



User Manual

TDcH – Compact Headend

Article			Article no.
TDcH 16S-I-Q	Compact Headend		492780
TDcH 16S-I			492781
TDcH 22STC-I			492782
TDcH 16S-Q			492790
Version	V1.4	Date	2022/3
			EN

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1 Safety regulations and notes

ATTENTION

- Failure to comply with the specified precautionary measures may cause serious injury to persons or damage to property.
- The assembly, installation, additional electrical wiring, servicing installation and commissioning may only be performed by suitably qualified persons, technicians or installers in compliance with safety regulations.
- Damage due to improper installation and commissioning, defective connectors on cables or any other incorrect handling will void the warranty.

CAUTION

- The devices meet the EU directives **2011/65/EU, 2014/30/EU and 2014/35/EU**.
- The safety requirements are according to the standards EN/DIN EN 50083 resp. IEC/EN/DIN EN 60728 and must be observed, especially concerning equipotential bonding and earthing.
- Observe the relevant country-specific standards, regulations and guidelines on the installation and operation of antenna systems.
- Before starting installation or service work disconnect the receiving system from mains.
- Installation or service work should NEVER be undertaken during electrical / thunderstorms.
- Avoid short circuits!
- To ensure electromagnetic compatibility, make sure all connections are tight and that the covers are screwed on securely.
- Take action to prevent static discharge when working on the device!
- Due to the risk of fires caused by lightning strikes, we recommend that all mechanical parts (e.g. distributor, equipotential bonding rail, etc.) be mounted on a non-combustible base. Wood panelling, wooden beams, plastic covered panels and plastic panels are all examples of combustible bases.



Back up battery:

The unit includes a preinstalled Lithium battery (CR2032) as backup power source for the clock.

Type: Varta 6032101501, Battery, Coin Cell, Single Cell, 3 V, 2032, 230 mAh

Do not attempt to replace the non-rechargeable coin-cell battery. Replacement of the battery must only be done by a special trained technician.

There is a danger of an explosion if the coin-cell battery is incorrectly placed. The lithium battery contains lithium and can explode if it is not properly handled, or disposed of. Replace only with a battery of the same type. To avoid possible injury or death, do not: (1) Throw or immerse into water, (2) allow it to heat more than 100°C (212°F) or (3) attempt to repair or disassemble it. Dispose of it as required by local ordinance or regulations and your company's safety standards.



To prevent fire, short circuit or shock hazard

- Do not expose the unit to rain or moisture.
- Install the unit in a dry location without infiltration or condensation of water. In case of the formation of condensation wait until the system is completely dried.
- Do not expose it to dripping or splashing.

- If any liquid should accidentally fall into the cabinet, disconnect the power plug.
- Install the head-end station where it is protected from direct exposure to sunlight
- Install the head-end station not within the immediate vicinity of heat sources
- Do not install the head end in cabinets or recesses which are not ventilated.
- Do not place any vessels containing liquids on the head-end station.
- Do not place anything on the head-end station which could initiate fires.


To avoid any risk of overheating

- Install the unit in a well aired location and keep a minimum distance around the apparatus for sufficient ventilation
- Do not place anything on the unit that might cover the ventilation holes.
- Do not install the product in a dusty place
- Use the apparatus only in moderate climates (not in tropical climates)
- Respect the minimum and maximum temperature specifications
- Ensure that the headend station is adequately ventilated.


To avoid any risk of electrical shocks

- Controller must be correctly grounded according to applicable national regulations.
- For a complete disconnection from the mains, the mains plug must be pulled out of the mains socket. Ensure that the mains plug can be pulled out without difficulties.
- Pull out power plug when making connections of cables.
- To avoid electrical shock, do not open the housing.


To avoid interferences with LTE services in Europe

- Do not select a channel higher than UHF 48 in countries with LTE II / 700 operation
- Do not select a channel higher than UHF 60 in countries with LTE I / 800 operation
- Use coaxial cables with screening effectiveness of >85dB (Class A) at least or >95dB (Class A+)


WEEE disposal


Electronic devices should never be disposed of in the household rubbish. In accordance with directive 2002/96/EC of the European Parliament and the European Council from January 27, 2003 which addresses old electronic and electrical devices, such devices must be disposed of at a designated collection facility. At the end of its service life, please take your device to one of these public collection facilities for proper disposal.

2 Revision history

Version 1.0	TDcH Compact Headend user manual - First release
Version 1.1	Management Port description added
Version 1.2	New Compact Headend Version TDcH 16S-I and TDcH 22STC-I added
Version 1.3	SCR (Satellite Channel Router) description added
Version 1.4	IP-out functionality added

3 TDcH Compact Headend

3.1 Description

TDcH Compact Headend supports, depending on the model, DVB-S/S2, DVB-T/T2 and DVB-C conversion to IPTV and or QAM / COFDM modulation with the possibility to decrypt services centrally in the headend.

Built for both wall mounting and 19" racks and equipped with 4 DVB-S/S2 inputs, 1 DVB-T/T2/C input (TDcH 22STC-I only), 16 DVB-S2X tuners, 6 DVB-T/T2/C tuners, 16 QAM or COFDM modulators and 8 CI (TDcH 16S-I-Q, TDcH 16S-I, TDcH 22STC-I only) slots.

The TDcH Compact Headend is optimised and engineered to meet specific TV distribution requirements in hospitality, multi-dwelling units and related sectors.

Our brand new, intuitive platform smoothly integrates easy installation, an elegant graphical user interface, central decryption, remote access, and straightforward TV service updates with LCN.

TDcH 16S-I-Q	4 x SAT IF inputs with integrated multiswitch 16 x DVB-S2X tuners 16 x QAM full band modulators
TDcH 16S-Q	4 x SAT IF inputs with integrated multiswitch 16 x DVB-S2 tuners 8 x CI interfaces 16 x QAM full band modulators
TDcH 16S-I	4 x SAT IF inputs with integrated multiswitch 16 x DVB-S2 tuners 8 x CI interfaces 16 x QAM or COFDM full band modulators
TDcH 22STC-I	4 x SAT IF inputs with integrated multiswitch 1 x Terr / Cable input with integrated splitter 16 x DVB-S2 tuners 6 x DVB-T/T2/C tuners 8 x CI interfaces 16 x QAM or COFDM full band modulators

TDcH Compact Headend

3.1.1 Common Features

4 x SAT IF inputs

- Integrated multi switch
- SCR (Satellite Channel Router) support
- DiSEqC support
- LNB LOF configuration

1 x Terr – Cable input (TDcH 22STC-I)

- Integrated splitter

16 x DVB-S2 tuners

6 x DVB-T/T2/C tuners (TDcH 22STC-I)

8 x CI interfaces (TDcH 16S-I-Q, TDcH 16S-I, TDcH 22STC-I)

16 x QAM or COFDM full band modulators

- Electronically adjustable output level
- Suitable for adjacent channels
- Symbol rates and modulation individually adjustable

Service Multiplexing

- TV-Service Multiplexing at each output transponder to optimize available bandwidth.
- TV-Service Multiplexing at the CA modules to reduce amount of needed CAM's

SID, TSID and ONID management

- To handle conflicts during multiplexing
- To do changes if required

PID management

- To handle PID conflicts
- PID filtering, as a sample to reduce audio channels from a TV service
- Distribute the same TV services multiple times with different languages
- In case of service changes to secure no new TV channel tune

EPG management

- EPG handling to manage the amount of EPG-data distributed in a output transponder

Transport Stream Processing

- Network Information Table (NIT) for complete head-end station
- LCN (Logical Channel Numbering)

Service Filtering with the option to:

- Remove unwanted services
- Remove services to minimize data rate

HTML user interface via self-signed HTTPS

3.1.2 Upgrade Features (license based)

IP-out

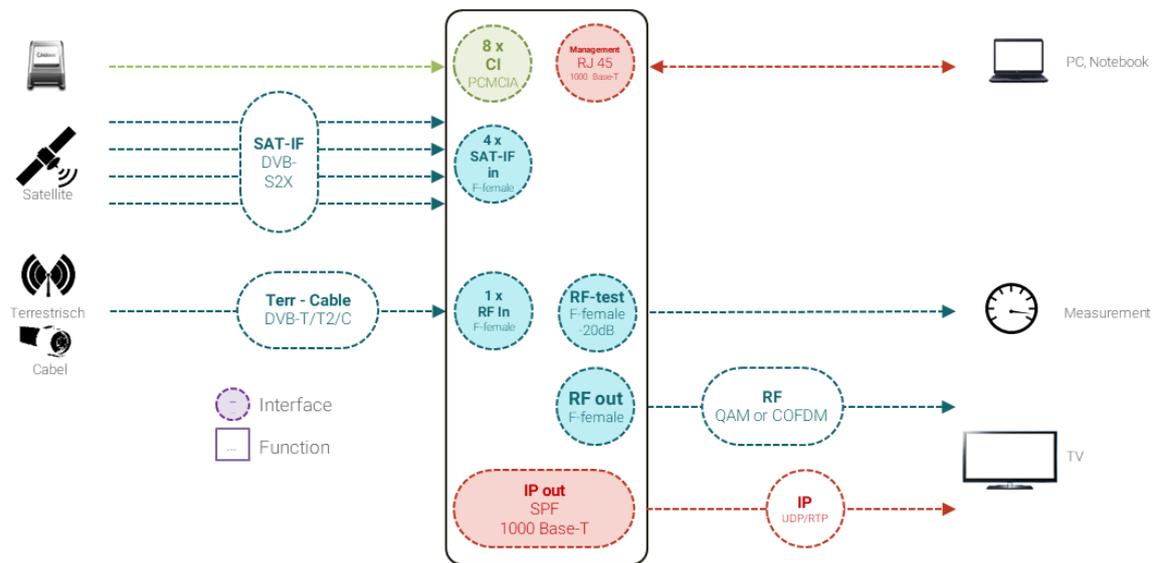
The IP-out functionality requires a activation license key.

Supported Functionalities at IP-out services:

- LCN (Logical Channel Numbering)
- SID and TSID management to handle changes if required
- PID management to handle PID conflicts
- PID filtering to reduce audio channels from a TV service

- Distribute TV services multiple times with different languages
- Real time output load measurement
- Supported Service Discovery protocols: M3U, M3Ue, M3Uepp, XSPF
- EPG for IP out services
- EIT for current service inside the SPTS streamed via UDP/RTP multicast direct to the TV set
- Samsung EPG XML definition for Samsung SINC or REACH server

3.1.3 Block diagram



Note:

CI interface on TDch 16S-I-Q, TDch 16S-I and TDch 22STC-I only
 Terr / Cable input on TDch 22STC-I only
 IP-out license based function

3.2 Packing contents

- 1 piece TDch Compact headend
- 1 piece Mains cable
- 2 pieces Wall mounting brackets
- 4 pieces Screws

3.3 Technical data

Type	TDch 16S-Q	TDch 16S-I-Q	TDch 16S-I	TDch 22STC-I
Article number	492790	492780	492781	492782
Interfaces				
Management Interface	1 x 1000 Base-T (RJ 45)			
SimulCrypt / DRM	1 x 1000 Base-T (RJ 45) not supported with current software release			
Ip-in and -out	1 x 1000 Base-T (SPF) not supported with current software release			
CI slots			8 x PCMCIA (front access)	
USB	USB 2.0, Type A conn (Data transfer, additional storage,...) not supported current software release			
DVB-S2X input				
Satellite inputs	4 x F connectors, 75 Ω, 400 mA per input LNB power feed			
Number of transponders	16			
Frequency range	950 – 2150 MHz			
Level range	44 – 90 dBμV			
Return loss	> 10dB			
DVB-S modulation	QPSK; 8PSK, 16APSK, 32APSK (16APSK and 32APSK will be supported in later SW version)			
DVB-S modes	QPSK 1/2, 2/3, 3/4, 5/6, 7/8			



Type	TDcH 16S-Q	TDcH 16S-I-Q	TDcH 16S-I	TDcH 22STC-I
Article number	492790	492780	492781	492782
DVB-S2 modes	QPSK 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8PSK 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 16APSK 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 32APSK 3/4, 4/5, 5/6, 8/9, 9/10			
Multistream	HW ready. Chip set prepared. SW support will follow in later SW version			
Symbol rate DVB-S	QPSK: 1 – 45 MSymb/s			
Symbol rate DVB-S2	QPSK: 4.5 – 45 MSymb/s 8PSK: 4.5 – 45 MSymb/s 16APSK: 4.5 – 39 MSymb/s 32APSK: 4.5 – 32 MSymb/s			
Max. data rate / tuner	83 Mbit/s			
Input selection	DiSEqC 1.0 Control 13/18VDC and 22kHz			
DVB-T/T2/C input				
Terrestrial / Cable input				1 x F connector, 75 Ω
Tuners				6
Supply voltage DBV-T antenna				Not supported
Input frequency range				47 – 862 MHz
Channel bandwidth				7/8 MHz
Level range				40 – 95 dBμV
Input noise				< 7dB
Return loss				> 10 dB
DVB-T				
Demodulator type				COFDM
Modulation DVB-T				QPSK, 16QAM, 64QAM
Channel bandwidth				6/7/8 MHz
FFT modes				2k, 8k
Code rate				1/2, 2/3, 3/4, 5/6, 7/8
Guard interval				1/4, 1/8, 1/16, 1/32
DVB-T2				
Demodulator type				COFDM
Modulation DVB-T2				QPSK, 16QAM, 64QAM, 256QAM
Channel bandwidth				6/7/8 MHz
FFT modes				1k, 2k, 4k, 8k, 16k, 32k
Code rate				1/2, 3/5, 2/3, 3/4, 4/5, 5/6
Guard interval				1/4, 19/128, 1/8, 19/256, 1/16, 1/32, 1/128
DVB-C				
Demodulator type				QAM
Modulation				16QAM, 64QAM, 128QAM, 256QAM
Symbol rate				1 - 7,2 MS/s
CI interfaces				
Supported CAM vendors		Aston, Neotion, SMARDTV, SMI		
Supported modules and cards		Conax: Canal Digital (Nordic), Telewizja (Poland), T Home (Hungary) Cryptoworks: ORF (Austria), UPC Direct (Hungary) Irdeto: ORF (Austria) Nagravision: Canal Digital (NL), Canal + (France), Cyfra (Poland), Cyfrowy (Poland), Multicanal (Spain), UPC, NDS, Viasat (Nordic + Baltic) Viaccess: Canal+ (France), Eurosport (Poland)		
Supply voltage		5V		
RF output				
RF out		1 x F connector		

Type	TDch 16S-Q	TDch 16S-I-Q	TDch 16S-I	TDch 22STC-I
Article number	492790	492780	492781	492782
HF measuring output	1 x F connector, -20 dB			
Frequency range	306 – 862 MHz			
Channels	S 21 – C 69			
Channel settings	16 channels in a row, single channel can be switched off			
Return loss	> 10dB			
Output impedance	75 Ω			
QAM modulation				
Output level range	85 – 95 dBμV			
Modulation scheme	QAM 16, 32, 64, 128, 256			
Dynamic phase error	< 0.3			
MER	> 43 dB			
Symbol rate	3.5 – 7.2 MS/s			
COFDM modulation				
Output level range	83 – 93 dBμV			
Carrier to spurious ratio:	> 60dB			
Modulation scheme:	QPSK, 16 QAM, 64 QAM			
MER	≥40dB			
Output mode:	2 k			
Guard intervals:	1/4, 1/8, 1/16, 1/32			
IPTV Output				
Number of IP output streams	max 100 SPTS			
Data interface	1 x 1000 Base-T SFP			
Protocols	IEEE802.3 Ethernet SPTS Streaming (VBR) including PAT, SDT, PMT, CAT and EIT Multicast UDP and RTP MPEG Transport Stream via IP Protocol 7 TS packets pr. Ethernet packet			
IP packet format	MPEG			
IP-Bitrate	max. 950 Mbit/s at SFP interface for all SPTS streams			
PID-Filtering and Remapping	Yes			
TTL	1-255 (default 16)			
EIT	Inside SPTS for current service			
XML EPG	EPG data in XML format as specified by Samsung Configurable language and Maturity Rating Country for XML EPG			
General				
Mains supply	100 - 264 V AC, 50/60 Hz			
Ground connection	Ground clamp			
Power consumption	typ. 30W, max. 90W	typ. 30W, max. 90W		
Ambient temperature	-10°C to +50°C			
Dimensions in mm	(L x W x H) 430 x 220 x 90			
Weight	3,9 kg	3,4 kg	3,9 kg	3,9 kg

