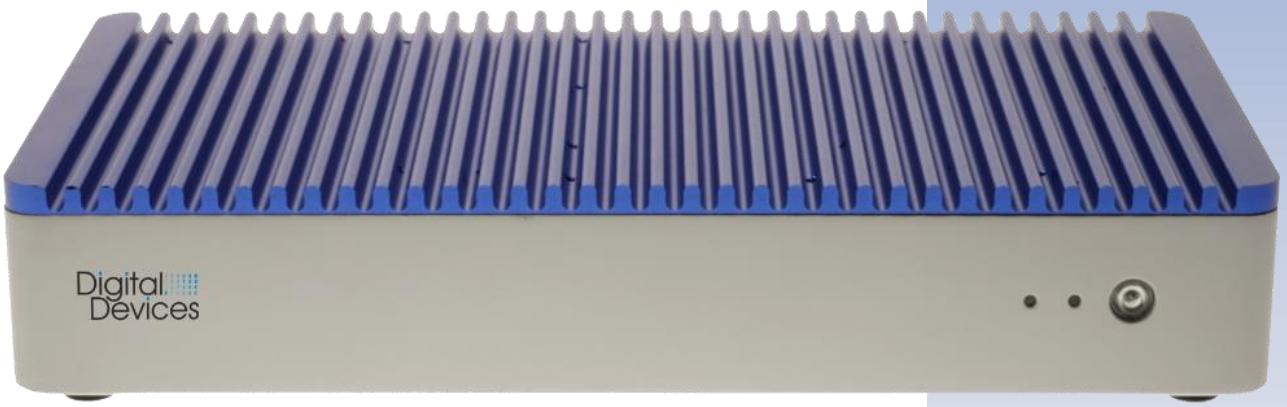
Digital Devices

Instructions for

Octopus NET SL-MC



15 May 2020

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- Octopus NET SL-MC
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- Wall bracket
- Instruction

2 Safety instructions & instructions

2.1 General information

Please read and follow these safety instructions. This ensures reliable operation and a long service life for your Octopus NET SL-MC. Keep this manual within reach of the Octopus NET SL-MC for reference at any time. The Octopus NET SL-MC is constantly being developed further, a current version of this document can be downloaded from our website.

2.2 Operational safety

The Octopus NET SL-MC should be connected by a qualified technician or a person with appropriate knowledge of network technology. Please contact your supplier if you have any of the following technical problems with your Octopus NET SL-MC Edition:

- Your Octopus NET SL-MC has come into contact with liquid.
- The Octopus NET SL-MC does not work properly.

If a repair is necessary, please contact our authorized service partners or the manufacturer directly.

Note: Do not allow children to play unattended on electrical equipment, as they cannot yet detect sources of danger.

2.3 Installation site

- To avoid an electrical short-circuit, wait until the ambient temperature has reached the ambient temperature after transporting the device.
- Protect the Octopus NET SL-MC from moisture, dust, heat and direct sunlight.
- Place the Octopus NET SL-MC on a level, stable and vibration-free surface.
- Lightning damage (overvoltage damage) can only be avoided in the event of a thunderstorm if ALL cables to external devices and networks, including the telephone network, are disconnected. (Most damage is caused by lightning strikes through the antenna/SAT cable, followed by damage via the mains supply)

2.4 Electromagnetic compatibility

The guidelines for electromagnetic compatibility (EMC) must be observed when connecting Octopus NET SL-MC Edition. In order to avoid malfunctions and data loss, you should maintain a minimum distance of one meter from high-frequency and magnetic interference sources (TV equipment, mobile phone, loudspeaker boxes, etc.).

2.5 Cleaning

Wipe the Octopus NET SL-MC Edition only with a soft, dry cloth. Disconnect the power plug and connecting cables before cleaning.

3 General information

- 12 multicast streams (SPTS) of max. 8 transponders via UDP/RTP
- Cascading of several Octopus NET SL-MC possible

- Configurable via password-protected web interface
- Multicast 5 Port managed GigaBit - Switch (5x 10/100/1000 Ethernet)
- Protocols IPv4 and IPv6 (switch only), Multicast, IP filtering, full duplex
- CI support

3.1 Receive modules

3.1.1 Octopus NET SL-MC-S (DVB-S/S2)

- 8 x DVB-S/S2 (satellite tuner)
- Overcurrent and short circuit protection
- Frequency range DVB-S2: L-Band 950 MHz to 2150 MHz
- DVB FEC: (Auto Spectral Detection)
- Modulation: QPSK/8PSK
- Full DiSEqC 2. X support
- Unicable support (SCR/single cable solution according to EN50494) for DVB-S/S2 equipment
- 4x F-socket (75 Ohm)

3.1.2 Octopus NET SL-MC (DVB-S/DVB-S2/ISDB-S or DVB-C/C2/ISDB-C/J.83 or DVB-T/T2/ISDB-T)

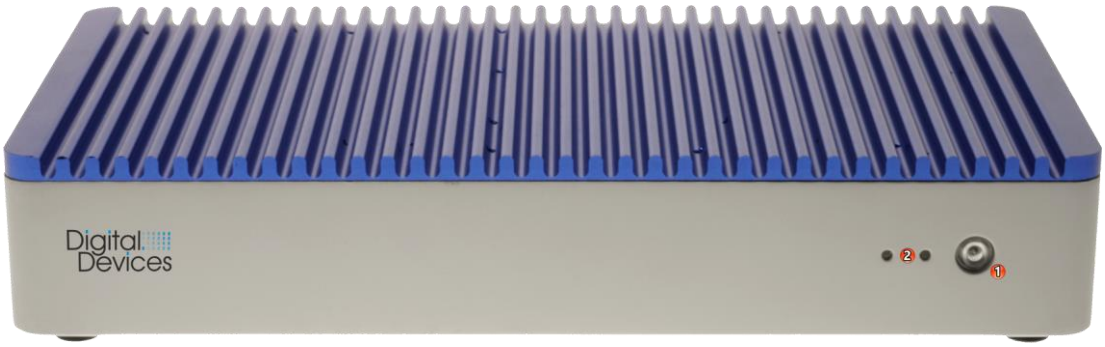
- 4 X Multi-Band tuner. DVB-S/DVB-S2/ISDB-S (satellite tuner), DVB-C/DVB-C2/ISDB-C/J.83 (cable tuner), DVB-T/DVB-T2/ISDB-T (terrestrial tuner)
- Frequency response: 49-861MHz, 2k&8k OFDM
- All types of modulation according to DVB-T and DVB-T2 specification
- All modulations according to DVB-C specification
- Modulation: 16,64,256,1024,4096 QAM
- Full DiSEqC 2. X support
- One antenna cable supplies all tuners
- 1x IEC socket (input 75 Ohm)

3.2 Miscellaneous

- On/Off switch
- Power supply via external 12V power supply, 220V 50-60Hz
- Temperature range: -10 to 50 degrees Celsius
- wall bracket
- Dimensions W x H x D: 45 x 127 x 127 x 127mm
- Made in Germany

4 Description

4.1 Front View



(1) On / Off button
(2) Status LEDs

4.2 Back view

Octopus NET SL M4

(1) 5 x GigaBit Ethernet ports
(2) 4x L-band input connector, 1x F-Band
(3) 2x CI Slots (for models with CI)
(4) Reset button
(5) Mains connection for external power pack

Octopus NET SL SX8

(1) 5 x GigaBit Ethernet ports
(2) 4x L-band input connector
(3) 2x CI Slots (for models with CI)
(4) Reset button
(5) Mains connection for external power pack

5 Octopus NET SL-MC

5.1 First start

Unpack your Octopus NET SL-MC and check the completeness of all components. For questions contact the manufacturer's support immediately.

5.2 Connection

First remove all protective films and packaging aids from the Octopus NET SL-MC. Place the unit on a level, dust-free surface. Installation with the supplied wall mounting adapter should only be carried out after completion of the installation.

Connect a LAN socket of the Octopus NET SL-MC to a network cable that is connected to your home network (router/switch/access point). In order for the Octopus NET SL-MC to automatically receive an IP address, a DHCP server must be active in the network (e. g. standard with commercial routers). The Octopus NET SL-MC must be in the same network environment as the end devices (same IP address range).

Connect the Octopus NET SL-MC to the cable of your existing receiver. For the DVB-S/S2 reception mode, connect the outputs of the LNB/multi switch to one Octopus NET SL-MC tuner each via suitable antenna cable. Even when using Unicable LNB/Multiswitch, the outputs are wired via a suitable antenna cable to the respective Octopus NET SL-MC tuner. For use on single cable reception systems (Unicable® according to EN50494) only one cable to port 4 is required. For further distribution to other devices, use conforming Unicable SAT distributors if necessary.

For the DVB-C/C2 and DVB-T/T2 reception mode, only one cable is required from your connection distributor or cable socket.

Finally, connect the Octopus NET SL-MC to the mains power supply using the supplied AC adapter.

