GOING FUTURE TODAY.

ASTRO®

HDIP 1
Network Encoder

HDIP1

ASTRO®

Single Network Encoder

HDMI ETH USB Mini-USB Network Encoder

Operating Manual

Before starting operation of the device

NOTE: *Read this operating manual through carefully!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).*

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.

Contents

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.

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

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

Proper use

The HDIP 1 is an HDMI to IP converter. It is intended exclusively for signal conversion.
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 persons are not allowed to install and start operation of the device.

Device configuration

Target group for the configuration of the ASTRO headend are persons who have received instructions and have training enabling them to perform a configuration. Knowledge of EN 60728-11 and EN 60065 is not necessary for configuration.

Device description

The delivery is comprised of the following parts:

☐ HDIP 1 HDMI to IP converter

☐ Power supply unit

☐ Operating manual

[1] HDMI input socket
[2] Ethernet input socket
[3] USB port
[4] Mini USB port
[5] Reset button
[6] Power supply socket

Figure 1: HDIP 1 signal converter

The HDIP 1 signal converter encoder has a CE marking. This confirms that the products comply with the relevant EC directives and adhere to the requirements specified therein.

Important safety information

To avoid any potential risks to the greatest extent possible, you must adhere to the following safety information:

ATTENTION: *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

NOTE: *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.

☐ An installation site must be provided that prevents children from playing with the device and its connections.

☐ The electrical connection conditions must correspond to the specifications on the device type plate.

- To avoid damage due to overheating, the device may only be installed on vertical surfaces. The connection for the power supply unit must point to the right. The installation basis should be level and non-flammable. Operating position: Device vertical, with HF sockets at the bottom and external DC power supply connection on the right.

- The permitted ambient temperatures specified in the technical data must be complied with. If the device overheats, the insulation used to isolate the mains voltage may be damaged.

- The device and its cable may only be operated away from radiant heat and other sources of heat.

- To avoid trapped heat, ensure there is good ventilation on all sides (minimum interval of 20 cm to other objects). Installing the device in recesses or covering the installation location, e.g. with curtains, is not permitted. Ventilation openings may not be covered.

- If the device is installed in a cabinet, ensure adequate air convection is possible to avoid exceeding the maximum permitted ambient temperature.

- Do not place any objects on the device or on the external power supply unit.

- The subscriber network must be earthed in accordance with EN 60728-11, and must remain earthed even when the device is removed.

- The device and the power supply unit do not provide protection against water and may therefore only be operated and connected in dry rooms. The device and the external power supply unit must not be exposed to splashing or dripping water, condensation or similar effects of water, as this may impair the isolation from the mains voltage.

- The mains plug of the external power supply unit is used as a mains voltage disconnection unit in the event of servicing and danger, and must therefore be accessible and usable at any time. The external power supply unit is operational when connected to the mains power. If the power supply unit is also connected to the DC socket of the device, the device is also in operation.

- The device may only be powered by the supplied external power supply unit. The supplied external power supply unit may only be used to power the device supplied with the external power supply unit.

- All adhere to all applicable national safety regulations and standards.

- Excess mechanical loads (e.g. falling, impacts, vibrations) may damage the insulation used to provide protection from mains voltage.

- High excess currents (lightning strike, surges in the power utility grid) may damage the insulation used to provide protection from mains voltage.

- If there is no information about intended use (e.g. operating site, ambient conditions), or the operating manual does not include the corresponding information, then you must consult the manufacturer of this device to ensure that the device may be installed. If you do not receive any information on this from the manufacturer, do not start operating the device.

- The device may only be operated in rooms in which the permissible ambient temperature can be maintained should climatic conditions vary (e.g. due to sunlight).

- Do not install the device and external power supply 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 voltage. There may still be voltages in the external power supply unit that are dangerous to touch. Even after disconnection from the mains, there may still be voltages in the external power supply unit that remain dangerous to touch for several minutes. Do not open the case of the device or the external power supply unit.

☐ Read carefully: EN 60728-11 – Part 1, Safety requirements / No service tasks during electrical storms!

☐ Disconnect the mains plug before cleaning the device!

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 any 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.

☐ Do not connect the mains adapter provided to any other products.

Warranty conditions

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

Performance description

The HDIP 1 is used to convert local HDMI sources (e.g. camera, set-top box, PC) into an IP data stream. The source signal can be fed in from a set-top box, a PC or TV set, etc. This can be transmitted via Internet/LAN and played back, for example, from a PC, smartphone or other mobile device. The device offers the following performance features:

- Multiple output streams with a different protocol / resolution / bit rate
- Downscale resolution conversion
- Supports HLS protocol (simultaneous playback at different resolutions and bit rates)
- USB port for TS recording and playback
- HDMI input
- IP output via UDP (Unicast / Multicast), RTMP, RTP / RTSP, HTTP and HLS
- Power supply via 12-V plug-in power supply unit

To use the device properly, carefully read the following safety and operating instructions.

Disposal

All of our packaging material (cardboard boxes, inserts, plastic film and bags) is completely recyclable.
After use, this device must be disposed of in an orderly manner as electronic scrap in accordance with 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.

