menu at the left. 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

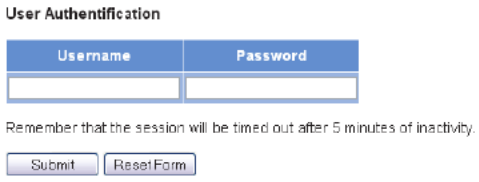


Figure 5: Log in

After logging in, the start page of the U 118 resp. U 118-X with all relevant system information will appear. The navigation menu and the log-in status display will appear at the left.

Only one user can be logged into the user interface of the U 118 resp. U 118-X at a time. The current user is displayed in the column at the left, below the menu.

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.

A list of current errors is available under the menu item “Active alarms”.

HINWEIS: For reasons of security, you should change the access data valid upon delivery (user name and password) to prevent unauthorised access!
The procedure is described in the section “Changing user data”.

Changing the IP address

HINWEIS: If you wish to change the IP address, then the settings on the PC must be changed accordingly. IP addresses can only be changed by the administrator!

Start by changing the IP addresses for the management and the data port. To do so, click on the item “Main” in the menu at the left. You will now see the following table in the content pane:

IP Interface Settings

Property	Management A (eth0)	Management B (eth1)	Data A (eth2)	Data B (eth3)
MAC	00:17:72:02:00:d0	00:17:72:03:00:d0	00:17:72:04:00:d0	00:17:72:05:00:d0
Active	on off	on off	on off	on off
Mode	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex
Address	192 . 168 . 1 . 150	192 . 168 . 5 . 150	172 . 24 . 0 . 150	172 . 25 . 0 . 150
Subnet	255 . 255 . 255 . 0	255 . 255 . 255 . 0	255 . 255 . 0 . 0	255 . 255 . 0 . 0
Broadcast	192.168.1.255	192.168.5.255	172.24.255.255	172.25.255.255
Gateway	192 . 168 . 1 . 100	0 . 0 . 0 . 0	0 . 0 . 0 . 0	0 . 0 . 0 . 0

Figure 6: Changing the IP address

You can enter the IP addresses for management ports A and B as well as for data ports A and B in the “Address” line. Make sure that you activate the ports being used by activating the corresponding radio button in the line “Active”.

Submit Reset Form

To save your changes, click on the “Submit” button below the last table.

More information on configuring the IP address can be found in the section “Configuring IP interfaces, IP management and base unit”.

The signal flow in the U 118 resp. U 118-X

The overview on page 10 shows the possible signal paths for the U 118 resp. U 118-X. The specific signal flow can be divided into the following sub-areas:

- The IP receivers (1 to 8) receive a signal via data port A or B (each is switchable).
- There are two PAL modulators, each of which features a transport stream selector for selecting a transport stream for each PAL program.
- The level of the output signals from the two PAL modulators (each with 4 PAL programs) are each adapted, filtered and amplified, and are forwarded to an HF output on the backplane.

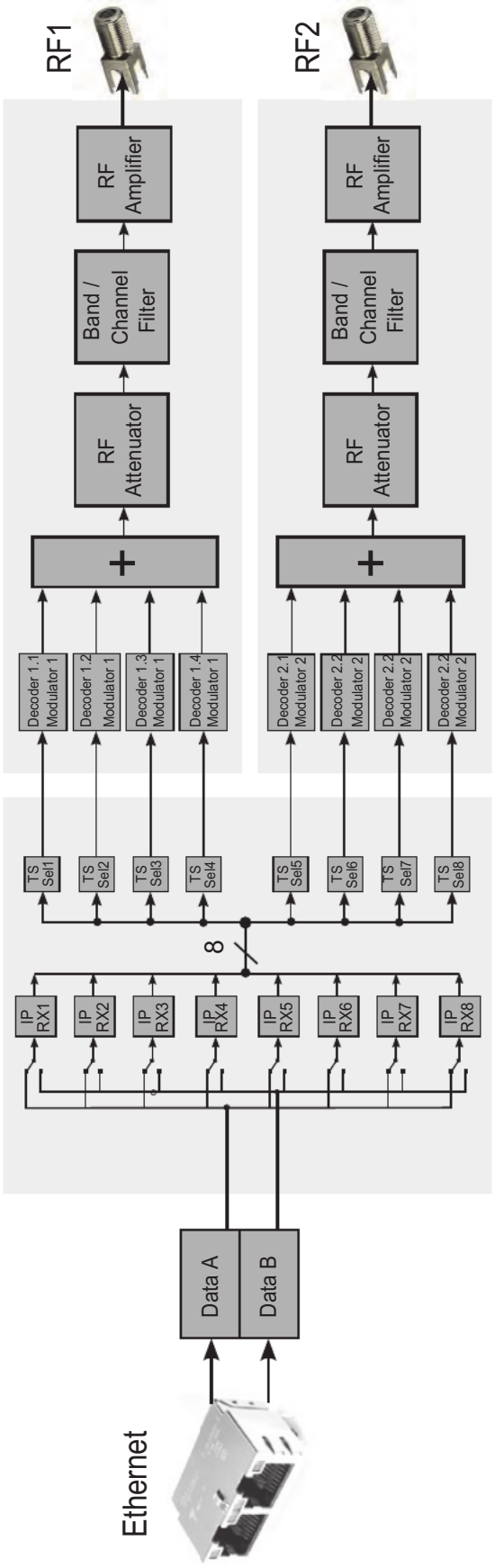


Figure 7: The signal flow in the U 118 resp. U 118-X

Configuring the IP receiver

Now start configuring a signal path in the U 118 resp. U 118-X. Start by clicking on the item “IP RX 1” in the web browser interface menu. You will now see the following table:

IP RX1 Channel Settings

Property	Data A (eth2) 1G	
Primary Receive IP:Port	232 . 19 . 100 . 136 : 10000	Priority
Primary Source Select	0 . 0 . 0 . 0	12 Highest/Hot

Figure 8: Setting the source for the data stream

Enter the IP address and port for the data source in the first line. Optionally, you can also enter a source select address in the second line.
Further information about configuring the receiver can be found in the section “Configuring IP inputs”.
There is another table below the “IP RX 1 Channel Settings” table. Activate the radio button “on” to enable the receiver.

Property	Data A (eth2) + Data B (eth3)	
Enable	on off	
Port	Data A Primary static	
Timeouts	in case of failure switch after 0 seconds, switch back to higher priority after 300 seconds.	
Error condition	data rate only data rate, continuity count, service	
Encapsulation	RTP/UDP/IP UDP/IP	automatic manual
Bitrate	Single PCR (SPTS) Mult. PCR (MPTS)	automatic manual
FEC	on off	
TSID / ONID	1107	1
Alias manual / automatic		SAT.1, ProSiebenSat.1

Figure 9: Activating the connection to the data port

Checking the data reception rate

Now click on the menu item “Status” in the menu at the left. You will now see the following overview:

Ethernet

Property	Management A (eth0)	Management B (eth1)	Data A (eth2)	Data B (eth3)
MAC	00:17:72:02:00:d0	00:17:72:03:00:d0	00:17:72:04:00:d0	00:17:72:05:00:d0
Address	192.168.1.150	192.168.5.150	172.24.0.150	172.25.0.150
Netmask	255.255.255.0	255.255.255.0	255.255.0.0	255.255.0.0
Gateway	192.168.1.100	0.0.0.0	0.0.0.0	0.0.0.0
Mode	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex
Transmit	0.0 Mbit/s	0.0 Mbit/s	76.6 Mbit/s	76.6 Mbit/s
Receive	0.0 Mbit/s	0.0 Mbit/s	70.9 Mbit/s	70.9 Mbit/s

Figure 10: Displaying reception statistics

A data reception rate > 0 at data ports A or B should now appear in the line “Receive” in the “Ethernet” table.

Now click on the menu item “Statistics” in the menu at the left. Details about the transport stream received are provided in the “Ethernet RX” table. A TS rate of > 0 should be displayed. If this is not the case, check the receiver settings.

Ethernet RX

Channel	Encap	TS Rate	Buffer depth	FEC	Valid	Missing	Fixed	Duplicate	Reordered	Out of range
IP RX1	1328 bytes 7 packets RTP/UDP/IP	33.8 Mbit/s Mult. PCR	255 Frames 49.8 % 79.5 ms	none	4410949	0	0	0	0	0

Figure 11: IP receiver statistics

Configuring HF output channels

To complete the process, you should configure and activate the HF output channels. To do so, click on the menu item “RF” in the web browser interface menu. You will now see the following table:

RF Channels

Modulator	Enable	Service	Channel Frequency	Level	Channel Filter	Reference	Status
RF1.1	on / standby / off	KIKA HD, ZDFvision (SID:11160 advanced codec HD digital television)	E55 743.25 743.250000 MHz 0.000 kHz	0.0 dB	on off not fitted	Set	ok
RF1.2	on / standby / off	N24, ProSiebenSat.1 (SID:17503 digital television)	E56 751.25 751.250000 MHz 0.000 kHz	0.0 dB		uncal. under	ok
RF2.1	on / standby / off	Das Erste, ARD (SID:28106 digital television)	E57 759.25 759.250000 MHz 0.000 kHz	0.0 dB	on off min: unset max: unset	Set	ok
RF2.2	on / standby / off	ProSieben, ProSiebenSat.1 (SID:17501 digital television)	E58 767.25 767.250000 MHz 0.000 kHz	0.0 dB		uncal. under	ok

Changing service will affect primary, secondary and tertiary sources.

	Localisation	Available on SD Card
Channel list	de	de fr ru uk us be

Submit | Reset Form

RF Detector

	Mode	Level
warnings	on off	±2.5 dB
security switch off	on off	+3.0 dB
Lock RF relevant settings	on off	

Submit | Reset Form

ASTRO Strobel Kommunikationssysteme GmbH

Figure 12: Configuring HF output channels

To exemplify this, select one of the modulators by clicking on the “On” radio button in the “Enable” column.

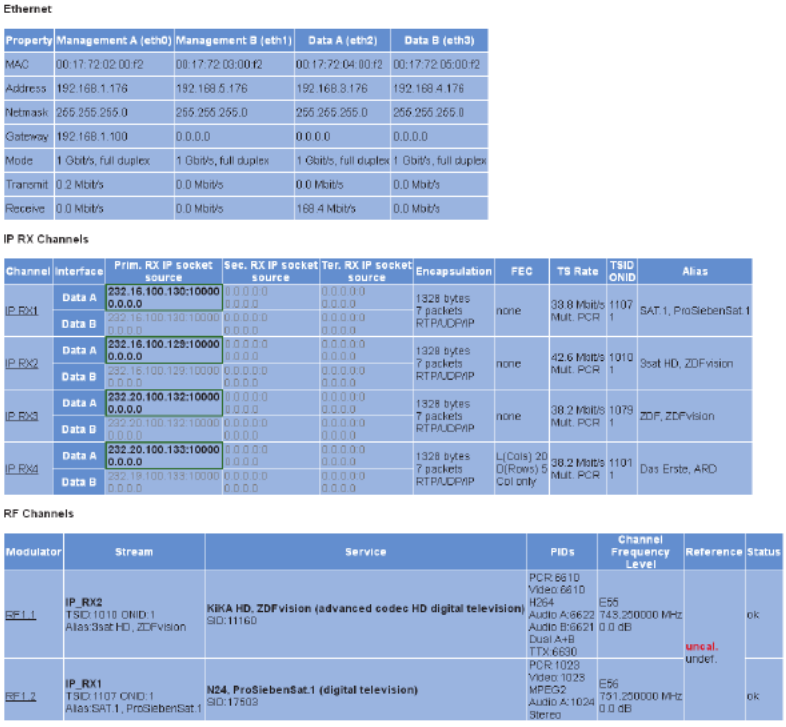
Now select the preferred service from the drop-down menu in the “Service” column. Enter the preferred values for the frequency and the level in the corresponding input field in the “Channel Frequency” and “Level” columns respectively.

To save your changes, click on the “Submit” button below the table.

More information on setting the HF modulators can be found in the section “Menu RF”.

