

CHAMELEON

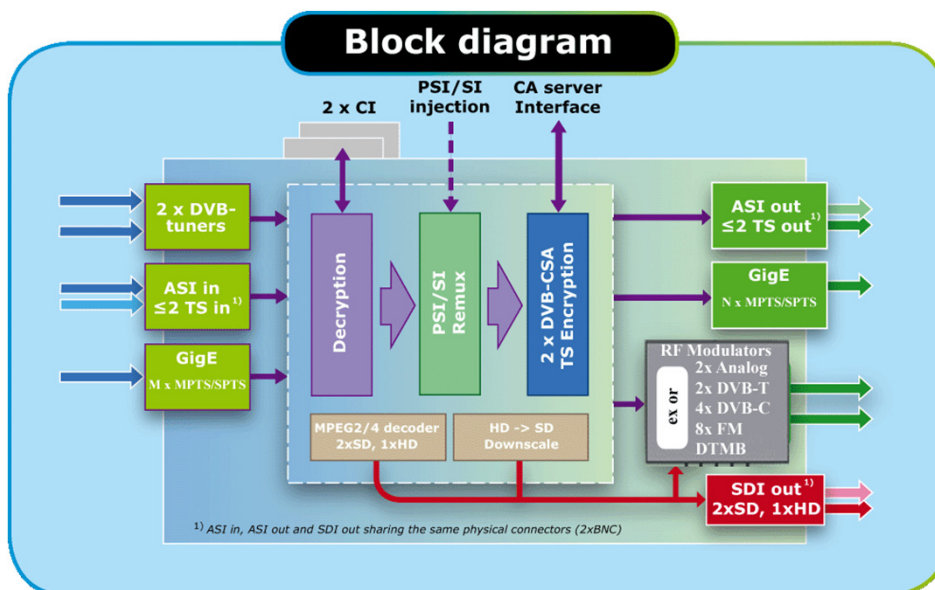
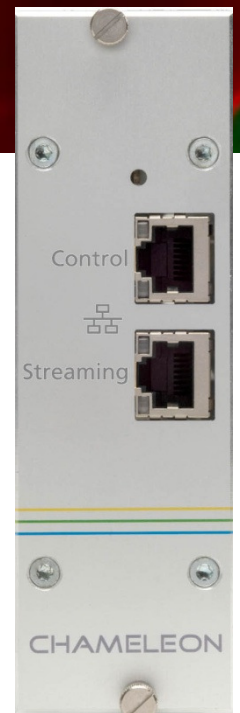
CHAMELEON - SINGLE HARDWARE PRODUCT LINE

The CHAMELEON product line covers almost every need for Cable-TV and SMATV distribution with only one hardware.

The different inputs, processing and outputs are defined by software options, and all software options can be updated at any time.

The CHAMELEON includes a dual DVB-S/S2/T(T2)/C receiver, furthermore it includes decoding of MPEG-2 and MPEG-4 video formats as well as it supports MPEG, AAC HE and AC-3 audio decoding.

The SW options define the different "product realisations" you can implement with the unique HW. For your specific application, you simply buy the SW options you need. When you need further functionality, just purchase additional SW options, and update the installed HW.



CHAMELEON products range from receiver, to edge, to streamer and to scrambler.

Some examples:

- Receiver DVB-S/S2/T(T2)/C
- Transmodulators
- DVB-C, DVB-T modulators
- Analog VSB RF-modulators
- Edge QAM/COFDM
- MPEG2/4 SD/HD decoder
- CI multi-decryptions
- Remultiplexer multiple TS
- DVB_CSA Scrambler
- IP streamer
- ASI streamer
- SDI generator, 2 SD/1 HD

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0. Getting started

1. Register your Chameleon at chameleonconnect.tv

After registration and uploading the entitlement file to the Chameleon, your purchased SW options are loaded, and a 30 days trial period for all SW options is initiated.

Register new Chameleon

Serial number:	<input type="text" value="0430011041500005"/>
Module name:	<input type="text" value="My first Chameleon"/>
Firmware version:	<input type="text" value="1.4"/>
Vendor:	<input type="text" value="My distributor"/>
Description:	<input type="text" value="Alfa Bravo"/>

2. Assemble in base unit

Mount your Chameleon in the base unit, and connect the power supply.



3. Connect: 192.168.0.20

Use an IP cable, start your web browser, and connect by entering 192.168.0.20 in the address field of the browser.

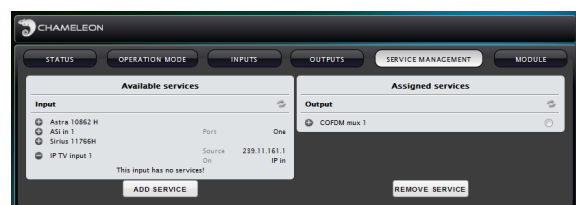


4. Change the IP address (optionally)

When using a system of Chameleons, it is recommended to change the default management address 192.168.0.20 to a system unique IP address.

5. Configure your Chameleon

Connect and configure inputs and outputs. Select services from your inputs to your outputs.



1. General information and SW options

Delivery without SW options – please register at the portal

The Chameleons are delivered without any SW options loaded. You can connect to the Chameleon directly using a web browser and the default management IP address 192.168.0.20. In a non-registered Chameleon, you have access to the web UI, but no configuration or settings can be done. To enable the normal functionality, the Chameleon has to be registered at the chameleonconnect.tv portal, see §2.

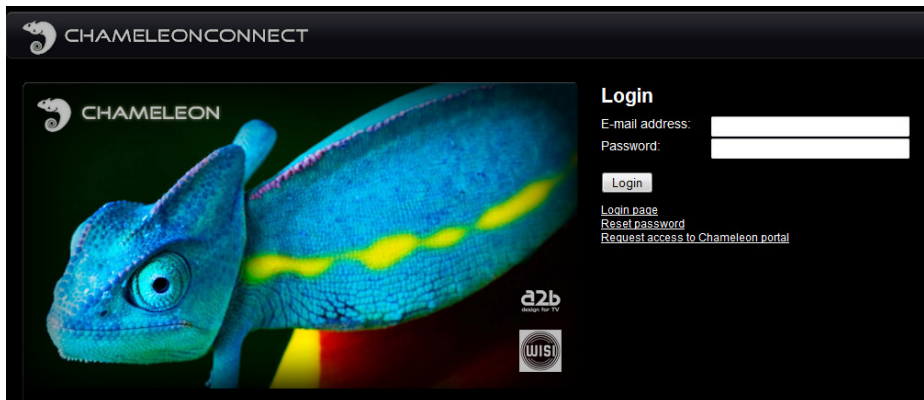
SW options and 30 days demo SW options

After registering your Chameleon, and uploading the entitlement file to the Chameleon, you have access to the functionalities you have purchased, and a 30 days trial period for all currently available SW options is initiated.

2. The chameleonconnect.tv portal

Portal URL: <http://chameleonconnect.tv>

Connect to the Chameleon portal using the URL: <http://chameleonconnect.tv>



Login to the chameleonconnect.tv

Enter your e-mail address and password, and click Login. If you have forgotten your password, click the [Reset password](#) link, and an e-mail will be sent to the entered e-mail address. The e-mail contains a hyper-link that you should follow to confirm the request for a new password.

Requesting access to the chameleonconnect.tv portal

If you do not have a password for access to the portal, please click the [Request access to Chameleon portal](#) link.



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3. Registering the Chameleon & downloading SW options

Registering Chameleons at the chameleonconnect.tv portal

After login, and clicking the **Register Chameleon** tab, enter the serial number of your Chameleon. Optionally, also enter Module name, Vendor, and Description (these fields are intended for your own use, to be able to track and maintain your installed base). Information about SLA End date and SW options are entered automatically from the information stored in the Unit Data Base.

Click the **Register** button to register the Chameleon.

Register new Chameleon

Serial number: 0430011041500005
Module name: Charlie
Firmware version: 1.0
Vendor: A2B
Description: Test module

Downloading SW options (entitlement file) to your computer

Go to the tab **My Chameleons**, and click the serial number for the module to download SW options (entitlement file) for. In the Edit Chameleon view, click **Download file**. Save the file to your computer.

Edit Chameleon

Serial number: 0430011041500005
Module name: Kloors Chameleon
Installation site: Mjärdevi
Firmware version: 1.0
Vendor: Wisi
Description: Test module Per

SLA End date: 11/30/2012

Date	Option
1/1/0001	GNHWUA

Entitlement file:

[My Chameleon list](#)

Uploading SW options (entitlement file) to your Chameleon

Via the Chameleon web UI

Under **SETTINGS / SOFTWARE AND ENTITLEMENT UPGRADE**, browse for the entitlement file you previously downloaded to your computer. Click Upload, and reboot the module when the upload is ready.