Connecting

PREPARATION:

To connect the HDIP 1 connectors proceed as follows:

TASK

1. Insert the plug of an HDMI cable into the HDMI socket of the device whose transport stream is to be processed by the HDIP 1 (e.g. camera signal, DVD player).
2. Plug the second plug of the HDMI cable into the HDMI socket [1] of the HDIP 1.
3. If you want to connect a source via LAN, connect it to the Ethernet socket [2] of the HDIP 1 using an appropriate cable.

RESULT:

The device is now connected.

NOTE: *You must connect the device before starting operation. It is not possible to connect or change the cabling (Hot Plug) during operation!*
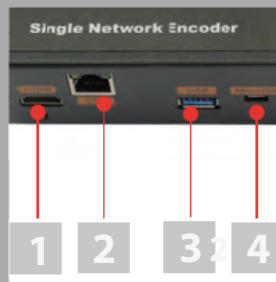
Figure 3 shows a connection example for the HDIP 1:

Figure 3: Connection example

The IP output signal can be transmitted via RTMP, RTSP, HLS, HTTP (Internet and LAN) or via UDP (Multicast / Unicast via LAN).

Starting operation

To start operation of the HDIP 1, you must connect the device to the mains using the supplied power supply unit. You do so like this:

☐ Insert the plug of the power supply unit into the power supply socket of the device [6] (see left).

☐ Connect the mains plug of the power supply unit to the mains.

If the operating status lamp [5] (see left, below) is glows continuously the unit is ready for operation.

ATTENTION: *If the operating status light flashes or does not light up, it may be that*

- The power supply unit is defective

- The device is defective, or

- An inadmissible operation is present (e.g. operating error, wrong power supply unit).

(See "Maintenance and repair" section)

NOTE: *The use of another power supply unit with a different output voltage or polarity can lead to the destruction of the device as well as to malfunctions and voids the warranty!*

Programming – the web interface

You can configure the Network Encoder HDIP 1 via a web browser interface.

NOTE: *Make sure that the IP address of the device is not the same as that of your PC or laptop. This would otherwise result in an IP conflict.*

Log in

The IP address of the device is: 192.168.200.64
Change the IP address of the PC / laptop as follows:
192.168.200.xxx (where xxx can be between 1 and 254, except 64 to avoid IP conflicts).
Connect the device to your PC or laptop via an Ethernet cable and use the ping diagnostic tool (ping command) to determine whether the HDIP 1 and your PC / laptop are on the same network.
If this is the case, enter the IP address of the HDIP 1 in the address line of the browser and press the Enter key.
You should now see the login screen (see figure 6 below).
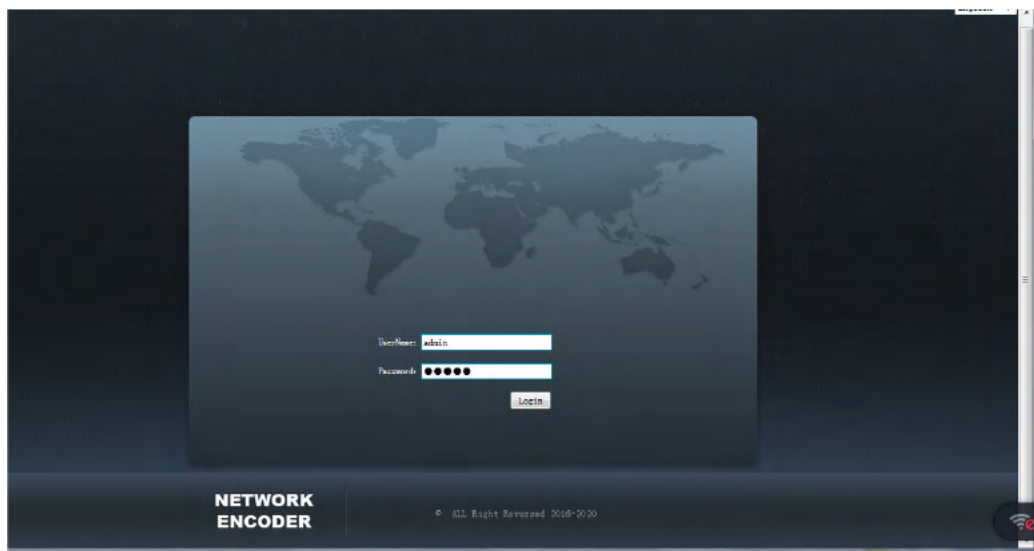
Figure 6: login screen

Enter your user name and password here. The user name and password are "admin" by default.

Then click on the "Login" button to access the configuration interface.