"Status" menu

To have the current settings for the U 118 resp. U 118-X displayed, click on the `Status` item in the menu at the left. You can now see the overview shown in figure 13:



Ethernet

Property	Management A (eth0)	Management B (eth1)	Data A (eth2)	Data B (eth3)
MAC	00:17:72:02:00:f2	00:17:72:03:00:f2	00:17:72:04:00:f2	00:17:72:05:00:f2
Address	192.168.1.176	192.168.5.176	192.168.8.176	192.168.4.176
Netmask	255.255.255.0	255.255.255.0	255.255.255.0	255.255.255.0
Gateway	192.168.1.100	0.0.0.0	0.0.0.0	0.0.0.0
Mode	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex
Transmit	0.2 Mbit/s	0.0 Mbit/s	0.0 Mbit/s	0.0 Mbit/s
Receive	0.0 Mbit/s	0.0 Mbit/s	168.4 Mbit/s	0.0 Mbit/s

IP RX Channels

Channel	Interface	Prim. RX IP socket source	Sec. RX IP socket source	Ter. RX IP socket source	Encapsulation	FEC	TS Rate	TSID ONID	Alias
IP RX1	Data A	232.16.100.130:10000 0.0.0.0	0.0.0.0 0.0.0.0	0.0.0.0 0.0.0.0	1328 bytes 7 packets RTP/UDP/IP	none	39.8 Mbit/s Mult. PCR	1107 1	SAT.1, ProSiebenSat.1
	Data B	232.16.100.130:10000 0.0.0.0	0.0.0.0 0.0.0.0	0.0.0.0 0.0.0.0					
IP RX2	Data A	232.16.100.129:10000 0.0.0.0	0.0.0.0 0.0.0.0	0.0.0.0 0.0.0.0	1328 bytes 7 packets RTP/UDP/IP	none	42.6 Mbit/s Mult. PCR	1010 1	3sat HD, ZDFvision
	Data B	232.16.100.129:10000 0.0.0.0	0.0.0.0 0.0.0.0	0.0.0.0 0.0.0.0					
IP RX3	Data A	232.20.100.132:10000 0.0.0.0	0.0.0.0 0.0.0.0	0.0.0.0 0.0.0.0	1328 bytes 7 packets RTP/UDP/IP	none	38.2 Mbit/s Mult. PCR	1079 1	ZDF, ZDFvision
	Data B	232.20.100.132:10000 0.0.0.0	0.0.0.0 0.0.0.0	0.0.0.0 0.0.0.0					
IP RX4	Data A	232.20.100.133:10000 0.0.0.0	0.0.0.0 0.0.0.0	0.0.0.0 0.0.0.0	1328 bytes 7 packets RTP/UDP/IP	L(Cols) 20 D(Rows) 5 Col only	38.2 Mbit/s Mult. PCR	1101 1	Das Erste, ARD
	Data B	232.19.100.133:10000 0.0.0.0	0.0.0.0 0.0.0.0	0.0.0.0 0.0.0.0					

RF Channels

Modulator	Stream	Service	PIDs	Channel Frequency Level	Reference	Status
RF1.1	IP_RX2 TSID:1010 ONID:1 Alias:3sat HD, ZDFvision	KiKA HD, ZDFvision (advanced codec HD digital television) SID:11160	PCR:6610 Video:6610 H264 Audio A:6622 Audio B:6621 Dual A+B TTX:6630	E56 743.250000 MHz 0.0 dB	uncal. undef.	ok
RF1.2	IP_RX1 TSID:1107 ONID:1 Alias:SAT.1, ProSiebenSat.1	N24, ProSiebenSat.1 (digital television) SID:17503	PCR:1023 Video:1023 MPEG2 Audio A:1024 Stereo	E56 751.250000 MHz 0.0 dB		ok

Figure 13: Status display

The following tables are displayed:

Ethernet status:
Configuration data and status of the Ethernet port

Ethernet

Property	Management A (eth0)	Management B (eth1)	Data A (eth2)	Data B (eth3)
MAC	00:17:72:02:00:d0	00:17:72:03:00:d0	00:17:72:04:00:d0	00:17:72:05:00:d0
Address	192.168.1.150	192.168.5.150	172.24.0.150	172.25.0.150
Netmask	255.255.255.0	255.255.255.0	255.255.0.0	255.255.0.0
Gateway	192.168.1.100	0.0.0.0	0.0.0.0	0.0.0.0
Mode	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex
Transmit	0.0 Mbit/s	0.0 Mbit/s	76.6 Mbit/s	76.6 Mbit/s
Receive	0.0 Mbit/s	0.0 Mbit/s	70.9 Mbit/s	70.9 Mbit/s

Figure 14: Status display - Ethernet

The values for the following parameters are displayed and configured here respectively in accordance with the four connections on the backplane of the U 118 resp. U 118-X (Data A, Data B, Management A and Management B, see section "Device description").

- `MAC`: MAC address (display value)
- `Address`: IP address (configurable)
- `Netmask`: Net mask (configurable)
- `Gateway`: Gateway IP address (configurable)
- `Mode`: Ethernet mode (display value)
- `Transmit`: Data transmission rate (display value)
- `Receive`: Data reception rate (display value)

Status display of the IP receiver:

IP RX Channels

Channel	Interface	Prim. RX IP socket source	Sec. RX IP socket source	Ter. RX IP socket source	Encapsulation	FEC	TS Rate	TSID ONID	Alias
IP RX1	Data A	232.20.100.128:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0	1328 bytes 7 packets RTP/UDP/IP	none	37.8 Mbit/s Mult. PCR	1093 1	Bayern 1, ARD BR
	Data B	232.19.100.128:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0					
IP RX2	Data A	232.20.100.129:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0	1316 bytes 7 packets UDP/IP	none	38.9 Mbit/s Mult. PCR	1051 1	tagesschau24, ARD
	Data B	232.19.100.129:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0					
IP RX3	Data A	232.20.100.130:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0	1328 bytes 7 packets RTP/UDP/IP	none	38.2 Mbit/s Mult. PCR	1078 1	DATA SYSTEM TR 78, MTV Netwo
	Data B	232.19.100.130:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0					
IP RX4	Data A	232.20.100.131:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0	1328 bytes 7 packets RTP/UDP/IP	none	39.9 Mbit/s Mult. PCR	1024 1	TELE MELODY, CSAT
	Data B	232.19.100.131:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0					

Figure 15: Status display - IP RX channels

The different text formats refer to:

- Green: active
- Grey: inactive ("off")
- Black (bold): priority "hot", no errors
- Red (bold): priority "hot", errors
- Black (standard): priority "cold", no errors
- Red (standard): priority "cold", errors

The values set for the following parameters are displayed in the table "IP RX channels" for the 4 IP receivers – for outputs Data A and B respectively:

- `Prim. RX IP socket source`: Primary source
- `Sec. RX IP socket source`: Secondary source
- `Ter. RX IP socket source`: Tertiary source
- `Encapsulation`: Data encapsulation
- `FEC`: Forward error correction
- `TS Rate`: Data rate
- `TSID ONID`: Transport stream ID / original network ID
- `Alias`: Alias name

For details on the parameters: see section "Menu IP RX"

Status display of the PAL output programs:

RF Channels

Modulator	Stream	Service	PIDs	Channel Frequency Level	Reference	Status
RF1.1	IP_RX2 TSID:1010 ONID:1 Alias:Sat HD, ZDFvision	KIKA HD, ZDFvision (advanced codec HD digital television) SID:11160	PCR:6610 Video:6610 H264 Audio A:6622 Audio B:6621 Dual A+B TTX:6630	E55 743.250000 MHz 0.0 dB	uncal. undef.	ok
RF1.2	IP_RX1 TSID:1107 ONID:1 Alias:SAT.1, ProSiebenSat.1	N24, ProSiebenSat.1 (digital television) SID:17503	PCR:1023 Video:1023 MPEG2 Audio A:1024 Stereo	E56 751.250000 MHz 0.0 dB		ok

Figure 16: Status display - RF channels

The values set for the following parameters are displayed in the table "RF channels" for the 8 PAL output programs:

- `Modulator`: Output program
- `Stream`: Transport stream received
- `Service`: Service selected
- `PIDs`: Packet identifier
- `Frequency / Level`: Frequency / level selected

Details on the parameters can be found in the section "Menu RF".

Status messages on temperature, internal voltages and the power module:

Miscellaneous

Property	Mainboard
Temperature 1 (center)	48.5 °C
Temperature 2 (front)	50.5 °C
Temperature 3 (rear)	61.0 °C
Temperature 4 (PA)	33.5 °C
Supply 1.2 V	1.18 V
Supply 1.5 V	1.50 V
Supply 1.8 V	1.79 V
Supply 2.5 V	2.49 V
Supply 3.3 V	3.29 V
Supply 5.5 V	5.43 V
Supply 9 V	8.93 V
Fan	10364 RPM
Power Module	OK

Figure 17: Status display - Miscellaneous

The following, general parameters are displayed in the "Miscellaneous" table:

- `Temperature 1 (center)`: Temperature displayed in °C for the mainboard
- `Temperature 2 (front)`: Temperature displayed in °C for the mainboard
- `Temperature 3 (rear)`: Temperature displayed in °C for the mainboard
- `Temperature 4 (PA)`: Temperature displayed in °C for the HF output stage
- `Supply 1.2 V`: 1.2 V supply voltage
- `Supply 1.5 V`: 1.5 V supply voltage
- `Supply 1.8 V`: 1.8 V supply voltage
- `Supply 2.5 V`: 2.5 V supply voltage
- `Supply 3.3 V`: 3.3 V supply voltage
- `Supply 5.5 V`: 5.5 V supply voltage
- `Supply 9 V`: 9 V supply voltage
- `Fan`: Fan rotation speed
- `Power Module`: Functional status (OK or error message)

Memory status:

Property	Value
Total size of memory arena	63213380
Number of ordinary memory blocks	126
Space used by ordinary memory blocks	795952
Space free for ordinary blocks	62417404
Size of largest free block	62377284
Number of left files FOPEN_MAX	27
Number of left files NFILE	18
Number of free file descriptors NFD	18
CPU load 0.1s	0 %
CPU load 1s	3 %
CPU load 10s	11 %

Figure 18: Status display - System resources

Information on the internal resources of the operating system can be viewed in the “System resources” table. No settings can be made here.

File resources:

- ☐ `Number of left files FOPEN_MAX`
- ☐ `Number of left files NFILE`
- ☐ `Number of free descriptors NFD`

CPU load, averaged over XXs:

- ☐ `CPU load 0.1 s`
- ☐ `CPU load 1 s`
- ☐ `CPU load 10 s`

"Main" menu

This section explains how to make general settings for the interfaces and the management of the U 118 resp. U 118-X, as well as for the U 100 base unit.
Click on the item "Main" in the menu at the left.

Setting IP interfaces (administrator only)

You can configure IP interfaces and activate or deactivate them using the table shown above ("IP interface settings"). The connection type is automatically identified and displayed by the U 118 resp. U 118-X (in this case: 1 GBit/s, full duplex).

IP Interface Settings

Property	Management A (eth0)	Management B (eth1)	Data A (eth2)	Data B (eth3)
MAC	00:17:72:02:00:d0	00:17:72:03:00:d0	00:17:72:04:00:d0	00:17:72:05:00:d0
Active	on off	on off	on off	on off
Mode	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex	1 Gbit/s, full duplex
Address	192 . 168 . 1 . 150	192 . 168 . 5 . 150	172 . 24 . 0 . 150	172 . 25 . 0 . 150
Subnet	255 . 255 . 255 . 0	255 . 255 . 255 . 0	255 . 255 . 0 . 0	255 . 255 . 0 . 0
Broadcast	192.168.1.255	192.168.5.255	172.24.255.255	172.25.255.255
Gateway	192 . 168 . 1 . 100	0 . 0 . 0 . 0	0 . 0 . 0 . 0	0 . 0 . 0 . 0

Figure 19: Configuring IP interfaces

The following parameters are displayed, and can be configured:

- `MAC`: MAC address of the respective interface
- `Active`: Activate the radio button "on" to activate the interface. Activate the radio button "off" to deactivate the interface.
- `Mode`: Connection type (identified automatically)
- `Address`: IP address
- `Subnet`: Netmask
- `Broadcast`: Broadcast address
- `Gateway`: Gateway IP (if required)

HINWEIS: When programming the IP addresses, make sure the addresses have not already been allocated within your network. Address conflicts result in network malfunctions. (Please set unused parameters to 0.0.0.0.)

Submit Reset Form

To save your changes, click on the "Submit" button below the last table.