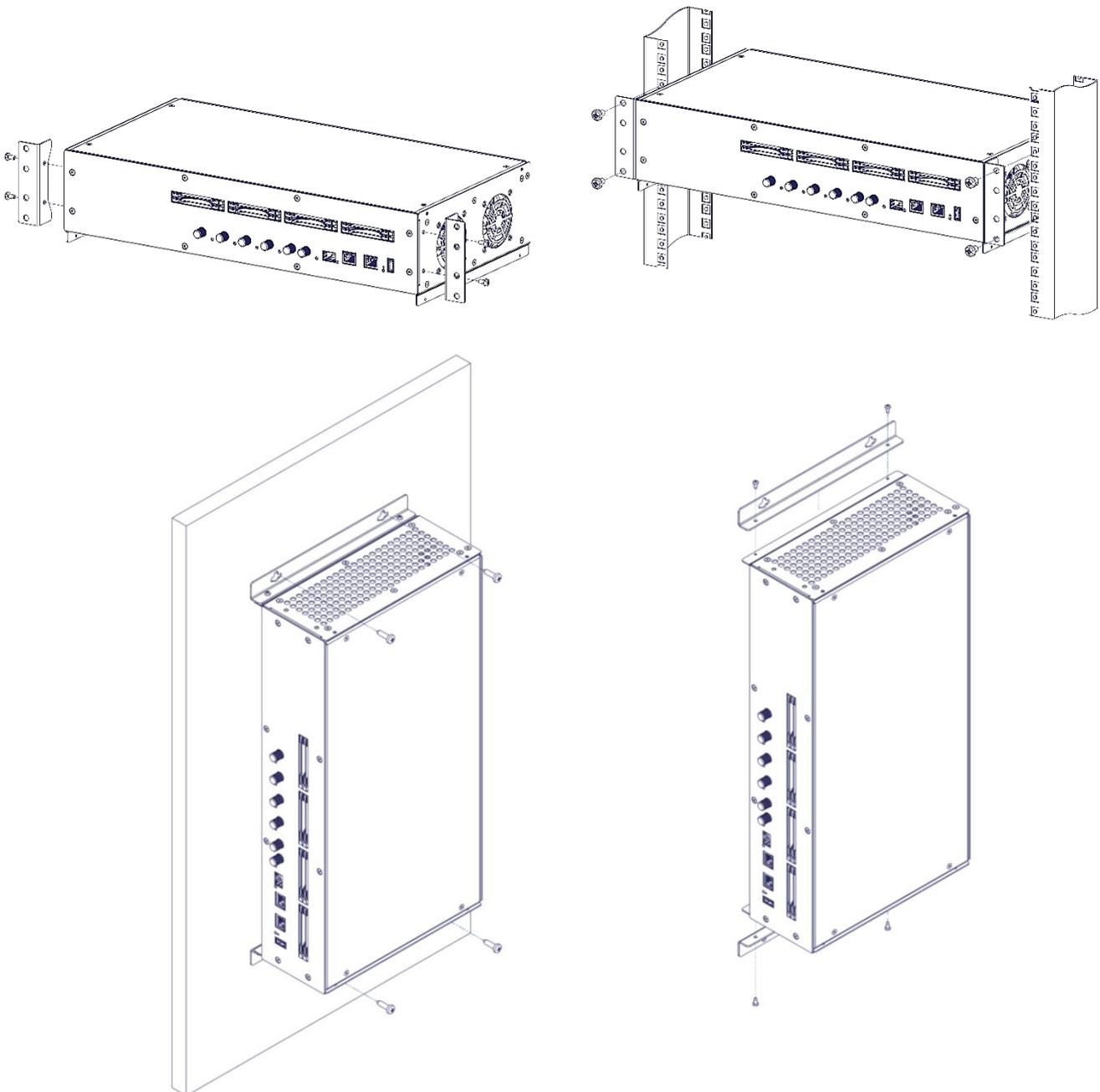
4 Mounting the TDcH rack

4.1 Installing the device

The TDcH can be mounted in a 19" rack or wall mounted in any direction needed.

Ensure that the TDcH is correctly grounded, according to applicable national regulations.

Ensure that min. 4 cm ventilation space is available on both sides of the equipment, so that the fans and ventilation holes are not covered!

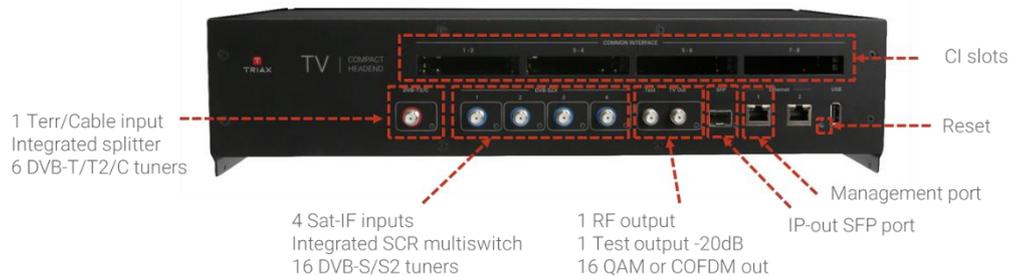


Potential equalisation:

Equalise the potential (PE) in accordance with IEC/EN/DIN EN 60728.

Connect the PE connection terminal to a PE rail (supplied by customer) using the PE wire (Cu 4 mm² - 9 mm²).

4.2 Device overview



4.3 Connecting the device

- Connect the SAT IF inputs to the corresponding outputs of an LNB or multi switch. Make sure that all inputs have the same level and are in the required level range!
- Connect the Terr/Cable input to the corresponding output of a terrestrial or cable distribution. Make sure that the input level are in the required level range!
- Connect the attached main cable to the IEC connector.
- Connect the mains cable to a mains socket with protective conductor connection. Thereby note the voltage specified on the device.
This device has no power switch and starts immediately after connecting the operating voltage.
- Configure the device as described in the chapter "Installation & Easy Setup"
- If the programming is finished, connect the RF output to the cable network.

5 Installation & Easy Setup

5.1 Installation

5.1.1 Static IP address

A static address must be used on the computer you use to configure the headend. Refer to the computer's operating software documentation for assistance on using static IP addresses.

5.1.2 Physical connection to headend

Connect a Cat5e shielded cable or better between the computer's network port and the management port on the headend.



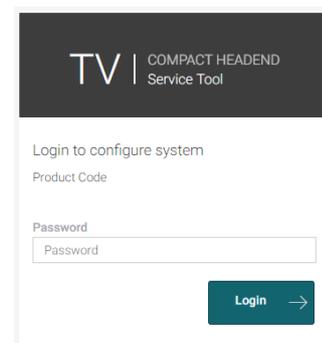
Note:

Please use Ethernet port 1 to connect your PC to the headend

Ethernet port 2 is reserved for further use. Currently the management GUI can be reached at this port. The port is configured to get the IP address via DHCP.

5.1.3 Starting service tool

- Open a web browser window.
Recommended browser:
 - Google Chrome version 90.x.x.x
 - Mozilla Firefox version 88.x.x
 - Microsoft Edge 90.x.x.x
- Enter **http://192.168.0.100** in the web address field. Press **Enter**.
- Enter the password. Press the **Login** button.



Note:

Password = **triaux1234** when the service tool is opened on each headend for the first time.

Up to 10 sessions can be opened and logged in to the same TDcH user interface!

If the user does not log out, the session will be kept open.

When the 11th session is opened the first login session will be closed.

5.1.4 Status LED

Below the reset button there is a general system status LED. The following status LED indications are available:

Off: The system is turned off

Blinking green: The system is starting up



Blinking orange (green+red): Software update in progress

Steady green: System is up and running OK

Steady red: An error occurs in the system. Log in to the system to get more information

Note:

Please note that the status LED on the Inputs and TV-out is not supported in the current software version.

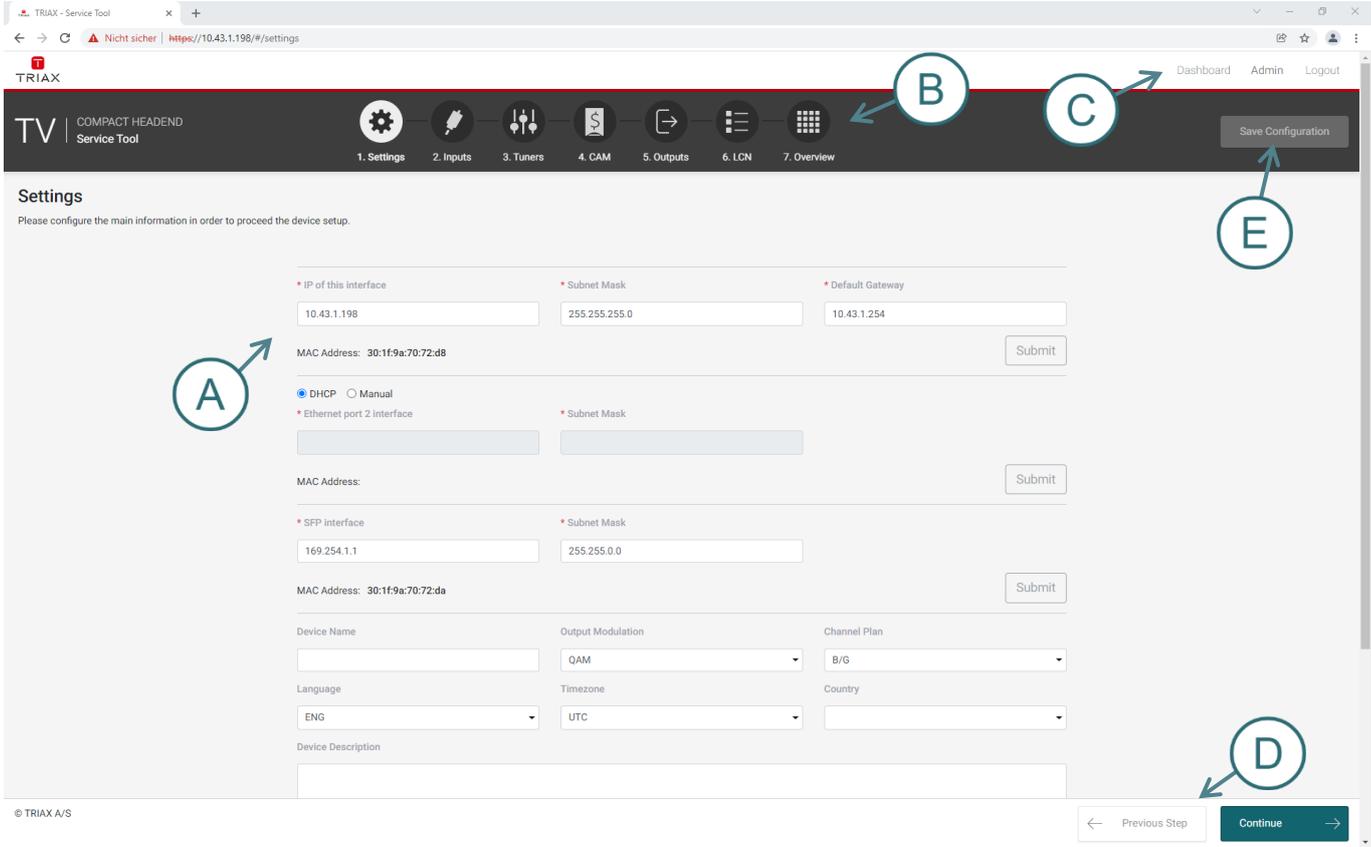
5.1.5 Reset button

The following Reset functions are available:

- When the reset button is pressed (during startup) until the LED blinks green, then the system resets to factory defaults.
- When the reset button is pressed (during startup) until the LED blinks red, then the system starts in recovery mode.



5.2 TDcH interface (GUI)

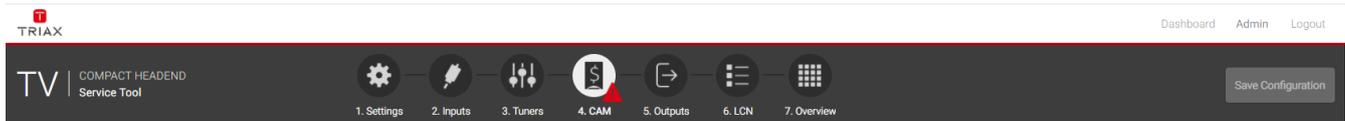


- A. Information window
- B. Navigation bar
- C. Administrator and Dashboard menu
- D. Installation wizard function to continue or go one step back
- E. Save Configuration

When logged in, you will be met by 7 panes:

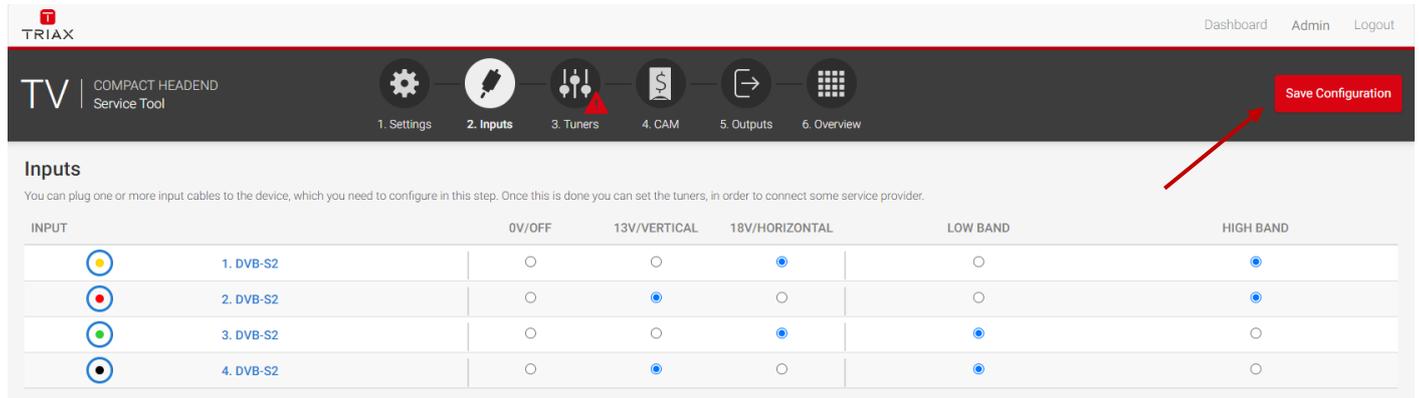
- | | |
|-------------|---------------------------------------------------------------------------|
| 1. Settings | basic settings of the system (TDcH setup) |
| 2. Inputs | assign input cables to available tuners |
| 3. Tuners | configure to desired provider and services |
| 4. CAM | assign services to CAMs |
| 5. Outputs | assign services to outputs |
| 6. LCN | assign services to required LCN number and configure the network settings |
| 7. Overview | see the complete assignment from inputs to outputs |

5.2.1 Error indication



If there is an error in any part of the configuration, the user interface indicates this with a  symbol in the relevant sector of the navigation menu. In other parts of the user interface the error symbol is also used to indicate an error or configuration failure.

5.2.2 Safe configuration



An important button when you change your configuration of the headend system is the “Save Configuration” button placed in the upper right-hand corner of the TDX Service Tool window.

Whenever you have made changes in your configuration, the “Save Configuration” button turns red to tell you that you have unsaved changes that need to be saved.

Click the “Save Configuration” button to save the changes. When changes have been saved, the “Save Configuration” button loses the red colour.

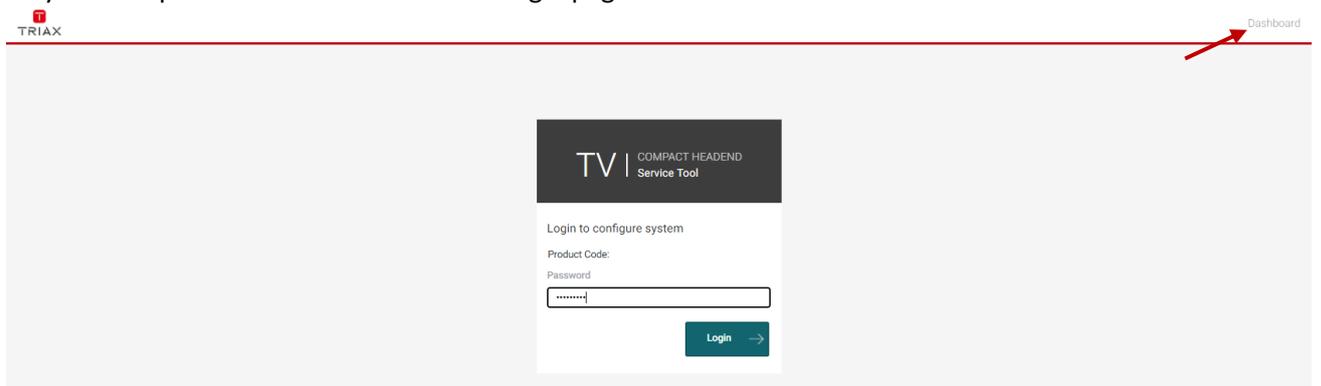
5.2.3 Admin options

At the top right you can switch between the Dashboard and the Configuration. Enter the Admin menu or Logout.

5.2.4 Dashboard

There are two possibilities to open the Dashboard overview of a TDcH.

- One possibility is to open the Dashboard when you are logged in to the system by pressing the Dashboard in the Administrator menu.
- Or you can open the Dashboard from the login page.



Note:

For the Dashboard, it is not required to log in and to know the password.

This Dashboard is also for hotel employees to see an overview during a failure analysis or report an issue to the installer.

In the Dashboard view you will find the overall TV Status. The window is divided in two sectors. The left side shows all notifications of the last 24 hours and the right side shows a status on TV service level.