Status overview

After logging in, the interface displays a status overview (see figure 7).
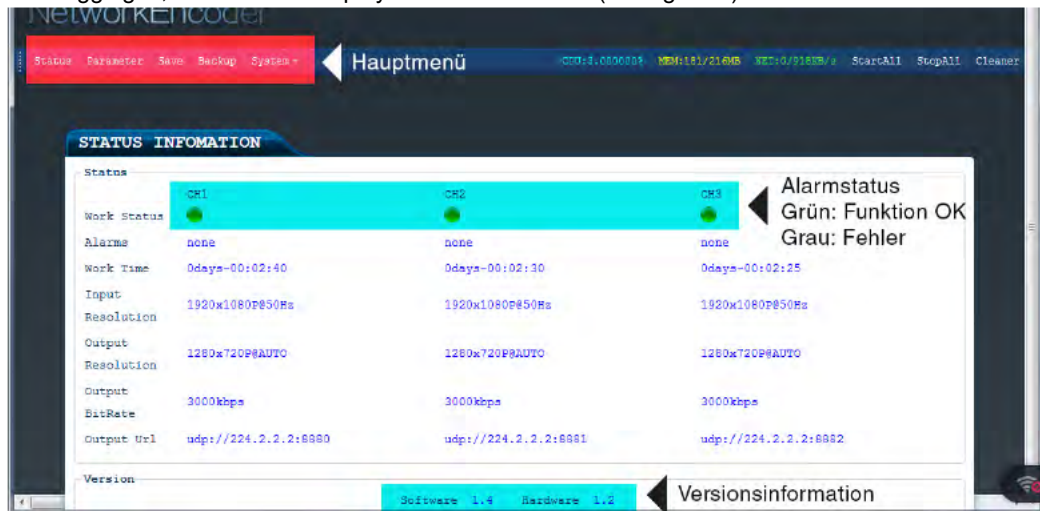
Figure 7: Status overview
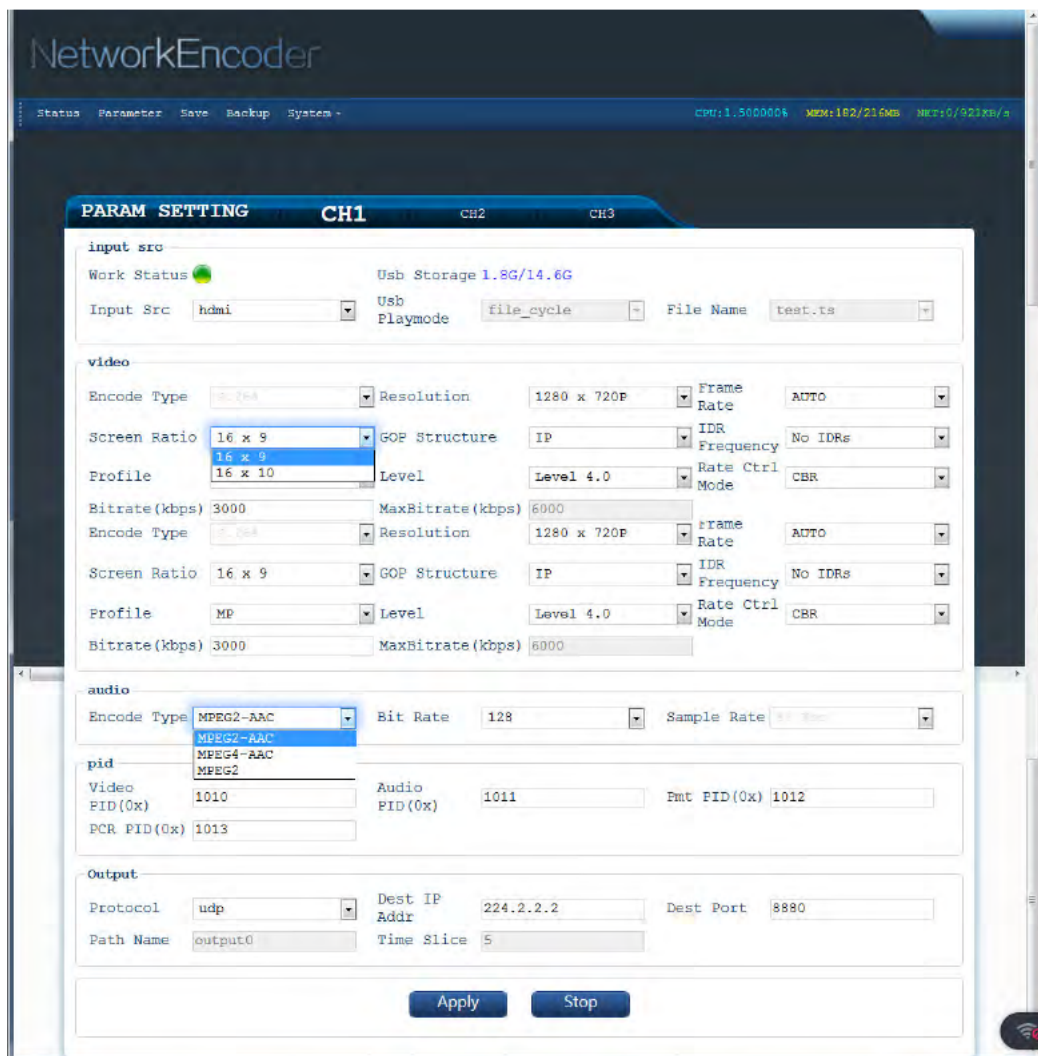
The following parameter values are displayed for each of the three output channels:

- `Work Status`: Green if function OK, Grey indicates a malfunction
- `Alarms`: error messages
- `Work Time`: operating time
- `Input Resolution`: resolution of the input signal
- `Output Resolution`: resolution of the output signal
- `Output Bitrate`: bit rate of the output signal
- `Output URL`: URL of the output signal

Editing and saving parameters

To edit the parameters of an output channel, click on the "Parameters" item in the main menu at the top (see fig. 7). The following input mask will now appear:

Figure 7: Parameters of the output channels

Click here on one of the entries "CH1", "CH2" or "CH3" to configure the parameters of the respective channel.

When you have set all parameters as desired, click on the "Apply" button.