Configuring management settings

You can configure the following management settings in the second table ("IP management settings"):

IP Management Settings

Property	Value
DNS	0 . 0 . 0 . 0
SNTP server	0.0.0.0 0.0.0.0
Time Source	SNTP Server

Figure 20: Configuring management settings

- DNS: Enter a DNS server, if required, in the input fields.
- SNTP server: You can enter one or two time servers here (SNTP protocol).
- Time Source: Select the preferred time reference from the drop-down menu. The following options are available for selection: "SNTP server" and "IP RX 1 - 16".

To save your changes, click on the "Submit" button below the last table.

Configuring the base unit

You can enter settings for the U 100 base unit in the third table ("U 100 Rack settings").

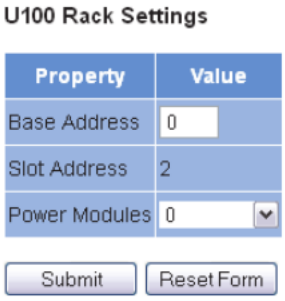


Figure 21: Configuring the U 100 base unit

The following parameters are displayed, and can be configured:

- Base Address: Enter an address for the base unit being used here. If the U 118 resp. U 118-X is managed using the U 100-C controller and several U 100 base units are being used, then each base unit must be allocated an address of its own.
  This setting must only be entered for one module per base unit.
- Slot Address: In accordance with the coding of the backplane of the U 118 resp. U 118-X performed previously (see section "Installing and connecting"), the address corresponding to the slot in the base unit is displayed here.
- Power Modules: Select the number of power modules used from the drop-down menu ("0" for 48 V operation, "1" or "2" for 230 V power modules).

To save your changes, click on the "Submit" button below the last table.

Saving and loading configurations / default and reboot

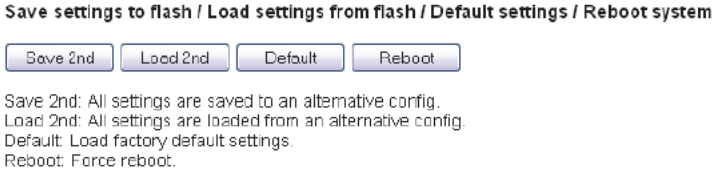


Figure 22: Saving and loading configurations

Changes to the configuration of the U 118 resp. U 118-X are written to the device by clicking the "Submit" button, and are activated immediately. If you wish to save the current status to a separate memory, click on the "Save 2nd" button (below the tables). This current status is then saved to the SD card in the U 118 resp. U 118-X.
(Please note that prior to installing the module, an SD memory card must be plugged in; see figure at left.)

You can retrieve this status again by clicking on the "Load 2nd" button. How to save the configuration onto the local computer or FTP server is explained in the section "Software update and configuration files".

Click on the "Default" button if you wish to restore the default settings.

ACHTUNG: If you click the "Default" button, all settings except for the user and network settings for the data and management ports are reset to the delivery state.

Click on the "Reboot" button to restart the unit with the last settings saved.

"Test generator" menu

The U 118 resp. U 118-X features an integrated test generator for a functional test when an input signal is not yet available. Null packets are generated with a preset packet ID. The maximum data rate that can be set totals 67 MBit/s.

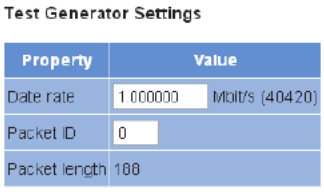


Figure 23: Test generator

The following settings are displayed, and can be configured:

- `Data rate`: Enter the preferred data rate in MBit/s in the input field.
- `Packet ID`: Enter the packet ID here.
- `Packet length`: Packet length is displayed.

To save your changes, click on the "Submit" button below the table.

"IP Channel" menu

To have the input masks for configuring the input and output channels displayed, click on the item "IP Channels" in the menu at the left.

You can check the settings for the input channels in the table at the bottom, "IP RX channel settings".

IP RX Channel Settings

Channel	Enable	Interface	Prim. RX IP socket source	Sec. RX IP socket source	Ter. RX IP socket source	Encapsulation	TSID ONID	Alias
IP RX1	on / off	Data A	232.19.100.136:10000 0.0.0.0	232.20.100.136:10000 0.0.0.0	0.0.0.0:10000 0.0.0.0	RTP/UDP/IP Mult. PCR	1117 1	ORF1, ORF
		Data B	232.19.100.136:10000 0.0.0.0	232.20.100.136:10000 0.0.0.0	0.0.0.0:10000 0.0.0.0			
IP RX2	on / off	Data A	232.19.100.129:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0	UDP/IP Mult. PCR		
		Data B	232.19.100.129:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0			
IP RX3	on / off	Data A	232.19.100.130:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0	RTP/UDP/IP Single PCR		
		Data B	232.19.100.130:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0			
IP RX4	on / off	Data A	232.19.100.132:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0	RTP/UDP/IP Mult. PCR		
		Data B	232.19.100.132:10000 0.0.0.0	0.0.0.0:0 0.0.0.0	0.0.0.0:0 0.0.0.0			

Figure 24: IP RX channel settings table

You can activate or deactivate the respective IP inputs here by clicking on the corresponding radio button. The following parameters are displayed for ports A and B respectively for the four IP input channels:

- Prim. RX IP socket source
- Sec. RX IP socket source
- Ter. RX IP socket source
- Encapsulation TSID / ONID
- Alias

HINWEIS: These parameters are explained in more detail in the section "IP RX menu".

Submit Reset Form

If you change the activation or deactivation status of inputs or outputs in one of the two tables, then click on the "Submit" button below the last table to save your changes. Click on "Reset form" to restore the original settings.

"IP RX" menu

To configure the 8 IP inputs, start by clicking on the item "IP RX 1", "IP RX2", "IP RX3", „IP RX4" etc. in the menu at the left. The following table will then appear in the content area at the top:

IP RX1 Channel Settings

Property	Data A (eth2) 1G	
Primary Receive IP:Port	232 . 19 . 100 . 136 : 10000	Priority
Primary Source Select	0 . 0 . 0 . 0	12 Highest/Hot
Secondary Receive IP:Port	232 . 20 . 100 . 136 : 10000	Priority
Secondary Source Select	0 . 0 . 0 . 0	11 Higher/Hot
Tertiary Receive IP:Port	0 . 0 . 0 . 0 : 10000	Priority
Tertiary Source Select	0 . 0 . 0 . 0	0 Off

Figure 25: Table 1 "IP RX1 channel settings"

"Receive IP" and "Port" (see lines 1, 3 and 5 in the table) form a socket on which the incoming data stream is received. This also allows the Receive IP address to be a multicast address or a unicast address of its own.
The IGMP protocol is used to request an IP multicast. If version 3 of this protocol is used, then you can select a specific source using the Source Select IP address (see lines 2, 4 and 6 in the table). If this function is to remain unused, please enter four zeroes in the input field. (This is, for example, the case when IGMP version 2 or IBMP version 3 from any source is being used as the protocol).

You can make a priority setting for the primary, secondary and tertiary IP address / port respectively using a drop-down menu. There are 13 options (from "off" to "highest/hot") available for selection. The priorities are divided into three groups:

- Hot standby (higher priorities) Levels 7 - 12: data streams are requested permanently
- Cold standby (medium priorities): Levels 1 - 6
- "Off"

As a rule – providing there are no network provider problems – the data stream with the highest priority is received and used for processing. In the event of a fault – failure of the incoming signal – a switch-over is made to the data stream with the next-highest priority.

If a priority level from the "Hot standby" group is allocated to a data stream, then this will continue to be requested even during network provider problems. As soon as the problem has been rectified, it switches back to this data stream.

Another table is shown in the following in which valid settings can be entered for Data Port A and B.

Property	Data A (eth2) + Data B (eth3)	
Enable	on / off	
Port	Data A / Primary / static	
Timeouts	in case of failure switch after 0 seconds, switch back to higher priority after 300 seconds.	
Error condition	data rate only / data rate, continuity count, service	
Encapsulation	RTP/UDP/IP / UDP/IP	automatic / manual
Bitrate	Single PCR (SPTS) / Mult. PCR (MPTS)	automatic / manual
FEC	on / off	
TSID / ONID	1107	1
Alias manual / automatic		SAT.1, ProSiebenSat.1

Figure 26: Table 2 "IP RX1 channel settings"

- `Enable`: Activate or deactivate the IP input by clicking on the corresponding radio button.
- `Port`: Configure the reception source for the IP channel here.
  Select either Port Data A or Data B from the first drop-down menu.
  Select either the "Primary", "Secondary" or "Tertiary" option from the second drop-down menu.
  Select the "static" option from the third drop-down menu if you do not wish to use an automatic replacement circuit for the data streams. Select the "automatic" option when the replacement circuit should be used as described above.
- `Timeouts`: Enter a time frame, in seconds, in the first input field after which a switch-over to the data stream with the next-lowest priority should occur in the event of a fault.
  Enter a time frame, in seconds, in the second input field after which it should switch back to the data stream with the higher priority after the problem has been rectified. (This is only the case when a priority level from the "Hot standby" group was allocated to the data stream - see explanation above).
- `Error condition`: If the data rate should be the only factor in the event of a fault, activate the radio button "data rate only". Otherwise, select the radio button "data rate, continuity count, service".
- `Encapsulation`: When the radio button "RTP / UDP / IP" has been activated, the corresponding RTP / UDP / IP data streams are received. If you activate the radio button "on" in the line "FEC", then the additional receive IP ports +2 and +4 will be received (example: apart from 10000, also 10002 and 10004). Additional redundancy information for fault correction is included in this.
  When the radio button "UDP / IP" has been activated, either UDP / IP data streams or RTP / UDP / IP data streams without an evaluation from RTP are received.
  Select either "automatic" or "manual" for the data encapsulation by clicking the corresponding radio button.
- `Bitrate`: Select either "automatic" or "manual" by clicking the corresponding radio button. If "manual" is selected and the radio button "Single PCR" has been selected at the same time, then the receive data stream is regulated using a single PCR. This is not suitable for transport streams with several PCRs.
  If you activate the radio button "Multi PCR", then the data rate is used for regulation. This is not possible for data streams with a variable bit rate.
- `FEC`: Activate or deactivate the FEC by clicking the radio button "on" or "off". (See "Encapsulation" above.)
- `TSID / ONID`: The respective value is displayed but cannot be changed.
- `Alias manual / automatic`: You can enter an alias name for the data stream in the input field at the left. The automatically generated alias name is displayed at the bottom right. This is the name of the first transmitter in the data stream. This is used if no name is entered manually.

Submit | Reset Form

Click on the "submit" button below the last table to save the changes.
Click on "Reset form" to restore the original settings.

"RF" menu

To configure the PAL outputs, start by clicking on the "RF" item in the menu at the left. The following table will then appear in the content area at the top, in which the most important settings for all output channels can be entered.

RF Channels

Modulator	Enable	Service	Channel Frequency	Level	Channel Filter	Reference	Status
RF1.1	on / standby / off	ZDF, ZDFvision (SID:28006 digital television)	S8 0 kHz 154.250000 MHz	0.0 dB			ok
RF1.2	on / standby / off	Nickelodeon, MTV Networks Europe (SID:28680 digital television)	S9 0 kHz 161.250000 MHz	0.0 dB	on / off not fitted	Set	ok
RF1.3	on / standby / off	WDR HD Köln, ARD (SID:28325 advanced codec HD digital television)	S10 0 kHz 168.250000 MHz	0.0 dB		uncal. undef.	ok
RF1.4	on / standby / off	WDR Köln, ARD (SID:28111 digital television)	E5 0 kHz 175.250000 MHz	0.0 dB			ok
RF2.1	on / standby / off	SWR Fernsehen BW, ARD (SID:28113 digital television)	E6 0 kHz 182.250000 MHz	3.8 dB			ok
RF2.2	on / standby / off	ProSieben, ProSiebenSat.1 (SID:17501 digital television)	E7 0 kHz 189.250000 MHz	3.8 dB	on / off not fitted	Set	ok
RF2.3	on / standby / off	tagesschau24, ARD (SID:28721 digital television)	E8 0 kHz 196.250000 MHz	0.0 dB		uncal. undef.	ok
RF2.4	on / standby / off	zdf_neo, ZDFvision (SID:28014 digital television)	E9 0 kHz 203.250000 MHz	0.0 dB			ok

Figure 27: Table 2 "RF channels"

- `Enable`: To activate or deactivate an output channel, click the corresponding radio button. If you select the "Standby" option, the decoder will run, but the corresponding output will be switched off. This may be practical when, for example, the module is being used as a replacement module in a redundant circuit.
- `Service`: Select the preferred service from the drop-down menu. Activate the "Show all service types" checkbox below the table to have a complete list of all services available displayed in the drop-down menu.
- `Channel Frequency`: When using the U 118 only for channels 1.1 und 2.1 a value can be chosen from the drop down list. The other three channels of each output are automatically adjusted to the selection made for the first channel within a frequency range of 32 MHz. Alternatively you can type a frequency value into the input field.
  When using the 118-X the desired frequency can be chosen for any of the channels via a drop down list in the frequency range of 80 MHz. If this frequency range is exceeded due to the chosen frequency values a warning notice will pop up. You then must change the selection accordingly.
- `Level`: Enter the preferred output level for the service in the input field.
- `Channel Filter`: If you wish to activate a channel filter, select an item from the "min." or "max." drop-down menus and activate the radio button "on".
  Note that the channel filter for the corresponding output channel must be connected (see figure at left).