The screenshot shows the TRIAX dashboard interface. At the top, there is a navigation bar with 'Configuration', 'Admin', and 'Logout' links. Below this is a header section with the TRIAX logo, 'COMPACT HEADEND Service Tool', and buttons for 'Report Issue' and 'Save Configuration'. The main content area is divided into several sections:

- Overall TV Status:** Indicated by a large green checkmark icon.
- SYSTEM INFORMATION:**
 - Serial: 492782012021180048
 - Product Code: TDcH 22STC-I-Q
 - Software: v1.4.0-alpha7
- NOTIFICATIONS 24H:** A table listing recent events:

STATUS	DESCRIPTION	TIME
now	sys Sysconf saved	25/4/2021 9:30:31
⚠	sys Sysconf cap update	25/4/2021 9:30:24
now	Output 11 Output OK	25/4/2021 9:30:18
⚠	Output 11 Output overloaded	25/4/2021 9:30:17
now	Output 11 Output OK	25/4/2021 9:30:08
⚠	Output 11 Output overloaded	25/4/2021 9:30:07
now	Output 11 Output OK	25/4/2021 9:27:57
⚠	Output 11 Output overloaded	25/4/2021 9:27:56
now	Output 11 Output OK	25/4/2021 9:27:52
- CHANNEL LIST:** A table listing channels and their status:

STATUS	CHANNEL	STATUS 24H
●	Radio Horeb	
●	Sky News Intl	
●	RTL RADIO	
●	WDR Aachen	
●	Fashion TV HD	
●	HGTV	
●	TOGGO plus	
●	ATV	
●	ORF2 V	
●	Crime + Investigation HD	
●	OE2 O	

5.2.5 Channel Status Details

This screenshot shows the same dashboard but with channel status details. The 'Overall TV Status' remains green. The 'SYSTEM INFORMATION' section shows:

- Serial: 492782012021180048
- Product Code: TDcH 22STC-I-Q
- Software: v0.31.0

 The 'NOTIFICATIONS 24H' table is updated:

STATUS	DESCRIPTION	TIME
now	Cam 1 Descrambling OK	5/9/2020 9:15:32
now	Cam 1 Descrambling OK	5/9/2020 9:15:32
now	Sys Sysconf saved	5/9/2020 9:15:32
⚠	Cam 1 Descrambling failed	5/9/2020 9:15:30

 The 'CHANNEL LIST' table is also updated:

STATUS	CHANNEL	STATUS 24H
●	ORF1 HD	⚠
●	ORF2W HD	⚠
●	ServusTV HD Osterreich	⚠
●	ServusTV HD Deutschland	⚠

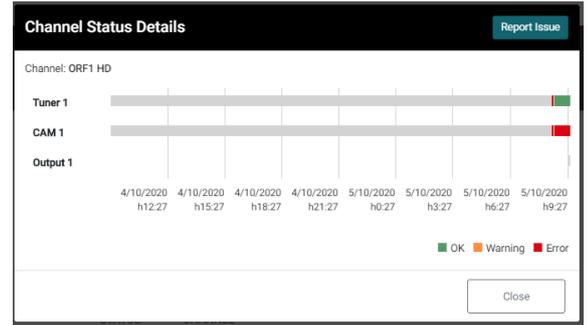
 A red arrow points to the 'STATUS 24H' column in the channel list, highlighting the warning icons.

When you are in the Dashboard mode and click on the error indication on the right side, a Channel Status Details window will pop up.

In this window you can find the status over the last 24 hours.

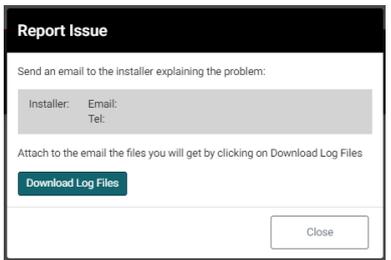
The window also shows where the failure has occurred, such as the tuner, CAM or output.

This also helps to evaluate where the errors took place and the possible reasons for the failure.



5.2.6 Report Issue

By pressing the report issue button, a window opens where you can download the log file. Please send us the log file together with your issue explanation.



The figure shows a 'Report Issue' window. It contains a text area for 'Send an email to the installer explaining the problem:'. Below this are input fields for 'Installer:', 'Email:', and 'Tel:'. A note says 'Attach to the email the files you will get by clicking on Download Log Files'. There is a 'Download Log Files' button and a 'Close' button at the bottom right.

5.2.7 Admin menu

In the Admin Menu you have the option to Export the current configuration, import a configuration file, and clear the configuration.

Export Configuration

Note:

The configuration file is not human readable!

Import Configuration

Note:

Configuration files can only be loaded from the same TDcH model!

- TDcH22STC-I config can be loaded at a TDcH22STC-I system
- TDcH22STC-I config **can NOT** be loaded at a TDcH16S-I

Clear Configuration

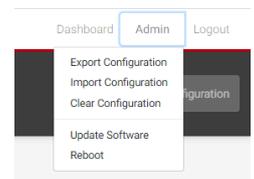
Note:

The function "Clear Configuration" will delete the configuration, set the IP address to the default IP address and also set the password to the default password!

Download Log Files

Function to download the log file of the compact headend.

Download Equipment File



TDcH Compact Headend

Function to download the Equipment file of the compact headend.

Note:

The Equipment file is needed if to generate a license in the PRT tool (Product Registration Tool).

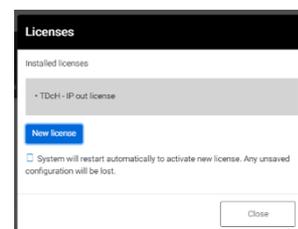
Licenses

Licenses can be ordered with the TRIAX online PRT tool. To register a compact headend the equipment file is needed.

After the order process the user gets a license file which have to be loaded on the compact Headend the License was generated.

Note:

The license can not be used for other compact headend with a different serial number



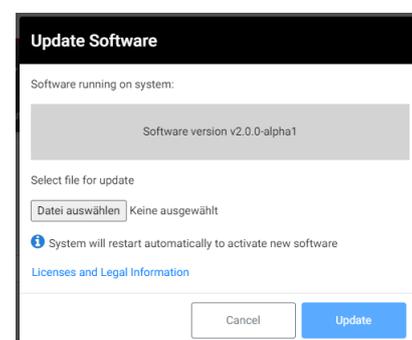
Update Software

It is possible to update the software and reboot the system.

Reboot

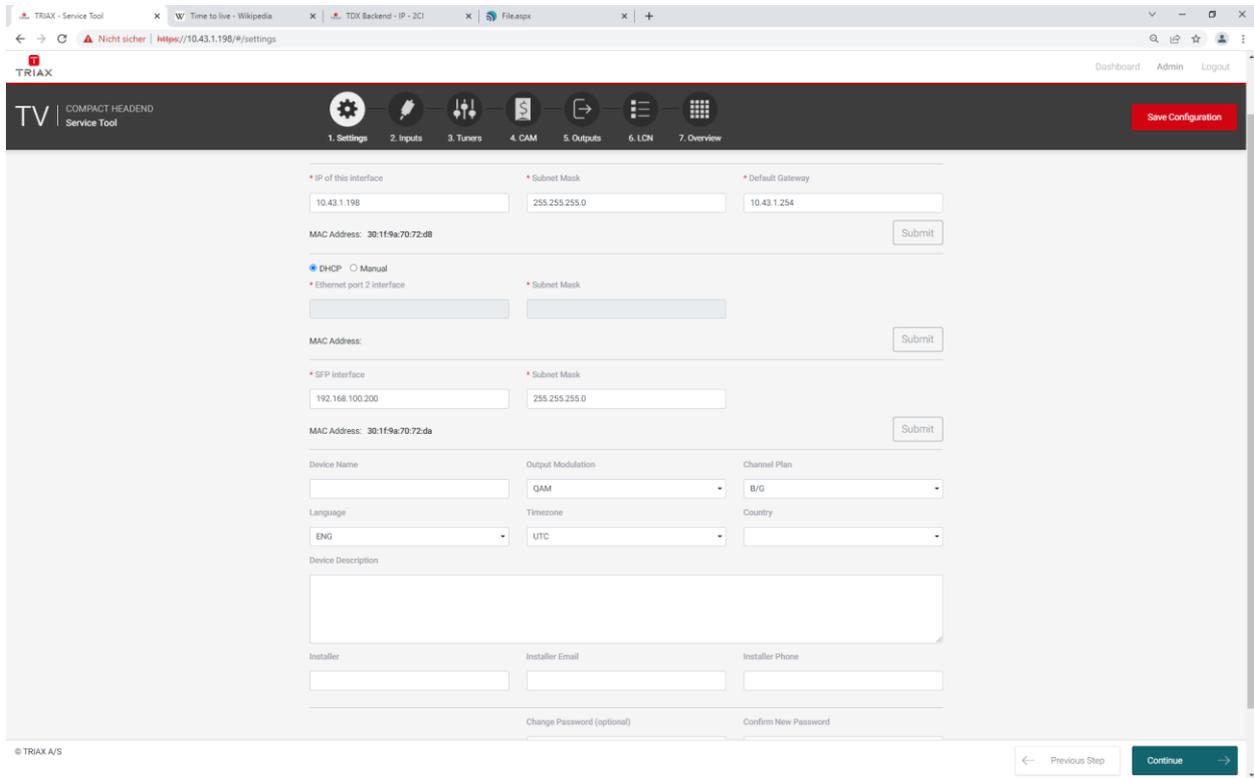
Note:

During reboot any unsaved configuration will be lost.



5.3 Settings

Start with the folder “Settings” to set up the general settings and information of the TDcH compact headend.



5.3.1 Ethernet Port 1 (Management Port)

IP of this interface

This is the IP address of the Management port (Ethernet 1) of the compact Headend.

It may be necessary to specify a specific IP addresses for the headend to avoid network IP address conflicts.



Note:

If a PC is connected direct to the Management port with an Ethernet cable, the network address of the PC has to be in the same range as the compact headend.

The TDcH management port IP addresses can be reset to factory default settings if required. This is done via the reset button on the headend unit.

Subnet Mask

This is the Subnet Mask for the network the Management Port is connected to.

Default Gateway

This is the Default Gateway in the network the Management Port is connected to.

MAC Address:

MAC address of this interface.

5.3.2 System reset

The following reset functions are available:

1. When the reset button is pressed (during start up) and until the LED blinks green, then the system resets to factory defaults.
2. When the reset button is pressed (during start up) until the LED blinks red, then the system starts in recovery mode.



5.3.3 Ethernet port 2

This is the IP address of the Ethernet port 2 of the compact Headend.

It may be necessary to specify a specific IP addresses for the headend to avoid network IP address conflicts.


Note:

The Port 2 can be managed manual and as DHCP server!

Subnet Mask

This is the Subnet Mask for the network the Port 2 is connected to.

MAC Address:

MAC address of this interface.

5.3.4 SFP interface

This is the IP address of the SFP interface of the compact Headend.

Subnet Mask

This is the Subnet Mask for the network the SFP interface is connected to.

MAC Address:

MAC address of this interface.



5.3.5 Device Name

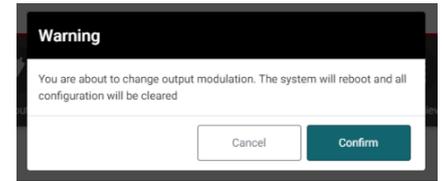
Description field to give the compact Headend or project any name.

5.3.6 Output Modulation

The TDcH models TDcH 16S-I and TDcH 22STC-I support QAM and COFDM modulation. With this menu it is possible to switch between the QAM and COFDM output modulation.

Note:

It the output modulation is changed a restart is needed! A Warning message will be shown.



5.3.7 Channel Plan

Click on the “Channel Plan” field to open the drop down and select the Channel Plan you would like to use.



Channel Plan description:

System B/G		System I		System D/K		System L		System B/G New Zealand	
Name	Center frequency	Name	Center frequency	Name	Center frequency	Name	Center frequency	Name	Center frequency
S-21	306,00	S-21	306,00	S-21	306,00	S-21	306,00	CH21	474,00
S-22	314,00	S-22	314,00	S-22	314,00	S-22	314,00	CH22	482,00
S-23	322,00	S-23	322,00	S-23	322,00	S-23	322,00	CH23	490,00
S-24	330,00	S-24	330,00	S-24	330,00	S-24	330,00	CH24	498,00
S-25	338,00	S-25	338,00	S-25	338,00	S-25	338,00	CH25	506,00
S-26	346,00	S-26	346,00	S-26	346,00	S-26	346,00	CH26	514,00
S-27	354,00	S-27	354,00	S-27	354,00	S-27	354,00	CH27	522,00
S-28	362,00	S-28	362,00	S-28	362,00	S-28	362,00	CH28	530,00
S-29	370,00	S-29	370,00	S-29	370,00	S-29	370,00	CH29	538,00
S-30	378,00	S-30	378,00	S-30	378,00	S-30	378,00	CH30	546,00
S-31	386,00	S-31	386,00	S-31	386,00	S-31	386,00	CH31	554,00
S-32	394,00	S-32	394,00	S-32	394,00	S-32	394,00	CH32	562,00
S-33	402,00	S-33	402,00	S-33	402,00	S-33	402,00	CH33	570,00
S-34	410,00	S-34	410,00	S-34	410,00	S-34	410,00	CH34	578,00
S-35	418,00	S-35	418,00	S-35	418,00	S-35	418,00	CH35	586,00
S-36	426,00	S-36	426,00	S-36	426,00	S-36	426,00	CH36	594,00
S-37	434,00	S-37	434,00	S-37	434,00	S-37	434,00	CH37	602,00
S-38	442,00	S-38	442,00	S-38	442,00	S-38	442,00	CH38	610,00
S-39	450,00	S-39	450,00	S-39	450,00	S-39	450,00	CH39	618,00
S-40	458,00	S-40	458,00	S-40	458,00	S-40	458,00	CH40	626,00
S-41	466,00	S-41	466,00	S-41	466,00	S-41	466,00	CH41	634,00
CH21	474,00	CH21	474,00	CH21	474,00	CH21	474,00	CH42	642,00
CH22	482,00	CH22	482,00	CH22	482,00	CH22	482,00	CH43	650,00
CH23	490,00	CH23	490,00	CH23	490,00	CH23	490,00	CH44	658,00
CH24	498,00	CH24	498,00	CH24	498,00	CH24	498,00	CH45	666,00
CH25	506,00	CH25	506,00	CH25	506,00	CH25	506,00	CH46	674,00
CH26	514,00	CH26	514,00	CH26	514,00	CH26	514,00	CH47	682,00
CH27	522,00	CH27	522,00	CH27	522,00	CH27	522,00	CH48	690,00
CH28	530,00	CH28	530,00	CH28	530,00	CH28	530,00	CH49	698,00
CH29	538,00	CH29	538,00	CH29	538,00	CH29	538,00	CH50	706,00
CH30	546,00	CH30	546,00	CH30	546,00	CH30	546,00	CH51	714,00
CH31	554,00	CH31	554,00	CH31	554,00	CH31	554,00	CH52	722,00



System B/G		System I		System D/K		System L		System B/G New Zealand	
Name	Center frequency	Name	Center frequency	Name	Center frequency	Name	Center frequency	Name	Center frequency
CH32	562,00	CH32	562,00	CH32	562,00	CH32	562,00	CH53	730,00
CH33	570,00	CH33	570,00	CH33	570,00	CH33	570,00	CH54	738,00
CH34	578,00	CH34	578,00	CH34	578,00	CH34	578,00	CH55	746,00
CH35	586,00	CH35	586,00	CH35	586,00	CH35	586,00	CH56	754,00
CH36	594,00	CH36	594,00	CH36	594,00	CH36	594,00	CH57	762,00
CH37	602,00	CH37	602,00	CH37	602,00	CH37	602,00	CH58	770,00
CH38	610,00	CH38	610,00	CH38	610,00	CH38	610,00	CH59	778,00
CH39	618,00	CH39	618,00	CH39	618,00	CH39	618,00	CH60	786,00
CH40	626,00	CH40	626,00	CH40	626,00	CH40	626,00	CH61	794,00
CH41	634,00	CH41	634,00	CH41	634,00	CH41	634,00	CH62	802,00
CH42	642,00	CH42	642,00	CH42	642,00	CH42	642,00	CH63	810,00
CH43	650,00	CH43	650,00	CH43	650,00	CH43	650,00	CH64	818,00
CH44	658,00	CH44	658,00	CH44	658,00	CH44	658,00	CH65	826,00
CH45	666,00	CH45	666,00	CH45	666,00	CH45	666,00	CH66	834,00
CH46	674,00	CH46	674,00	CH46	674,00	CH46	674,00	CH67	842,00
CH47	682,00	CH47	682,00	CH47	682,00	CH47	682,00	CH68	850,00
CH48	690,00	CH48	690,00	CH48	690,00	CH48	690,00	CH69	858,00
CH49	698,00	CH49	698,00	CH49	698,00	CH49	698,00		
CH50	706,00	CH50	706,00	CH50	706,00	CH50	706,00		
CH51	714,00	CH51	714,00	CH51	714,00	CH51	714,00		
CH52	722,00	CH52	722,00	CH52	722,00	CH52	722,00		
CH53	730,00	CH53	730,00	CH53	730,00	CH53	730,00		
CH54	738,00	CH54	738,00	CH54	738,00	CH54	738,00		
CH55	746,00	CH55	746,00	CH55	746,00	CH55	746,00		
CH56	754,00	CH56	754,00	CH56	754,00	CH56	754,00		
CH57	762,00	CH57	762,00	CH57	762,00	CH57	762,00		
CH58	770,00	CH58	770,00	CH58	770,00	CH58	770,00		
CH59	778,00	CH59	778,00	CH59	778,00	CH59	778,00		
CH60	786,00	CH60	786,00	CH60	786,00	CH60	786,00		
CH61	794,00	CH61	794,00	CH61	794,00	CH61	794,00		
CH62	802,00	CH62	802,00	CH62	802,00	CH62	802,00		
CH63	810,00	CH63	810,00	CH63	810,00	CH63	810,00		
CH64	818,00	CH64	818,00	CH64	818,00	CH64	818,00		
CH65	826,00	CH65	826,00	CH65	826,00	CH65	826,00		
CH66	834,00	CH66	834,00	CH66	834,00	CH66	834,00		
CH67	842,00	CH67	842,00	CH67	842,00	CH67	842,00		
CH68	850,00	CH68	850,00	CH68	850,00	CH68	850,00		
CH69	858,00	CH69	858,00	CH69	858,00	CH69	858,00		
						CH70	866,00		
						CH71	874,00		
						CH72	882,00		

5.3.8 Language

Possibility to change the language of the user interface between English, German and French.