Afterwards, you must save the changed values so that they are loaded when the device is restarted. To do so, click on the "Save" item in the main menu. The following view appears:
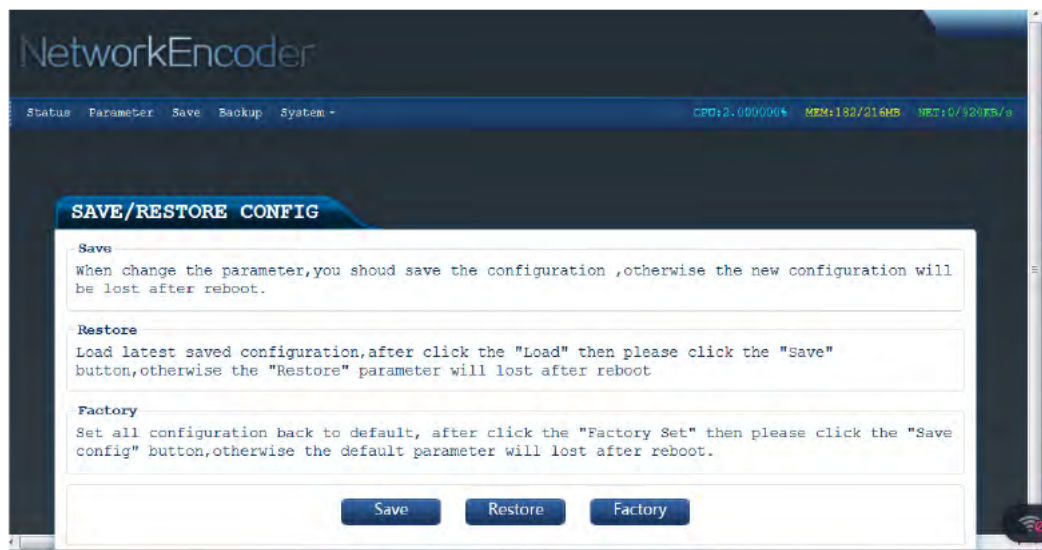
Figure 8: Saving the configuration

Here you can save your new settings by clicking on the "Save" button.
If you click on the "Restore" button, the last saved configuration is loaded.
If you click on the "Factory" button, the factory settings are loaded.

Creating or loading a configuration backup

You can save the parameter values you have set in a backup file or load a previously created backup file. To do so, click on the "Backup" item in the main menu. The following view appears:
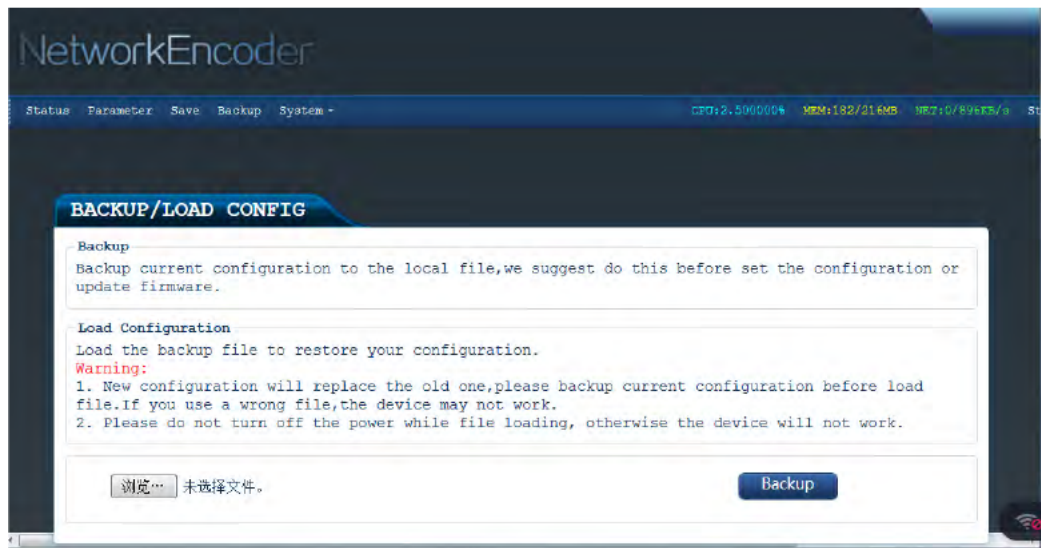
Figure 9: Loading or saving a backup

Use the selection button at the bottom left to load a previously saved backup file.
By clicking the "Backup" button you can save the current values in a backup file.