- `Reference`: Click on the "Set" button to select the value entered within the modulation parameters as the reference. A 2.5 dB deviation from the output signal will result in a warning message being issued.

A table follows in which you can use the input field "Localisation" to select the language version of the channel list. "us" (USA), "de" (German), "fr" (French), "ru" (Russian) and "be" (Belgium) are available.

Click on the "submit" button below the last table to save the changes.
Click on "Reset form" to restore the original settings.

The table "RF Detector" is found below the table "RF Channels".

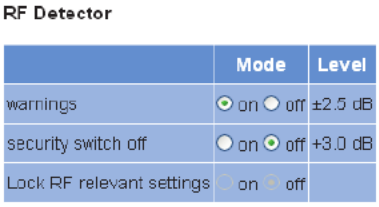


Figure 28: "RF Detector" table

You can activate or deactivate the warning message for the level deviation by clicking on the corresponding radio button.
You can also block access to HF-relevant settings here.

Click on the "submit" button below the last table to save the changes.
Click on "Reset form" to restore the original settings.

"RF 1 X" and "RF 2 X" menu

To enter detailed settings for the individual output channels, start by clicking on one of the menu items "RF 1.1 to RF 1.4" or "RF 2.1 to RF 2.2". The following table now appears in the upper part of the content area:

Service Settings

KiKA HD, ZDFvision (advanced codec HD digital television)				Primary active	Secondary	Tertiary
Transport Stream				SID	SID	SID
IP_RX2 TSID:1010 ONID:1 Alias:3sat HD, ZDFvision				11160	11160	11160
ES	Use	Language	Codec	PIDs	PIDs	PIDs
PCR				0	0	0
Video			MPEG4/A	0	0	0
Audio A		deu	AC3	0	0	0
Audio B	automatic off	mis	MPEG	0	0	0
Teletext	automatic off			0	0	0
Subtitling	automatic off			0	0	0

Figure 29: "Service settings" table

You can select the program to be converted to PAL here. This programme can be converted from any of the 8 IP receivers. The following, individual settings can be entered.

- `Transport Stream:` Select the preferred transport stream from the drop-down menu.
- `Primary active:` Enter the primary active SID and PIDs (PCR, Video, Audio A, Audio B, Teletext, Subtitling) for the transport stream selected in the input fields here.
- `Secondary:` Enter the secondary SID and PIDs (PCR, Video, Audio A, Audio B, Teletext, Subtitling) for the transport stream selected in the input fields here.
- `Tertiary:` Enter the tertiary SID and PIDs (PCR, Video, Audio A, Audio B, Teletext, Subtitling) for the transport stream selected in the input fields here.

Enter the value 0 in the "SID" input field if the PID should be selected manually.

You can select the preferred Codec for the parameters "Video", "Audio A" and Audio B" from the corresponding drop-down menu.

You can enter the preferred language versions for the parameters "Audio A", "Audio B" and "Subtitling" in the corresponding input field.

You can switch automatic usage on or off for the parameters "Audio B", "Teletext" and "Subtitling" by clicking on the corresponding radio button.

Submit Reset Form

Click on the "submit" button below the last table to save the changes.
Click on "Reset form" to restore the original settings.

Another table follows in which you can complete all the settings relating to the PAL output signal.

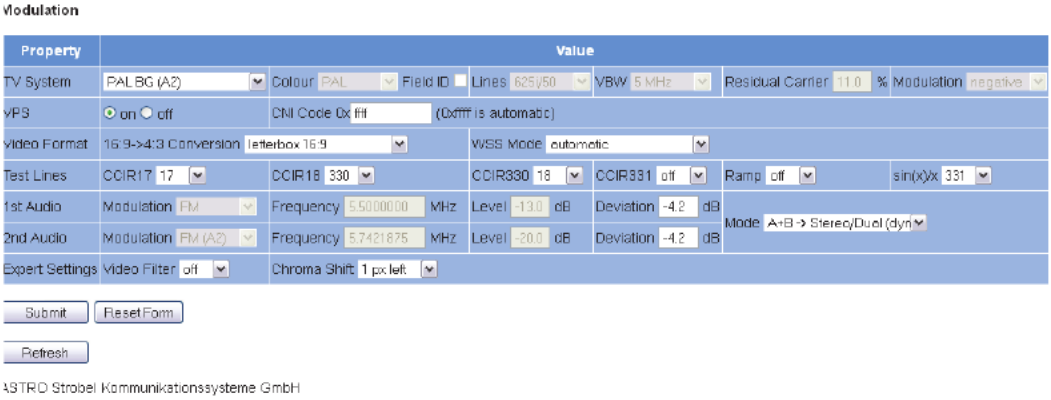


Figure 30: "Modulation" table

The following individual settings can be entered.

- `TV System:` Select the preferred TV system from the drop-down menu. If you select the item "manual", you can select individual parameters separately:
  - "Colour" (colour standard; PAL, SECAM or NTSC)
  - "Lines" (number of lines 625/50 or 525/60)
  - "VBW" (picture frequency 4.2 or 5 MHz)
  - "Residual carrier" (residual carrier; input in %)
  - "Modulation" (type of modulation; positive or negative)
- `VPS:` Activate or deactivate the signal for video programming by activating the corresponding radio button. Enter the CNI code (country and network identifier) in the input field.
- `Video Format:` Select the preferred format conversion from the drop-down menu ("Letterbox" or "Anamorphic"). Then select the WSS mode from the drop-down menu. The following options are available for selection:
  - "automatic" (preset; WSS Info from TS)
  - "off"
  - "decoder"
  - "fx 4:3" (fixed format; 4:3)
  - "fx converted" (fixed format; depending on the conversion setting, 16:9 or anamorphic)
- `Test Lines:` Select the preferred settings from the respective drop-down menus:
  - "CCIR17", "CCIR18", "CCIR330", "CCIR331", "Ramp" and "sin(x)/x" (off, 17, 18, 330 or 331 respectively)
- `1st Audio and 2nd Audio:` Enter the preferred audio hub in the input field "Deviation". Then set the preferred audio mode in the drop-down menu. The following are available for selection:
  - "A > Mono L + R"
  - "A > Mono L"
  - "A > Dual (L is main)"
  - "A > Dual (R is main)"
  - "Automatic"
  - "A + B > Dual (static)"
  - "A + B > Stereo/Dual (dynamic)"

- `Expert Settings:` Select one of the settings "off", "1", "2" or "3" for the video filter.
  You can also shift the chrominance (chromacity) for the luminance pixel by pixel. The following options for the chroma shift are provided in the corresponding drop-down menu:
  - "3 px left"
  - "2 px left"
  - "1 px left"
  - "off"
  - "1 px right"
  - "2 px right"
  - "3 px right"

Click on the "submit" button below the last table to save the changes.
Click on "Reset form" to restore the original settings.
If you click on the "Refresh" button, all information in the table is updated.

"Time Sharing" menu

To enter settings for the time sharing, start by clicking on the item "Time Sharing" in the main menu at the left. The following tables now appear in the upper part of the content area:

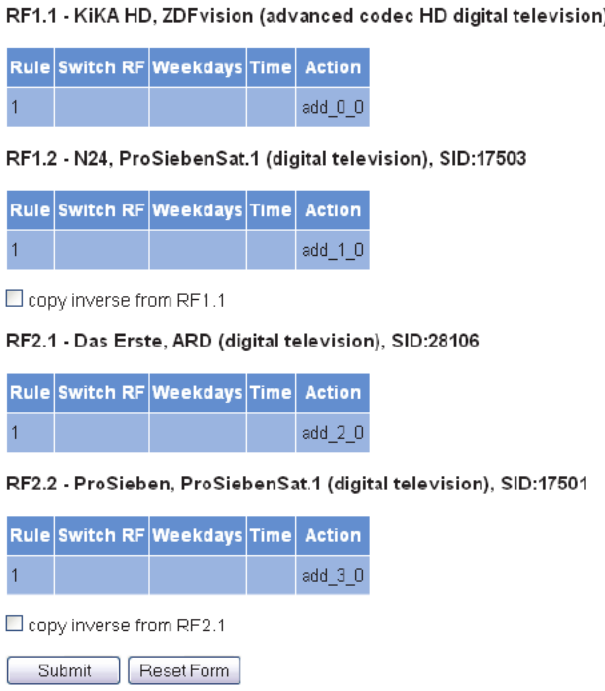


Figure 31: Overview of the current time sharing settings

The current time zone settings for the individual HF modulators are displayed here.
Click on the link in the "Action" column to allocate a time setting to an output channel. The settings for RF 1.1 can be copied inversely for RF 1.2 by activating the corresponding checkbox. To copy settings from RF 2.1 to RF 2.2, proceed the same way.

Click on the "Submit" button below the table to save the changes.
Click on "Reset form" to restore the original settings.

Another table follows in which you can configure the changeover to daylight savings time or standard time.

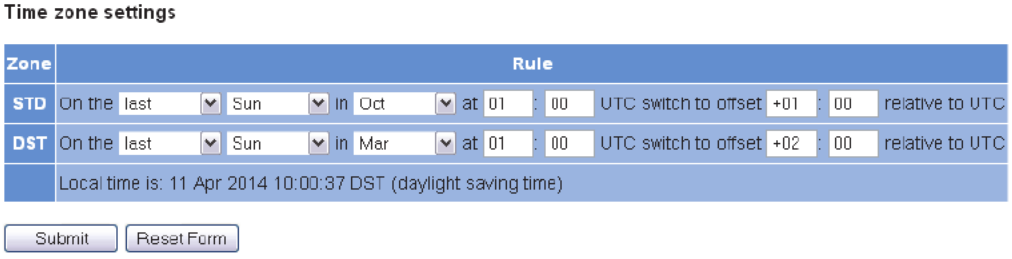


Figure 32: Overview of the current time sharing settings

Use the drop-down menu in the left part of the table to define the date and time for the time change.
The input fields in the right part of the table allow you to
enter the time change in hours and minutes respectively.

Click on the "Submit" button below the table to save the changes.
Click on "Reset form" to restore the original settings.