5.3 Configuration

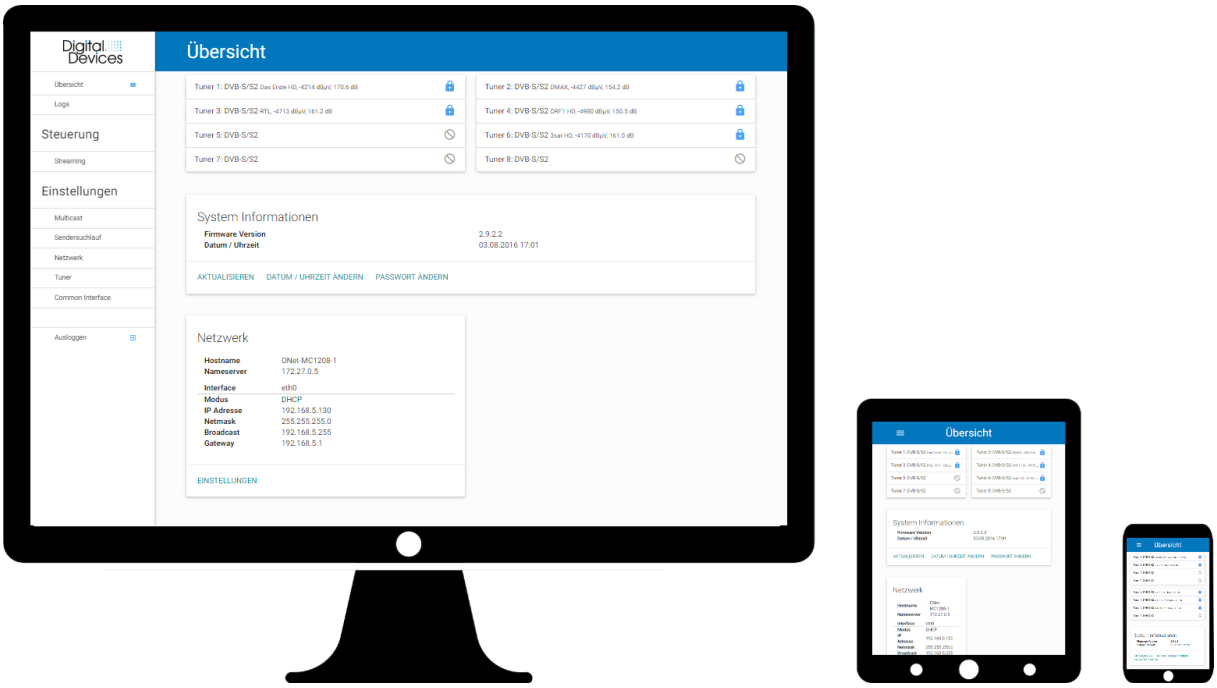
The Octopus NET SL-MC responds in the network with the name " ONet-MC1208-1".

The actual configuration of the Octopus NET SL-MC is done via a web interface. This can be accessed via a web browser by entering the IP address and port 8080 (e. g. 192.168.0.0.120:8080). If you do not know the IP address of the device, look in the router / switch configuration for a list of devices connected to the network. In the standard web browser of your PC, the configuration web page appears.

INFO:	If there is no DHCP server in your network, Octopus NET SL-MC is available under the standard IP **192.168.0.0.100:8080**. This applies until you switch to a static IP in the configuration or integrate a DHCP server into your network. Port 8080 is fixed and cannot be changed.

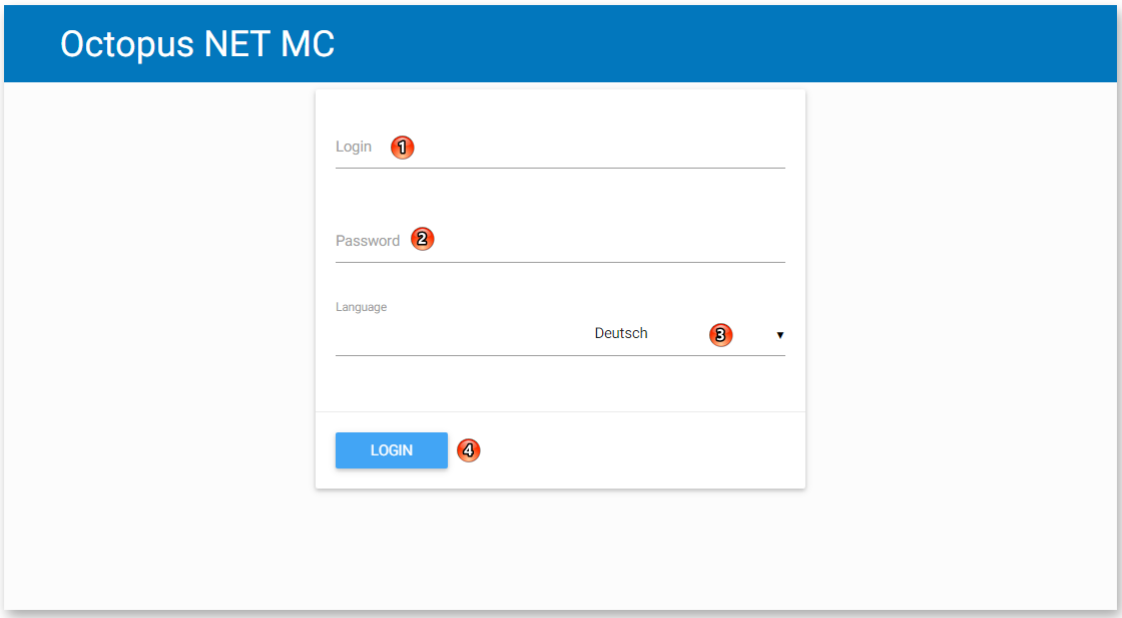
6 The Web Interface

The Octopus NET SL-MC is completely set up via the integrated password-protected web interface, which can be accessed via PC, tablet or smartphone.



With mobile devices it can be depending on the resolution or position (high/transverse) that you cannot see the navigation menu (left), but this is quite present and can be retracted by clicking on the symbol in the blue bar in the upper left corner.

The following describes the individual areas for configuring Octopus NET SL-MC. The setup of the Octopus NET SL-MC via the web browser of a PC is explained, and setup via mobile devices is just as easy to manage.



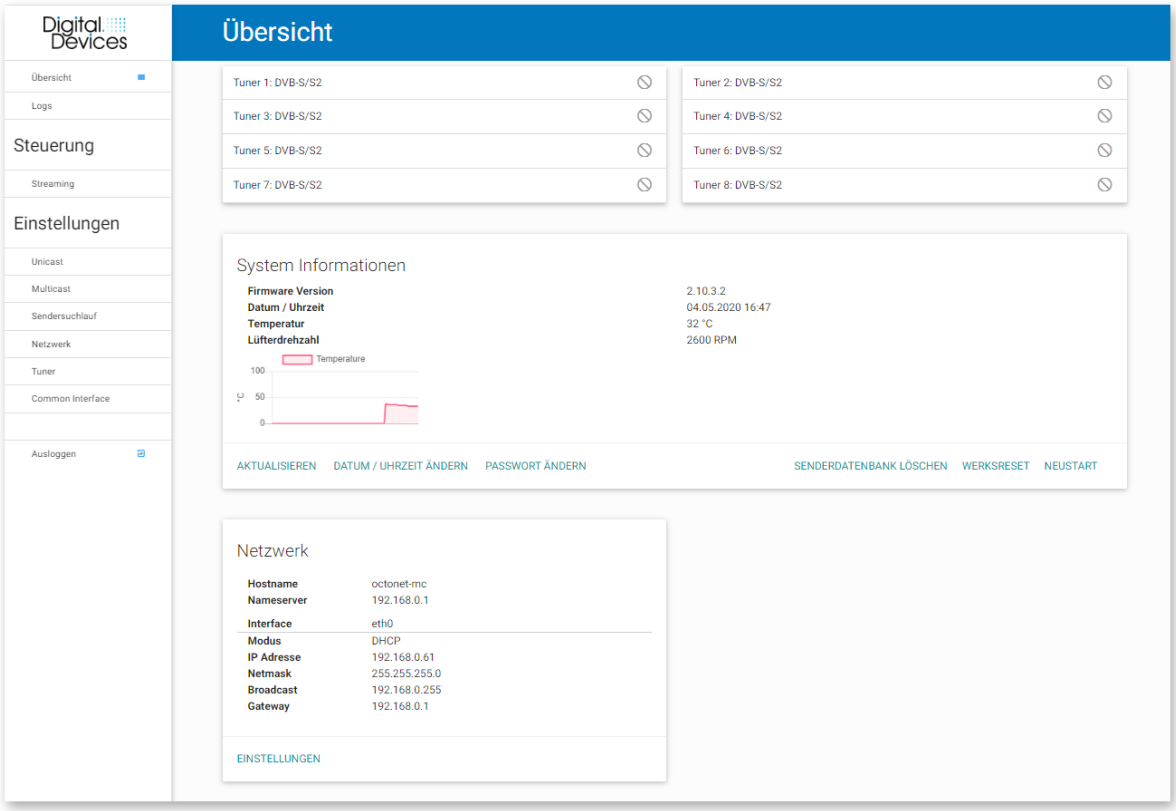
When calling the web interface of Octopus NET SL-MC you will be the first to go to the login page. To register, please proceed as follows:

(1) Enter the login name "**admin**" here.
(2) Enter the password here (default: **admin**).
(3) Select the desired language in which the web interface should be displayed.
(4) Click on to register.

INFO: The login name and the default password are "**admin**".

The password should be changed after successful login in the Overview area (item 6.1.4) for security reasons to prevent unauthorized access to Octopus NET SL-MC. The login name is fixed and cannot be changed.

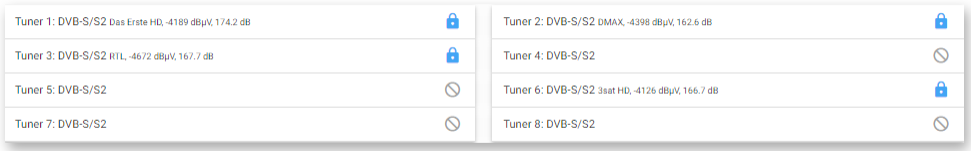
6.1 Overview



After successfully logging in to the web interface of Octopus NET SL-MC, you will be taken to the Overview page, which displays the navigation bar with links to the individual sections, available tuners, system information and the currently used network configuration.