Using the IP Supporter

With the Chameleon connected to your computer, and your computer connected to Internet, you can upload the entitlement file directly. Select you Chameleon, and check the box for "Entitlement from A2B server", and click Upload.

A2B IP Supporter

Serial	IP address
0420010083100003	172.18.0.119
0430011010400001	172.18.0.103
0430011040100002	172.18.0.121
0430011041500005	172.18.70.99

IP settings Entitlement

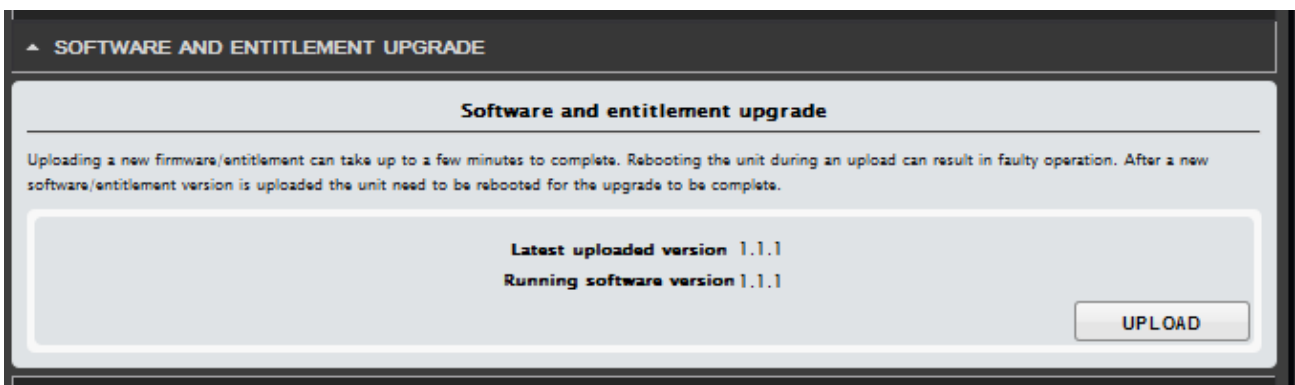
Entitlement from A2B server

Entitlement file:



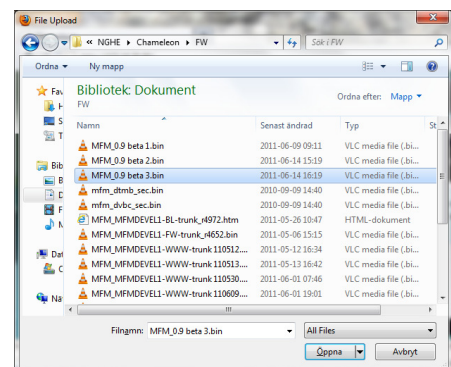
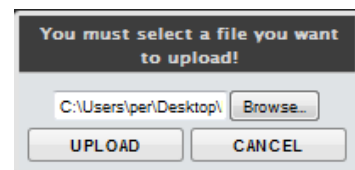
4. Upgrading the Chameleon FW & SW options

Both FW and SW options (entitlements) are uploaded via the **SOFTWARE AND ENTITLEMENT UPGRADE** in the **SETTINGS** tab.



Uploading firmware

1. Click on the UPLOAD button to browse for the firmware file to be uploaded from your PC
2. Locate the firmware file (.bin file) on your PC, and select it
3. Click Open in the browsing window
4. Click the Upload button in the Chameleon web UI
5. Wait for the feedback that the upload is OK
6. Reboot the module



Uploading SW options (.ent file)

1. Click on the UPLOAD button to browse for the entitlement file to be uploaded from your PC
2. Locate the software file (<serial number>.ent) on your PC, and select it
3. Click Open in the browsing window
4. Click the UPLOAD button in the Chameleon web GUI
5. Wait for the feedback that the upload is OK
6. Reboot the module



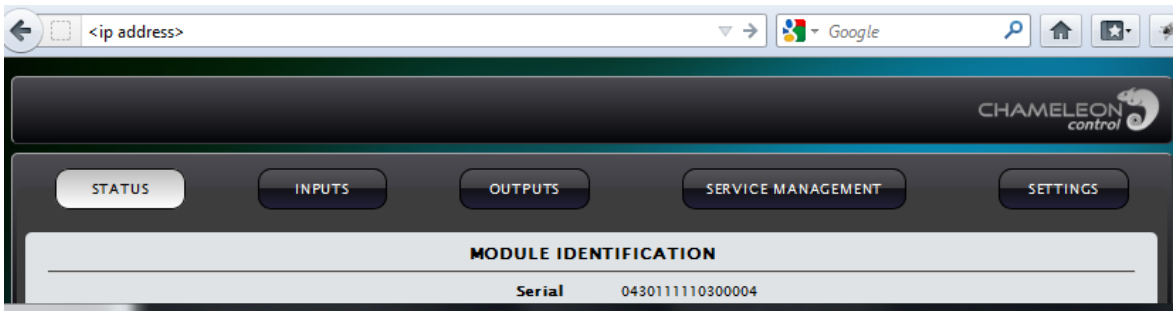
5. Connecting to the Chameleon web UI

Default IP address: 192.168.0.20

The default IP address for a Chameleon module is 192.168.0.20. Change the IP address to a unique IP address in your network, in the web UI under **SETTINGS / NETWORKING**, or by using the “IP-Supporter”.

Connecting with web browser

Use a standard web browser on your computer to connect by typing the IP address of the Chameleon in the address field.



Supported web browsers

The Chameleon web interface is verified for Firefox version 14 and Internet Explorer 9. Other browsers might work, but the functionality cannot be guaranteed.

General information about the web interface structure

The web UI is designed to get a logical structure for the user/installer, and an overview of the module via the top tabs.

Operation mode must be selected before starting to use the Chameleon. The selected Operation mode will have implications on the general functionality of the module, e.g. the possible output standard and the IP streaming capability.

The main interface while managing services is the **SERVICE MANAGEMENT**. Here, you will have an overview of the configured inputs and outputs, and you will also manage the service selection, remultiplexing and decryption.

Before you start managing the services, you should add and configure the inputs and the outputs in their respective tabs.

The **SETTINGS** tab contains module settings such as Networking, Headend System Management, Operation Mode, Common Interface, SW and Entitlement Upgrade, Maintenance, and Log. The CAM menu, if available, is also displayed in the Common Interface menu under the **SETTINGS** tab.



6. Select Operation mode

Select Operation mode

Click **OPERATION MODE** under the **SETTINGS** tab. Select the generic operation mode by clicking Edit, and selecting operation mode with the radio buttons. Click Save.

Operation modes:

Analogue mode; DVB-T mode; DVB-C mode; Streaming mode, FM mode

Mode selection implications

The selected operation mode will have an impact on the possible selection of output.

Analog mode: for 1 or 2 analog RF and/or SDI output.

DVB-T mode: for 1 or 2 digital terrestrial modulation (COFDM).

DVB-C mode: for digital cable TV modulation (QAM), 1 to 4 DVB-C multiplexes.

Streaming mode: for IP-TV output (TS over IP). Up to 20 IPTS out.

FM mode: for up to 8 analog FM outputs.

For all the different operation modes, your Chameleon module must also be equipped with the appropriate SW options, see more details in §12.

ASI and IP for all operation modes

In all operation modes, input and/or output via ASI is available simultaneously. The ASI in/out can be used simultaneously with the modulated and IPTS outputs. The different operation modes also have capability for simultaneous IPTS (SPTS and/or MPTS) inputs and outputs. The number of IPTS in different operation modes are given to the right.

Number of IPTS^{*)} in/out in different operation modes

Analog: 4 IPTS in / 4 IPTS out

FM: 8 IPTS in / 2 IPTS out

DVB-T: 20 IPTS in / 4 IPTS out

DVB-C: 20 IPTS in / 6 IPTS out

Streaming: 4 IPTS in / 20 IPTS out

^{*)} IPTS = SPTS and/or MPTS





7. Add and configure inputs

Go to **INPUTS**

Click on the **INPUTS** tab

Depending on the SW options you have for your Chameleon, you can configure inputs from:

- Tuner (up to 2 tuner inputs)
- ASI (up to 2 ASI inputs)
- IP (up to 20 IPTS inputs, depending on Operation Mode)

STATUS	INPUTS	OUTPUTS	SERVICE MANAGEMENT	SETTINGS
Sort by: Name <input type="button" value="v"/> <input checked="" type="radio"/> Ascending <input type="radio"/> Descending				
+ Add new input				
+ HB 12558V	Locked, 12 services found. DVB-S	SNR Level	12.0 dB -56 dBm 58 dBμV	BER <1.0E-08
+ HB 12597V	Locked, 32 services found. DVB-S	SNR Level	11.0 dB -60 dBm 49 dBμV	BER <1.0E-08

Add an input

- Click on “Add new input” or the
- Select input type in the **Choose input type** drop-down list (*ASI, DVB-C, DVB-S, DVB-S2, DVB-T, DVB-T2, IPTV. Selectable tuner inputs will depend on the tuner installed*).