"OSD 1 X" and "OSD 2 X" menu

If you wish to enter the settings for the on-screen display (OSD) for one of the modulators, start by clicking on one of the corresponding menu items in the main menu at the left:
"OSD 1.1" to "OSD 1.4", resp. "OSD 2.1" to "OSD 2.4". The following tables now appear in the upper part of the content area:

OSD normal condition

Property	Value				
Enable	off on schedule	Period 0 minutes	shown at begin of period for 0 minutes (set 0 to disable)		
Text 1	U116 rechts RF - 1 - IP 160				
Text 2					
Position	Vertical centre bot 385		Reading direction L→R R→L		
Text	Colour white	Transparency solid	Speed 10 (0 for centred text)		
Border	Colour black	Transparency solid	Size 3		
Background	Colour black	Transparency 25%			
Still picture	off on schedule mute	X Position 0	Y Position 0	X Size 160	Y Size 128

Figure 33: "OSD normal condition" table

You can configure all the current OSD settings for normal conditions here. The following individual settings are available for selection:

- `Enable:` Click on the radio button "on" or "off" to activate or deactivate the OSD. Enter a display interval, in minutes, for starting the OSD in the "Period" input field. You can enter the display period in minutes in the input field to the right.
- `Text 1, Text 2:` Enter the preferred text in the input fields.
- `Position:` From the drop down list „Vertical" select the desired alignment of the OSD. Activate the corresponding radio button to choose the preferred direction (from left to right or from right to left).
- `Text:` Choose the desired text colour from the drop down list „Colour". In the drop down list „Transparency" you can select the desired of shade of transparency. In the input field „Speed" type in the preferred velocity of text movement. You can type in a value between 0 and 10 (0 will lead to a static text display).
- `Border:` Here you can define a border for the text. Choose the desired border colour from the drop down list „Colour". Select the shade of transparency from the drop down list „Transparency". Type in the width of the border into the input field „Size".
- `Background:` Here you can define a background colour for the text. Choose the desired colour from the drop down list „Colour". In the drop down list „Transparency" you can define the shade of transparency of the background.
- `Still picture:` Click on the radio button „on" resp. „off" to activate or deactivate a background picture. You also can define a timer based superimposition. To insert a picture, click on the link to the „Update"-Menu. Then click on the desired file in the table Config files" („still1.jpg" - „still4.jpg") to insert it into the OSD.
  You can define the position of the picture by typing the desired values into the input fields „X Position" and Y Position". Choose the dimensions by typing the desired values into the input fields „X Size" und Y Size".

Submit Reset Form

Click on the "Submit" button below the table to save the changes.
Click on "Reset form" to restore the original settings.

Another table follows in which an overview of the programmed time settings for alternative OSD texts is displayed.

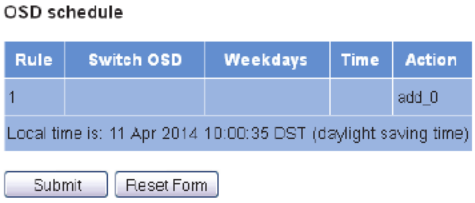


Figure 34: "OSD schedule" table

You can configure an alternative on-screen text display, for example, for the event of a fault in the table "OSD error condition" (further below).

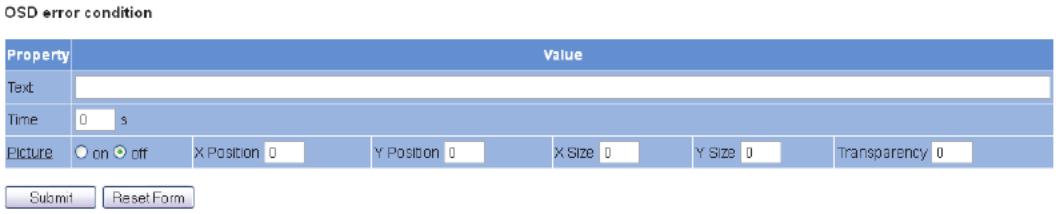


Figure 35: "OSD error condition" table

The following settings can be entered here:

- `Text:` Enter the preferred text in the input field.
- `Time:` Enter the preferred display time in seconds in the input field.
- `Picture:` Activate or deactivate a picture display by clicking on the corresponding radio button. Enter the preferred coordinates for the picture positioning, as well as the transparency value, in the input fields.

"SSL Settings" menu

HINWEIS: A licence is required to use the SSL functions.

To enter SSL settings, click on the item "SSL Settings" in the main menu at the left.

There is a checkbox in the upper table "SSL Settings" which displays the rerouting of HTTP requests to the secured version HTTPS. After input of the licence, the checkbox is activated.

Setting	Value
Redirect HTTP requests to HTTPS	☐

Figure 36: "SSL Settings" table

In the following table, "Generate a CSR for this device", individual items of information about the device can be entered ("Certificate Signing Request": address, organisation, etc.).

Generate a CSR for this device

CSR Attribute	Value
Private key in use	generated by device
Country (C)	DE
State (ST)	
Locality (L)	
Organization (O)	
Organizational Unit (OU)	
Common Name (CN)	192.168.1.153
Generate CSR with above data	Download CSR

Figure 37: "Generate a CSR for this device" table

By clicking the "Download CSR" button, you can create a "Certificate Signing Request" with which your CA can issue a certificate for the device. The input field "Private key use" shows you whether the device's own key, or the key which was entered and saved, is being used.

There is a third table, "Key and certificate settings", below this.

Key and certificate settings

Upload device key in PEM format	Durchsuchen... Keine Datei ausgewählt.	Upload key
Clear supplied key	Clear key	
Upload device certificate in PEM format	Durchsuchen... Keine Datei ausgewählt.	Upload certificate
Clear supplied certificate	Clear certificate	
Regenerate device key and certificate	Regenerate	

Submit Reset Form

Figure 38: "Key and certificate settings" table

"

Submit Reset Form

This table allows you to:

- ☐ Upload a device key (click on the "Search" button and select the preferred file; then click on the "Upload key" button)
- ☐ Delete an existing device key (click the "Clear key" button)
- ☐ Upload a device certificate (click on the "Search" button and select the preferred file; then click on the "Upload certificate" button)
- ☐ Delete an existing device certificate (click the "Clear certificate" button)
- ☐ Regenerate a device key and device certificate (click the "Regenerate" button)

If you change the activation or deactivation status of inputs or outputs in one of the two tables, then click on the "Submit" button below the last table to save your changes. Click on "Reset form" to restore the original settings.

The device administers two keys/pairs of certificates: "generated" and "user". The following figure shows which certificate and which key are used.

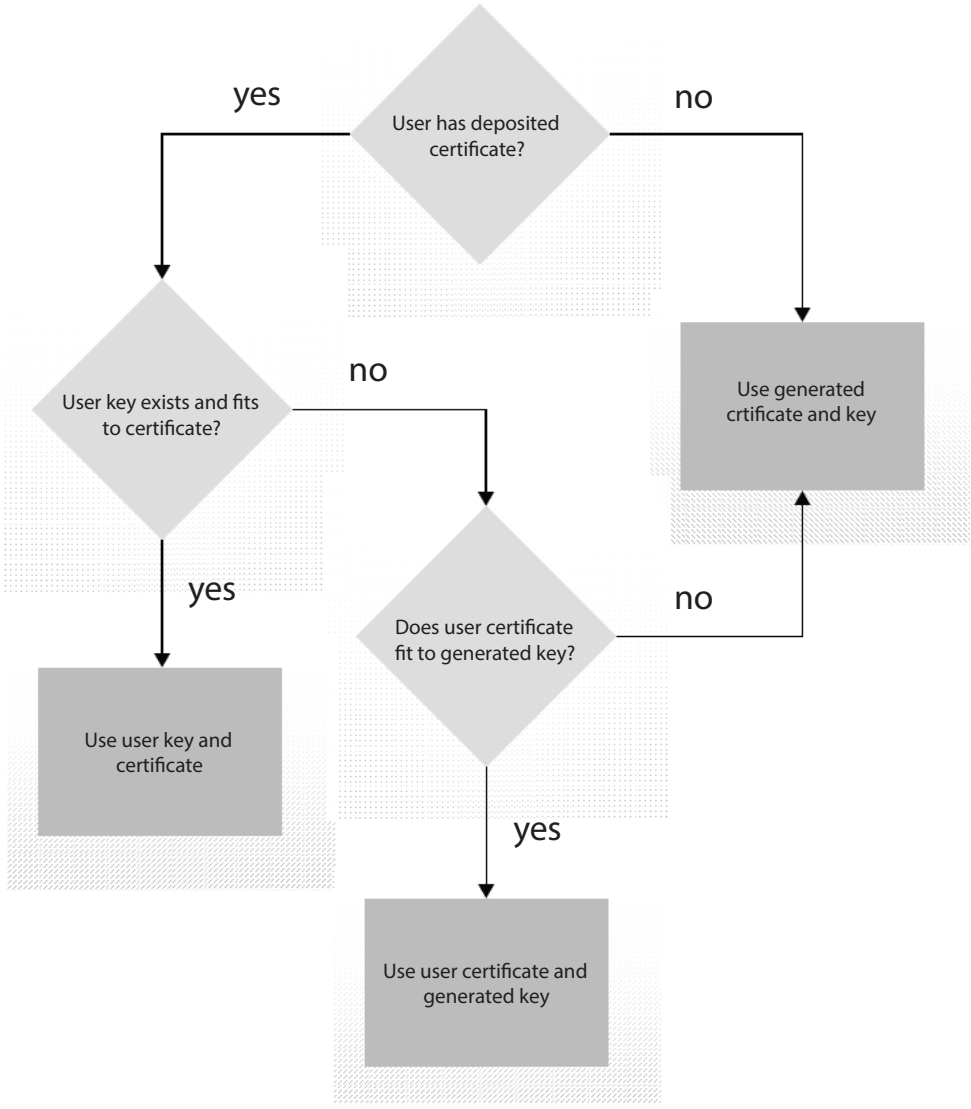


Figure 39: Using the certificates/keys

"User Settings" menu

Click on the menu item "User Administration" in the main menu at the left to have the corresponding input mask displayed. The input mask shown in figure 38 now appears.

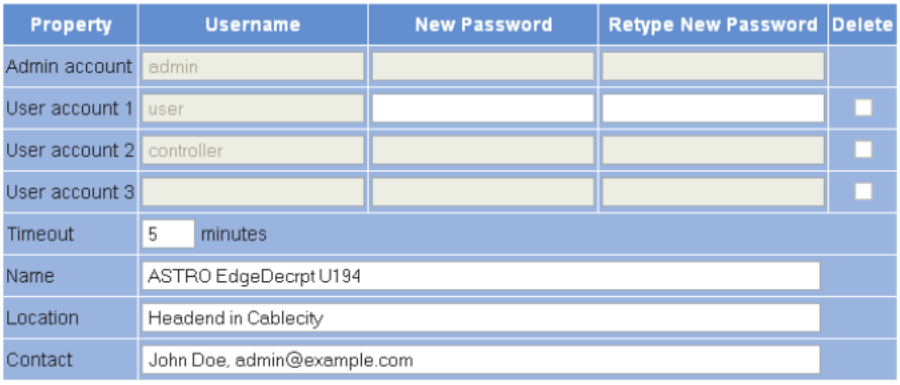


Figure 40: User administration

You can create up to four users for the user interface of the U 118 resp. U 118-X. 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 preferred user name in the input field `User name`. Then enter the preferred password in the input field `New Password`, and confirm it by typing it in the input field `Retype New password` again.

HINWEIS: A password must contain at least 5 characters. If the checkbox „Enforce password policy" is activated, a password must contain at least 8 characters and special types of characters.

To delete a user account, activate the corresponding checkbox `Delete` for the respective account in the right 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 automatic logout is displayed under the main menu, in the left column of the user interface.
- `Name, Location, Contact`: You can save a name for the system, the location and the contact data for a person in these input fields. They are displayed in the status line.
- `Enforced Password Policy`: Activate the checkbox when a password should have a minimum of 8 characters, and include at least one lower-case letter, one upper-case letter, one number and one special character.
- `Disallow anonymous access`: Activate the checkbox when access to the content area (tables) should only be possible after logging in.

WICHTIG: All changes will only become effective after you have clicked on the "Submit" button below the input mask. Click on the "Reset Form" button to delete the input values again.

Another table follows in which you can enter information for a RADIUS server. A licence is also required for the RADIUS server function.

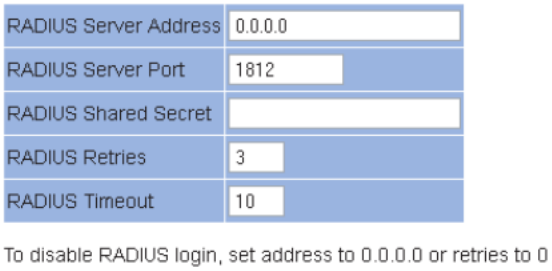


Figure 41: RADIUS administration

The following individual items of information can be entered:

- RADIUS Server Address
- RADIUS Server Port
- RADIUS Shared Secret
- RADIUS Server Retries
- RADIUS Server Timeout

HINWEIS: *Users that are configurated on the device will be deactivated when a RADIUS server is configurated!*
The RADIUS server must be configurated. Users with service type „Administrative" are administrators of the device.
When the checkbox „Enable Radius Login" is clicked, the RADIUS function is activated, if the RADIUS Server is accessible. If this is not the case,, the RADIUS function remains inactive and the following message appears: „RADIUS logins have not been enabled because the connection check failed".