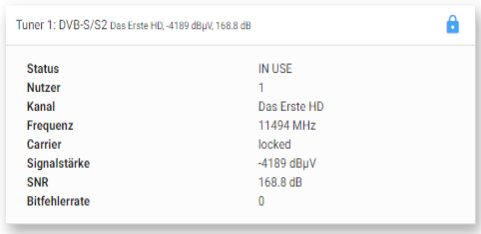
6.1.1 Overview - Tuner

Here you will find information about the tuners available in the system



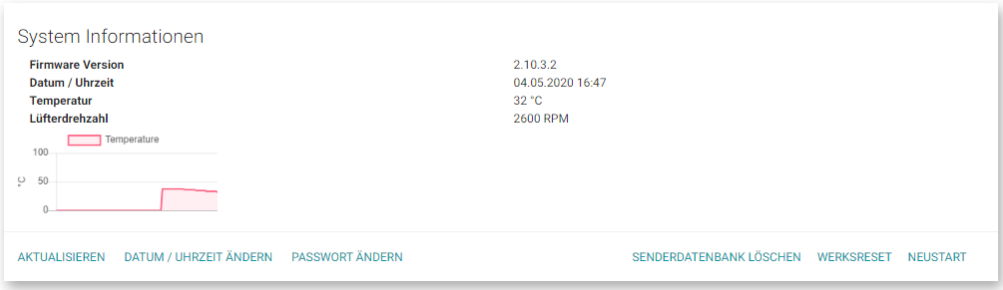
The tuners will be marked with the appropriate symbols, the tuner will be marked with a symbol indicating that the tuner is in use and has a lock to a transponder. Mark the tuner with one that the tuner is not in use.

By clicking on an active tuner, it opens up and you will get more information.

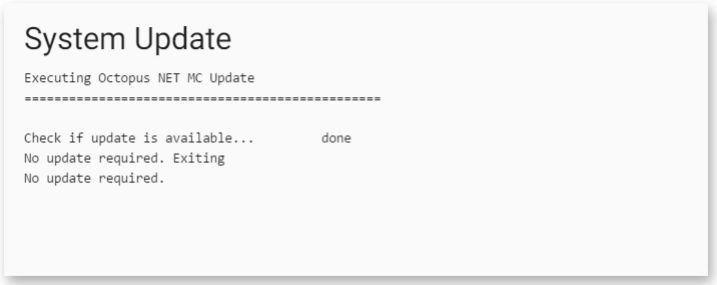


Status: Indicates whether the tuner is in use or idle.
User: Shows how many streams are sent by the tuner
Channel: Always shows the first channel selected on the tuner for the transponder used.
Frequency: The transponder frequency
Carrier: Indicates whether the tuner was able to successfully establish a LOCK to the transponder.
Signal strength: The measured signal strength for the selected transponder.
SNR: Signal Noise Ratio for the selected transponder
Bit error rate: Displays errors in the received transport stream

6.1.2 Overview - System Information - Update

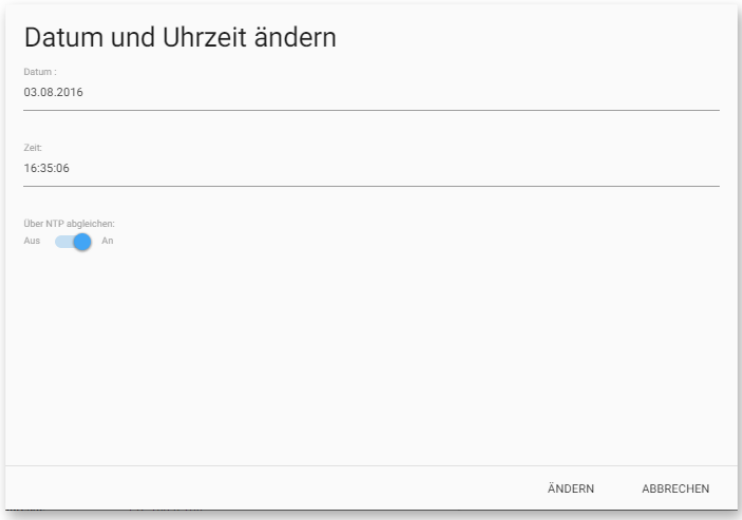


Under System Information, click on **FIRMWARE UPDATE** to perform a firmware update, which requires the Octopus NET SL-MC to be connected to the Internet.



In our case, the latest firmware is already on the box. Otherwise the current firmware is loaded automatically.

6.1.3 Overview - System Information - Changing the Date / Time



The date and time can be set manually, or by activating "Synchronize via NTP", the time and date can be automatically synchronized via an NTP server (Network Time Protocol). This function requires an active Internet connection.

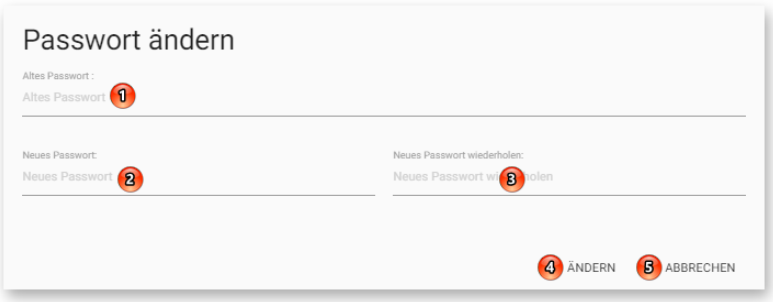
If no NTP server is to be used, enter the current date and time under Date and time.

Click to **ACTIVATE** the settings or click to **DISCARD** the changes and cancel the operation.

INFO: If the "Adjust via NTP" option is not active, the date and time must be set again after a power failure or power-off, as they are not saved.

6.1.4 Overview - System Information - Change Password

After delivery or resetting the factory settings, the default password "**admin**" is used to access Octopus NET SL-MC, which can be changed in the following screen. The user name "**admin**" cannot be changed.



To change the password, proceed as follows:

(1) Enter your previous password here.
(2) Enter your new password here.
(3) Repeat the entry of the new password.
(4) Click on to activate the new password.
(5) Click to discard the changes and cancel the operation.

6.1.5 Overview - System Information - Factory Reset

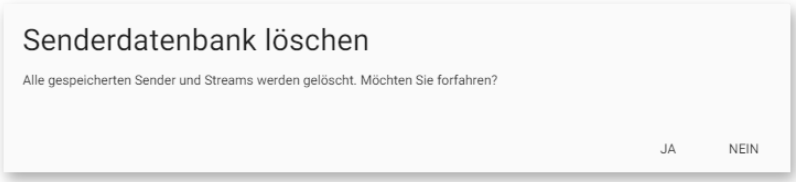
With the Octopus NET SL-MC, it is not only possible to reset the box by pressing the reset button on the rear side of the box, but also to reset it to the factory settings by clicking on the following button via the web interface on the overview page.

6.1.6 Overview - System Information - Reboot

Click on to restart the Octopus NET SL-MC. You can abort the process within 15 seconds. The actual restart takes about 90 seconds until the Octopus NET SL-MC is ready for use again.

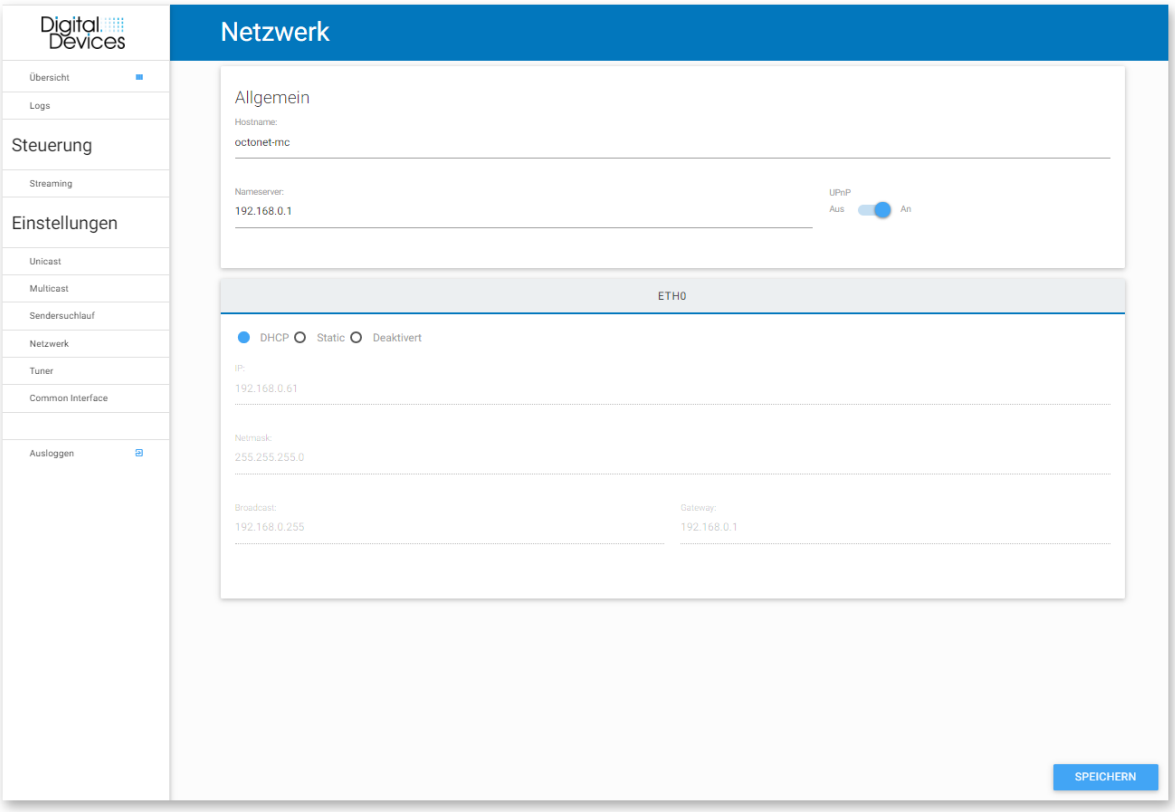
6.1.7 Overview - system information - delete transmitter database

With a click on **DELETE TRANSMITTER DATABASE** the saved station list and the configured streams can be deleted.