Configure the input

For each type of input, you will get configuration settings in the expanded view.

- Type a name for the input. This name will be shown in the overview of the inputs.
- Fill out the required information/parameters and click **SAVE**.

Input status


If your settings were OK, the status will show you services found and additional input type related data.

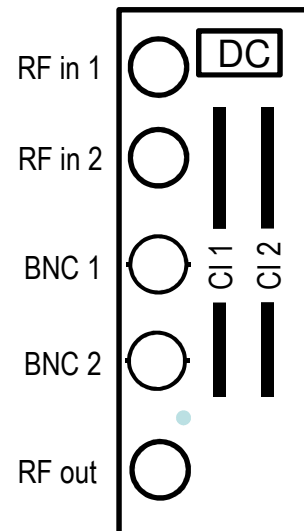
+ Hotbird 10723H	Locked, 19 services found. DVBS
------------------	------------------------------------




7.1 Add ASI and IP inputs

Adding ASI inputs

Go to **INPUTS**, and click on “Add new input” or the .
Select ASI in the drop down list for **Choose input type**.
Type a name for your ASI input.
Select the Physical port from the drop down list. Port 1 is the top BNC 1 connector, port 2 is the lower BNC 2 connector.
Click SAVE.
Note: ASI inputs automatically detects the incoming bit rate.



Add IP inputs

Go to **INPUTS**, click “Add new input” or the .
Select IPTV in the **Choose input type** list.
Type a name for your new IPTV input.
Select **Bitrate mode**.

- CBR Automatic (auto-detects the incoming bit rate)
- CBR Manual (manual setting of bit rate in)
- VBR (only available in Analogue Operation mode)

Select **Network interface**. If no network interface is available, you can use the link Create a new interface.
Select **Routing scheme**, Multicast or Unicast.

- For Multicast; enter the **Multicast address** and **Port**
- For Unicast: enter the **Port** (address will be the same as the IP address of the streaming interface)

Click SAVE.

Input status


If your settings were OK, the status will show you services found and additional input type related data.



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7.2 Add tuner inputs

Adding tuner inputs

Go to **INPUTS**, and click on “Add new input” or the 

Select the tuner type in the **Choose input type** list

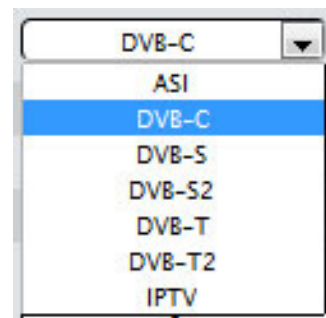
Note: The available tuner input types will depend on your HW.

Type a name for your input

Select the Physical port from the drop down list. Port 1 is the top F-connector (RF in 1), port 2 is the lower F-connector (RF in 2), see picture in §7.1.

Fill out the required settings and click **SAVE**.

Note: Each input type has its own set of input settings. Below some examples.



Satellite input settings:

Choose input type	DVB-S
Name	Type input name
Physical port	Two
LNB type	Universal
Polarisation	Vertical
Voltage	Auto
22 kHz tone	Auto
FEC	Auto
Symbol rate (kBaude)	27500
Transponder frequency (MHz)	12558
DiSEqC type	None

Terrestrial input settings:

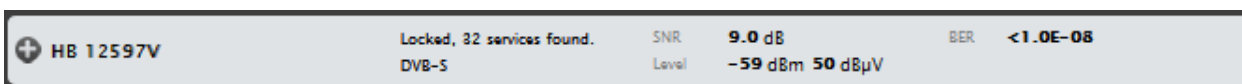
Choose input type	DVB-T
Name	Terrestrial input name
Physical port	Two
Bandwidth	8 MHz
Frequency (MHz)	E36
	594

Cable TV input settings:

Choose input type	DVB-C
Name	QAM input name
Physical port	Two
Symbol rate (kBaude/s)	6875
Frequency (MHz)	E52
	722
Constellation	Auto

Input status

If your settings were OK, the status will show you services found and additional input type related data.



8. Add and configure outputs

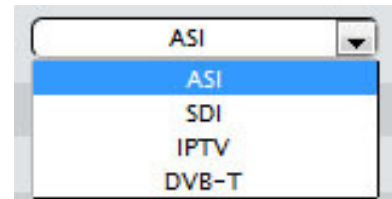
Go to **OUTPUTS**

Depending on SW options, and on the Operation mode, you can configure up to:

- 2 Analogue RF out (PAL, SECAM)
- 8 analogue FM radio
- 2 SDI out
- 2 ASI out

Note: ASI in/out and SDI shares the 2 BNC ports. These ports are controlled by SW.

- 2 DVB-T out
- 4 DVB-C out
- 20 IPTS out

A screenshot of the 'Add new output' configuration form. It includes a 'Sort by' dropdown set to 'Name' and radio buttons for 'Ascending' (selected) and 'Descending'. The form fields are: 'Choose output type' (dropdown set to 'ASI'), 'Output enabled' (toggle set to 'ON'), 'Name' (text input 'New ASI output 1'), 'Physical port' (dropdown set to 'One'), and 'Bitrate (MBit/s)' (text input '0'). 'SAVE' and 'CANCEL' buttons are at the bottom right.

Add and configure an output

In the **OUTPUTS** tab, click **Add new output**.

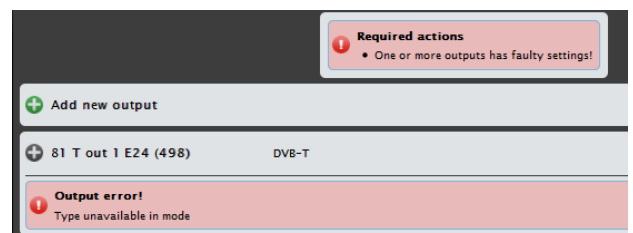
- Select output type (*ASI, SDI, IPTV, DVB-C, DVB-T, ANALOG, FM*) from the drop-down list.

For each type, you will get different configuration settings in the expanded view.

- Fill out the required information/parameters
- Click **SAVE**.

Output status

After saving, the status of the configured outputs is shown. If e.g. too many outputs are configured, or an output that is not supported in the current Operation mode, there will be an error message displayed.



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8.1 Add and configure analogue PAL/SECAM outputs

Add analogue (PAL or SECAM) outputs

0. Select Analog mode as Operation Mode, see also §6.
1. In the **OUTPUT**, select ANALOG in the **Choose output type** list
2. Type a name for the output
3. Select decoder instance
4. Select the service in the **Services** drop down list
5. Optional: Change settings for video standard, group delay pre-correction, video bandwidth and video conversion
6. Select audio language in case the services are transmitted with multiple audio languages
7. If subtitling is used, select subtitling "ON", and set the subtitling parameters
8. Set the WSS (Wide Screen Signalling) parameters
9. Optional: for VPS signalling^{*)}, select the VPS signalling source (*From Teletext* or *From EIT*), and enter the CNI code
10. Select frequency table (CCIR or OIRT) and output frequency
11. Set output carrier level
12. Select TV standard and Audio system.
13. Optional: Adapt modulation depth and carrier levels.
14. Click SAVE

^{*)}VPS (Video Programming System) is used on terrestrial channels in some European countries (e.g. Czech Republic, Germany) and also on some of the channels on the Astra satellites.