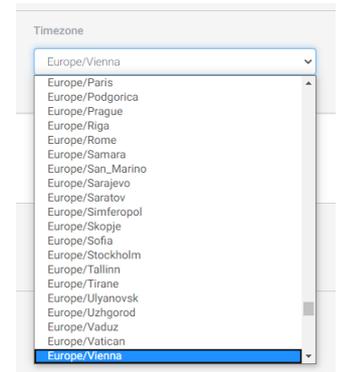
5.3.9 Timezone

Click on the “Timezone” field to open the drop down and select the time zone where the compact headend is installed.

The time zone is important because this sets up the time offset which is added to the UTC time received with the service and sent out in the TOT to the TV.

Note:

Please test after the final installation if the time shown on the TV or in the EPG menu of the TV corresponds to the local time.



5.3.10 Country

Define the country in which the headend is installed.

Note:

This setting is also important to have the right time zone settings!

5.3.11 Device Description

Text field for project description and notes.

5.3.12 Installer

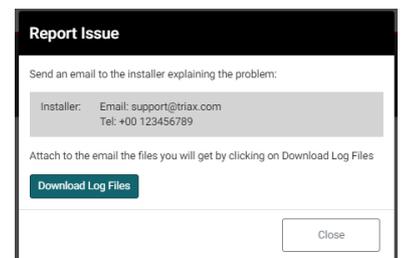
Text field for the installer or company name who is responsible for the installation.

5.3.13 Installer Email and Phone

Text field for the email address and phone number of the installer.

Note:

Please note that this information is used in the report Issue window which can be accessed from the Dashboard.



5.3.14 Change Password

If you would like to change the password please follow the following steps:

1. Specify a new password in the “Change Password” field.
2. Re-specify the new password in the “Confirm New Password” field.
3. Press submit to change the password.

TDcH Compact Headend

5.4 Inputs

5.4.1 DVB-T2/C input

The TDcH 22STC-I compact headend has 1 Terrestrial / Cable input marked with DVB-T2/C and a red colour ring.



Note:

The Input has a LED indicator. The LED indicator is not supported in the current software release.

5.4.2 DVB-S2X inputs

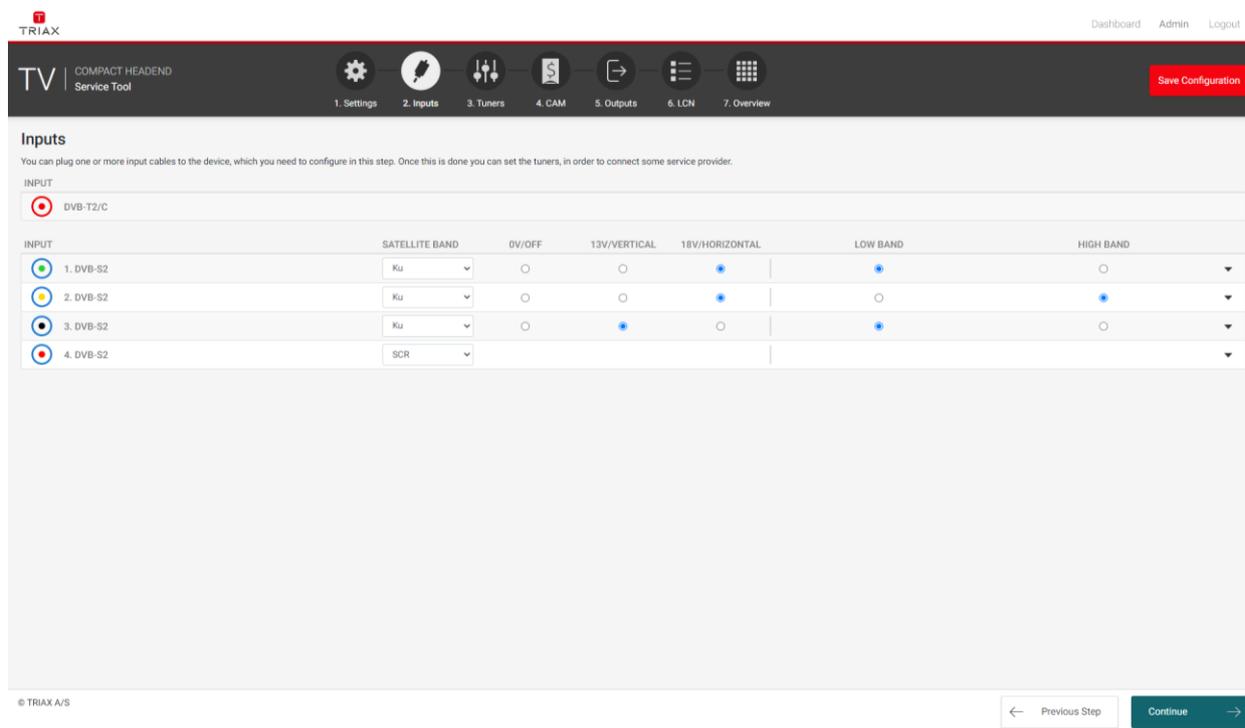
The TDcH 16S-I-Q, TDcH 16S-I and TDcH 16S-Q compact headend have 4 SAT-IF inputs marked with DVB-S2X and a blue colour ring.



Note:

The Inputs Have an LED indicator. The LED indicators are not supported in the current software release.

Open the folder “Inputs” to set up the DVB-S2X input configuration.



5.4.3 Single Satellite Reception

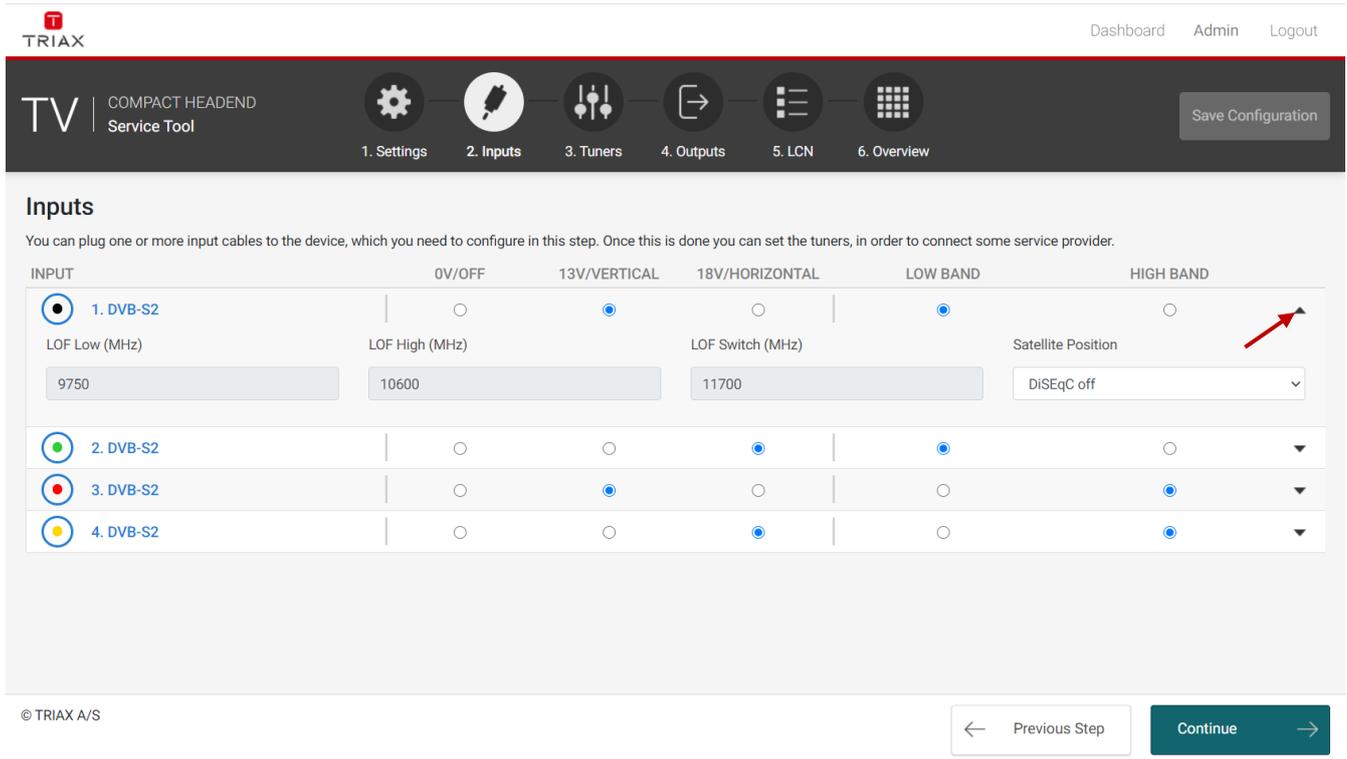
Select the required parameters for each DVB-S2X input:

- Satellite Band Ku, K, C or SCR (See multi satellite reception)
- 13/18V for Vertical or Horizontal polarisation
- LOW/HIGH for the Band

Note:

The input colour shows the setting following the same colour codes TRIAX uses on LNBS and multiswitches.

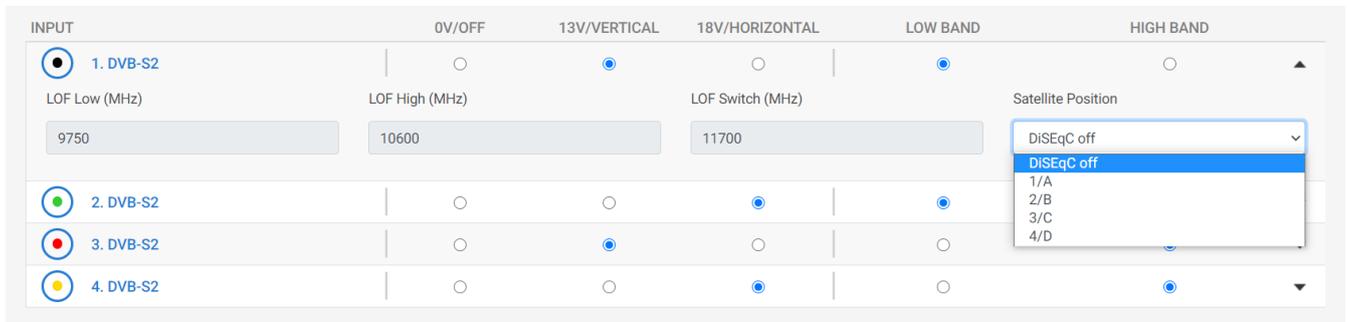
INPUT	Yellow:	Horizontal, High Band
1. DVB-S2	Red:	Vertical, High Band
2. DVB-S2	Green:	Horizontal, Low Band
3. DVB-S2	Black:	Vertical, Low Band
4. DVB-S2		



© TRIAX A/S

← Previous Step Continue →

When you press the expand button you can open the DiSEqC settings:



DiSEqC supports four satellite positions. Please select the desired position if required.

Note:

Configure DiSEqC to 1/A, 2/B, 3/C or 4/D will result in DiSEqC commands at the DVB-S2X input describing the position.

Configure DiSEqC to "DiSEqC off" will result in none commands at all, hence no change at the multiswitch. So, if changing from e.g. 2/B position to "DiSEqC off" will result in the multiswitch still set to 2/B - after a general power failure resulting in both the multiswitch and the TDcH power cycles then will the multiswitch start up in default e.g. 1/A resulting in wrong position → no signal at the TDcH!

In addition to the DiSEqC settings, the menu also shows the (default) values of the (Local-Oscillator-Frequency)

LOF Low:	Local Oscillator Frequency for the low band Frequencies
LOF High:	Local Oscillator Frequency for the high band Frequencies
LOF Switch:	Border frequency between low and high band

Note:

The LOF frequencies can be adjusted to the requirements of the LNB.

5.4.4 Multiple satellite reception

To support SCR from the Satellite reception and distribution we recommend to use the following TRIAX products:

SCR LNB:

304847	SCR 2	1 SCR out	4 User bands
	This LNB's can be directly connected to one of the TDcH DVB-S2X inputs and allows to receive 4 transponders from one satellite independent from the polarization.		

SCR Multi switch:

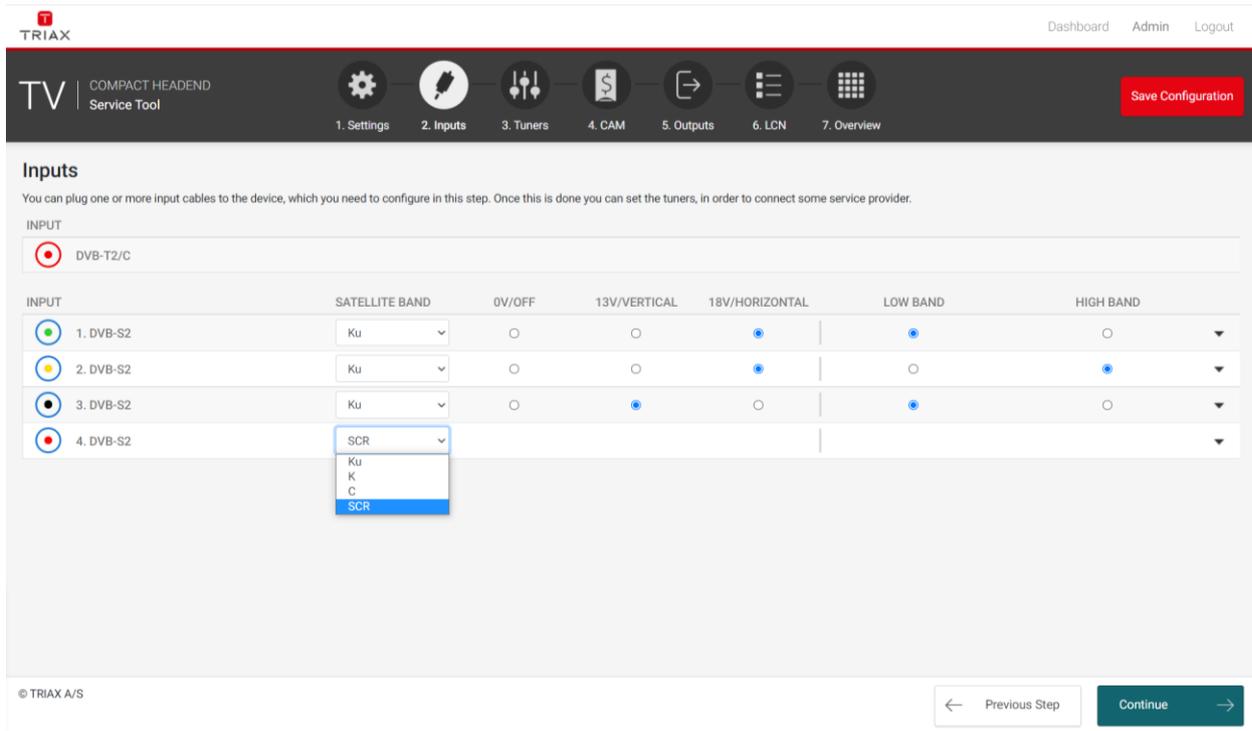
307356	TMU 1743C	4 SCR out	12 User bands each
	This multi switch supports up to 4 satellite positions with up to 16 polarizations using 4 Quattro LNB's. The Quattro LNBs have to support the LOF frequencies 9.75 / 10.6 GHz.		
307348	TMU 943C	4 SCR out	12 User bands each
	This multi switch supports up to 2 satellite positions with up to 8 polarizations using 2 Quattro LNB's. The Quattro LNBs have to support the LOF frequencies 9.75 / 10.6 GHz.		
318190	TdSCR 906C	6 SCR out	10 User bands each
	This multi switch supports up to 2 satellite positions with up to 8 polarizations using 4 Quattro LNB's. The Quattro LNBs have to support the LOF frequencies 9.75 / 10.6 GHz. Or up to 4 satellite positions with up to 16 polarizations using Wide Band LNB's.		