In the pop-up window that opens, click on **YES** to delete or on **NO** to cancel the process.

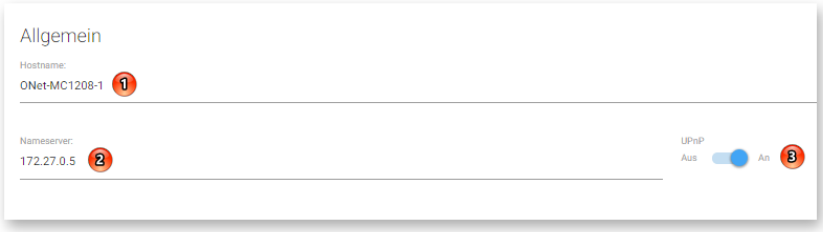
6.2 Network



In the Network area you can customize the network configuration of Octopus NET SL-MC according to your needs.

Once changes have been made to the settings, click on to accept them, otherwise they will be discarded.

6.2.1 Network – General

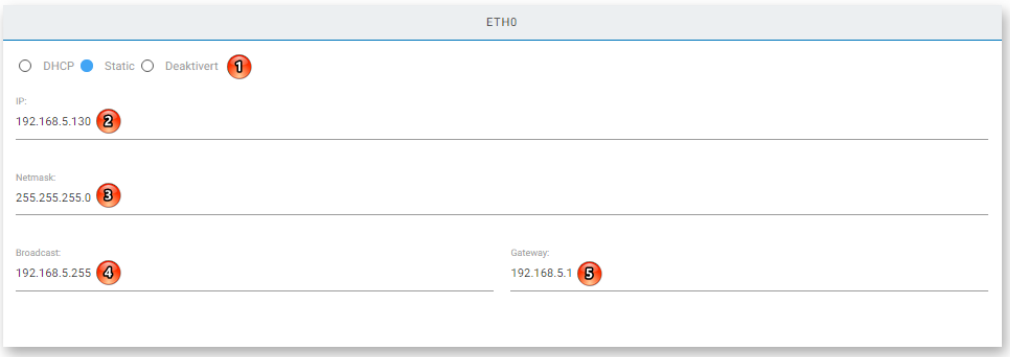


To change the settings, proceed as follows:

(1) Enter the hostname to be used for your Octopus NET SL-MC.
(2) Enter the name server to be used here if it was not found automatically.
(3) Deactivate (shortly UPnP) Universal Plug and Play.

If there is a Dynamic Name Server, or DNS for short, in your network, it is normally automatically detected and its IP is displayed under "Name Server". The name server can be changed at any time according to your needs.

6.2.2 Network - Set Static IP

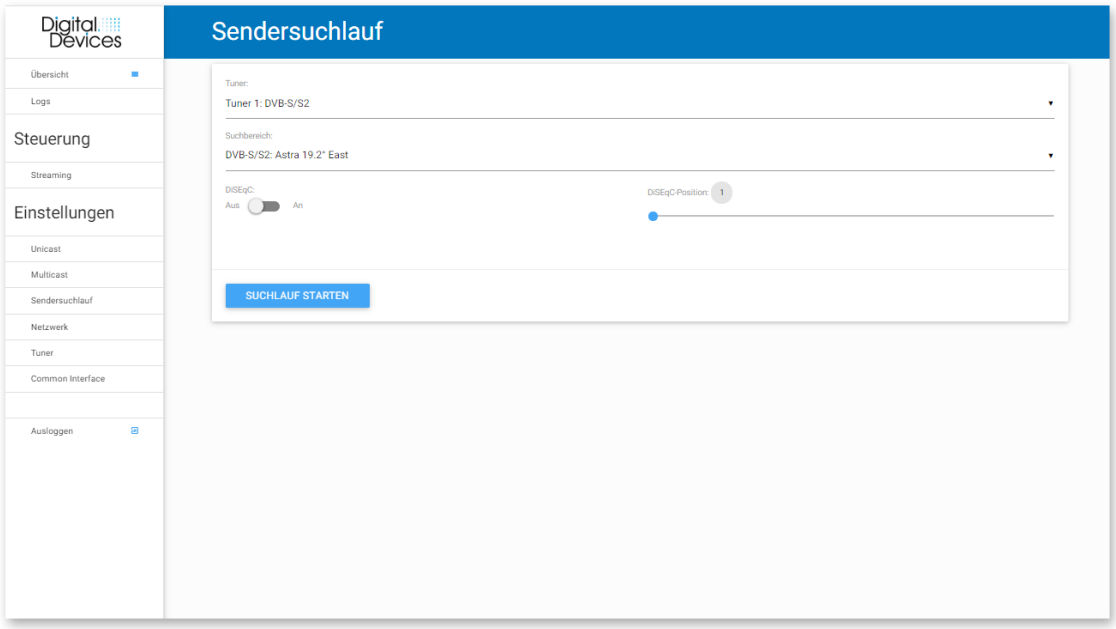


To use a static IP, proceed as follows:

(1) Switching from dynamic IP to static IP.
(2) Enter the desired IP under which Octopus NET SL-MC should be accessible in the network.
(3) Enter the appropriate netmask for the IP address range here.
(4) Enter the broadcast address associated with the IP address and netmask.
(5) Enter a valid gateway address here. The gateway is the key point between your own network area and other network areas (e. g. Internet).

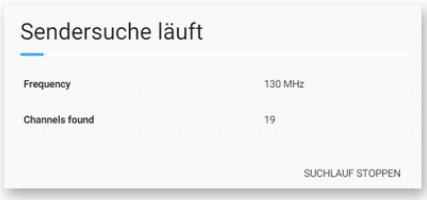
INFO: In DHCP mode, Octopus NET SL-MC obtains the necessary network settings from a DHCP server, e. g. a router. If DHCP is selected, the area is grayed out.

6.3 Channel scanning



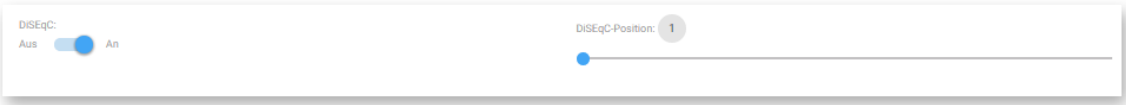
In the area of station scanning, a station scan must be carried out after the Octopus NET SL-MC has been put into operation for the first time. To do this, select a "Tuner" (1-8), the "Search Range" and the "DiSEqC" setting required for your system. It is not possible to use all tuners for channel scanning.

With a click on it is started. Depending on the type of reception, this can take several minutes.



You can cancel the search at any time by clicking on Cancel.

6.3.1 Channel Scan - DiSEqC (MC-S only)

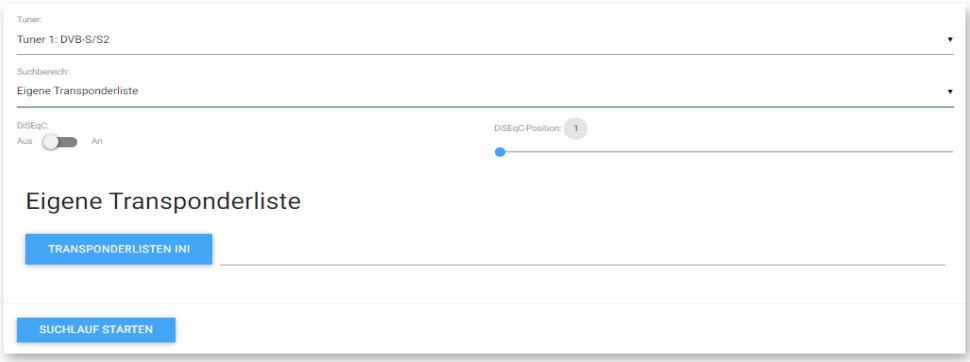


If DiSEqC is activated, the desired DiSEqC position can be changed with the slider. The DiSEqC positions are adjustable:

Value	DiSEqC position
1	A/A
2	B/A
3	A/B
4	B/B

INFO: DiSEqC cannot be used for every tuner separately, but always applies to all tuners.

6.3.2 Station search - scan your own transponder list



The process is the same as with the normal search, only that in the "Search area" is set to "Own transponder list" and is used for the search by clicking on a transponder list in ".ini" format. The process is the same as with the normal search, only that in the "Search area" is set to "Own transponder list" and is used for the search by clicking on a transponder list in "*.ini*" format.

This is started with a click on START SCAN. Depending on the type of reception, this can take several minutes.