System update

To install an update, click on the "System" item at the top of the main menu and then select "Upgrade" from the pop-up menu. The following view appears:
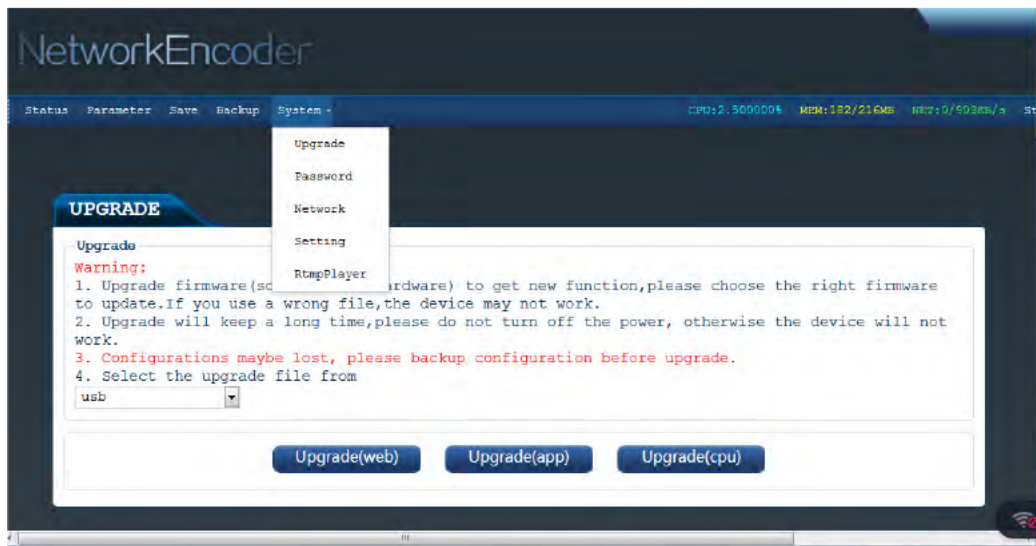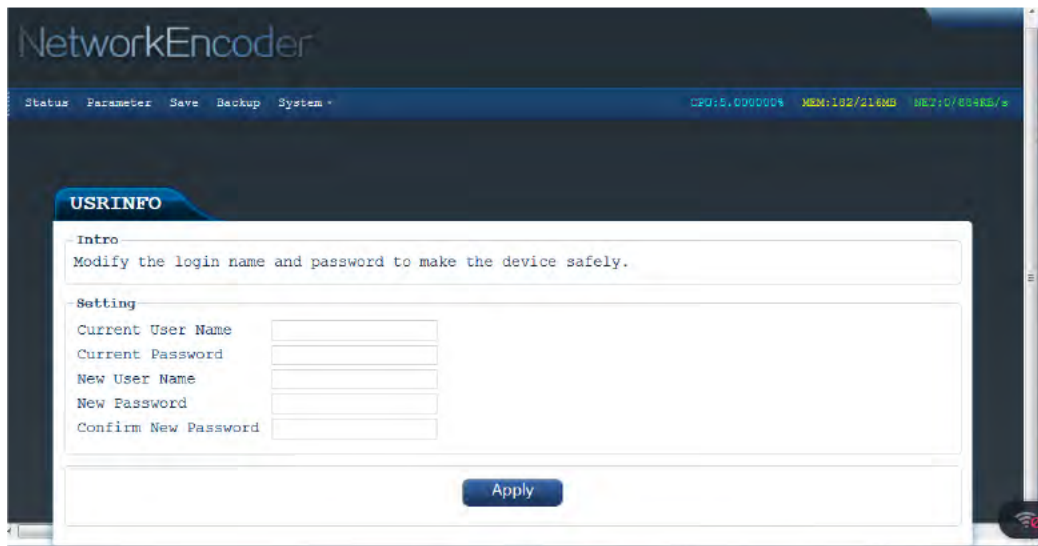
Figure 10: Installing an update

In the drop-down list at the bottom left, you can select whether the update file to be used is from a USB storage device or from the network.
Then click on the corresponding button to install either an update for web, app or CPU.

Entering or changing your password

To enter a password for the web interface, click on the "System" item at the top of the main menu and then select "Password" from the pop-up menu. The following view appears:
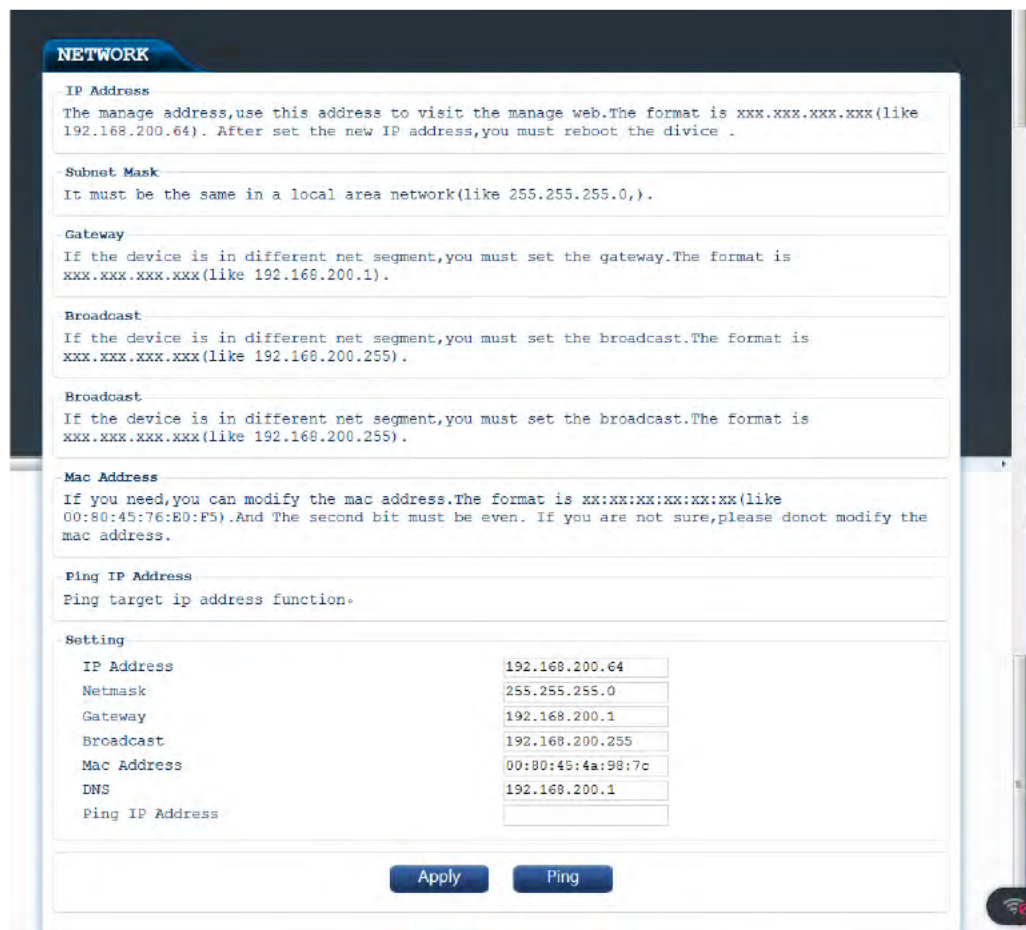
Figure 11: Entering your password