Note:

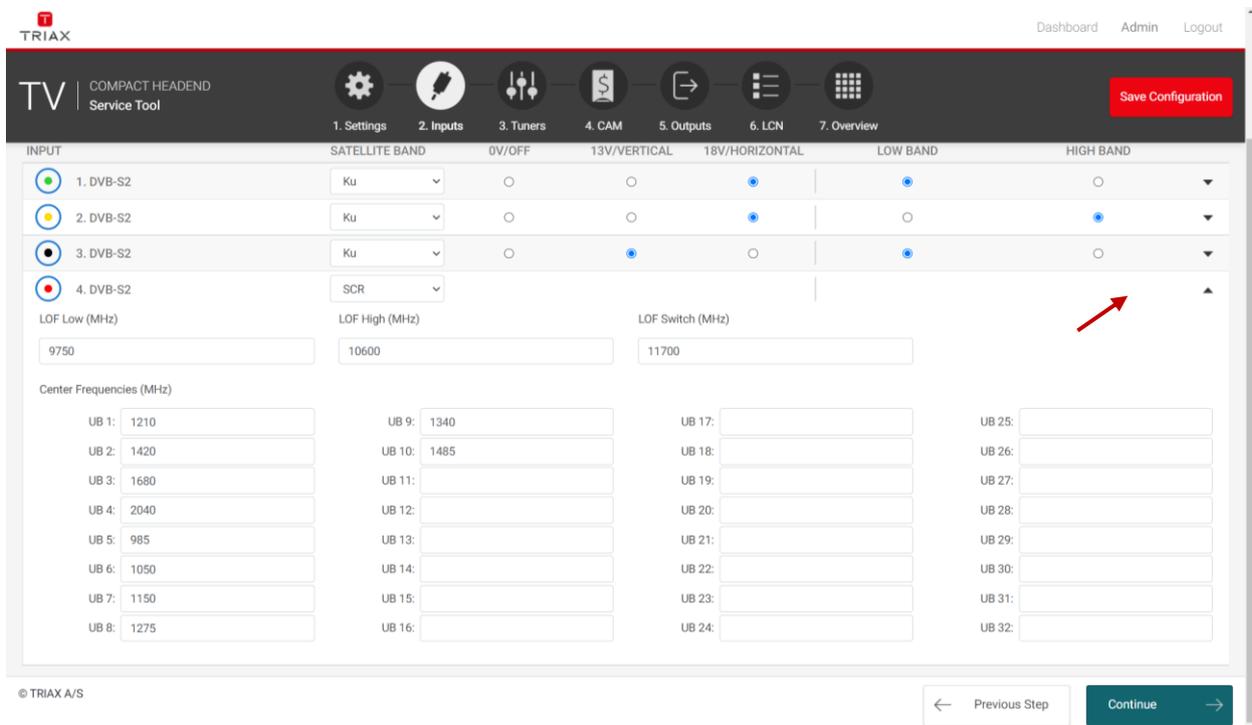
The TDcH supports the following SCR standards:

- EN50494
- EN50607

If you set the DVB-S2X input to SCR the TDcH supports SCR (Satellite Channel Router) functionality and can receive one satellite with up to four polarizations on this input. Each DVB-S2X input can be individual configured.



When you press the expand button you can open the SCR and LOF settings:



The TDcH SCR functionality supports up to 32 User bands per SCR input. The center frequencies can be entered on the table as shown in the screen shoot.

The Frequencies the SCR distribution equipment’s supports you can find on the product label or in the user manual of the used product.

TDcH Compact Headend

In addition to the SCR user band settings, the menu also shows the (default) values of the (Local-Oscillator-Frequency)

LOF Low: Local Oscillator Frequency for the low band Frequencies

LOF High: Local Oscillator Frequency for the high band Frequencies

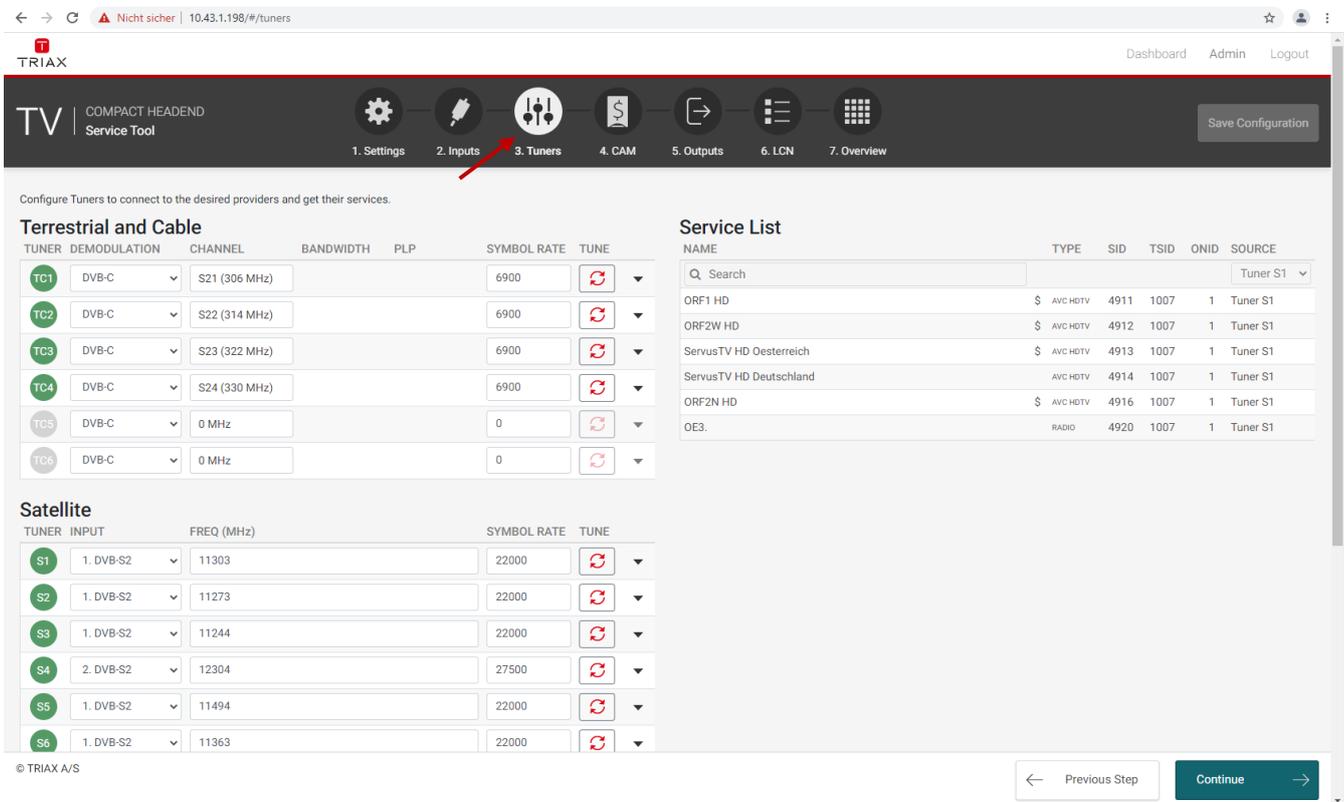
LOF Switch: Border frequency between low and high band

Note:

The LOF frequencies can be adjusted to the requirements of the used LNB. Starting a new configuration the LOF frequencies are set to the default values.

5.5 Tuners

Click the “Tuner” folder in the Compact Headend Service Tool to display the Tuner window.

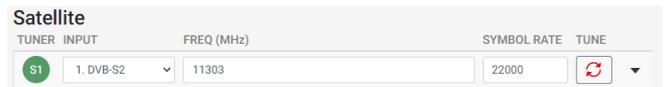
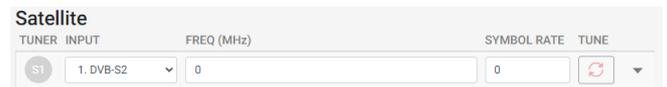


The “Tuner” folder shows all input tuners. The colour of the tuner number shows the status of each tuner.

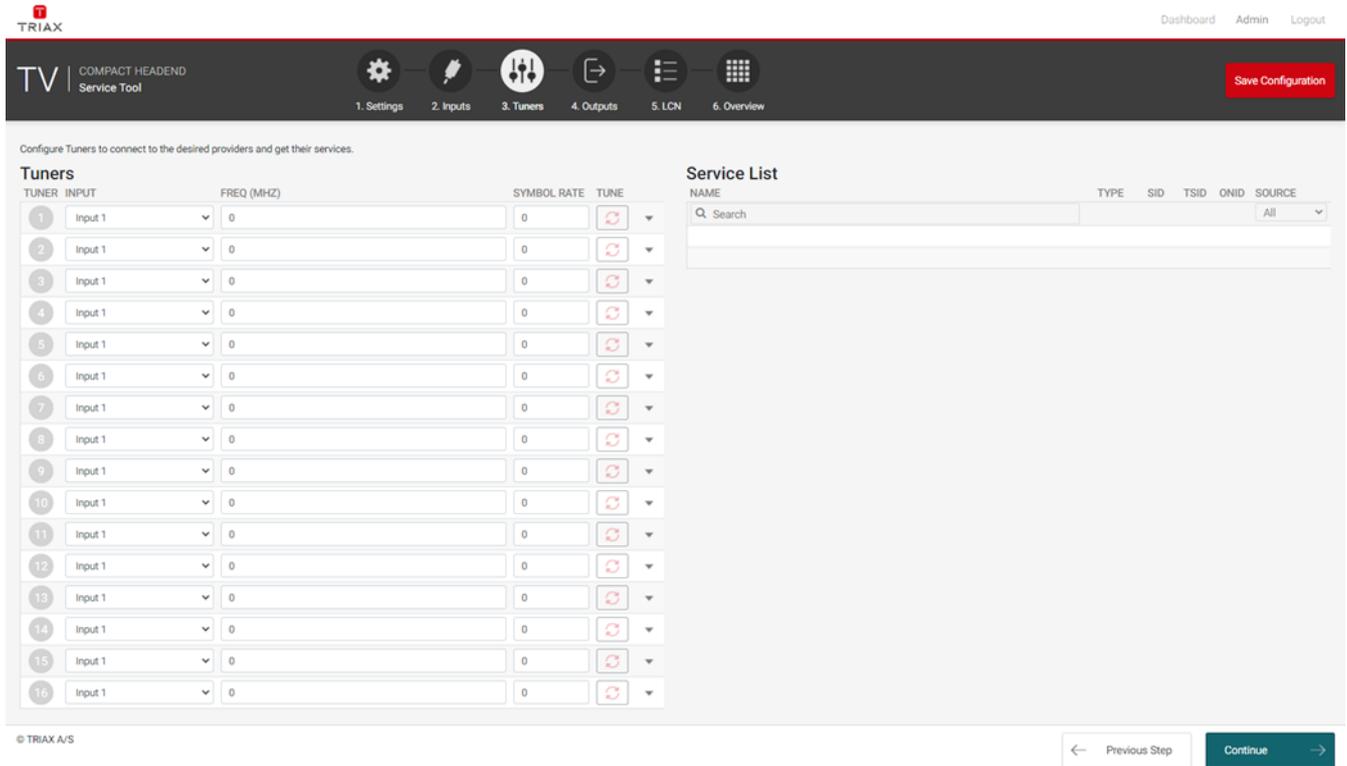
Grey: Tuner is not used

Red: Tuner is not set up correctly or input signal is missing.

Green: Tuner is locked and working.



The first time the Compact Headend Service Tool displays the tuner configuration window in a new configuration, the configuration fields and the list of services will be empty or display default values.



5.5.1 Terrestrial and Cable tuner setup

Note:

This functionality is only available on the Version TDcH 22STC-I.

To set up a tuner you have to follow the following steps:

1. Select the "Demodulation":

Terrestrial and Cable						
TUNER	DEMODULATION	CHANNEL	BANDWIDTH	PLP	SYMBOL RATE	TUNE
TC1	DVB-C	S21 (306 MHz)			6900	
TC2	DVB-T2	S22 (314 MHz)			6900	
TC3	DVB-C	S23 (322 MHz)			6900	
TC4	DVB-C	S24 (330 MHz)			6900	
TC5	DVB-C	0 MHz			0	
TC6	DVB-C	0 MHz			0	

- To select the required demodulation, click on the demodulation field to open the drop-down list with demodulations you can choose from.
- Select the demodulation you want to use.

- Enter the desired frequency in MHz in the channel field or select the corresponding channel from the dropdown list:

Terrestrial and Cable

TUNER	DEMODULATION	CHANNEL	BANDWIDTH	PLP	SYMBOL RATE	TUNE
TC1	DVB-C	308 MHz			6900	
TC2	DVB-C	S21 (306 MHz) S22 (314 MHz)			6900	
TC3	DVB-C	S23 (322 MHz) S24 (330 MHz)			6900	
TC4	DVB-C	S25 (338 MHz) S26 (346 MHz)			6900	
TC5	DVB-C	S27 (354 MHz) S28 (362 MHz)			0	
TC6	DVB-C	S29 (370 MHz) 0 MHz			0	

- If the tuner is used as DVB-T/T2 than please select the required channel bandwidth and PLP number:

Terrestrial and Cable

TUNER	DEMODULATION	CHANNEL	BANDWIDTH	PLP	SYMBOL RATE	TUNE
TC1	DVB-C	308 MHz			6900	
TC2	DVB-C	S22 (314 MHz)			6900	
TC3	DVB-C	S23 (322 MHz)			6900	
TC4	DVB-C	S24 (330 MHz)			6900	
TC5	DVB-T2	0 MHz	8 MHz	0		
TC6	DVB-T2	0 MHz	8 MHz	0		

- If the tuner is used as DVB-C than please select the required symbol rate:

Terrestrial and Cable

TUNER	DEMODULATION	CHANNEL	BANDWIDTH	PLP	SYMBOL RATE	TUNE
TC1	DVB-C	308 MHz			6900	
TC2	DVB-C	S22 (314 MHz)			6900	
TC3	DVB-C	S23 (322 MHz)			6900	
TC4	DVB-C	S24 (330 MHz)			6900	
TC5	DVB-T2	0 MHz	8 MHz	0		
TC6	DVB-T2	0 MHz	8 MHz	0		

- Click the "TUNE" button to enter the information into the headend system:

Terrestrial and Cable

TUNER	DEMODULATION	CHANNEL	BANDWIDTH	PLP	SYMBOL RATE	TUNE
TC1	DVB-C	308 MHz			6900	
TC2	DVB-C	S22 (314 MHz)			6900	
TC3	DVB-C	S23 (322 MHz)			6900	
TC4	DVB-C	S24 (330 MHz)			6900	
TC5	DVB-T2	0 MHz	8 MHz	0		
TC6	DVB-T2	0 MHz	8 MHz	0		

By clicking on the expand button, information details from the selected transponder will be shown:

TUNER	DEMODULATION	CHANNEL	BANDWIDTH	PLP	SYMBOL RATE	TUNE
TC1	DVB-C	308 MHz			6900	
Carrier Noise Ratio		Standard: DVB-C		Delete x		
33.0 dB		Modulation: 256-QAM				
Signal Level		Status: Locked				
87 dBµV						
TC2	DVB-C	S22 (314 MHz)			6900	
TC3	DVB-C	S23 (322 MHz)			6900	
TC4	DVB-C	S24 (330 MHz)			6900	
TC5	DVB-T2	0 MHz	8 MHz	0		
TC6	DVB-T2	0 MHz	8 MHz	0		

- Carrier Noise Ratio:** Shows the carrier to noise ratio of the input signal
- Signal Level:** Displays the actual signal level
- Standard:** Shows the standard of the input signal
- Modulation:** Shows the modulation of the input signal
- Status:** Shows the status of the tuner

To delete the tuner input, press the “Delete x”:

TUNER	DEMODULATION	CHANNEL	BANDWIDTH	PLP	SYMBOL RATE	TUNE
TC1	DVB-C	308 MHz			6900	
Carrier Noise Ratio		Standard: DVB-C		Delete x		
33.0 dB		Modulation: 256-QAM				
Signal Level		Status: Locked				
87 dBµV						
TC2	DVB-C	S22 (314 MHz)			6900	
TC3	DVB-C	S23 (322 MHz)			6900	
TC4	DVB-C	S24 (330 MHz)			6900	
TC5	DVB-T2	0 MHz	8 MHz	0		
TC6	DVB-T2	0 MHz	8 MHz	0		

A warning will appear:

Warning

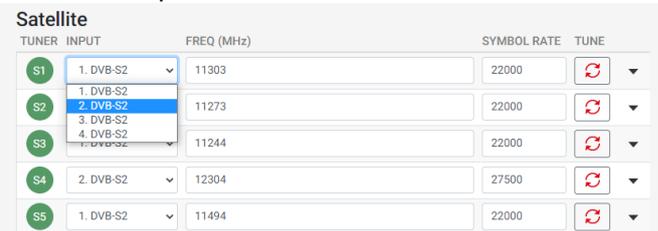
When deleting Tuner configuration, the associated services will be removed from the Service Pool and all the related configuration will be deleted.