The structure of an .ini file looks like this:

```
[SATTYPE]
1=<VALUE>     [4-digit value, whereby the first digit defines the reception physics:
              0000...3600 = DVB-S/S2 | 4000...4999=DVB-T/T2 | 5000...5999=DVB-C/C2]
2=<VALUE>     [Display name of the transponder list]

[DVB]
0=<VAUE>      [Number of transponders in the list]
1=<TP-DATA>   [1=... | 2=... | ... | Transponder data are built as follows:
              DVB-S/S2 = frequency (MHz), Polarity, symbol rate, FEC, type,
       modulation
              DVB-T/T2 = frequency (KHz),,, Bandwidth,
              DVB-C/C2 = frequency (KHz),, Symbol Rate,,
```

Sample table:

Satellite	***Terrestrial***	***Cable***
[SATTYPE] 1=0192 2=Astra 19.2° Ost Sample [DVB] 0=3 1=10714,H,22000,23,S2,8PSK 2=10729,V,22000,23,S2,8PSK 3=10744,H,22000,56,S,QPSK	[SATTYPE] 1=4000 2=Terrestrial Sample [DVB] 0=3 1=177500,,,7, 2=184500,,,7, 3=191500,,,7,	[SATTYPE] 1=5000 2=Cable Sample [DVB] 0=14 1=130000,,6900,, 2=138000,,6900,, 3=146000,,6900,,

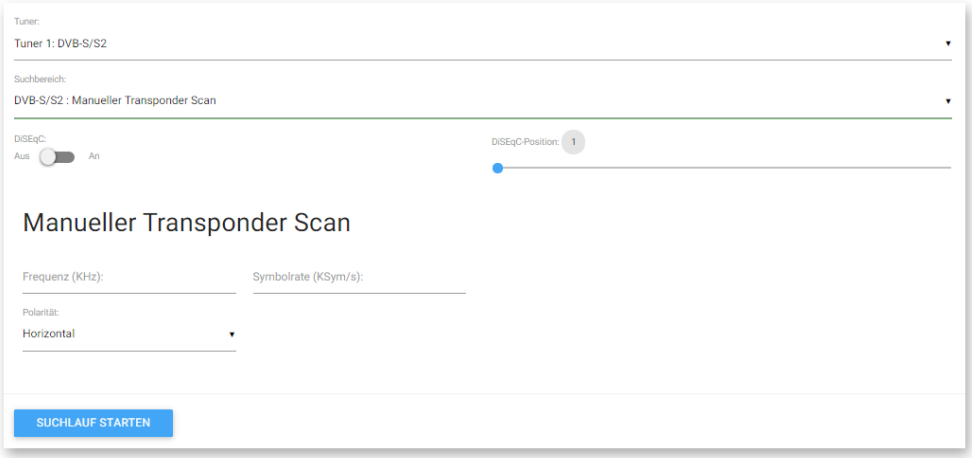
To create your own .ini file, you need an editor that closes the end of the line in a Unix-compliant manner. The file must be Unix compatible, otherwise the file cannot be transferred correctly to the Octopus NET.

The best way to do this is to use Notepad ++ (free). In Notepad ++ first click on: "*View -> Show symbols -> Show all characters*". You will now be shown whether the lines end with a line feed (**LF**) and a carriage return (**CR**) at the end of the line.

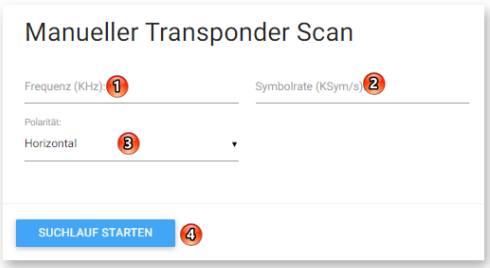
If this ends with **CR** | **LF**, click under "*Edit -> Format line end -> UNIX (**LF**)*".

Afterwards, the lines should only be terminated with **LF**.

6.3.3 Channel search - manual transponder scan

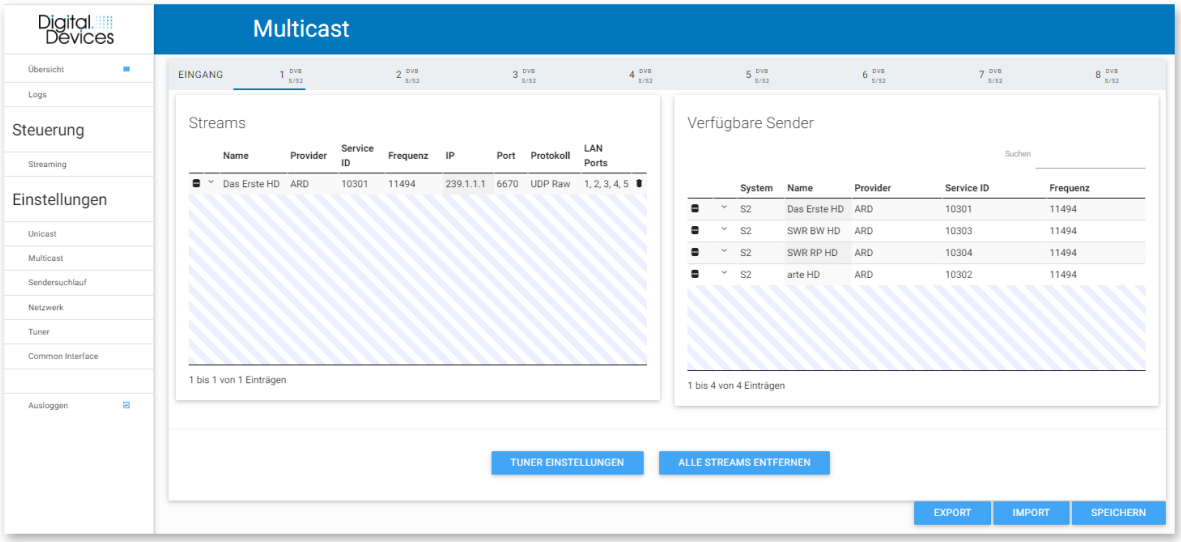


To scan individual transponders, select a "*Tuner*" and, if necessary, for SAT reception, select the "*DiSEqC*" setting required for your system. In the "*Search area*" select the setting that matches the reception, e.g. "*DVB-S / S2: Manual transponder scan*".



(1) Enter the frequency to be scanned in KHz here
(2) Enter the symbol rate in KSymbols / s here
(3) **DVB-S / S2 only**: Select the polarity here, e.g. horizontal
(4) Click on START SCAN to start the manual search

6.4 Multicast



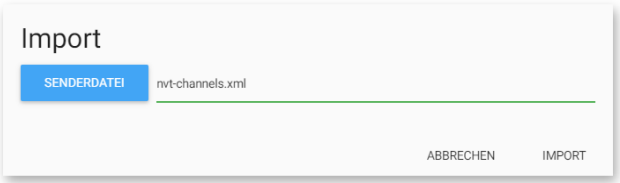
In the Multicast area, you can assign the available stations to the respective tuners. As soon as a station is assigned, only the remaining stations of the selected transponder are displayed in the list of available stations.

Once all settings have been made on the selected tuner, click to accept them, otherwise they will be discarded.

6.4.1 Multicast - Export or import list

After you have configured the multicast according to your requirements, you can save the newly created multicast list. The exported list is available in XML format.

Furthermore, it is possible to import the newly exported multicast list, which allows a faster setup of the multicast in Octopus NET SL-MC.



Click here for on. In the pop-up window that opens, click on and select the XML file to be imported in the file browser. Click on to import the file.

Click to discard the changes and cancel the operation.

6.4.2 Multicast - Remove all streams

Click on to delete all streams of the selected tuner. The streams of the other tuners remain unaffected by this action.

6.4.3 Multicast - tuner settings

Click on to go directly to the settings of the tuner you have just selected.

6.4.4 Multicast - basic information

The Octopus NET SL-MC can **manage up to 12 UDP or RTP multicast streams** in hardware terms. It does not matter whether the maximum number of streams is distributed on one or all eight tuners.

"**UDP Raw**" and " **RTP** "are supported as protocols for multicast.

Using the "UDP Raw" protocol results in the following address, for example:

- **udp: //239.1.1.1:6670** or when using the VLC player from: **udp://@239.1.1.1:6670**

To use the "**RTP**" protocol, the call would be:

- **rtp: //239.1.1.1:6670** or when using the VLC player from: **rtp://@239.1.1.1:6670**

If additional transmitters are added, the last set protocol is automatically used.

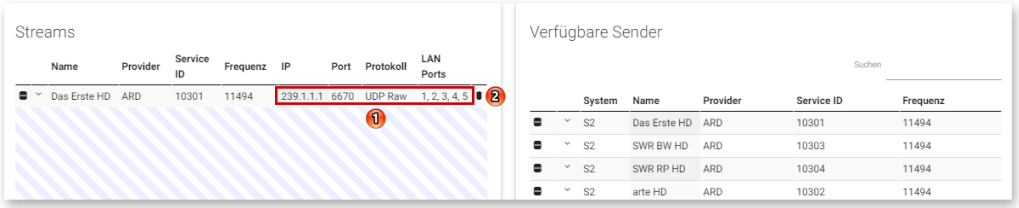
The Multicast IP address is generated automatically as soon as a transmitter is added, dynamically adapting the second and fourth part of the IP address.

- 239.1.1.1.1 -> The selected tuner
- 239.1.1.1.1 -> Consecutive numbering of the added stations of the tuner to be configured.

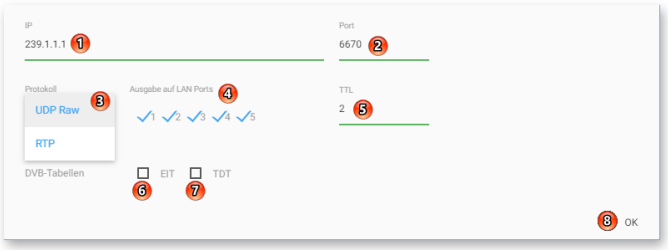
If you enter an IP address other than the automatically generated one, it will be automatically numbered consecutively via the fourth block.

Furthermore, the address range between **239.0.0.0.0 - 239.126.255.255** should be used for multicast.