Choose output type	ANALOG
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	PAL out name
Decoder instance	One
Services	BBC World News
Video standard	PAL 625
Video group delay pre-correction	B/G general
Video bandwidth (MHz)	5.0
Test lines	ON <input type="radio"/> OFF <input type="radio"/>
Video conversion	Auto
Audio language	Default
Subtitling	ON <input type="radio"/> OFF <input type="radio"/>
Subtitle language	Default
Subtitle priority	Teletext
Subtitle type	Normal
Teletext codepage	Latin 1
Subtitle conversion	Auto
WSS configuration	Auto
WSS subtitle configuration	Auto
VPS signaling	Off
Frequency table	CCIR
Channel frequency (MHz)	E2
	48.25
	81
Carrier level (dBµV)	<div style="border: 1px solid blue; padding: 2px; display: inline-block;"> Carrier level is a global and fm outputs!</div>
TV standard	B/G
Audio system	A2
Dual mono	ON <input type="radio"/> OFF <input type="radio"/>
Picture carrier modulation depth	90%
Mono subcarrier level	Auto
Stereo subcarrier level	Auto
Audio deviation	0 dB

8.2 Add and configure ASI, SDI, and FM outputs

Add ASI outputs

1. In the **OUTPUT**, select ASI in the drop down list for **Choose output type**
2. Enter name, physical port and bitrate
3. Click SAVE

Choose output type	ASI
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	ASI output name
Physical port	Two
Bitrate (MBit/s)	56

Add SDI outputs

0. Select Analog Operation Mode
1. In the **OUTPUT**, select SDI in the **Choose output type** list
2. Select the service in the **Services** drop down list
3. Set the audio language and subtitle settings
4. Set the WSS (Wide Screen Signalling) configurations
5. Click SAVE

Choose output type	SDI
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	SDI out name
Decoder instance	One
Services	Euronews
Video conversion	Auto
Audio language	Default
Subtitling	ON <input type="radio"/> OFF <input type="radio"/>
Subtitle language	Default
Subtitle priority	Teletext
Subtitle type	Normal
Teletext codepage	Latin 1
Subtitle conversion	Auto
WSS configuration	Auto
WSS subtitle configuration	Auto

Add FM radio outputs

0. Select FM mode as Operation Mode
1. In the **OUTPUT**, select FM in the drop down list for **Choose output type**
2. Select the service in the **Services** drop down list
3. Enter output frequency and output level
4. Optional: for RDS signalling, select the PI, PS and PTY sources, and enter the values if using manual settings.

Choose output type	FM
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Decoder instance	One
Services	Bayern 1
Channel frequency (MHz)	103.2
	84
Carrier level (dBµV)	<small>Carrier level is a global setting and fm outputs!</small>
RDS	ON <input type="radio"/> OFF <input type="radio"/>
PI source	Manual
PI value	FFFF
PS source	From UECF
PTY source	From UECF



8.3 Add and configure DVB-T and DVB-C outputs

Add DVB-T outputs

- 1. In the **OUTPUT**, select DVB-T in the drop down list for **Choose output type**
- 2. Enter the required parameters and settings.
- 3. Click **SAVE**

➖ Add new output

Choose output type	DVB-T
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	COFDM out 1
Frequency (MHz)	E26
	514
Bandwidth (MHz)	8
Carrier level (dBμV)	85
Forward error correction	7/8
Guard interval	1/32
Carrier mode	8k
Constellation	64QAM

Add DVB-C outputs

- 1. In the **OUTPUT**, select DVB-C in the drop down list for **Choose output type**
- 2. Enter the required parameters and settings.
- 3. Click **SAVE**

➖ Add new output

Choose output type	DVB-C
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	QAM out 1
Frequency (MHz)	E62
	802
Constellation	256QAM
Symbol rate (kBaud)	6900
Carrier level (dBμV)	95



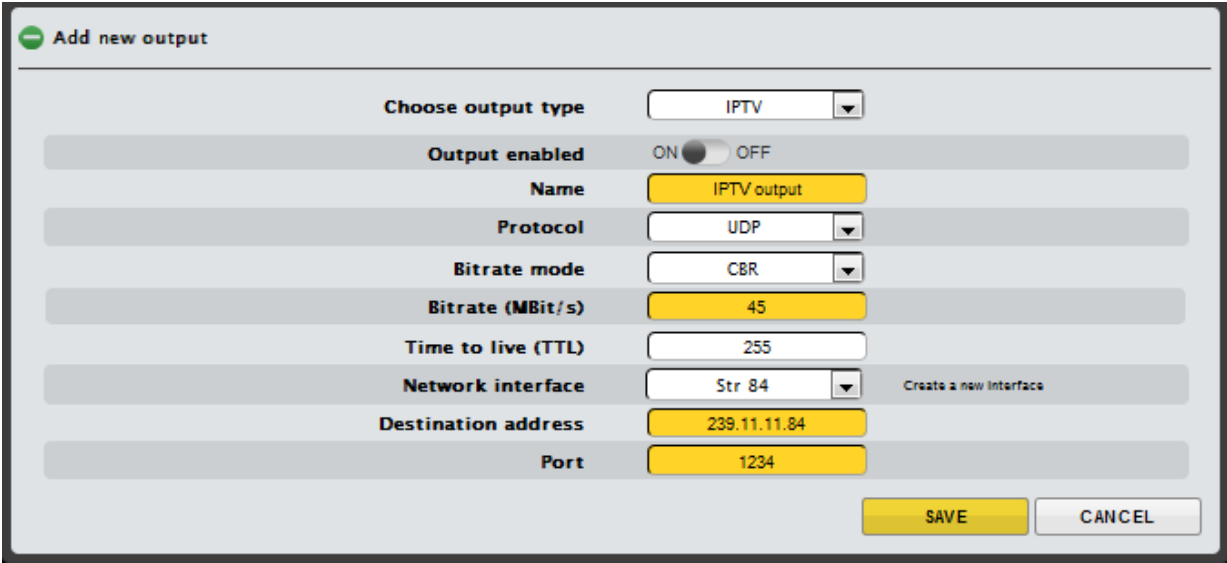
8.4 Add and configure IP (SPTS/MPTS) outputs

Configure a network interface for streaming (see also §10.1)

1. Go to NETWORKING in the **SETTINGS** tab, and click Add new interface
*For GN01 or GN40 mounting, add a new network interface for the streaming port.
For GN50 mounting, add a new network interface to the backplane port.*
2. Enter name for the interface, and IP parameters
3. Select Streaming ON, and click SAVE

Add IPTV outputs

1. In the **OUTPUT**, select IPTV in the drop down list for **Choose output type**
2. Enter the required parameters and settings.
3. Click SAVE.



The screenshot shows the 'Add new output' configuration window. It contains the following fields and controls:

- Choose output type:** A dropdown menu set to 'IPTV'.
- Output enabled:** A toggle switch set to 'ON'.
- Name:** A text field containing 'IPTV output'.
- Protocol:** A dropdown menu set to 'UDP'.
- Bitrate mode:** A dropdown menu set to 'CBR'.
- Bitrate (MBit/s):** A text field containing '45'.
- Time to live (TTL):** A text field containing '255'.
- Network interface:** A dropdown menu set to 'Str 84', with a 'Create a new Interface' link to the right.
- Destination address:** A text field containing '239.11.11.84'.
- Port:** A text field containing '1234'.

At the bottom right, there are two buttons: 'SAVE' and 'CANCEL'.


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9. Service selection and remultiplexing

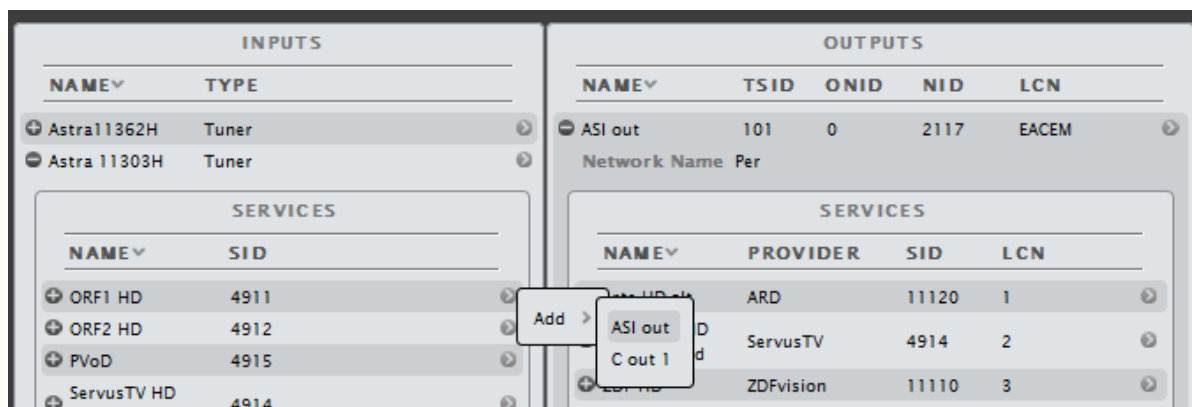
Service management functionality and pre-requisites

The SERVICE MANAGEMENT tab is the main view for handling remultiplexing, service selection, decryption, encryption and PID management. Before starting with the Service management, the inputs and outputs must be defined, see §7 and §8.