Service List

5.5.2 Satellite tuner setup

To set up a satellite tuner you have to follow the following steps:

6. Select the "Input":



TUNER	INPUT	FREQ (MHz)	SYMBOL RATE	TUNE
S1	1. DVB-S2	11303	22000	[Refresh] [Down Arrow]
S2	2. DVB-S2	11273	22000	[Refresh] [Down Arrow]
S3	1. DVB-S2	11244	22000	[Refresh] [Down Arrow]
S4	2. DVB-S2	12304	27500	[Refresh] [Down Arrow]
S5	1. DVB-S2	11494	22000	[Refresh] [Down Arrow]

- To select the required input / SAT-IF signal, click on the input field to open the drop-down list with the inputs you can choose from.
- Select the input you want to use.

7. Enter the desired frequency in MHz in the frequency field:



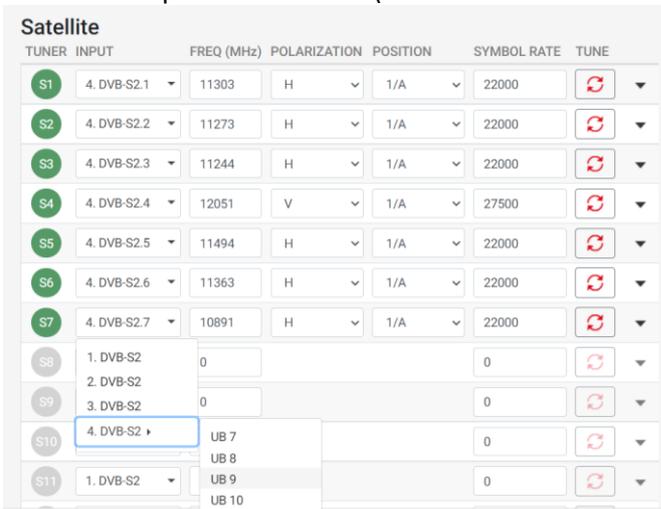
TUNER	INPUT	FREQ (MHz)	SYMBOL RATE	TUNE
S1	1. DVB-S2	11303	22000	[Refresh] [Down Arrow]
S2	1. DVB-S2	11273	22000	[Refresh] [Down Arrow]
S3	1. DVB-S2	11244	22000	[Refresh] [Down Arrow]
S4	2. DVB-S2	12304	27500	[Refresh] [Down Arrow]
S5	1. DVB-S2	11494	22000	[Refresh] [Down Arrow]

8. Enter the desired symbol rate:



TUNER	INPUT	FREQ (MHz)	SYMBOL RATE	TUNE
S1	1. DVB-S2	11303	22000	[Refresh] [Down Arrow]
S2	1. DVB-S2	11273	22000	[Refresh] [Down Arrow]
S3	1. DVB-S2	11244	22000	[Refresh] [Down Arrow]
S4	2. DVB-S2	12304	27500	[Refresh] [Down Arrow]
S5	1. DVB-S2	11494	22000	[Refresh] [Down Arrow]

9. In case the input source is SCR (Satellite Channel Router)



TUNER	INPUT	FREQ (MHz)	POLARIZATION	POSITION	SYMBOL RATE	TUNE
S1	4. DVB-S2.1	11303	H	1/A	22000	[Refresh] [Down Arrow]
S2	4. DVB-S2.2	11273	H	1/A	22000	[Refresh] [Down Arrow]
S3	4. DVB-S2.3	11244	H	1/A	22000	[Refresh] [Down Arrow]
S4	4. DVB-S2.4	12051	V	1/A	27500	[Refresh] [Down Arrow]
S5	4. DVB-S2.5	11494	H	1/A	22000	[Refresh] [Down Arrow]
S6	4. DVB-S2.6	11363	H	1/A	22000	[Refresh] [Down Arrow]
S7	4. DVB-S2.7	10891	H	1/A	22000	[Refresh] [Down Arrow]
S8	1. DVB-S2	0			0	[Refresh] [Down Arrow]
S9	3. DVB-S2	0			0	[Refresh] [Down Arrow]
S10	4. DVB-S2	UB 7			0	[Refresh] [Down Arrow]
S11	1. DVB-S2	UB 8			0	[Refresh] [Down Arrow]

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<https://1043.1.196/>

You have to select the SCR user band and the Polarisation and Satellite position.

10. Click the “TUNE” button to enter the information into the headend system:

Satellite				
TUNER	INPUT	FREQ (MHz)	SYMBOL RATE	TUNE
S1	1. DVB-S2	11303	22000	
S2	1. DVB-S2	11273	22000	
S3	1. DVB-S2	11244	22000	
S4	2. DVB-S2	12304	27500	
S5	1. DVB-S2	11494	22000	

By clicking on the expand button, information details from the selected transponder will be shown:

Satellite				
TUNER	INPUT	FREQ (MHz)	SYMBOL RATE	TUNE
S1	1. DVB-S2	11303	22000	 Carrier Noise Ratio: 14.6 dB Signal Level: 75 dBµV Standard: DVB-S2 Modulation: 8-PSK Status: Locked 
S2	1. DVB-S2	11273	22000	
S3	1. DVB-S2	11244	22000	
S4	2. DVB-S2	12304	27500	
S5	1. DVB-S2	11494	22000	
S6	1. DVB-S2	11363	22000	

Carrier Noise Ratio: Shows the carrier to noise ratio of the input signal

Signal Level: Displays the actual signal level

Standard: Shows the standard of the input signal

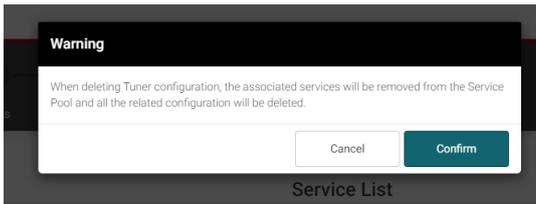
Modulation: Shows the modulation of the input signal

Status: Shows the status of the tuner

To delete the tuner input, press the “Delete x”:

Satellite				
TUNER	INPUT	FREQ (MHz)	SYMBOL RATE	TUNE
S1	1. DVB-S2	11303	22000	 Carrier Noise Ratio: 14.6 dB Signal Level: 75 dBµV Standard: DVB-S2 Modulation: 8-PSK Status: Locked 
S2	1. DVB-S2	11273	22000	
S3	1. DVB-S2	11244	22000	
S4	2. DVB-S2	12304	27500	
S5	1. DVB-S2	11494	22000	
S6	1. DVB-S2	11363	22000	

A warning will appear:

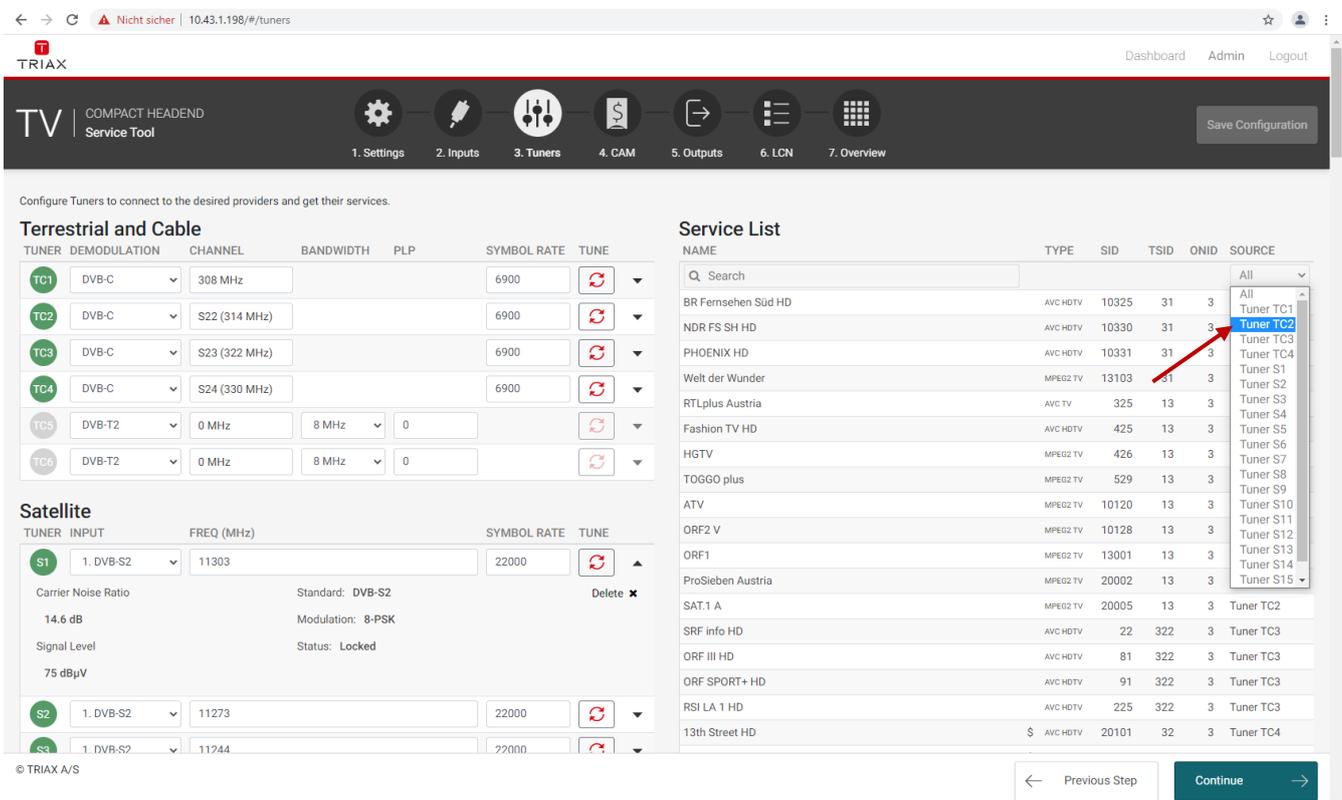


5.5.3 Service List

In the Source field, select the tuner number to see available streams with name, type, SID, TSID and ONID:

First Click → sort rising

Second click at same type → sort falling



Name: Name of the TV or radio service

Note:

If you enter a string in the search field of the service name all services which contains the string are listed in the service list.

Type: Audio and video type of the service

SID: Service Identifier

TSID: Transport Stream Identifier

ONID: Original Network Identifier

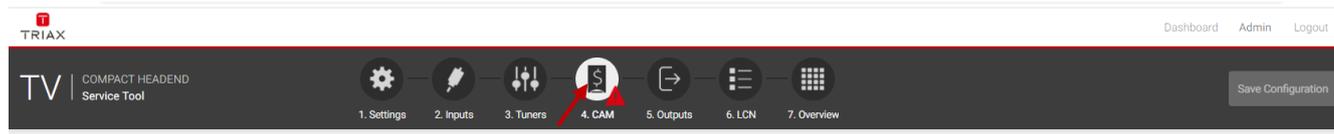
Source: Tuner number the service is received

5.6 CAM

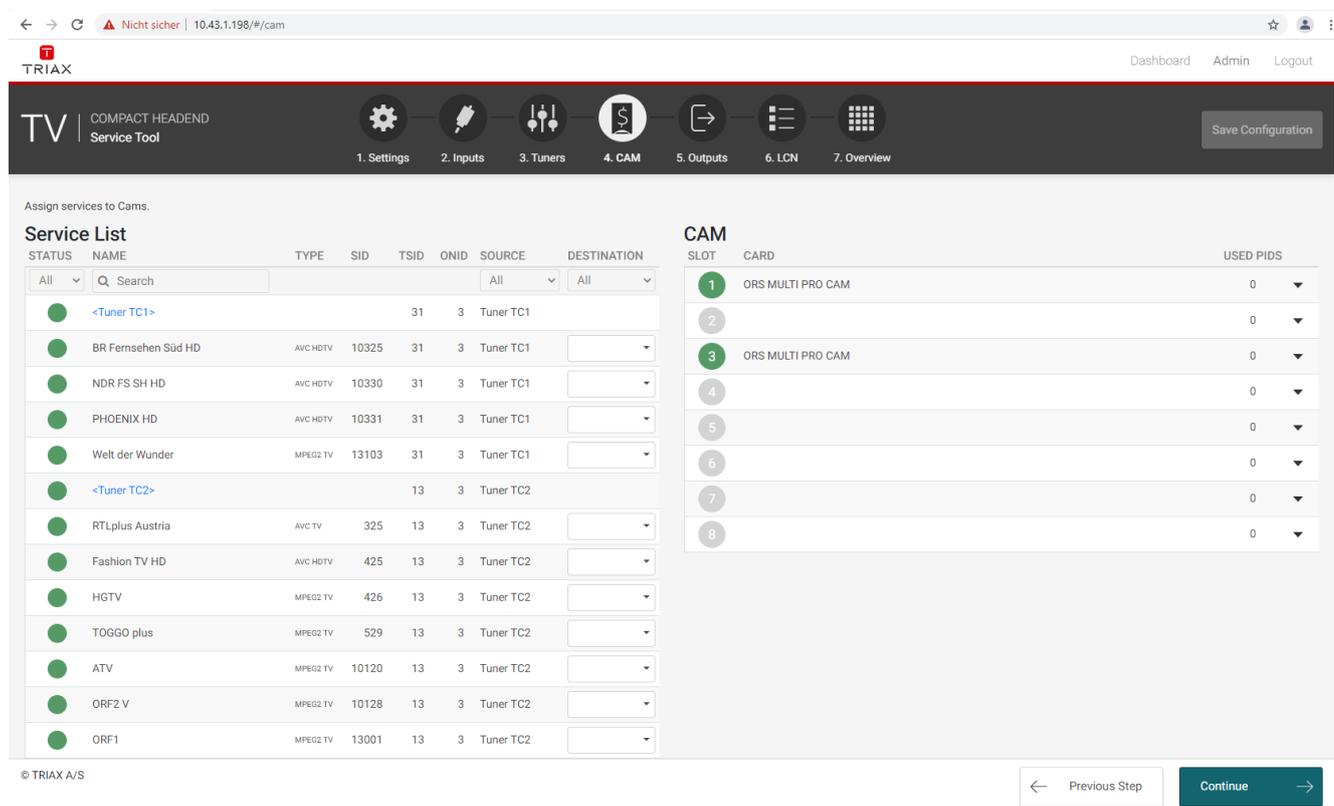
Note:

This functionality is not available on the FTA Version TDcH 16S-Q.

Click the “CAM” tab in the TDcH Service Tool to display the CA Modules and administration window.

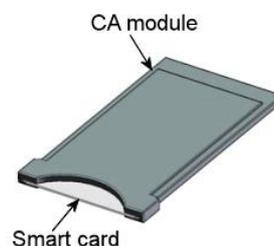


The first time you display the CAM window in a new configuration the module list only displays the number and type of the CA modules that you have inserted in the TDcH.



You have to configure the CA modules individually. When you open the Configuration window for a CA module in a new configuration, only default values are displayed.

5.6.1 CAM / Smart card

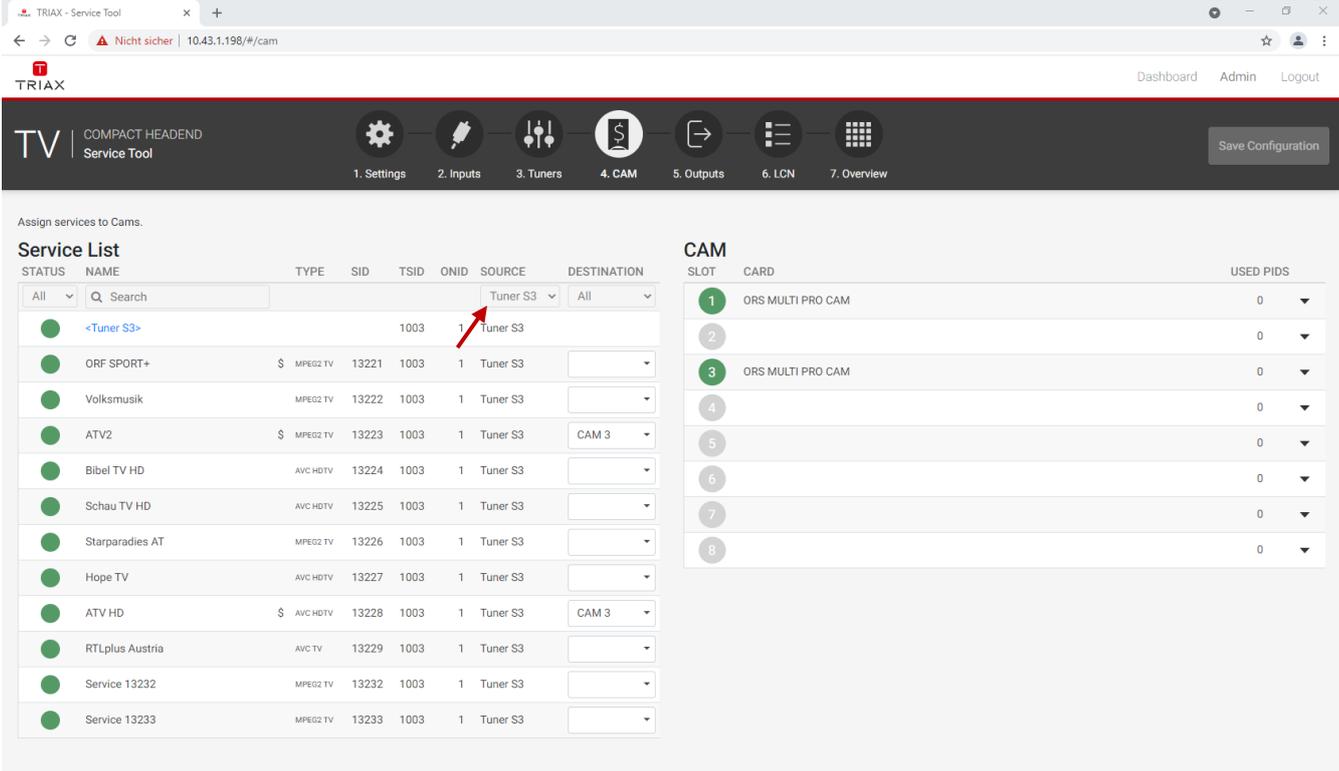


You can insert 8 Conditional Access Modules (CAM) into a TDcH Compact Headend

Each CA module is able to unscramble at least one service. Which services depend on the service provider of the CA module and smart card.