6.4.5 Multicast - Advanced Settings

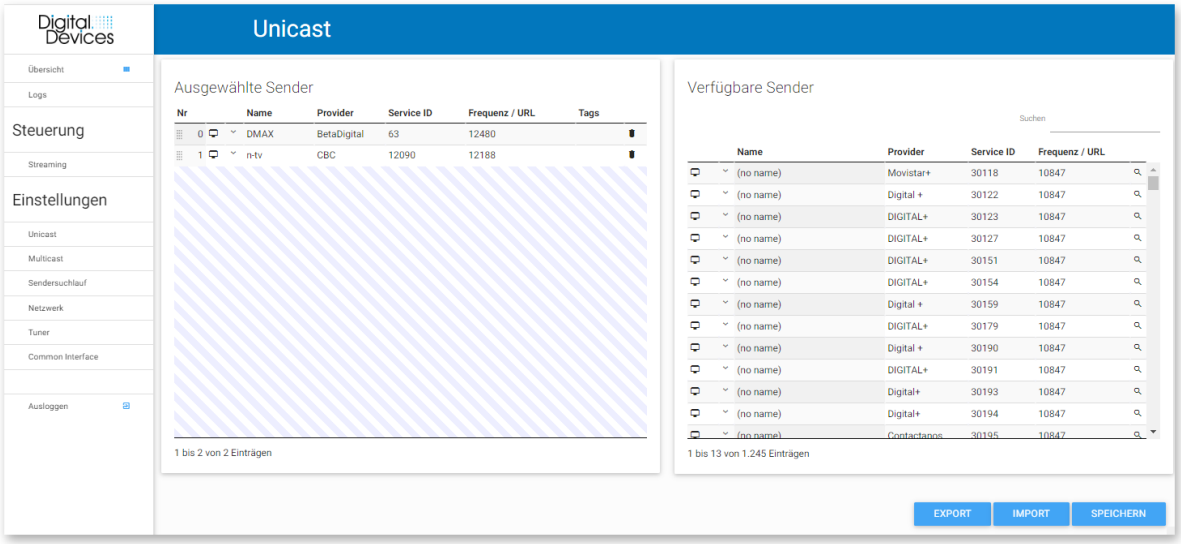


(1) Click on the IP, Port or Protocol to change it. A pop-up window opens (picture below).
(2) Click on the garbage can symbol to remove the respective transmitter from the list.

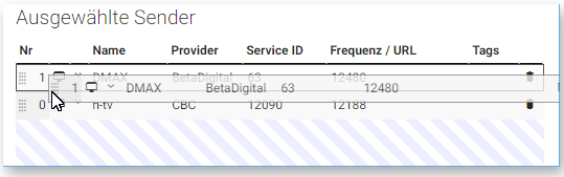


(1) Enter the desired Multicast IP address here
(2) Enter the desired port here.
(3) Select the desired protocol.
(4) Activate EIT (Event Information Table) to transmit the EPG data contained in the stream with
(5) Activate TDT (Time Date Table) to transmit the current time in the stream (important for EPG).
(6) Save changes.

6.5 Unicast



In the Unicast area you can configure the available transmitters as unicast. In contrast to multicast, the stations are not assigned to a specific tuner here, but rather the next free tuner is only started on request from the client. It is important to ensure that there are enough free tuners available before the configuration.



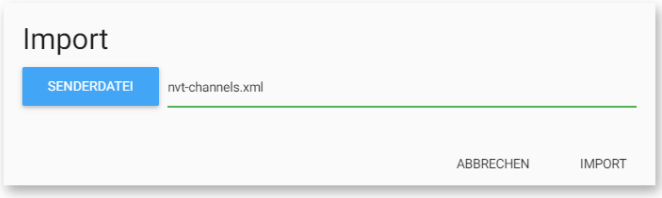
The order of the channels (starting at 0) can be moved in the list by clicking on the dashed symbol in front and dragging. The channel number changes automatically.

If all settings have been made on the selected tuner, click on to apply them, otherwise they will be discarded when you exit the menu.

6.5.1 Unicast - Exporting or importing the list

After you have configured the unicast according to your requirements, you have the option of saving the unicast list you just created using. The exported list is available in XML format.

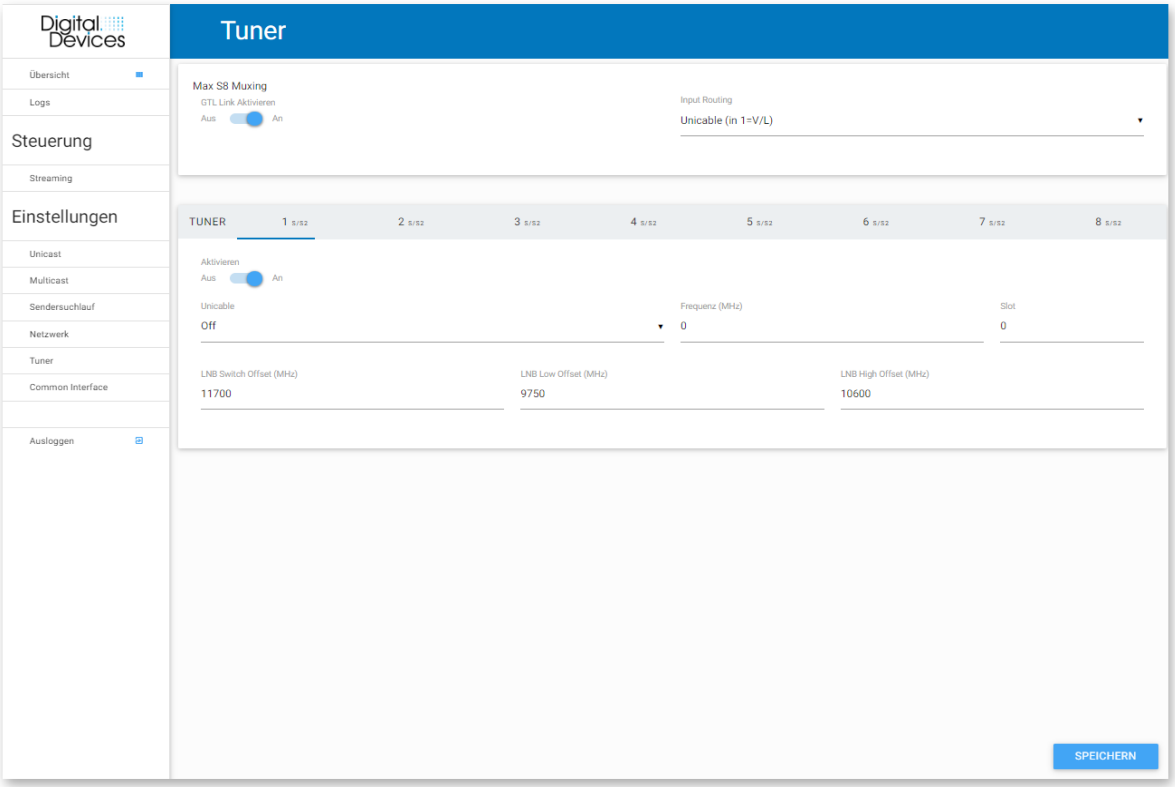
There is also the option of importing the unicast list that has just been exported, which means that the unicast can be set up in the Octopus NET SL-MC more quickly.



To do this, click on. In the pop-up window that opens, click on and select the XML file to be imported in the file browser. Click on to import the file.

Click to discard the changes and cancel the process.

6.6 Tuner

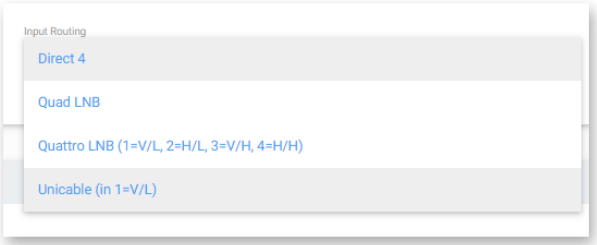


The available tuners can be (de)activated in the Tuner area. By default, all tuners are enabled.

MC-S only: With the satellite version of Octopus NET SL-MC the operating mode can be changed additionally.

Once changes have been made to the settings, click on to accept them, otherwise they will be discarded.

6.6.1 Tuner - Operating mode (MC-S only)



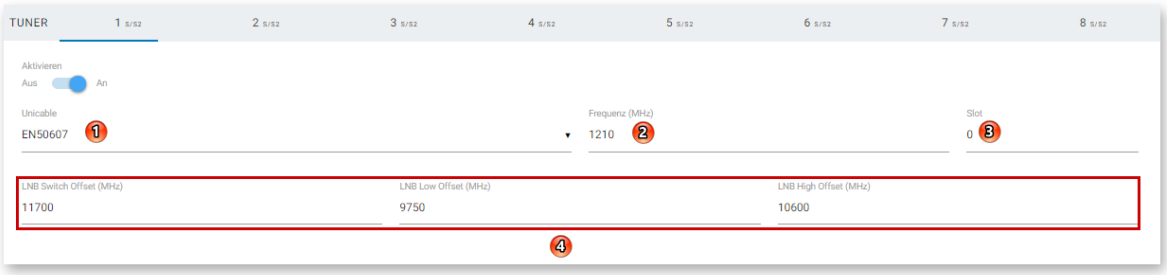
Direct 4: Only 4 tuners are available in this mode. The tuners of the Octopus NET SL-MC work as normal SAT tuners.

Quad LNB: When using a Quad LNB or the normal outputs of your multiswitch.

Quattro LNB: If you use a Quattro LNB or the trunk or cascade outputs of your multiswitch. The satellite cables must be connected in the correct sequence (1=V/L, 2=V/H, 3=H/L, 4=H/H).

Unicable: When using a Unicable LNB or Unicable multiswitch with 8 free user bands according to EN50494, DiSEqC is only available in this mode when using a Unicable capable multiswitch.