Inputs, Outputs, and their available/assigned services

The left part of the SERVICE MANAGEMENT view shows the Inputs with their available services. The right part shows Outputs with the names you have typed while configuring the output. By default, Output have no assigned services, no services has been added. To see the services in the inputs or in the outputs, expand the input (or output) by clicking the heading plus sign .

The PIDs of each input service can be shown by clicking the  to expand the service.




INPUTS	
NAME	TYPE
Astra11362H	Tuner
Astra 11303H	Tuner


SERVICES	
NAME	SID
ORF1 HD	4911
ORF2 HD	4912
PVoD	4915
ServusTV HD	4914



OUTPUTS				
NAME	TSID	ONID	NID	LCN
ASI out	101	0	2117	EACEM

SERVICES			
NAME	PROVIDER	SID	LCN
ARD	ARD	11120	1
ServusTV	ServusTV	4914	2
ZDFvision	ZDFvision	11110	3

Structure of the available/assigned services under INPUTS and OUTPUTS

Input: Each **Input/service** has 3 (or 4 for a CI module input) columns; **Name** (service names), **SID** (service id), and an “edit arrow”  for adding to output or decryption. Decryption (descrambling) is explained in §9.2.


Assigning services from the inputs to the outputs is done by clicking the , and selecting the output to add the service to in the appearing pop-up boxes, details in §9.1

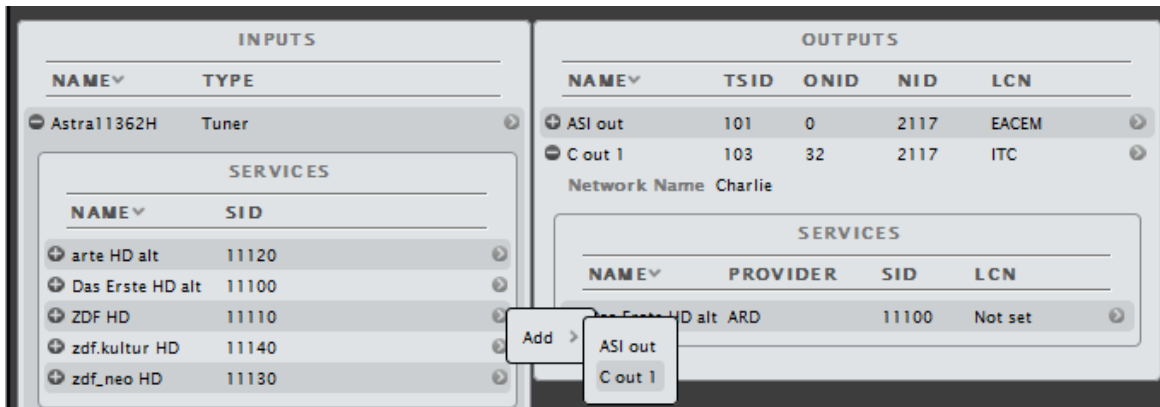
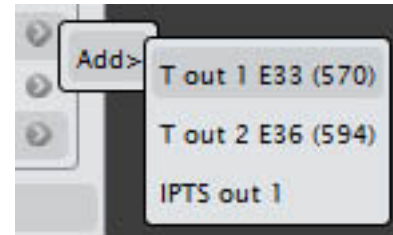
Output: Each **Output** has 6 columns; **Name** (mux names), **TSID** (transport stream id), **ONID** (Original Network id), **NID** (Network id), **LCN** (LCN type) and the “edit arrow” . Each **Output/service** has 5 columns; **Name** (service name), **Provider** (service provider name), **SID** (service id), **LCN** (service LCN number) and the “edit arrow” .




9.1 Adding and removing services to/from Outputs

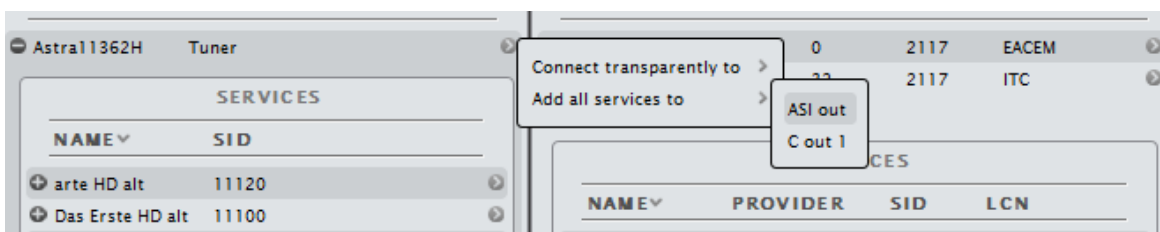
Adding services to the outputs

1. Click the edit arrow  tailing an input service. When you click the arrow, an “Add” pop-up will appear.
2. Move the mouse pointer to the Add pop-up.
3. Select the **Output** to which you would like to add the service.




Adding all services to the outputs

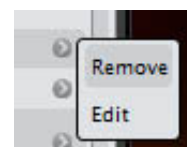
1. Click the edit arrow  tailing an input. When you click the arrow, a pop-up will appear with “Connect transparently to” and “Add all services to”.
2. Select “Add all services to”, and select the **Output** to add services to.




Removing services from the outputs

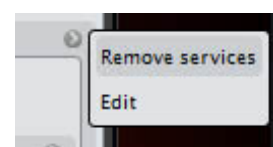
Removing a single service from an output

1. Click the edit arrow  of an output service.
2. Click “Remove” in the pop-up window.



Removing all services from an output

1. Click the edit arrow  of an output.
2. Click “Remove services” in the pop-up window.



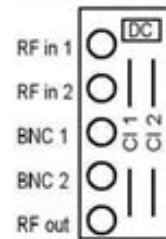
CHAMELEON

9.2 Decryption and Common Interface

Insert the CAM and smart card in the CI slot

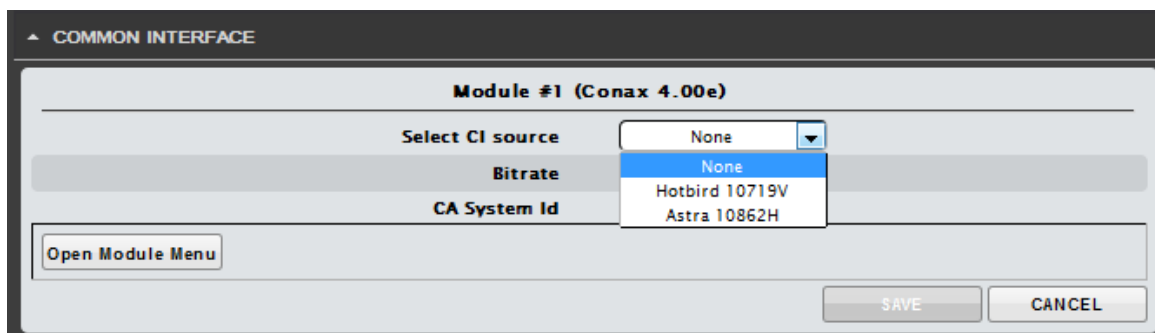
Insert the CAM and smart card into the correct CI slot. From a rear view, CI slot 1 is to the left, CI slot 2 to the right.

NOTE! Make sure that CAM is inserted with text side to the right



Select CI source

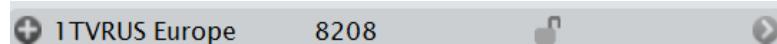
Go to the **SETTINGS** top tab, and click **COMMON INTERFACE**. The name as it will appear in the Service Management can be edited. In the drop-down list of Select CI source, select the input source for this common interface slot. The Bitrate selection in the drop-down list (72 Mbps, 62 MBPS, 55 Mbps) can normally be left at the default value 72 Mbps for all modern CAMs.



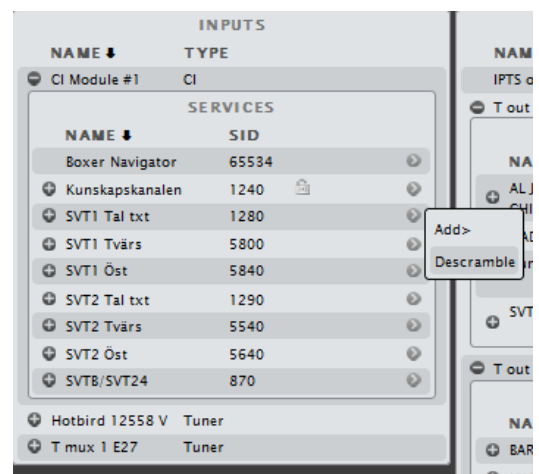
Select the services to be decrypted

After having selected the CI source, a new “input” with the name you have entered will be displayed in the Service Management Inputs menu. Click the edit arrow of the service you want to decrypt, and select “descramble”.