5.6.2 CAM configuration

At the first step you have to assign to a CA module the services the CA module should handle. To assign the services open the drop-down menu under SOURCE and choose the tuner you would like to select services for a CA module.



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← Previous Step Continue →

In the DESTINATION column you can now choose the services you would like to send to a CA module.

Note:

It is possible to send services from different transponders to the same CA modules, so that the amount of needed CA modules can be reduced.

Please do not overload the CA module with services and please secure that the supported amount of PIDs is not overloaded.

The supplier of the CA module can inform you about how many PIDs the CA module can support.

Assign services to Cams.

Service List

STATUS	NAME	TYPE	SID	TSID	ONID	SOURCE	DESTINATION
All	Q Search					Tuner S3	All
●	<Tuner S3>			1003	1	Tuner S3	
●	ORF SPORT+	\$ MPEG2 TV	13221	1003	1	Tuner S3	
●	Volksmusik	MPEG2 TV	13222	1003	1	Tuner S3	
●	ATV2	\$ MPEG2 TV	13223	1003	1	Tuner S3	CAM 3
●	Bibel TV HD	AVC HDTV	13224	1003	1	Tuner S3	
●	Schau TV HD	AVC HDTV	13225	1003	1	Tuner S3	
●	Starparadies AT	MPEG2 TV	13226	1003	1	Tuner S3	
●	Hope TV	AVC HDTV	13227	1003	1	Tuner S3	
●	ATV HD	\$ AVC HDTV	13228	1003	1	Tuner S3	
●	RTLplus Austria	AVC TV	13229	1003	1	Tuner S3	
●	Service 13232	MPEG2 TV	13232	1003	1	Tuner S3	
●	Service 13233	MPEG2 TV	13233	1003	1	Tuner S3	

CAM

SLOT	CARD	USED PIDS
1	ORS MULTI PRO CAM	0
2		0
3	ORS MULTI PRO CAM	0
4		0
5		0
6		0
7		0
8		0

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← Previous Step Continue →

By clicking the expand button on the CA menu the detailed configuration menu opens.

Assign services to Cams.

Service List

STATUS	NAME	TYPE	SID	TSID	ONID	SOURCE	DESTINATION
All	Q Search					Tuner S3	All
●	<Tuner S3>			1003	1	Tuner S3	
●	ORF SPORT+	\$ MPEG2 TV	13221	1003	1	Tuner S3	
●	Volksmusik	MPEG2 TV	13222	1003	1	Tuner S3	
●	ATV2	\$ MPEG2 TV	13223	1003	1	Tuner S3	CAM 3
●	Bibel TV HD	AVC HDTV	13224	1003	1	Tuner S3	
●	Schau TV HD	AVC HDTV	13225	1003	1	Tuner S3	
●	Starparadies AT	MPEG2 TV	13226	1003	1	Tuner S3	
●	Hope TV	AVC HDTV	13227	1003	1	Tuner S3	
●	ATV HD	\$ AVC HDTV	13228	1003	1	Tuner S3	CAM 3
●	RTLplus Austria	AVC TV	13229	1003	1	Tuner S3	
●	Service 13232	MPEG2 TV	13232	1003	1	Tuner S3	
●	Service 13233	MPEG2 TV	13233	1003	1	Tuner S3	

CAM

SLOT	CARD	USED PIDS
1	ORS MULTI PRO CAM	0
2		0
3	ORS MULTI PRO CAM	0
4		0
5		0
6		0
7		0
8		0

Card Speed: 96 Mbit/s Card: Running Error Recovery: Reset

Common Interface

Associated Services

<input checked="" type="checkbox"/>	ATV2 S	
<input checked="" type="checkbox"/>	ATV HD S	

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← Previous Step Continue →

Card speed:

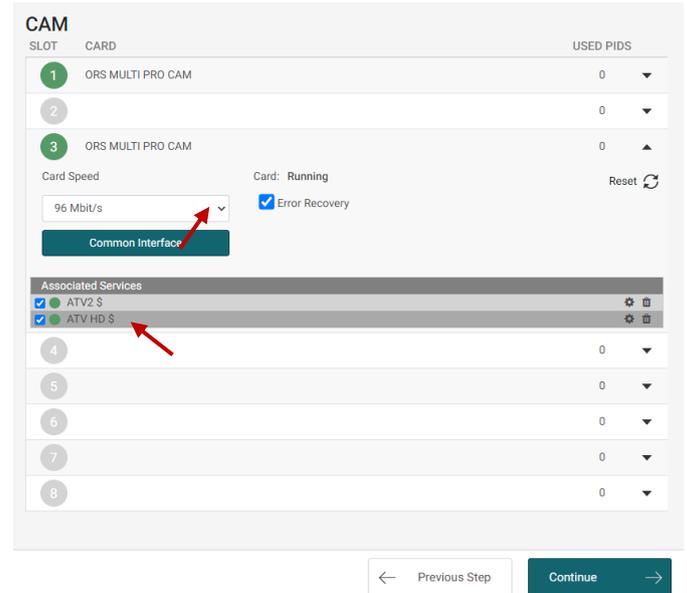
Open the drop-down list with the card speeds if you want to use a higher card speed than the default. Select the required card speed.

Service list area (Associated Services)

Select the service(s) you want to descramble in the Service list area by clicking the service(s) at the selected button. Scrambled services are marked with a dollar sign - \$.

Note:

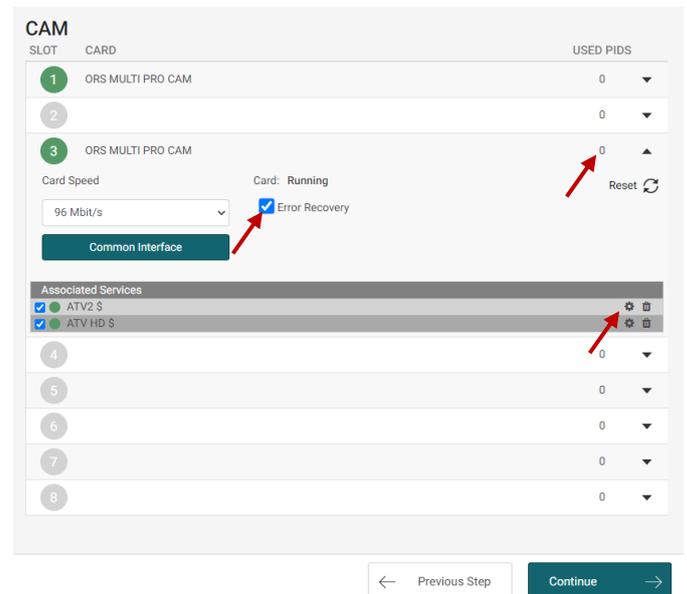
Please note that the services in the CAM menu have to be assigned with the check box to be descrambled!



Used PIDs:

This number shows how many PIDs the CAM is using for descrambling the TV services.

Please ensure that the CA module is not overloaded with used PIDs. The numbers of PIDs a CA-module can support depends from on CA module. Please ask the CAM supplier or the program operator if you are unsure how many PIDs the CA module is able to support.



Error Recovery

If you select the “Error Recovery” checkbox then the automatic error recovery is enabled for all services assigned to this CA-module.

Note:

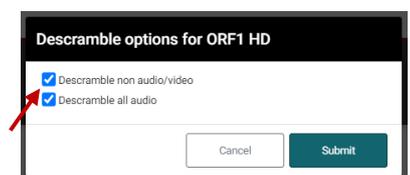
The Error Recovery function does a constant monitoring of the signal transmission status through the CA module. The CA module is automatically reset if the signal transmission fails. When a CA module is reset, the signal transmission is interrupted for all the services associated with that CA module. The “Error Recovery” checkbox should not be enabled for services where signals are not transmitted on a 24-hour basis.

Filter options

To change the Filter options for a service, click the Setup button of the service in question to open the Filter options window.

To descramble all PIDs that are not audio or video related, click the “Descramble non audio/video” PIDs checkbox.

By default all audio PIDs (Packet Identifier) associated with the service are descrambled.



TDcH Compact Headend

To descramble only selected audio PIDs you have to deselect the Descramble all audio PIDs checkbox. Deselecting the Descramble all audio PIDs checkbox displays a field with a drop-down list below the checkbox.

Open the drop-down list and select the language of the audio PID you want to descramble.

An additional field with a language drop-down list is displayed every time you select a language. You can descramble as many audio PIDs as you need.

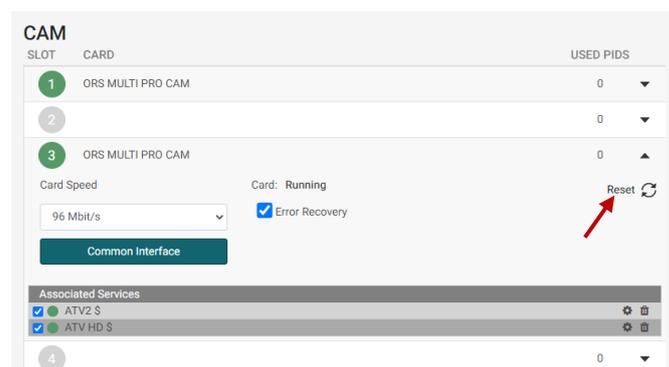
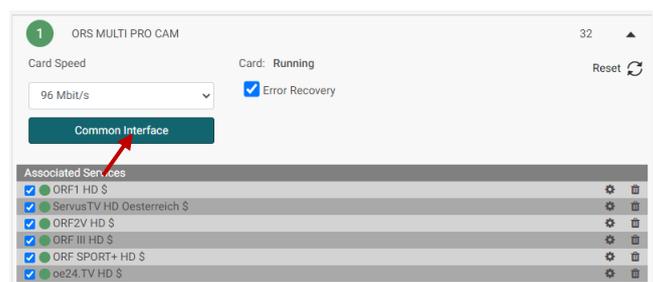
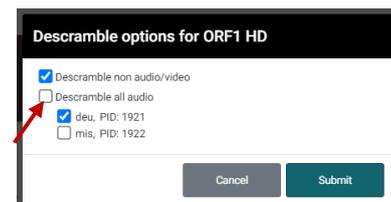
5.6.3 Common interface

Clicking the Common interface button gives you access to information from the smart card inserted in the CA module. The type of information provided by the smart card depends on the card itself and its make.

Please refer to the user guides of the CA modules and smart cards you have inserted for further information.

5.6.4 Reset CAM

If the CA module malfunctions, click the Reset CAM button to reboot the CA module. When a CA module is reset, the signal transmission is interrupted for all the services associated with that CA module.



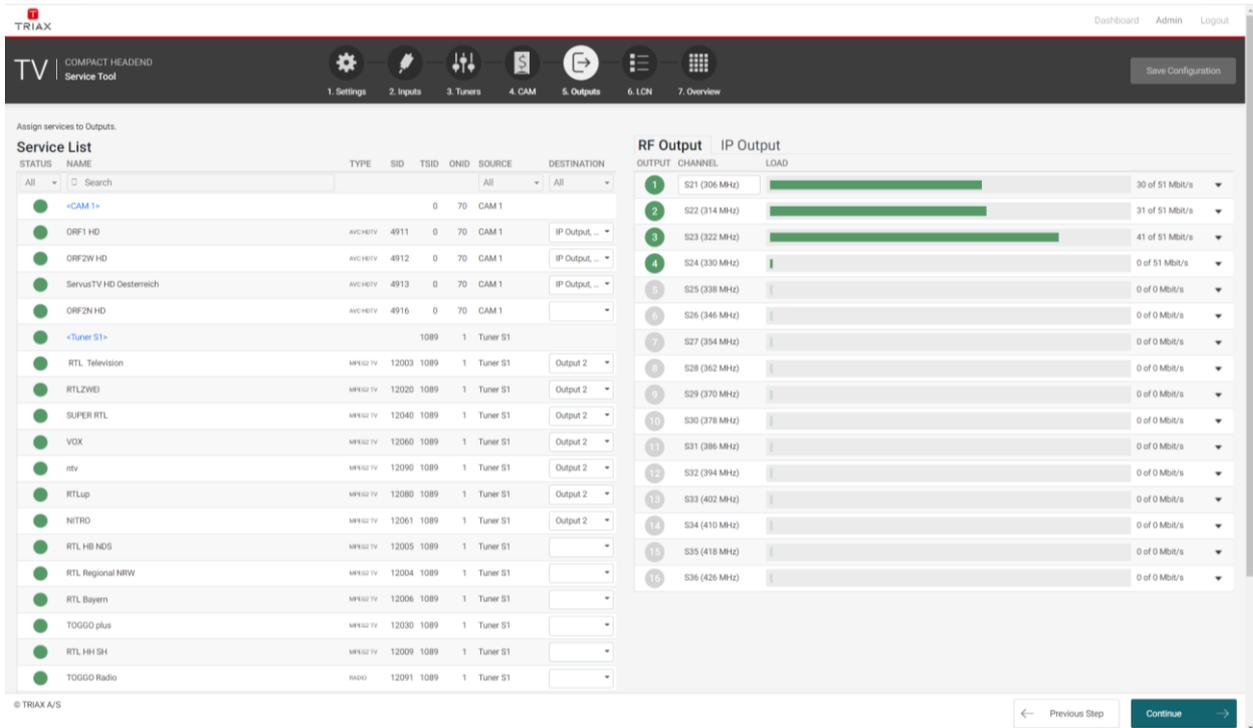
5.7 Outputs

The Output folder is for assigning services to the RF output channels and to the IPTV addresses.

5.7.1 RF Output

Note:

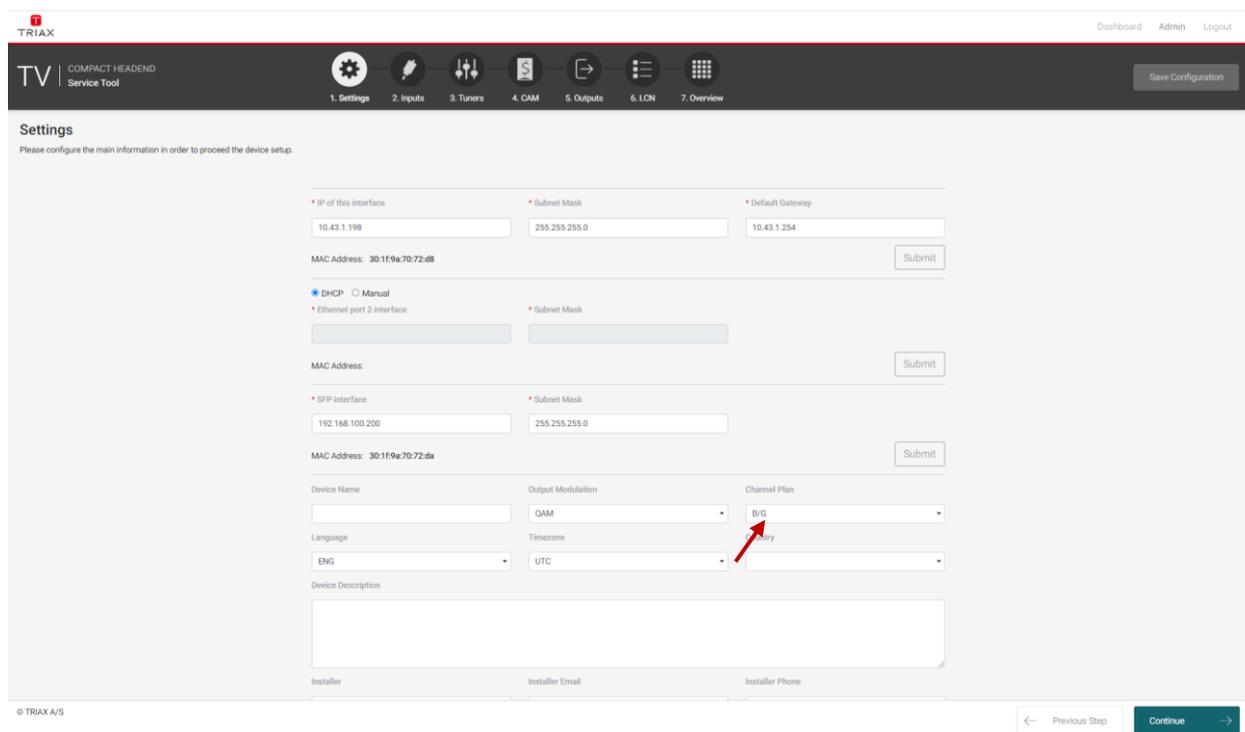
In models TDcH 16S-I and TDcH 22STC-I the output modulation can be changed between QAM and COFDM. For changing the output modulation please see 4.3.6 Output Modulation.