Enter your current user name and password in the upper two input fields.
In the next two fields, enter a new user name and a new password. In the last input field you have to enter the new password again.
Then click on the "Apply" button to save the changes.

Displaying and changing network parameters

To display the network parameters, click on the "System" item at the top of the main menu and then select "Network" from the pop-up menu. The following view appears:

Figure 12: Entering network parameters

You can enter the following parameter values in the corresponding input fields:

☐ `IP Address:` IP address of the device. Use this to configure the HDIP 1 via the web interface. The format is xxx.xxx.xxx.xxx
If you change the IP address, you must reboot the device.

☐ `Netmask:` The subnet mask must be identical for all devices in a local network (e.g. 255.255.255.0).

☐ `Gateway:` If the device is in a different network, you must enter the gateway here (format xxx.xxx.xxx.xxx).

☐ `Broadcast:` If the device is in a different network, you must enter the broadcast here (format xxx.xxx.xxx.xxx).

☐ `MAC Address:` If desired, you can change the MAC address here. The format is xx:xx:xx:xx:xx:xx:xx

Then click on the "Apply" button to save your changes.

Entering or changing server parameters

To enter the server parameters for the device, click on the "System" item at the top of the main menu and then select "Setting" from the pop-up menu. The following view appears:
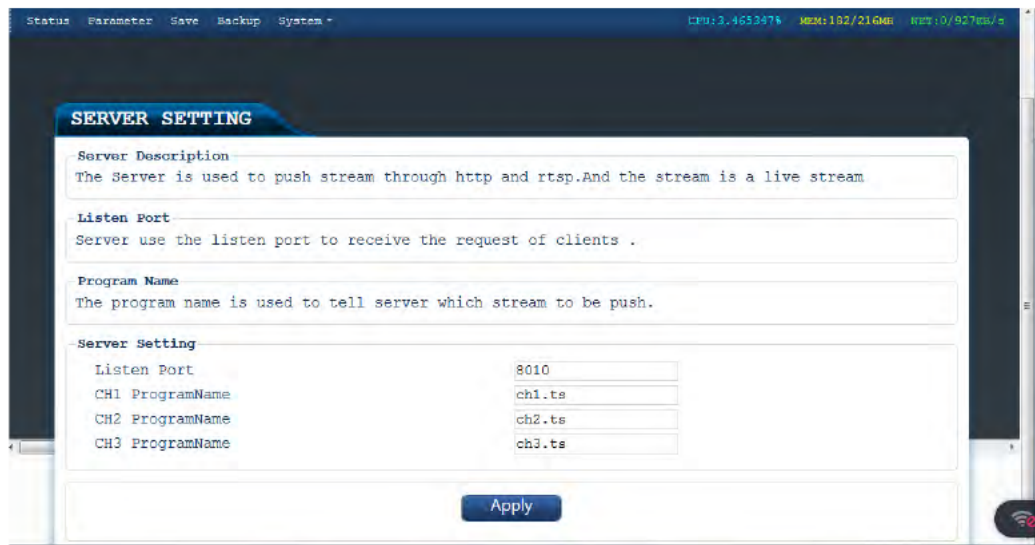

Figure 13: Entering server parameters

You can enter the following parameter values in the corresponding input fields:

- `Listen Port:` The server uses the list port to receive client requests.
- `CH 1, Ch 2, CH 3 Program Name:` Used to inform the server which transport stream to send.

Then click on the "Apply" button to save your changes.