The descrambled services are indicated by an open padlock.



To output a decrypted service, select the decrypted service from the CI input to an output (see §9.1)



Notes: Decryption in analog mode

In Analog mode you have to use the SERVICE MANAGEMENT for handling the decryption. The analog output service selection is made in the output menu, and when a CI source has been set, the list of available services for analogue output will include the “CI Module #X” services.



9.3 Remultiplexing and PSI/SI

Remultiplexing

In a Chameleon, remultiplexing is automatically done as services are selected from the inputs to the outputs. As such, all remultiplexing is managed in **SERVICE MANAGEMENT**.

PSI/SI management

The PSI/SI of the outputs are automatically generated as services are assigned to the outputs. Selecting services from a single input, or selecting services from several inputs both result in the updating of the PSI/SI tables of the outputs.

The screenshot shows the 'SERVICE MANAGEMENT' interface with two main panels: 'INPUTS' and 'OUTPUTS'.

INPUTS Panel:

NAME^	TYPE
CI Module #2	CI
CI Module #1	CI

Below the inputs, there are service lists for each input module:

CI Module #2 SERVICES:

NAME^	SID
ORF1 HD	4911
ORF2 HD	4912
PVoD	4915
ServusTV HD Deutschland	4914
ServusTV HD Osterreich	4913
SGL_1007	4919

CI Module #1 SERVICES:

NAME^	SID
Astra 11303H	Tuner

OUTPUTS Panel:

NAME^	TSID	ONID	NID	LCN
ASI out	101	0	2117	EACEM
Network Name Charlie				
SERVICES				
NAME^	PROVIDER	SID	LCN	
arte HD alt	ARD	11120	1	
arte HD alt	ARD	11121	Not set	
ServusTV HD Deutschland	ServusTV	4914	2	
ZDF HD	ZDFvision	11110	3	
zdf.kultur HD	ZDFvision	11140	4	
C out 1	103	32	2117	ITC
Network Name Charlie				
SERVICES				
NAME^	PROVIDER	SID	LCN	

DVB-Network PSI/SI management

To create a DVB-network-wide correct PSI/SI structure, all Chameleons in the same DVB network must be able to share PSI/SI information. The interconnection between the Chameleons is enabled by the HEADEND SYSTEM MANAGEMENT functionality, see §9.6.

Further, the GNSYMUX SW option must be active to allow the interchange.

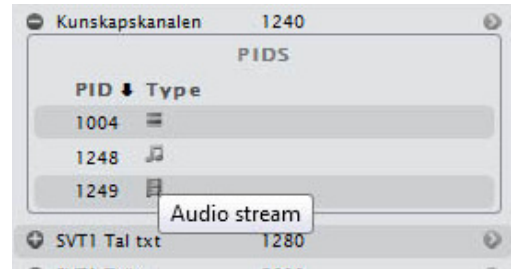


9.4 PIDs and PID management

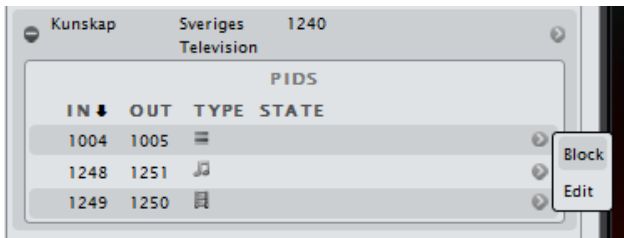
PIDs, PID listing and PID types

The PIDs of an input or output service can be displayed by clicking the . PID or stream types are indicated with icons, and the PID type is displayed in a pop-up if the mouse pointer is left over the icon.

In the example to the right, the service “Kunskapskanalen”, with service_id 1240 contains 3 PIDs: PID 1004 (Subtitle stream), PID 1248 (Audio stream) and PID 1249 (Video stream).

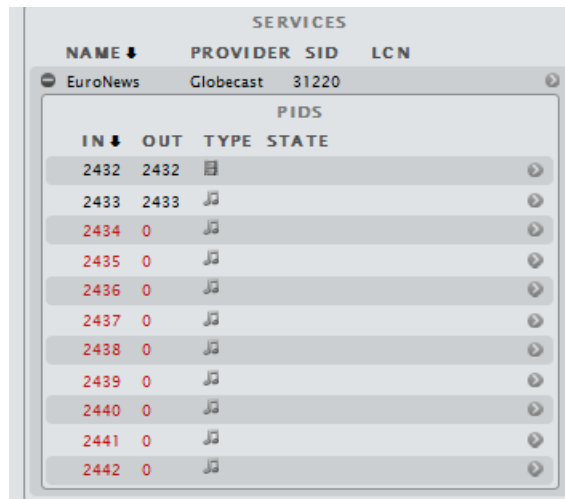


For outputs, the incoming as well as the outgoing PID number is listed in the columns IN and OUT. Often the outgoing PID number is the same as the incoming PID number, but if the PID number already exist in the system, there is an automatic PID remapping to avoid PID clashes. Just as for the PIDs of the input services, the stream (PID) types are indicated with icons.



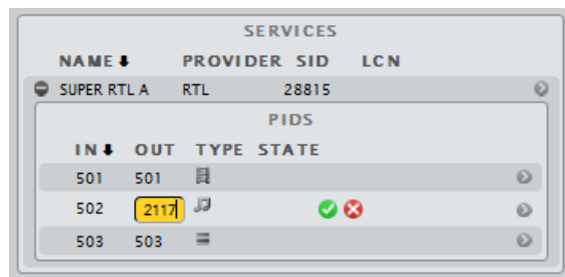
PID dropping (blocking)

The PIDs in the outputs can be blocked (PID dropping) by clicking the edit arrow and selecting “Block”. A blocked PID is marked with red text, and the PID number becomes 0. In the example to the right, all audio PIDs except PID 2433 is blocked, and in the output there will only be one audio stream.




PID editing (remapping)

Clicking the edit arrow of an output service, and selecting Edit, allows you to manually set the PID number for the outgoing PID. Click the green confirm button to save the changes.



9.5 Outputs TS network settings

TSID, ONID, NID, LCN type and Network Name

Each outgoing TS has a set of identifiers: TSID (transport stream ID), ONID (original network ID), NID (network ID), LCN (logical channel numbering type) and Network Name. These identifiers are listed for all outputs. All identifiers can be edited by clicking the edit arrow  .

OUTPUTS				
NAME	TSID	ONID	NID	LCN
ASI out	101	0	2117	EACEM
C out 1	<input type="text" value="103"/>	<input type="text" value="32"/>	<input type="text" value="2117"/>	<input type="text" value="ITC"/>
Network Name		<input type="text" value="Charlie"/>		

TSID

The transport_stream_id (TSID) is a 16-bit field which serves as a label for identification of this TS from any other multiplex within the delivery system. Hence, the TSID has to be unique within a DVB Network.

ONID and NID

The SI uses two labels related to the concept of a delivery system, namely the network_id (NID) and the original_network_id (ONID). The latter is intended to support the unique identification of a service, contained in a TS, even if that TS has been transferred to another delivery system than the delivery system where it originated.

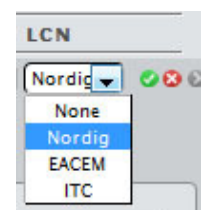
Network Name

A string of characters that specify the name of the delivery system about which the NIT informs. A change of the Network Name is propagated to all TS with the same NID.

LCN

LCN type

The LCN type specifies which LCN implementation to use. For a DVB-Network, the LCN type should be the same for all outgoing muxes. Available LCN types are Nordig, EACEM and ITC (Independent Television).



LCN number

The LCN number, which will be used by a receiver to make a channel list, is edited for each service in each outgoing mux. For correct functionality, the LCN number must be unique for each service within a DVB network.