You can create a white list for all incoming IP data in a further table. In this case, only IP data will be processed which come from a source entered in the white list.

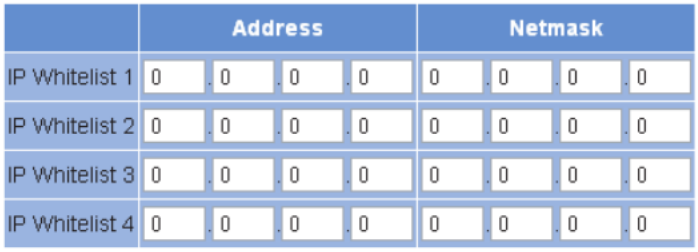


Figure 42: White list administration

The following parameters can be specified for four IP sources respectively:

- IP address
- Netmask

"TS Analyzer" menu

The U 118 resp. U 118-X can be equipped with a Transport Stream Analyzer by purchasing a licence. This Analyzer displays the structure of the MPEG2 TS, from the tables to the individual PID and its service. Click on the "TS Analyzer" submenu to access the selection of the transport stream for analysis. The following input mask now appears:

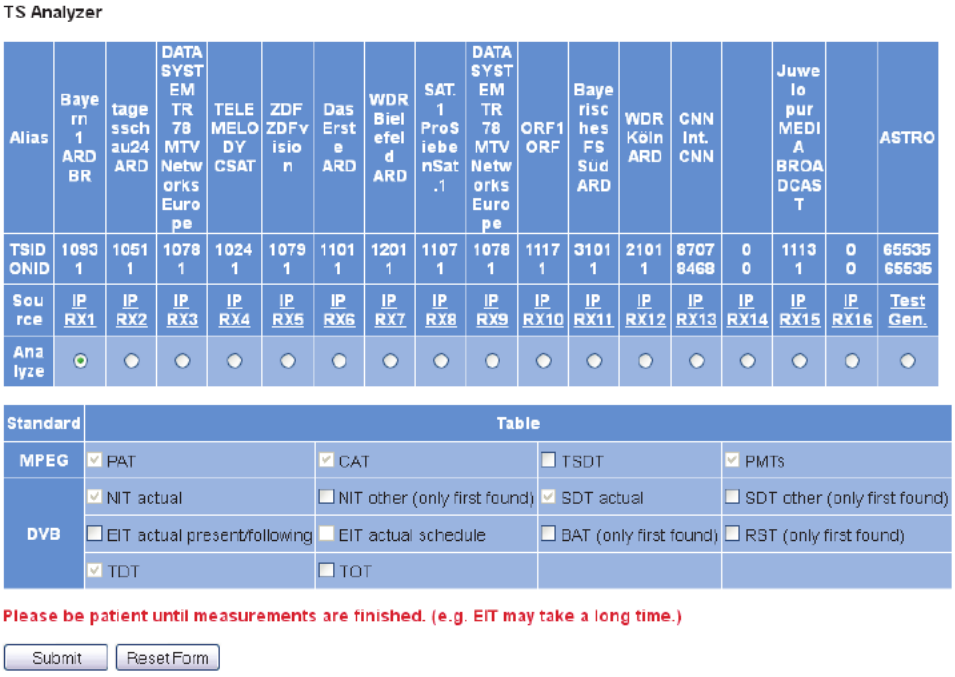


Figure 43: Transport stream analyzer

To analyse a transport stream, click on the corresponding radio button in the "Analyze" line and then click on the "Submit" button. If you wish to reset your inputs, click on the "Reset" button.

HINWEIS: The two buttons "Submit" and "Reset" are only visible when this module has been licensed. If this is not the case, the link "No licence" will appear instead. Click on this, or the item "Licence" in the menu at the left to access the "Licensing" input mask (more detailed explanation of this is found in the section "Licensing").

"Licensing" menu

A number of functions of the U 118 resp. U 118-X (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 from ASTRO. You will 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:

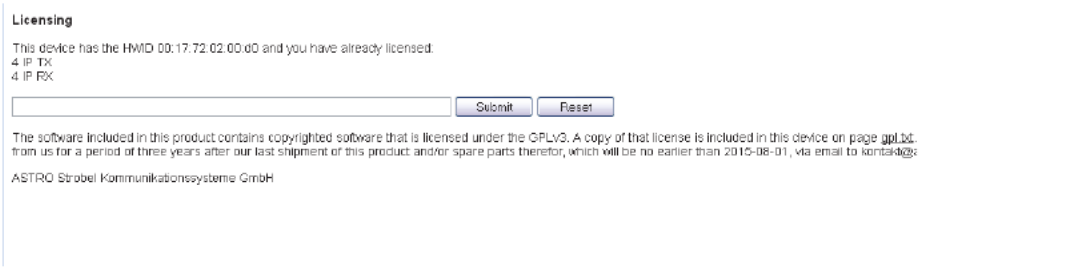


Figure 44: Enabling licences using the licence key

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.

To order additional licences, the MAC address of the device must be specified.
You will find the MAC address on the web browser interface in the "Licensing" submenu (HWID). After the MAC address has been submitted, the licence keys are generated by ASTRO are sent by e-mail or on a CD.

"Update/config." menu

The menu item "Update/config." allows you to update the firmware version of your device and upload and download a variety of configuration data.

Firmware update from a local memory location

You will require an update archive for updating the device firmware. This can be downloaded from the ASTRO firmware server (address: "http://astro-firmware.de/Headend-Firmware/u1xx"). The file name of the archive required ends in ".up". The name is comprised of the type designation of the device (U 118 resp. U 118-X) and a four-digit version number.
Once the update archive has been downloaded, start by selecting the item "Update/Config." in the menu of the user interface. The "Software update" table then appears in the content area at the top.

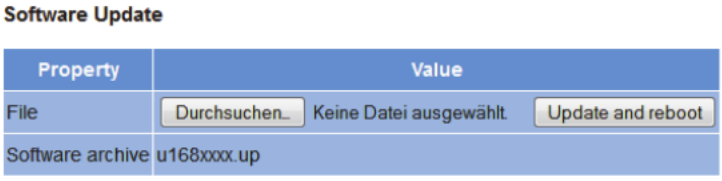


Figure 45: Firmware update

Now click on the "Search" button and select the path to the memory location of the update archive downloaded beforehand.
Then click on the "Update and Reboot" button to start the update process. Please wait for the process to be completed, and for the device to reboot.

Available Update Archives

The table tabelle „Available Update Archives" shows an overview update-archives already stored in the module (up to ten). Users can have access to older software versions (Installation or deleting).

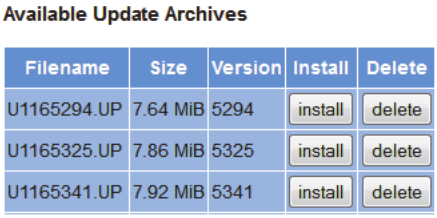


Bild 46: Firmware Update

Uploading and downloading configuration files

Figure 47: Loading/saving 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:

- `System settings` (XML format)

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

Downloading configuration/status files

Config/status files (read only)

Property	Value
Module info	module.xml
IP configuration	ip.xml
System status	status.xml
System measurements	measure.xml

Figure 48: Loading status files

The following files are available for download:

- `Module info` (XML format)
- `IP configuration` (XML format)
- `System status` (XML format)
- `System measurements` (XML format)

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

Loading/saving firmware and configurations using (T)FTP

You can update firmware using a (T)FTP server using the table "Firmware update and configuration via server" and load or save configuration files.

Firmware update and configuration via server

Property	Value
(T)FTP Server address	astro-firmware.de
Protocol	FTP TFTP
FTP Username (e.g. anonymous)	anonymous
FTP Password (e.g. guest)	•••••
Path	/Headend-Firmware/u1xx/
Version	
Mode	Please select

Figure 49: Loading/saving firmware updates and configurations using (T)FTP

To carry out the preferred action, start by selecting an action from the drop-down menu in the "Mode" line. 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 individual actions are available for selection:

- "**Load config from server**" action: A configuration stored on the (T)FTP server is transmitted to the U 118 resp. U 118-X and can be activated immediately. The IP settings for the data and management interfaces on the device are not changed. The file "settings.xml" are written onto the U 118 resp. U 118-X.
- "**Save config to server**" action: The current configuration of the U 118 resp. U 118-X 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)
  - "user.xml" (user data)
- "**Update firmware from server**" action: If you select this action, you must specify the preferred software version under `Version` (a 4 character maximum applies). One the update is successful, the message "Firmware update OK. Please reboot to use the new firmware version" appears.
- "**Load firmware from server**" action: If you select this action, you must specify the preferred software version under `Version` (a 4 character maximum applies). The software selected is written to the SD memory card, but will not be unpacked.
- "**Unpack *.up archive**" action: If you select this action, the update archive is unpacked and saved to the SD memory card (specify the version number).
- "**Update firmware from SD card**" action: If you select this action, the update archive is unpacked, saved to an SD memory card and programmed into the module (enter the version number).
- "**Overwrite backup firmware**" action: The device software is saved in two partitions. The software saved in the first partition is used for operating the module, while the second partition is used to keep a backup copy ready for the event that the update process fails. As long as both partitions are different, the information "Backup differs" will be displayed in the menu "Active Alarm Table". The current software is copied to the backup partition when this action is carried out.

Once you have selected an action, you can add any information still missing from the remaining lines of the table:

- `(T)FTP Server address:` Address of the server
- `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 basic TFTP protocol.
- `FTP User name:` This depends on the settings for the FTP server used (for astro-firmware.de e.g. "anonymous").
- `FTP Password:` 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.

HINWEIS: If the update is carried out using the TFTP protocol, then filling in the input fields "FTP User name" and "FTP Password" is not necessary.

"System Log" menu

To have the system log displayed, click on "System log" in the menu at the left. The following overview will now appear:

Figure 50: System log

You can check or configure the following parameters individually:

System log settings

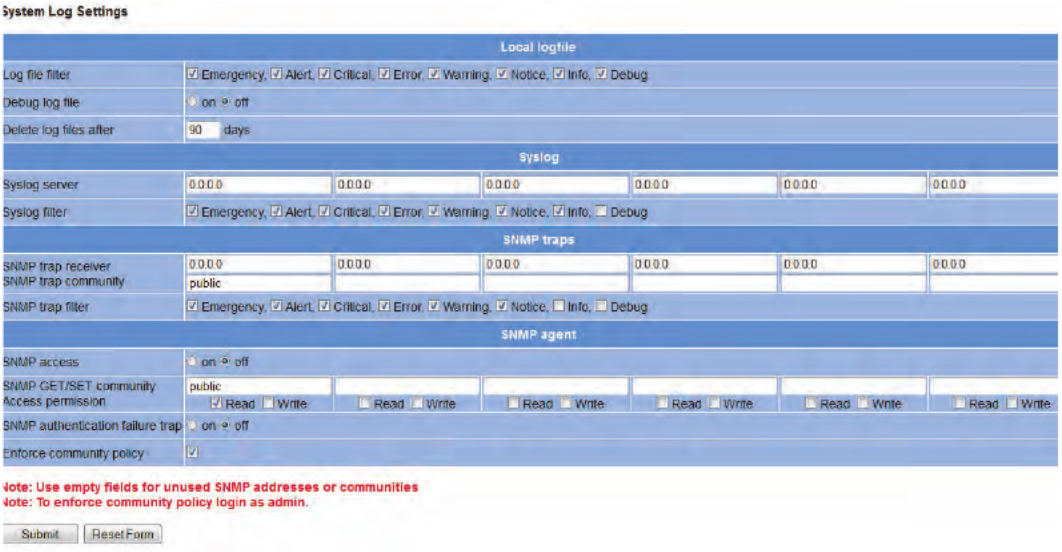


Figure 51: Filter settings for the system log display

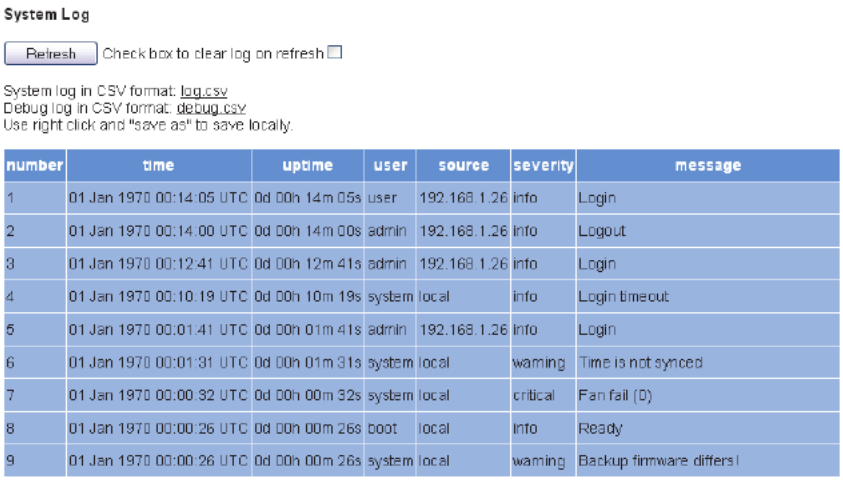
You can activate or deactivate filters for displaying the log entries here. To have messages from the corresponding category displayed, activate the checkbox allocated to the category.