RTMP player

To enter the server parameters for the device, click on the "System" item at the top of the main menu and then select "RtmpPlayer" from the pop-up menu. The following view appears:
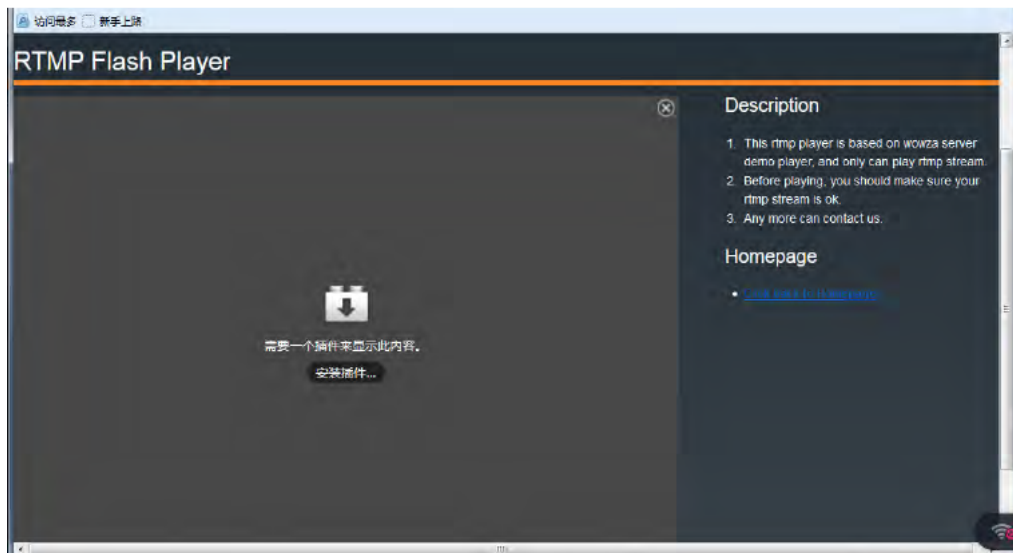

Figure 14: RTMP player

Here you can select the RTMP player for the device:

Then click on the "Apply" button to save your changes.

Connecting to the network

You can play the output signal of the HDIP 1 Network Encoder on mobile devices (laptop, tablet, smartphone). The encoder acts as a server, see figure 15.
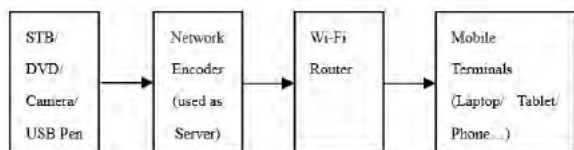

Figure 15: HDIP 1 as a network server

Carry out the following steps:

- For example, connect a DVD player to the HDIP 1 using a signal cable or plug a USB stick with transport stream files into the USB socket of the device to connect it to a signal source.
- Establish a connection between the HDIP 1 and a WiFi router. (Remember that the encoder IP address and the router IP address must be in the same subnet.)
- Establish a connection between a mobile device and the WiFi router.
- Play a video or audio file.

You can use different transfer protocols to play back the file.

1. Transmission via HLS protocol when using a tablet or smartphone

The Safari browser can be used on Apple devices if the HLS protocol is used. No additional player software is required (see figure 16).

Figure 16: Playback via the Safari browser

NOTE: *On Android devices the "HLS plug-in" must be installed if the HLS protocol is used.*

2. Playing the media file via a media player installed on a tablet or smartphone (VLC recommended).
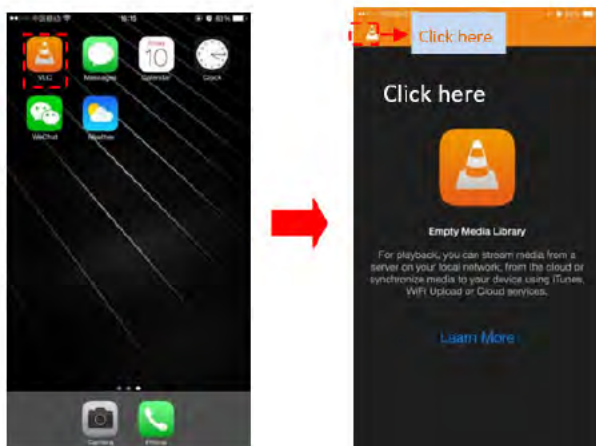
See figure 17 and 18.

Figure 17: Playback via a media player on your smartphone or tablet
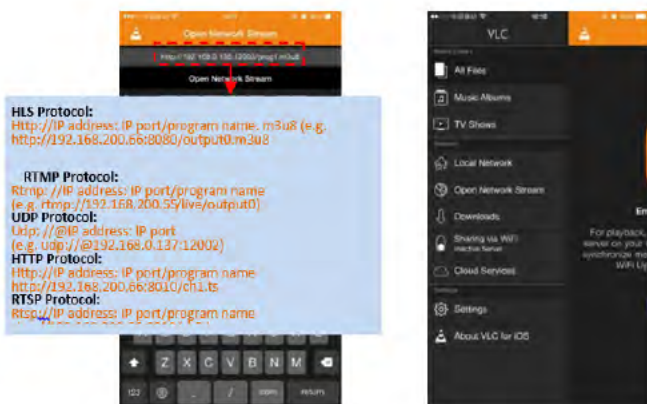