SERVICES			
NAME	PROVIDER	SID	LCN
SUPER RTL A	RTL	28815	16



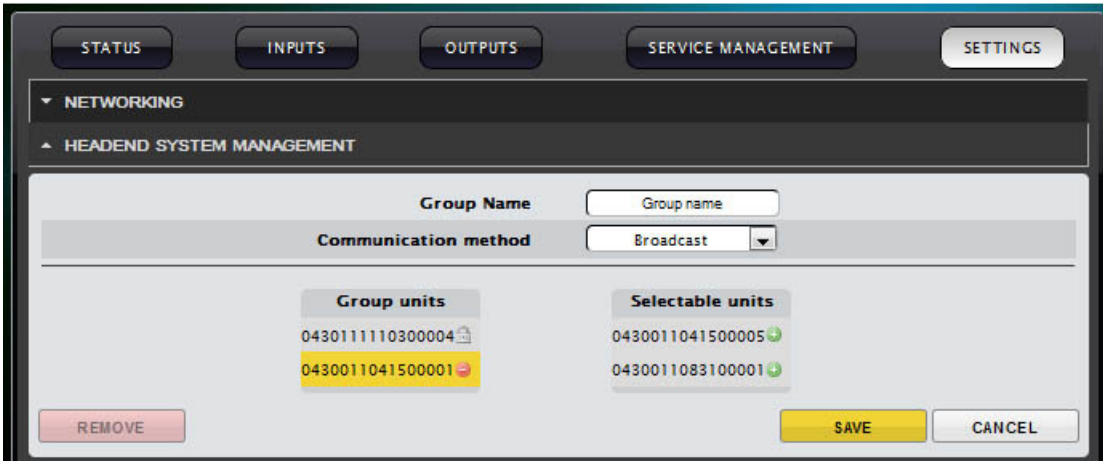


9.6 HE system management and DVB Network PSI/SI

For creation of a network-wide correct PSI/SI structure in a DVB Network, information about PSI/SI has to be shared between the Chameleon modules in the same network. The basis for such a sharing is that the Chameleons are connected via a switch, and that a communication is set up between the Chameleons.

Headend system management

Under SETTINGS, in the HEADEND SYSTEM MANAGEMENT menu, you can select Chameleons in the same IP network to be members in the same group.



When clicking EDIT, all Chameleon in the IP network will be listed by their serial number. To add a Chameleon to a DVB network, click the green + in the list of Selectable units. Please note that the settings done in one Chameleon will automatically update the headend system management settings also for all Chameleons in the same group.

DVB network and PSI/SI sharing – network settings

When setting up a system where PSI/SI information is shared, you must also select network settings for all outgoing transport streams. The Network ID (NID) must be identical for all outgoing transport streams, and all the transport streams must have different Transport Stream ID (TSID), see also §9.5.



9.7 Transmodulation and transparent outputs

Connect input to output transparently

An input can be sent transparently to an output by selecting “Connect transparently to”. When an input is “connected” to an output, there is no change of the content of the transport stream from input to output:

- All services, with all PIDs are sent from the input to the output
- The PSI/SI tables are sent from input to output without any change or modification

The transparent/transmodulation mode can be used e.g. when a complete MPTS for QAM modulation is created for a transport via IP to another Headend.

INPUTS		OUTPUTS				
NAME	TYPE	NAME	TSID	ONID	NID	LCN
Astra11362H	Tuner				2117	EACEM
Astra 11303H	Tuner				2117	ITC
CI Module #1	CI					
CI Module #2	CI					

OUTPUTS				
NAME	TSID	ONID	NID	LCN
DVB-T out E26	17001	0	No id	None
DVB-T out transparent				

Type: Transparent Connected To: Astra 10744H



10. Module settings: Managing the Chameleon module

Under **SETTINGS**, all module specific setting are managed.

NETWORKING

Networking settings for defining and configuring IP interfaces, and for setting the capabilities for the defined IP interfaces.

Note: Chameleon has 2 IP ports, a 10/100 Ethernet management port, and a GigE port for streaming. As default, there are no IP interfaces defined for the streaming port. When connecting a PC to the streaming port, the Ethernet port of the PC must have GigE capability.

HEADEND SYSTEM MANAGEMENT, for Chameleon interconnection, see §9.6

OPERATION MODE, selection of output mode, see §6

COMMON INTERFACE

In COMMON INTERFACE, you select the input source for the CI, and you have access to the menu from the inserted CAM or CAMs. See § 9.2

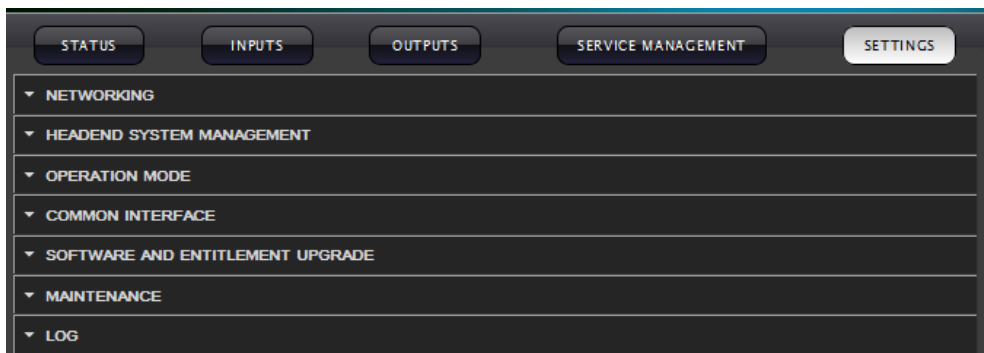
SOFTWARE AND ENTITLEMENT UPGRADE

Software upgrade, used both for uploading new FW and for uploading SW options (entitlement files).

MAINTENANCE

For software reboot, reboot in rescue mode, factory reset and configuration backup and restore.

LOG, for displaying logged data.



10.1 Add and configure Network interfaces

Adding network interface for streaming

1. Click on NETWORKING in the **SETTINGS** tab
2. Click Add new interface
3. Type a name for the interface
4. Enter the IPv4 address, the Netmask and the Gateway
5. Select the capabilities needed for the interface (e.g. Streaming)
6. Click SAVE

The screenshot shows a configuration window titled "Streaming" with a status of "CONNECTED" and MAC address "00:02:98:07:04:4d". Below the title bar is a section "Add new interface" containing a list of configuration options:

Option	Value / Status
Interface name	My streaming interface
Use DHCP	OFF
IPv4	192.168.21.17
Netmask	255.255.255.0
Gateway	192.168.0.1
Use VLAN	OFF
System management	OFF
Web management	OFF
SNMP	OFF
Simulcrypt	OFF
Streaming	ON
Command line interface	OFF

At the bottom right of the configuration area are "SAVE" and "CANCEL" buttons. At the bottom left, there is a "+ Str 81" button.

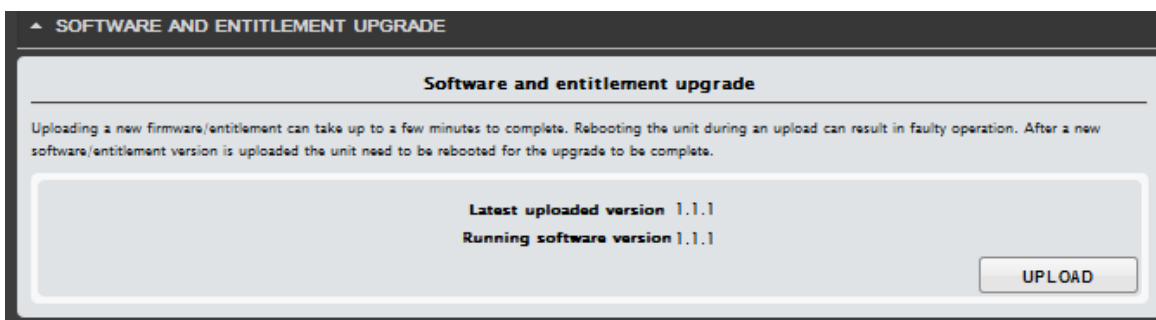
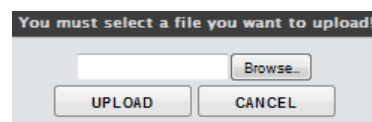
CHAMELEON

10.2 Software and SW options (entitlement) upgrade

Both FW and SW options are uploaded via the SOFTWARE AND ENTITLEMENT UPGRADE in the **SETTINGS** tab. Additionally, there is status information about the running software version, and, if a new software is uploaded, also about the latest (not running) software version.

Uploading Firmware

1. Click UPLOAD. Click Browse... in the pop-up, and select the software file (*.bin file) to be uploaded from your PC
2. Click the Upload button
3. After upload complete message, reboot the module



Uploading software options

1. Click UPLOAD. Click Browse... in the pop-up to browse for the software options file (*.ent) for this specific Chameleon module

Note: The SW options file will have the format <serial number>.ent. If you need to, you can download the entitlement file from the chameleonconnect.tv portal, see §3.