HINWEIS: You can connect to higher-level management systems using the "Syslog" and "SNMP" parameters.

Management Information Base (MIB)

The NSMP MIBs available are stored on the device and can be downloaded by using the download link below the table "System Log Settings".

System log



System Log

Refresh Check box to clear log on refresh ☐

System log in CSV format: log.csv
Debug log in CSV format: debug.csv
Use right click and "save as" to save locally.

number	time	uptime	user	source	severity	message
1	01 Jan 1970 00:14:05 UTC	0d 00h 14m 05s	user	192.168.1.26	info	Login
2	01 Jan 1970 00:14:00 UTC	0d 00h 14m 00s	admin	192.168.1.26	info	Logout
3	01 Jan 1970 00:12:41 UTC	0d 00h 12m 41s	admin	192.168.1.26	info	Login
4	01 Jan 1970 00:10:19 UTC	0d 00h 10m 19s	system	local	info	Login timeout
5	01 Jan 1970 00:01:41 UTC	0d 00h 01m 41s	admin	192.168.1.26	info	Login
6	01 Jan 1970 00:01:31 UTC	0d 00h 01m 31s	system	local	warning	Time is not synced
7	01 Jan 1970 00:00:32 UTC	0d 00h 00m 32s	system	local	critical	Fan fail (0)
8	01 Jan 1970 00:00:26 UTC	0d 00h 00m 26s	boot	local	info	Ready
9	01 Jan 1970 00:00:26 UTC	0d 00h 00m 26s	system	local	warning	Backup firmware differs!

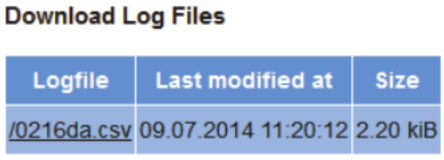
Figure 52: Logfiles

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 do not wish for the existing entries to be displayed after a refresh, activate the checkbox "Check-box to clear log on refresh". Once the checkbox has been activated, 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).

You can also download the following logfiles:

- ☐ `System log` (CSV format)
- ☐ `Debug log` (CSV format)

Downloading log files



Download Log Files

Logfile	Last modified at	Size
/0216da.csv	09.07.2014 11:20:12	2.20 kiB

Figure 53: Downloading log files

A maximum of 2,500 lines is displayed in the "Log files" table. The complete log file can be downloaded from the "Download Log Files" table by clicking on the file name XX.csv.

"Alarm severities" menu

You can change the alarm settings for diverse parameters or deactivate the alarm display for a parameter, when preferred. To do so, click on the item "Alarm Severities" in the menu at the left. A set of tables for different parameter groups then appears:

Status of power supply, temperature, fan

Code	Message	emergency	alert	critical	error	warning	notice	info	debug	off
0x1000002	Temp 1 fail (%.1f)	○	○	◉	○	○	○	○	○	○
0x1000002	Temp 1 good (%.1f)	○	○	○	○	○	◉	○	○	○
0x1000003	Temp 2 fail (%.1f)	○	○	◉	○	○	○	○	○	○
0x1000003	Temp 2 good (%.1f)	○	○	○	○	○	◉	○	○	○
0x1000004	Temp 3 fail (%.1f)	○	○	◉	○	○	○	○	○	○
0x1000004	Temp 3 good (%.1f)	○	○	○	○	○	◉	○	○	○
0x1000005	Temp 4 fail (%.1f)	○	○	◉	○	○	○	○	○	○
0x1000005	Temp 4 good (%.1f)	○	○	○	○	○	◉	○	○	○
0x1000006	Fan fail (0)	○	○	◉	○	○	○	○	○	○
0x1000006	Fan good (%.0f)	○	○	○	○	○	◉	○	○	○
0x1000007	Supp 1.2 fail (%.2f)	○	○	◉	○	○	○	○	○	○
0x1000007	Supp 1.2 good (%.2f)	○	○	○	○	○	◉	○	○	○
0x1000008	Supp 1.5 fail (%.2f)	○	○	◉	○	○	○	○	○	○
0x1000008	Supp 1.5 good (%.2f)	○	○	○	○	○	◉	○	○	○
0x1000009	Supp 1.8 fail (%.2f)	○	○	◉	○	○	○	○	○	○
0x1000009	Supp 1.8 good (%.2f)	○	○	○	○	○	◉	○	○	○
0x100000a	Supp 2.5 fail (%.2f)	○	○	◉	○	○	○	○	○	○
0x100000a	Supp 2.5 good (%.2f)	○	○	○	○	○	◉	○	○	○
0x100000b	Supp 3.3 fail (%.2f)	○	○	◉	○	○	○	○	○	○
0x100000b	Supp 3.3 good (%.2f)	○	○	○	○	○	◉	○	○	○
0x1000010	Supp 5.2 fail (%.2f)	○	○	◉	○	○	○	○	○	○

Figure 54: Alarm Severities

The preset options for the alarm messages are identified by a green frame. Retaining these settings is recommended.

"Active alarms" menu

To have the "Active Alarm" table displayed, click on the corresponding item in the menu at the left. The following table now appears:

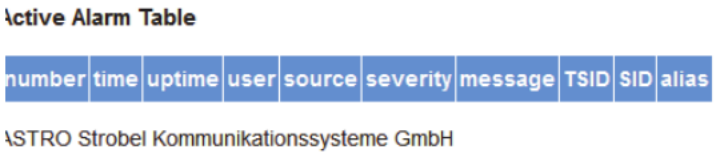


Figure 55: Active alarm table

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

HINWEIS: *You can also access the "Active Alarm Table" by clicking the red point in the status line in the upper section of the user interface.*

"Statistics" menu

To have data transmission statistics for the U 118 resp. U 118-X displayed, click on the "Statistics" item in the menu at the left. All statistics relevant to the operation of the device and which can be used for analysis are displayed here. The following individual tables are displayed:

Ethernet bandwidth

Ethernet bandwidth

Property	Management A (eth0) 1G full	Management B (eth1) 1G full	Data A (eth2) 1G full	Data B (eth3) 1G full
Transmit	0.8 Mbit/s	0.0 Mbit/s	76.6 Mbit/s	76.6 Mbit/s
Receive	0.0 Mbit/s	0.0 Mbit/s	71.0 Mbit/s	70.9 Mbit/s

Figure 56: Ethernet bandwidth

The transmission rates for sending (transmit) and reception (receive) are specified for the respective interfaces Management A, Management B, Data A and Data B.

Ethernet frames

Property	Data A (eth2) 1G	Data B (eth3) 1G
Total frames sent by host	19	19
Total frames sent to host	284	272
Total exception frames sent to host	87	0
Total errored frames received	0	0
Total frames discarded by deencapsulator	108776	130563
Total frames discarded because of lack of buffers	0	0
Total transmit frames generated from IP TX 1 / per sec.	2792023 / 3214	2792023 / 3214
Total transmit frames generated from IP TX 2 / per sec.	3071235 / 3535	3071235 / 3535
Total transmit frames generated from IP TX 3 / per sec.	91130 / 103	91130 / 103
Total transmit frames generated from IP TX 4 / per sec.	91130 / 103	91130 / 103
Total receive frames forwarded to IP RX 1 / per sec.	2814153 / 3214 2814152 / 3214 0 / 0	2814150 / 3214 2814149 / 3214 0 / 0

Figure 57: Ethernet frames

The following parameters are displayed for the interfaces Data A and Data B, in this order:

- The number of IP frames transmitted to the processor is specified in the first three lines of the table.
- Number of defective frames.
- Number of frames which could not be allocated.
- Number of frames which could not be allocated due to exceeding the total buffer depth.
- The number of frames transmitted per transport stream in total or per second is displayed in lines 7 to 10 for each IP transmitter.
- The number of frames forwarded to the IP receiver (primary, secondary and tertiary respectively) are displayed in the last line.

Ethernet RX

Channel	Encap	TS Rate	Buffer depth	FEC	Valid	Missing	Fixed	Duplicate	Reordered	Out of range
IP RX1	1328 bytes 7 packets RTP/UDP/IP	33.8 Mbit/s Mult. PCR	0 Frames 0.0 % 0.0 ms	none	2744031	0	0	0	0	0

Refresh Check box to clear statistics on refresh ☐

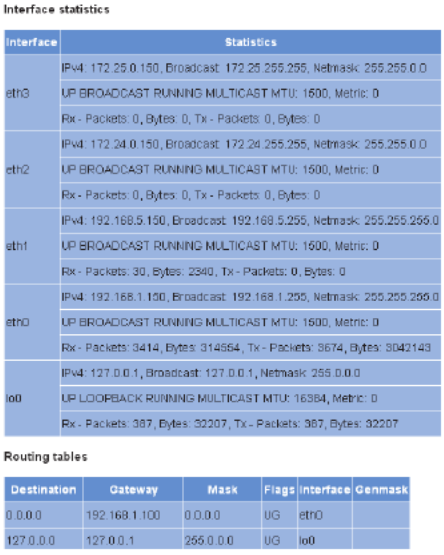
Figure 58: Ethernet RX

The following parameters are displayed for the individual IP receivers:

- `Encap:` The number of bytes in the IP payload for each frame is specified in the upper line; below this, the number of TS packets per frame is displayed. The lower line specifies whether the transmission occurs by UDP / IP or TRP / UDP / IP. The transmission protocol is selected under the menu item “IP RX” in the table line “Encapsulation”.
- `TS Rate:` The net data rate is specified in the upper line; the lower line displays whether the transport stream includes one, or a multiple, PCR. This setting can be made under the menu item “IP RX” in the table “Channel settings”, line “Bit rate”.
- `Buffer depth:` The absolute buffer depth is displayed in the upper line (number of frames); below this, the relative buffer depth (in %) is displayed. The buffer depth is displayed in relation to the transport stream rate in the third line.
- `FEC:` If an RTP data stream is being used, the FEC configuration detected is displayed here. Prerequisite for this is that FEC has been activated in the “IP RX” menu (radio button “ON”).
- `Valid:` Total number of valid IP frames.
- `Missing:` Total number of IP frames not received (is only measured when RTP is used).
- `Fixed:` When Forward Error Correction (FEC) is activated, missing or defective frames can be restored. The number of frames which were restored is displayed.
- `Duplicate:` The number of IP frames received several times (is only displayed when RTP is used).
- `Reordered:` The number of IP frames arriving in the wrong order, but which were able to be switched back due to a sufficient buffer depth (is only displayed when RTP is used).
- `Out of range:` The number of IP frames arriving in the wrong order and which could not be switched back due to an insufficient buffer depth.