Figure 18: Playback via a media player on your smartphone or tablet

3. Playing the media file via a media player installed on a PC (VLC recommended).
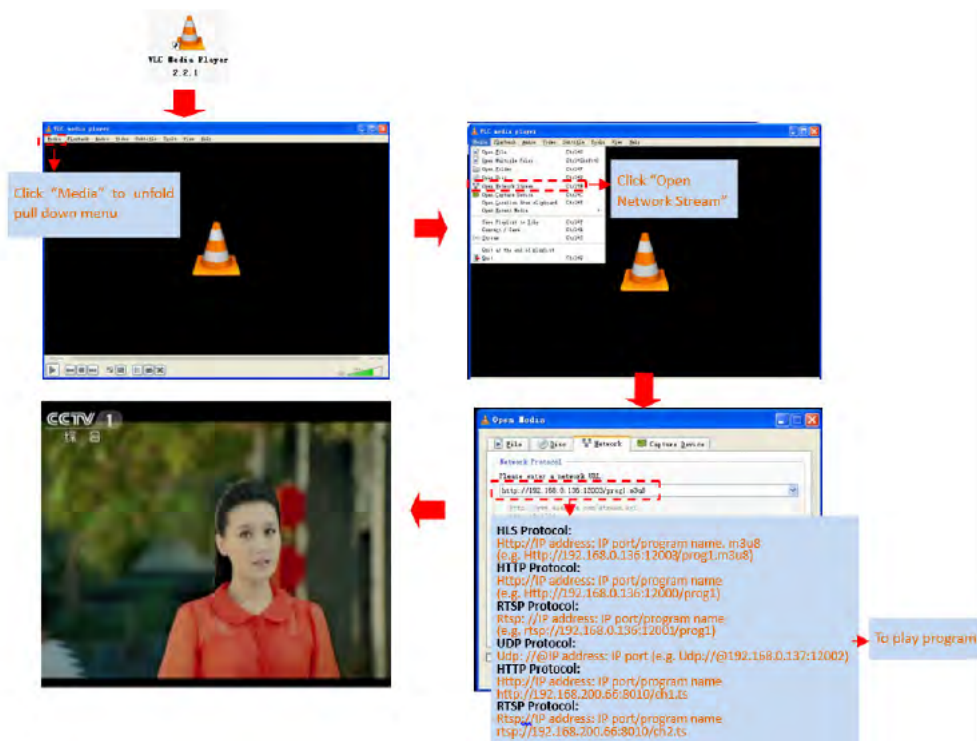
See figure 19.

Figure 19: Playback via a media player on the PC

Set your playback device as follows:

☐ Activate the Internet or WiFi connection

☐ Play back the video or audio file:

HLS protocol:
HTTP://Web address/Program name.m3u8
Example: HTTP://networkencoder.6655.1A:59308/prog1.m3u8

HTTP protocol:
HTTP://Web address/Program name
Example: HTTP://networkencoder.6655.1a:59308/prog1

RTSP protocol:
RTSP://Web address/Program name
Example: RTSP://networencoder.6655.1a:59308/prog1

RTMP protocol:
RTMP://Address /Server IP address) /live/Program name
Example: RTMP://192.168.200.12/live/output1

RTP/UDP protocol:
UDP/RDP:///IP Address:Port
Example: UDP/RTP://224.2.2.2:8888

Here is an overview of the requirements for the individual playback media:

	Mobile Terminals		IP STB	PC
	IOS	Android		
UDP	2	2	4	1 or 2
RTSP	2	2	4	1 or 2
Http	2	2	4	1 or 2
HLS	1 or 2	2 or 3	4	1 or 2

Figure 20: Overview of playback requirements
(1: browser, 2: media player, 3 browser with HLS plugin, 4: depends on STB protocols)

Troubleshooting

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

☐ Check whether the device has been connected to the specified mains voltage.

☐ Check whether the coaxial cables are connected correctly, and that there are no breaks or short circuits in the connectors.

☐ Check whether the output level on the device is within the permissible limits for the operating level.

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

Maintenance and repair

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

☐ The operating display only shows whether the DC current,

which supplies the device components, has been disconnected from the mains voltage. If the operating display (for the power supply unit or the device) does not light up, this does not mean that the device has been fully disconnected from the mains voltage. There may still be voltages in the external power supply unit that are dangerous to touch. Do not open the case of the device or the external power supply unit.

☐ Read carefully: EN 60728 - Part 1 Safety requirements: No service work during thunderstorms.

☐ A defective device may only be repaired by the manufacturer to ensure that components with the original specification are used (e.g. power cable, fuse). Improperly performed repairs may result in considerable dangers for the user or installer. If malfunctions occur, the device must therefore be disconnected from the mains and authorised experts must be consulted. The device may need to be sent to the manufacturer.

Type	HDIP 1		
Order nummer			380 275
EAN-Code			4026187197483
Encoding			
Encoding of video files			yes, TS via USB
Video encoding			MPEG 4 AVC / H.264
Interface			HDMI
Resolutions			1920x1080 60P, 1920x1080 50P; 1920x1080 60i, 1920x1080 50i; 1280x720 60p, 1280x720 50P, 720x480 60i, 720x576 50i
Video bit rates	[Mbps]		1 … 15
Audio encoding			MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC
Sample rate	[kHz]		48; 44,1 (RTMP)
Bit rate	[kbps]		48, 64, 96, 128
Stream out			
			UDP (Unicast/multicast), RTMP, RTP/ RTSP, HLS, HTTP (RJ45, 100/1000M self adaption)
System			
Remote control			Webserver NMS
Language			English
Upgrade			USB / NFS
Common data			
Dimensions	[mm]		183 x 110 x 45
Power supply	[VDC]		12
Weight	[kg]		< 1
Ambient temperature	[°C]		0 …+45

ASTRO Strobel Kommunikationssysteme GmbH