2. Locate the software options file on your PC, and select it
3. Click the Upload button
4. Reboot the module

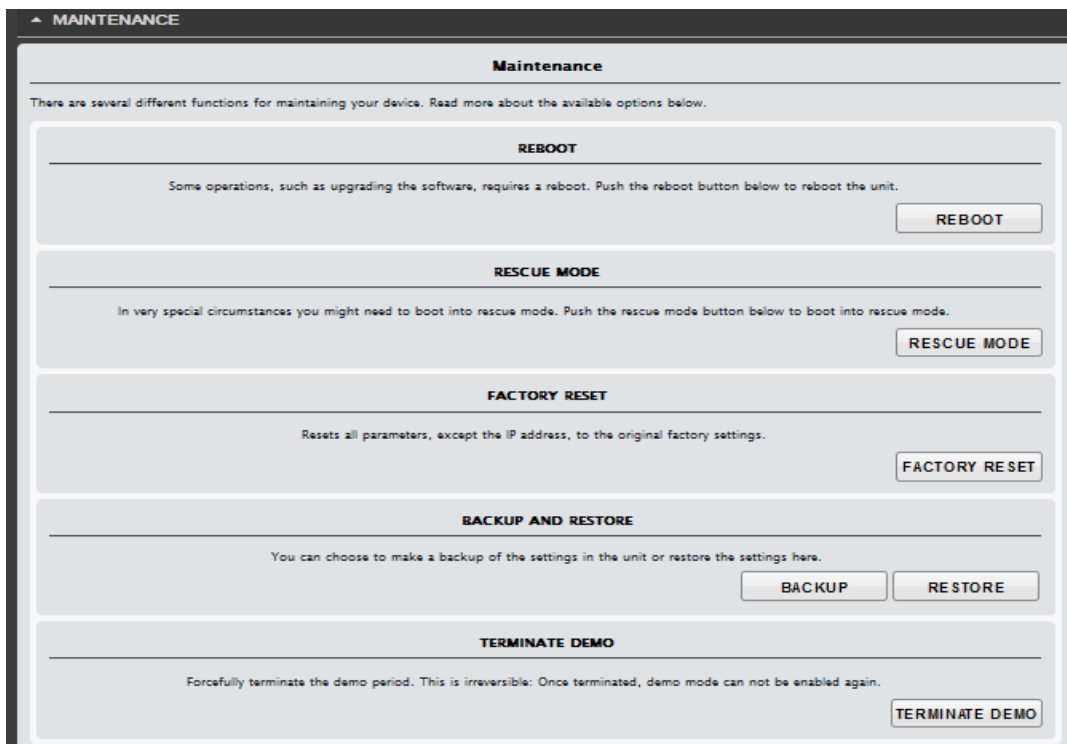
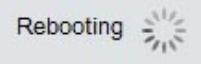


10.3 Module maintenance

Reboot

Some operations, such as upgrading the software, requires a reboot. Click the **Reboot** button to reboot the unit.

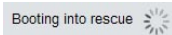
During the rebooting process, Rebooting will be shown.



Rescue mode

In very special circumstances you might need to boot into rescue mode. Push the **Rescue mode** button to boot into rescue mode.

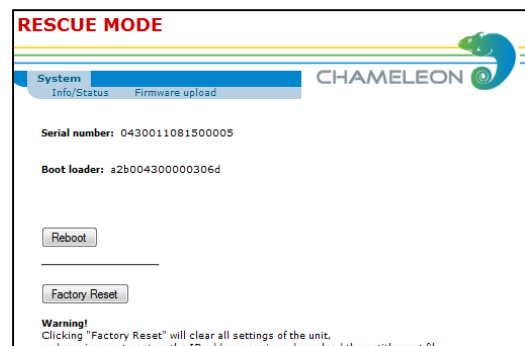
During the rebooting process, Booting into rescue will be shown.



In the rescue more, you can access basic functionality, and upload new software and software options.

Returning to normal mode

Click the **Reboot** button in the rescue mode to return to normal mode. *Note:* re-enter the IP address of your Chameleon in the address field of you browser to access the normal mode web GUI.





10.4 Factory reset & Backup / Restore

Factory reset

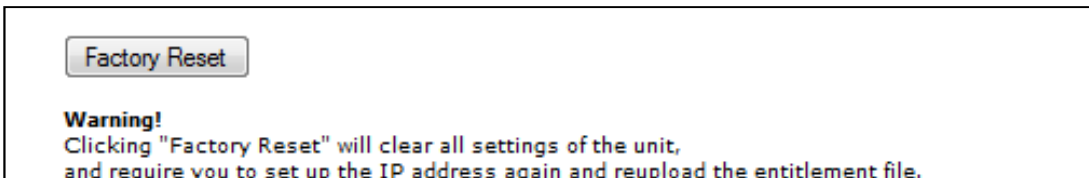
The Chameleon module can be reset to the same status as when delivered from the factory, apart from the SW option that will remain as before factory reset, and the management IP address that will be kept. Go to the SETTINGS tab, and MAINTENANCE. Click on FACTORY RESET.



Factory reset from the rescue interface

There is a factory reset button in the rescue mode UI.

WARNING! Factory reset from the rescue mode will remove all settings, remove the entitlement file enabling the SW options, and will reset the IP address to the default 192.168.0.20.

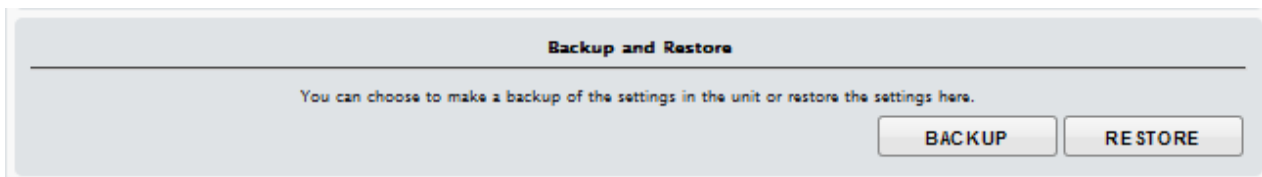


Backup and restore (saving configuration)

The backup and restore functionality gives you the possibility to save the complete configuration of a Chameleon to your PC. The stored file is in xml format.

The backup file can be used for e.g. copying configurations between different installations, or keeping a possibility to upload the original configuration to a Chameleon if you have tested a different configuration.

Additionally, the backup file is useful for support purposes, since it gives the support team a possibility to set up an identical installation.



11. Status information

The **STATUS** tab gives a general overview over the Chameleon module. This page is also the starting page for the web GUI.

MODULE IDENTIFICATION

Serial number and the HW version is shown. Further, there are 3 editable fields; Name, Location and Description. Clicking **EDIT** below the box enables you to save your own selected information about this Chameleon module.

CONFIGURATION

The configuration box shows you the Operation mode, the Software version, and the enabled SW options. A warning will be shown if no operation mode is selected.

STATUS

Uptime (from last reboot), and current module temperature.

SERVICE LICENCE AGREEMENT

Shows if the Chameleon is registered at the chameleonconnect.tv portal, and the expiry date of the service level agreement. If the Chameleon has a valid demo trial period, it is marked with “**Demo Yes**”.

MODULE IDENTIFICATION	
Serial	0430011083100001
Hardware revision	1102
Name	Foxtrot
Location	Mjärdevi
Description	Test module
<input type="button" value="EDIT"/>	

CONFIGURATION	
Operation mode	Analog mode
Software version	1.4
Software options	CNHWUA, GND52, GNDT, GNDC, GNQCMOD, GNDTMOD, GNDVMOD, GNOCTFM, GNDASI, GNDSDI, GNHSDI, GNDCI, GNSTR, CNMUX, GNSYMUX

STATUS	
Uptime	10d 0h 9m 53s
Temperature	50.5 °C

SERVICE LICENCE AGREEMENT (SLA)	
Demo	Expired
Registered	Yes
Expires	2015-11-30



CHAMELEON

12. SW options

Chameleon “products” range from receiver, to edge, to streamer and to scrambler. The different “products” realisations are controlled by the SW options enabled in any specific Chameleon module.

To get an overview of all different SW options currently available, please contact your sales representative at A2B or Wisi, or contact the Chameleon Support, see §13.

List of uploaded SW options

Under the Status tab, all enabled SW options are listed.

NOTE! During DEMO trial period all SW options are enabled. Don't forget to order SW options needed for the actual installation.

How to get and upload additional SW options

Please contact your sales representative at A2B or Wisi to get information.



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13. Service and support

Support

For further information and help, please contact our support organisations. The support organisation is manned by support staff from both Sweden and Germany.

E-mail: support@chameleonconnect.tv

Telephone:

+46 141 22 91 15

+49 7233 66 621

E-mails sent to the above e-mail address will be available to all support staff. The general (Swedish) support telephone number +46 141 22 91 15 will have staff answering both from Sweden and from Germany.

Chameleon installation guide

This installation guide is also available at the chameleonconnect.tv portal, under Documents/Chameleon/Installation guides.



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