6.6.2 Tuner - Unicable Settings (MC-S only)

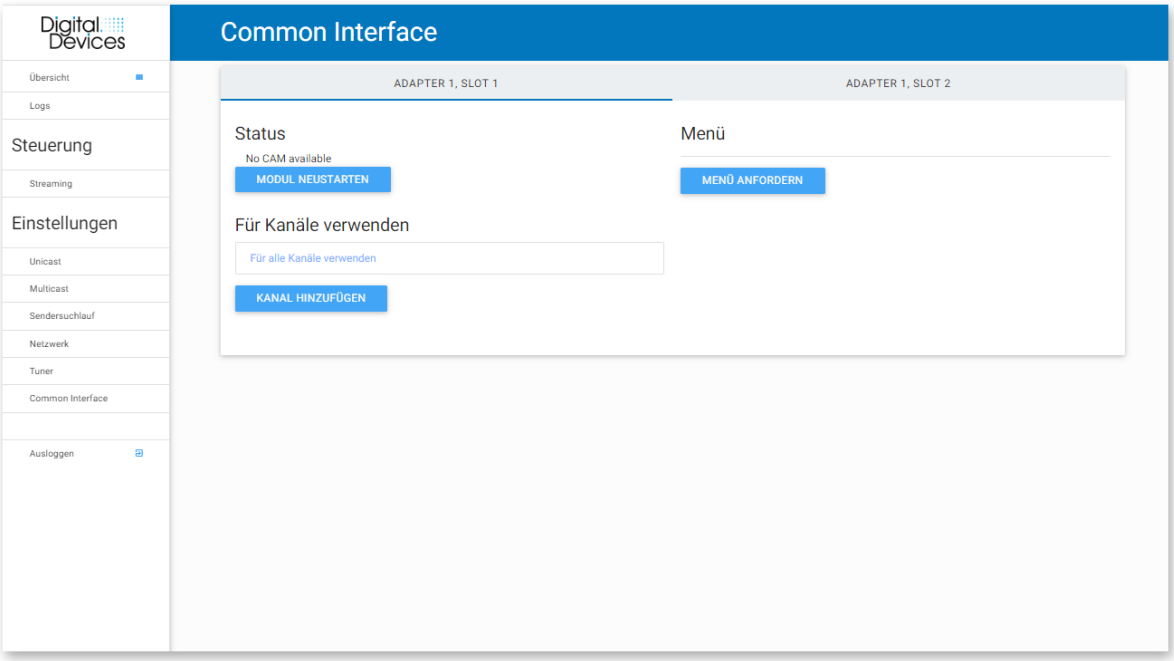


If Unicable is selected under Operating mode, the following settings must be made for the activated tuners:

(1) Set EN50494 to enable unicable for this tuner.
(2) Enter the Unicable frequency in KHz to be used here. If the frequency should only be specified in MHz e. g. 1210 MHz, enter 1210000 here.
(3) Set the slot corresponding to the frequency here (starting at zero). Please refer to the instructions of your LNB or muting switch for instructions on which unicable frequency is assigned to which slot.

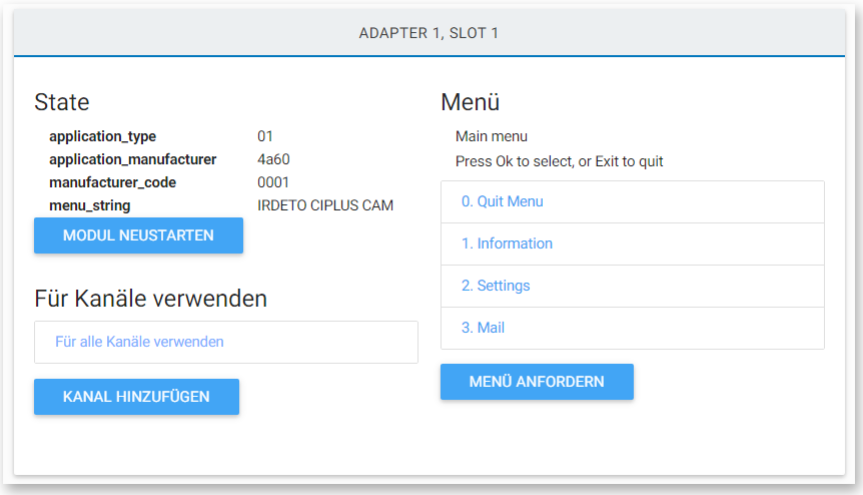
Only the Unicable 1 (EN50494 - 8 frequencies) method is supported.

6.7 Common Interface (CI)



The Common Interface section lists the Common Interfaces (short CI) built into Octopus NET SL-MC. The CIs can be selected by clicking on the respective adapter/slot.

6.7.1 Common Interface - CAM Options



If a CAM module is plugged in, information such as the firmware version of the CAM is displayed (1) as well as access to the CAM menu and other options:

Restarts the CAM module (Reset).

For each CAM module, you can determine which channels of a transponder are to be transmitted via it for decryption. (default: use for all channels)

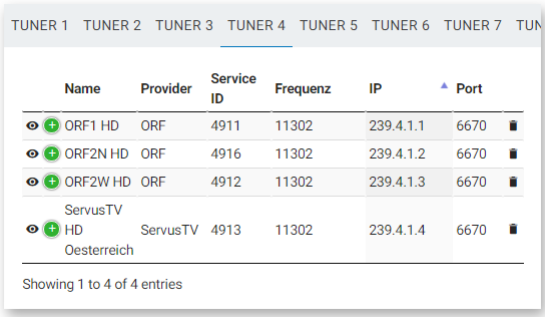
This requests the CAM menu to perform settings on this and the inserted smart card. The menu of the CAM or smart card can vary from provider to provider.

If you have assigned encrypted channels to the tuners in the Multicast section (item 6.4), this can be assigned to the individual CAMs.

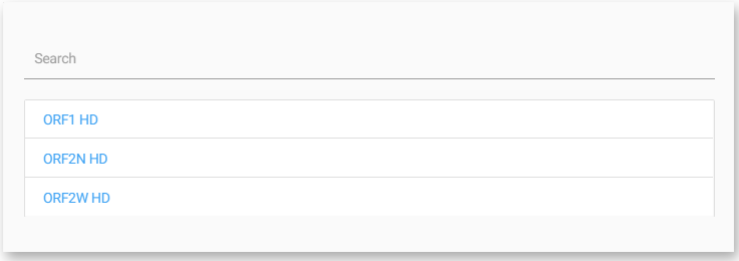
Please note that only the encrypted channels of a transponder can be decrypted by one tuner per CAM. Decryption via several tuners with one CAM is not possible.

To illustrate the whole thing, here is an example based on a CAM module with ORF smart card in the

CI slot 1 of the Octopus NET SL-MC-S:

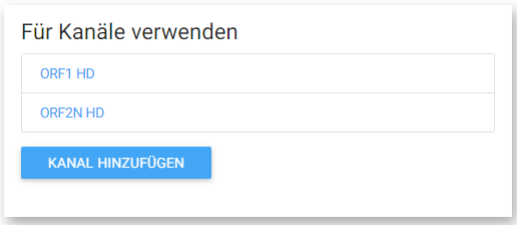


In the Multicast section, 4 channels have been assigned to Tuner 4.

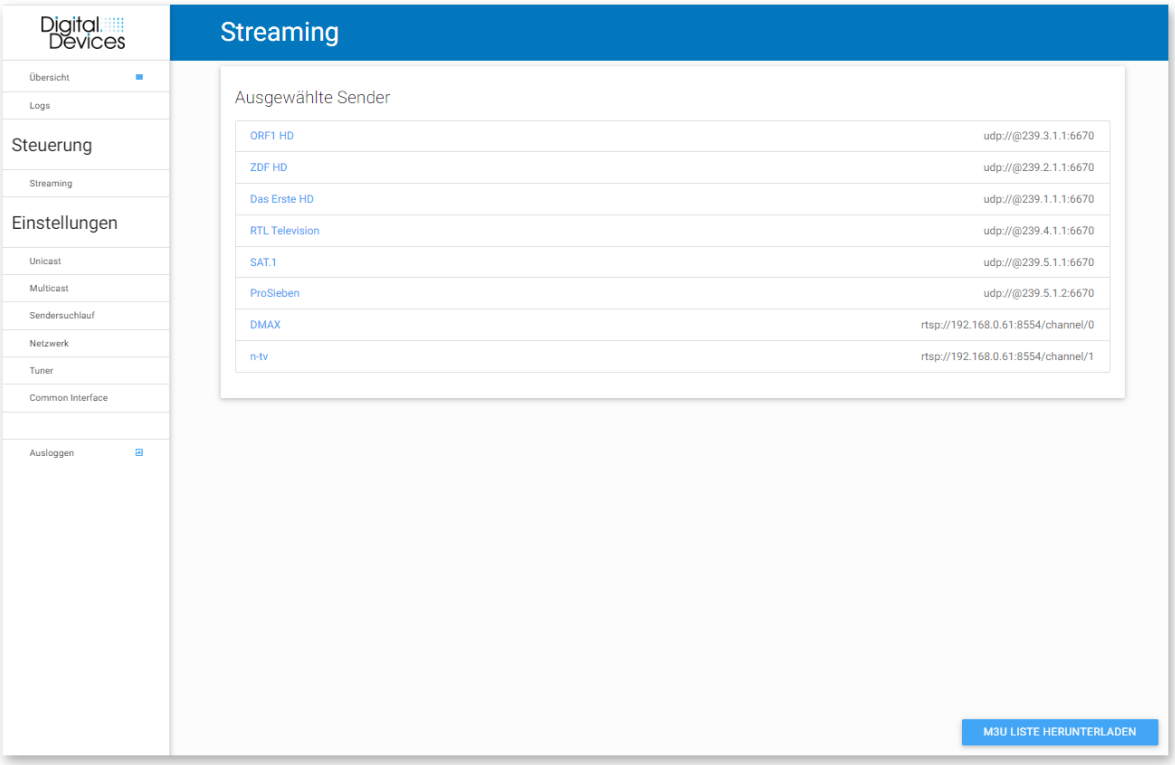


The button allows you to assign the encrypted channels to the active Common Interface in the popup window. Only channels of one transponder can be assigned to a common interface. A tuner/transponder overlapping decryption (MTD) via only one Common Interface is not possible and could lead to errors in the structure of the streams. It is also not possible to decrypt channels of a tuner via several common interfaces.