"Network" menu

To have the network settings displayed, click on "Network" in the menu at the left. The following overview will now appear:



Interface statistics

Interface	Statistics
eth3	IPv4: 172.25.0.150, Broadcast: 172.25.255.255, Netmask: 255.255.0.0
	UP BROADCAST RUNNING MULTICAST MTU: 1500, Metric: 0
	Rx - Packets: 0, Bytes: 0, Tx - Packets: 0, Bytes: 0
eth2	IPv4: 172.24.0.150, Broadcast: 172.24.255.255, Netmask: 255.255.0.0
	UP BROADCAST RUNNING MULTICAST MTU: 1500, Metric: 0
	Rx - Packets: 0, Bytes: 0, Tx - Packets: 0, Bytes: 0
eth1	IPv4: 192.168.5.150, Broadcast: 192.168.5.255, Netmask: 255.255.255.0
	UP BROADCAST RUNNING MULTICAST MTU: 1500, Metric: 0
	Rx - Packets: 30, Bytes: 2340, Tx - Packets: 0, Bytes: 0
eth0	IPv4: 192.168.1.150, Broadcast: 192.168.1.255, Netmask: 255.255.255.0
	UP BROADCAST RUNNING MULTICAST MTU: 1500, Metric: 0
	Rx - Packets: 3414, Bytes: 314664, Tx - Packets: 3674, Bytes: 3042143
lo0	IPv4: 127.0.0.1, Broadcast: 127.0.0.1, Netmask: 255.0.0.0
	UP LOOPBACK RUNNING MULTICAST MTU: 16384, Metric: 0
	Rx - Packets: 387, Bytes: 32207, Tx - Packets: 387, Bytes: 32207

Routing tables

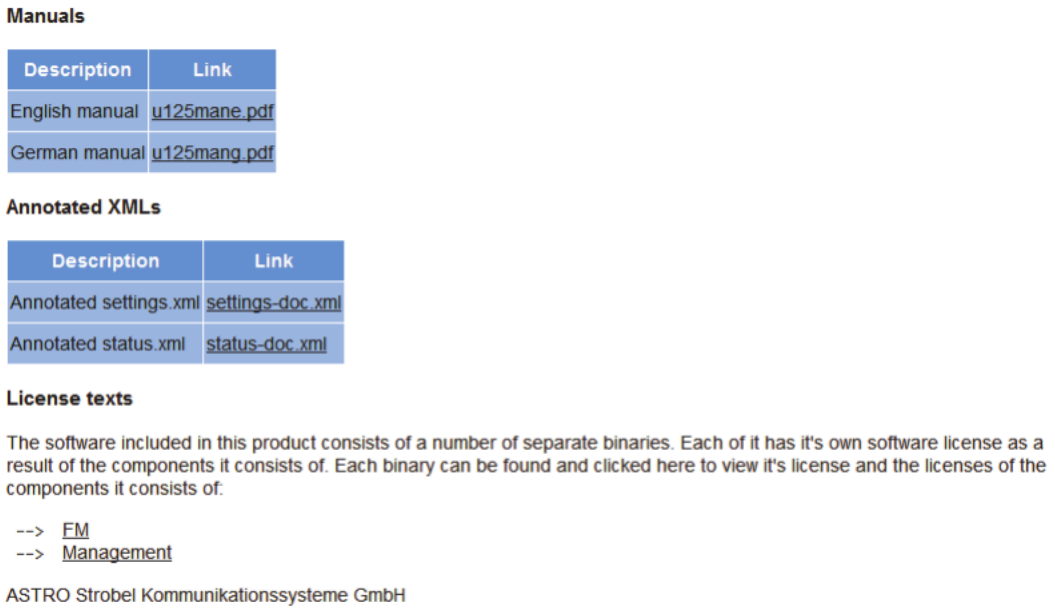
Destination	Gateway	Mask	Flags	Interface	Genmask
0.0.0.0	192.168.1.100	0.0.0.0	UG	eth0	
127.0.0.0	127.0.0.1	255.0.0.0	UG	lo0	

Figure 59: Network settings

The detailed interface statistic properties which are displayed are for information purposes only, and are used to describe the network. They could be useful for customer service in the event of a fault.

„Documentation" menu

To hsve a list of operating manuals, XML-Files and license texts displayed, click on „Documentation". in the menu at the left. The following overview will now appear:



Manuals

Description	Link
English manual	u125mane.pdf
German manual	u125mang.pdf

Annotated XMLs

Description	Link
Annotated settings.xml	settings-doc.xml
Annotated status.xml	status-doc.xml

License texts

The software included in this product consists of a number of separate binaries. Each of it has it's own software license as a result of the components it consists of. Each binary can be found and clicked here to view it's license and the licenses of the components it consists of:

--> FM
--> Management

ASTRO Strobel Kommunikationssysteme GmbH

Figure 66: Menu „Documentation"

To open a file, just click on the desired item.

Troubleshooting

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

- ☐ Check whether the device is connected to the required grid voltage (230 V~, 50 Hz for the U 100 base unit, and 48 V for the U 100-48 base unit).
- ☐ 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

The device must not be opened other than for repair purposes. Repairs may only be carried out at the factory or at workshops, or by persons, authorised by ASTROBit GmbH.
Read carefully: EN 60728-11 Safety requirements: No service work during thunderstorms.

*HINWEIS: In the event of repairs, **DIN VDE regulations 0701 - 0702**, where applicable, must be adhered to, and these are secondary to the relevant data specifications in DIN EN 60950-1. **You must disconnect the power plug before opening the base unit!***

Service tasks

The following tasks, which involve the removal of screw connections, can be performed by appropriately instructed service personnel: Removal and installation of signal converters
(e.g. U 116) and power modules, even when the U 100 is operating.

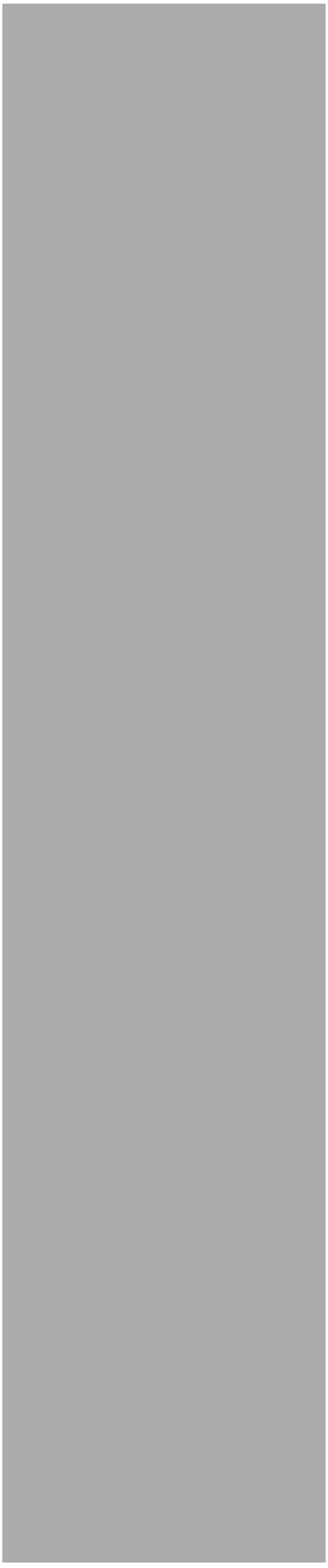
Replacing converter modules

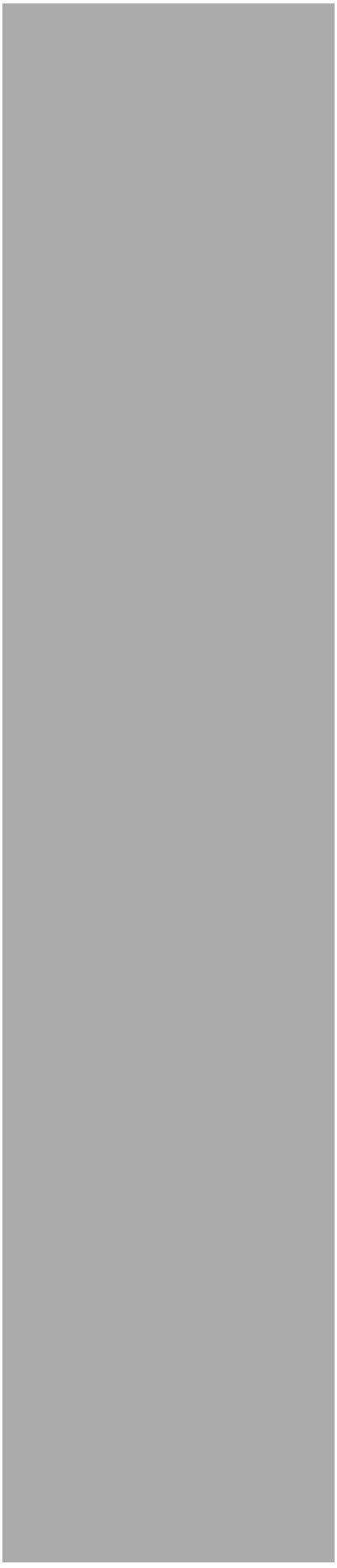
Converter modules can be pulled out to the front after removing the safety screw in the front covers (see section “Connecting and installing the module”)

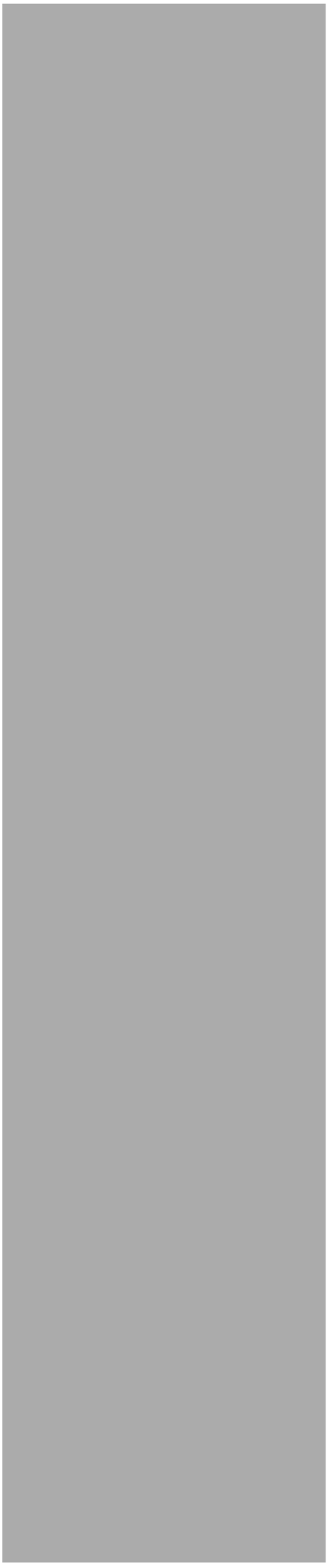
Technical data

Type		U 118	U 118-x
Order number		380 122	380 127
EAN-Code		4026187191955	4026187192815
Maximum number of IP input signals		8	
Maximum number of PAL output signals		8	
Network interfaces (passive routing to U 1xx)			
Management		2 x 100 Base-T Ethernet (RJ 45)	
Data		2 x 1000 Base-T Ethernet (RJ 45)	
Protocol		IEEE802.3 Ethernet, RTP, ARP, IPv4, TCP/UDP, HTTP, SNTP, IGMPv3	
Transport stream editing			
TS Decapsulation		UDP, UDP / RTP, 1-7 packets, FEC	
Packet length	[Bytes]	188 / 204	
Decoding			
Video		H.264/AVC Level 4.1 HP, MPEG-2 MP@HL	
Audio		MPEG-1/2 Layer 1/2, (HE-)AAC, AC-3* / Dolby Digital (Plus) optional	
Data		Teletext, VPS, WSS, Teletext subtitles, DVB Subtitling	
PAL modulator			
Connectors	[Ω]	75, 2 x F-jack	
Frequency range	[MHz]	47 - 862, digital modulation	47 - 862, digital modulation, 2 x 4 channels on 80 MHz bandwidth
Output level	[dBµV]	112	111
Return loss	[dB]	≥ 14	
Spurious frequency dist.	[dB]	≥ 60	
Stereo cross talk	[dB]	> 55	
Residual carrier accuracy	[%]	1	
TV standard		PAL B/G, D/K, M, N, SECAM, SECAM L, A2/NICAM, NTSC mono	
Video-signal to noise ratio	[dB]	typ. 63	typ. 61
Common data			
Current consumption at 48 V	mA	890	850
Power consumption at 48 V	W	U 118: 43; U 118 (AC-3): 44	U 118-X: 41; U 118-X (AC-3): 42
Input voltage	V	36 - 60	
Dimensions		1 HU, 19 inch	
Ambient temperature	°C	0 … +45	

*) AC-3 only supported by U 118 (AC-3), order number 380 123 and U 118-x (AC-3), order number 380 128







ASTRO Strobel Kommunikationssysteme GmbH

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