What might be noticeable here is that the channel "Servus TV Österreich" does not appear in the list, because it is an unencrypted channel.



6.8 Streaming



In the Streaming area, all streamed channels including their stream address are displayed in a list. If your web browser supports it, click on the desired channel to play it in a suitable player.

7 Setup Examples Clients

7.1 Configuring Multicast Configuration for Panasonic TV

This section describes how to create an M3U list (simple or extended) and upload it to the Panasonic TV using a USB stick. The USB stick used for this purpose must be formatted with NTFS and the M3U list must be located directly in the root directory of the USB stick and have the name satip. m3u (lower case).

The content of the M3U list has a simple or extended structure. The easy setup is sufficient for multicast streamers with SPTS like the Octopus NET SL-MC-S / MC. In case of problems during the search, the extended format can also be used. If you select the simple structure of the M3U list, the search can take longer, even with a few channels.

The Panasonic can only process the RTP protocol, so you have to configure the streams on the Octopus NET SL-MC as RTP.

7.1.1 Structure of the M3U List for Panasonic TV (Simple)

The playlist starts normally with:

#EXTM3U

Next is the **#EXTINF** playlist entry for the first stream (playlist entry). The number "**0**" indicates that the content is of indefinite duration (stream). For the **#EXTINF** line, make sure that there is a dot and space after the channel number, in the following example. "**1. <Channel name>**"

#EXTINF: 0,1. ZDF

INFO:	The channel numbers should be defined starting from the number one upwards. The channel name is freely definable and may contain spaces. Note that channel numbers may only appear once.

Next, the address line for the multicast stream and port is defined:
rtp: //239.1.1.1:6670

This is followed by the next transmitter with the next channel number:
#EXTINF: 0.2. Per seven

and again the link to the stream:
rtp: //239.1.1.1.2:6670

Make sure that there is a line break after the last line of text at the end of the playlist, otherwise the file will not be read correctly.

The entire setup for two transmitters therefore looks like this:

```
#EXTM3U
#EXTINF:0,1. ZDF
rtp://239.1.1.1:6670
#EXTINF:0,2. Pro Sieben
rtp://239.1.1.2:6670

```

7.1.2 Structure of the M3U List for Panasonic TV (Enhanced)

The playlist starts normally with:
#EXTM3U

Next is the **#EXTINF** playlist entry for the first stream (playlist entry). The number "**0**" indicates that the content is of indefinite duration (stream). For the #EXTINF line, make sure that there is a dot and space after the channel number, in the following example. "**1. <Channel name>**"
#EXTINF: 0,1. ZDF

INFO: The channel numbers should be defined starting from the number one upwards.
The channel name is freely definable and may contain spaces. Note that channel numbers may only appear once.

Next, the address line for the multicast stream and port is defined, followed by the extended parameters:
rtp://<IP_Stream_Address>:<Port>?stype=<type>&onid=<onid>&tsid=<tsid>&svcid=<svcid>

Parameter	Name	Description Value	Example values: ZDF - Astra 19.2° East
<type>	Service Type	1 (TV) / 2 (Radio)	1
<onid>	Original Network Identifier	Decimal	1
<tsid>	Transport Stream Identifier	Decimal	1079
<svcid>	Service Identifier	Decimal	28006

Based on the values shown in the table above, the following structure is obtained for the "*ZDF*" channel via satellite reception of "*Astra 19.2° East*":
rtp://239.1.1.1:6670?stype=1&onid=1&tsid=1079&svcid=28006

This is followed by the next transmitter with the next channel number:
#EXTINF: 0.2. Per seven

and again the link to the stream:
rtp://239.1.1.1:6670?stype=1&onid=1&tsid=1107&svcid=17501

Make sure that there is a line break after the last line of text at the end of the playlist, otherwise the file will not be read correctly.
The entire setup for two transmitters therefore looks like this:

```
#EXTM3U
#EXTINF:0,1. ZDF
rtp://239.1.1.1:6670?stype=1&onid=1&tsid=1079&svcid=28006
#EXTINF:0,2. Pro Sieben
rtp://239.1.1.1:6670?stype=1&onid=1&tsid=1107&svcid=17501
```

7.1.3 Configuration on the Panasonic TV

(The following procedure refers to the "Panasonic LED TV TX-32CSW514" and may vary depending on the model)

1. Connect the prepared USB stick to the Panasonic TV.
2. Press the "TV" input button on the remote control to switch to the "DVB via IP" input.
3. Press the "MENU" button to enter the television's main menu.
4. Go to the entry "Setup -> DVB via IP".
5. At the end, select "Auto Setup".
6. Select the Client Settings button
7. Check the Multicast Installation box.
8. Click on the "Channel Scan" button.

After the channel scan has been completed, the channels are available in the program overview. If you choose the simple structure of the M3U list, the search can take longer, even for a few stations.

7.2 Configuring Multicast Configuration for MAG250 STB

This section describes how to create an M3U list and load it into a MAG250 STB using a USB stick.
The USB stick used for this purpose must be formatted with FAT32 and the M3U list must be located directly in the root directory of the USB stick. The name of the M3U list can be chosen freely, e. g. chanlist.m3u.

The MAG250 STB can handle multiple protocols, so you can configure the streams on the Octopus NET SL-MC as RTP or UDP.

7.2.1 Structure of the M3U list for MAG250 STB

The playlist starts normally with:
#EXTM3U

Next is the #EXTINF playlist entry for the first stream (playlist entry). The number "0" indicates that the content is of indefinite duration (stream).
EXTINF: 0, The First

INFO: The channel name is freely definable and may contain spaces.

Next, the address line for the multicast stream and port is defined:
rtp: //239.1.1.1:6670

This is followed by the next station:
#EXTINF: 0, hr-fernsehen

and again the link to the stream:
rtp: //239.1.1.1.2:6670

Make sure that there is a line break after the last line of text at the end of the playlist, otherwise the file will not be read correctly.

The entire setup for two transmitters therefore looks like this:

```
#EXTM3U
#EXTINF:0,Das Erste
rtp://239.1.1.1:6670
#EXTINF:0,hr-fernsehen
rtp://239.1.1.2:6670
#EXTINF:0,SWR Fernsehen BW

```

INFO: Use the UTF8 format to save the M3U list.

7.2.2 Configuration on a MAG250 STB

(The following procedure refers to a MAG250 STB with firmware version 0.2.16)

1. Load the M3u list on a FAT32 formatted USB stick with any name, e. g."chanlist. m3u".
2. Start the internal portal or a portal of your choice on the MAG250 STB.
3. Select "Home Media" in the portal.
4. Select the USB stick in the overview.
5. Select the M3U playlist you have created and apply it to IPTV stations.

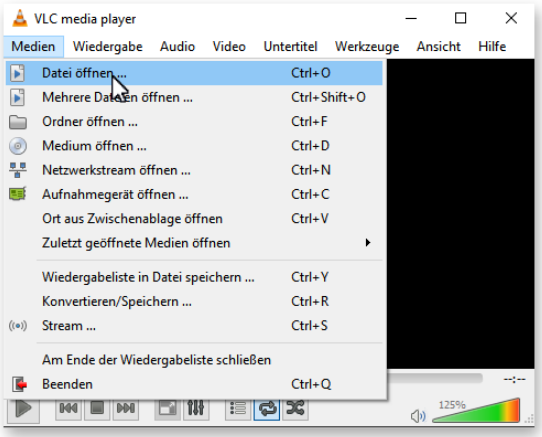
Then switch to the Home Portal and select the function "IPTV Channel". The channels are added to the selection in the order in which they appear in the M3U list.

7.3 Software Tool / Client

To check the configuration of your Octopus NET SL-MC or to test a created M3U list, the VideoLan Client (VLC for short) is the best choice. This is a software player that works on Windows, Mac and Linux.

However, you can also use it as a software client to extend the scope of end devices.

To test the M3U list e. g. under Windows start the VLC Player, click on "*Media*" and *"Open file*" in the upper left corner.



In the file browser that now opens, select the created M3U list and click on "Open". After opening the file, playback starts with the first stream in the list.

8 Digital Devices

Digital Devices GmbH consists of a heterogeneous community of owners (physicists and engineers) and covers a wide range of products for DVB technology. The product range includes solutions for cable, satellite and terrestrial reception. All products DVB cards can be completed with common interface extensions. Thanks to the modular product range, numerous flexible combination options are easy to implement.

The development and production takes place in Germany (**Made in Germany**) and meets all applicable guidelines and requirements with regard to quality and environmental standards.

8.1 Product portfolio

The products of the Cine series are the basic product of numerous Digital Devices solutions. As a twin tuner with expandability by further twin tuners as well as CI extensions, numerous situations for PCI Express environments can be put together. The driver-side support of Unicable (DVB-S/S2 only), the Windows® Media Center support for DVB-S/C/T and the Pay-TV/Smartcard support via CI extension have already been standard functionality for many years.

The DuoFlex series supplements the Cine series with twin-tuner extensions via flat ribbon cable (no further PCIe slots necessary), especially in compact environments. The DuoFlex series can also be used as an extension for the Octopus series.

The Octopus series consists of numerous implementations for special TV tuner environments for hobby but also for business solutions. Combinations with CI extensions and external solutions are examples of a flexible modular combination capability in the DVB portfolio for the PC market.

Discover the world of digital devices at www.digital-devices.de!

8.2 Service information

In service cases please contact our support at support. digital-devices. de.

8.3 Naming Rights

All rights to the names of the software products used belong to their respective licensees.

9 Index

Notes