The first time the Service Tool displays the configuration window for the output in a new configuration, the fields in the window will display default values and/or be empty, and the output will be disabled.

Channel plan:

Before starting the Output configuration please be sure that the channel plan is set in the Settings folder!


Select service:
Note:

Services can be assigned to a output channel in direct conversion or as a new multiplex. In the direct conversion a full input transponder is assigned to a output channel. If a new multiplex is made, single services can be chosen from independent input transponders.

Direct channel conversion:

Select under DESTINATION for each Input the output you would like to use the direct conversion function.

Note:

All services below this input will be shown as assigned to the selected outputs and cannot be used for other outputs!

Please note that services allocated in direct conversion to a output are not shown in the LCN table. Only services allocated in new multiplexes are shown in the LCN list!

New multiplex:

If you would like to make a new output multiplex you can select individual services from different inputs for each output.

Note:

Please ensure that in both variations the output bandwidth is not overloaded!

Service List							
STATUS	NAME	TYPE	SID	TSID	ONID	SOURCE	DESTINATION
All	Q Search					All	All
●	<Tuner TC1>			31	3	Tuner TC1	Output 1
●	BR Fernsehen Süd HD	AVC HDTV	10325	31	3	Tuner TC1	Output 1 ✓
●	NDR FS SH HD	AVC HDTV	10330	31	3	Tuner TC1	Output 2
●	PHOENIX HD	AVC HDTV	10331	31	3	Tuner TC1	Output 3
●	Welt der Wunder	MPEG2 TV	13103	31	3	Tuner TC1	Output 4
●	<Tuner S1>			1007	1	Tuner S1	Output 5
●	ORF1 HD	\$ AVC HDTV	4911	1007	1	Tuner S1	Output 6
●	ORF2W HD	\$ AVC HDTV	4912	1007	1	Tuner S1	Output 7
●	ServusTV HD Oesterreich	\$ AVC HDTV	4913	1007	1	Tuner S1	Output 8
●	ServusTV HD Deutschland	AVC HDTV	4914	1007	1	Tuner S1	Output 9
●	ORF2N HD	\$ AVC HDTV	4916	1007	1	Tuner S1	Output 10
●	OE3.	RADIO	4920	1007	1	Tuner S1	Output 11
							Output 12
							Output 13
							Output 14
							Output 15
							Output 16

5.7.2 QAM Modulation

QAM output frequency:

You can configure a QAM output frequency by using the specifications of the channel plan or by entering a frequency manually.

Using the channel plan definitions:

Open the drop-down list with the predefined channels and select the channel you want to use.

Note:

The Channel is only needed for Output 1 – all others are set automatically!

Enter a frequency manually:

Click into the frequency field and enter the frequency directly. Enter the desired frequency in MHz in the Frequency field.

Note:

The Channel is only needed for Output 1 all others are set automatically!

Open the detailed output configuration menu with the extend button.

Constellation:

To select which QAM mode to use, open the dropdown list and select the QAM mode you want to use.

Symbol rate:

Enter the desired symbol rate (from 3150 to 7200 kS) in the Symbol rate field.

Level correction:

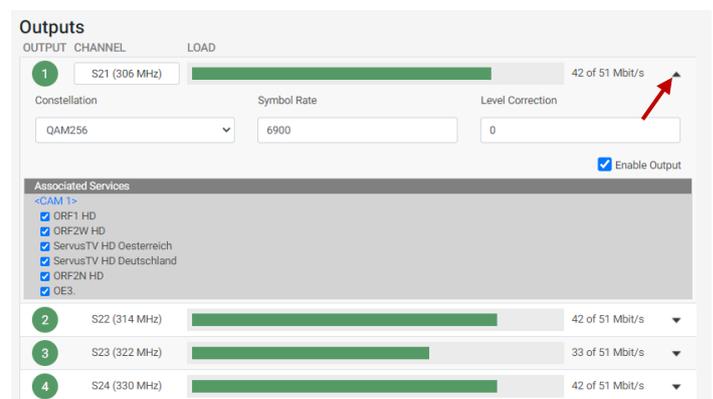
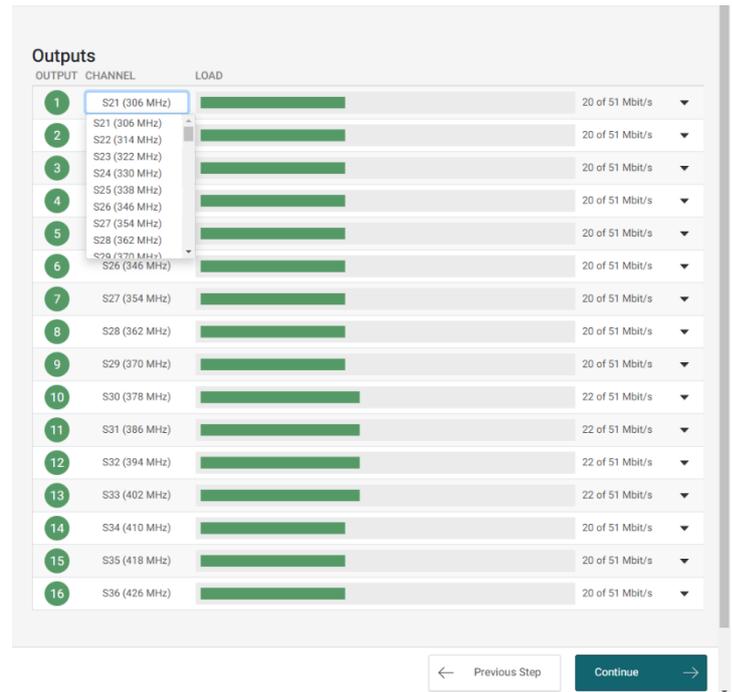
RF output level correction can be set in the first output channel for all output channels 0 and -16 dB.

Enable Output:

If you want to enable this channel, click the Enable Output checkbox.

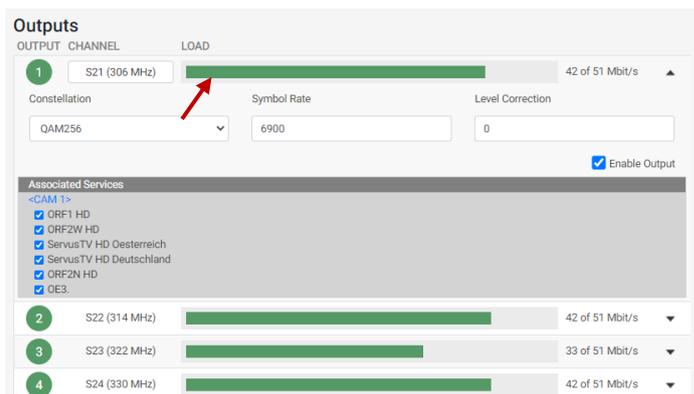
Note:

If the output is disabled, then will no transport stream nor carrier exist at this output. The services selected for this output will still be seen as configured in the system. The information about the services at this output will still exist via EIT_other, SDT_other and NIT_other!



LOAD monitor

The payload monitor is a real time monitor, which visually indicates the amount of data currently being transmitted.



5.7.3 COFDM Modulation

CHANNEL

You can configure a COFDM output frequency by using the specifications of the channel plan or by entering a frequency manually.

Using the channel plan definitions:

Open the drop-down list with the predefined channels and select the channel you want to use.

Note:

The Channel is only needed for Output 1 – all others are set automatically!

Enter a frequency manually:

Click into the frequency field and enter the frequency directly. Enter the desired frequency in MHz in the Frequency field.

Note:

The Channel is only needed for Output 1, all others are set automatically!

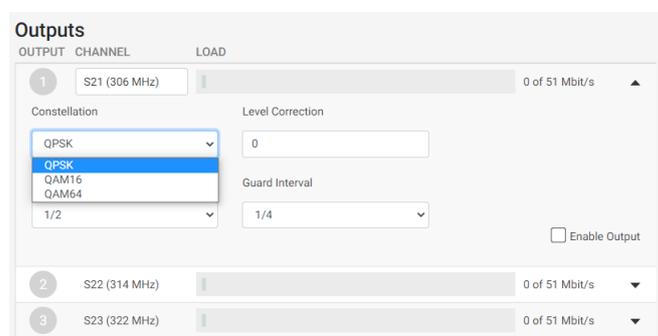
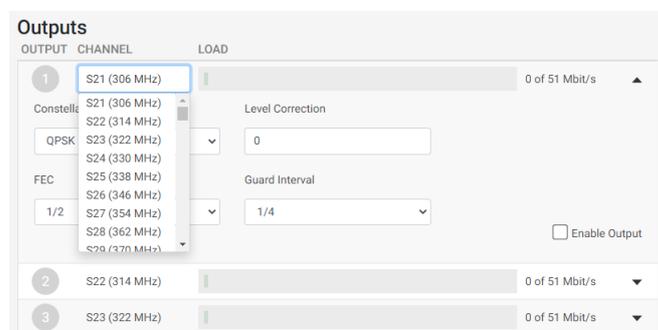
Constellation

To select which transmission mode to use, click the arrow to the right of the Transmission mode field to open the drop-down list with the modes you can choose from.

Select the transmission mode you want to use.

Level Correction:

RF output level correction can be set in the first output channel for all output channels 0 and -16 dB.



FEC

To select which FEC rate to use, click the arrow to the right of the FEC field to open the drop-down list with the FEC rates you can choose from.

Select the FEC rate you want to use.

Guard Interval

To select which guard interval to use, click the arrow to the right of the Guard interval field to open the dropdown list with the intervals you can choose from.

Select the guard interval you want to use.

Enable Output:

If you want to enable this channel, click the Enable Output checkbox.

LOAD monitor

The payload monitor is a real time monitor, which visually indicates the amount of data that is currently being transmitted.

5.7.4 TSID and SID Management – RF Output

Transportstream ID

In the field Transportstream ID you will find the actual used Transportstream ID.

If you would like to change this you can type a new value into the field.

Note:

If there is a conflict with another Transportstream using the same ID the field and the ID number will have a read indication!

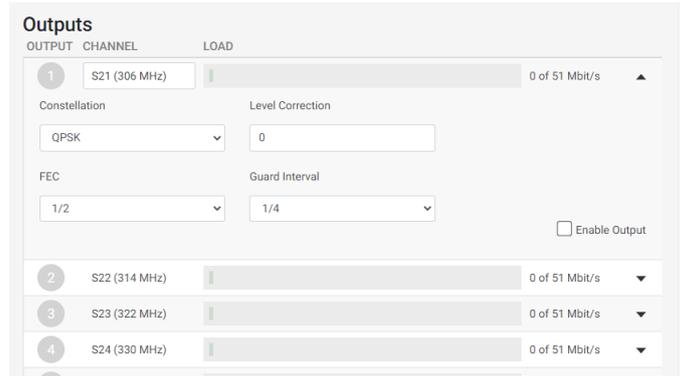
Output SID

In the field Output SID you will find the actual used Output SID.

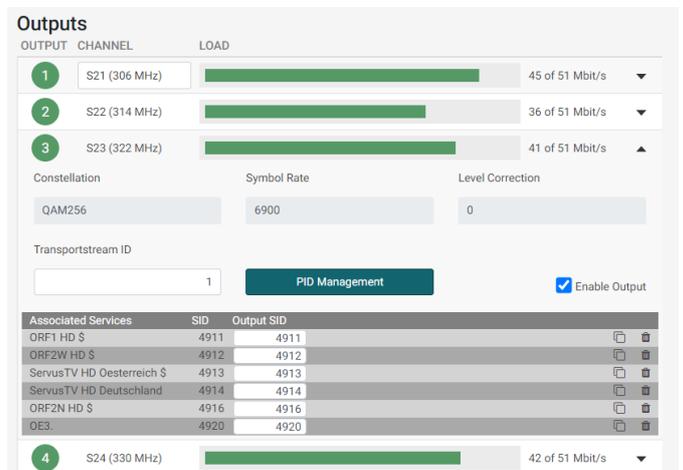
If you would like to change this you can type a new value into the field.

Note:

If there is a conflict with another Output using the same ID the field and the ID number will have a read indication!



OUTPUT	CHANNEL	LOAD
1	S21 (306 MHz)	0 of 51 Mbit/s
Constellation: QPSK		Level Correction: 0
FEC: 1/2		Guard Interval: 1/4
<input type="checkbox"/> Enable Output		
2	S22 (314 MHz)	0 of 51 Mbit/s
3	S23 (322 MHz)	0 of 51 Mbit/s
4	S24 (330 MHz)	0 of 51 Mbit/s



OUTPUT	CHANNEL	LOAD
1	S21 (306 MHz)	45 of 51 Mbit/s
2	S22 (314 MHz)	36 of 51 Mbit/s
3	S23 (322 MHz)	41 of 51 Mbit/s

Constellation: QAM256 Symbol Rate: 6900 Level Correction: 0

Transportstream ID: Enable Output

Associated Services	SID	Output SID
ORF1 HD S	4911	4911
ORF2W HD S	4912	4912
ServusTV HD Oesterreich S	4913	4913
ServusTV HD Deutschland	4914	4914
ORF2N HD S	4916	4916
OE3	4920	4920

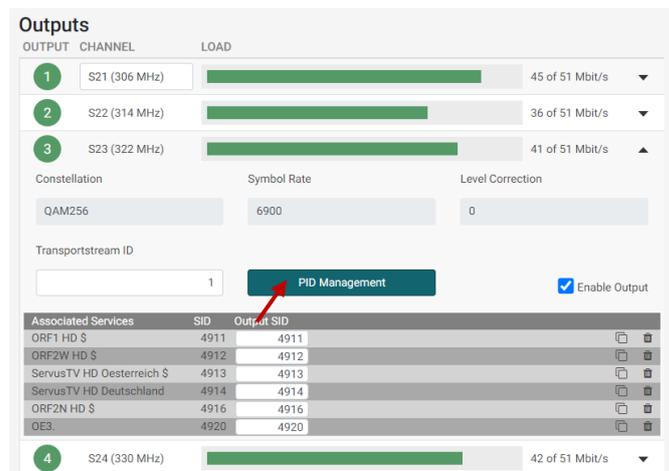
OUTPUT	CHANNEL	LOAD
4	S24 (330 MHz)	42 of 51 Mbit/s

5.7.5 PID Management – RF Output

Pressing the PID Management button opens the PID management menu.

In PID Management window you will find the following informations:

- Service Name
- Output SID
- Stream Type
- Details like CAS ID, Audio type, etc.
- Original PID
- Selected YES/NO
- Conflicts
- FIXED PID
- Output PID



Filter PID's

With deselecting the filter check box you can deselect (filter) PID's.

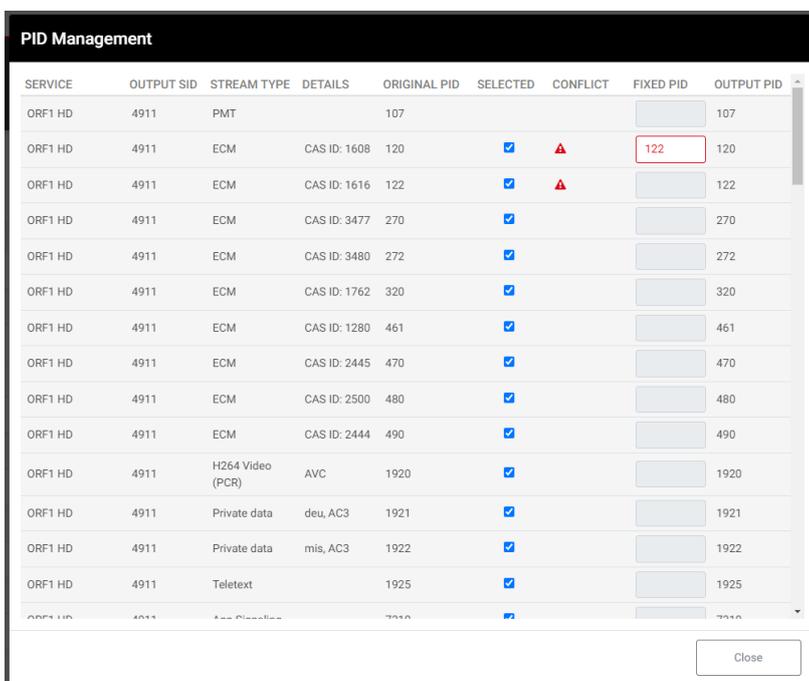
This can be used if you would like to reduce audio or other information from the service.

Fixed PID

If you enter a PID in the "FIXED PID" field the PID will be changed to this setting.

Note:

If a PID is used twice there will be an error indication shown and the PID with the same value will be highlighted.



5.7.6 Multiple services – RF Output

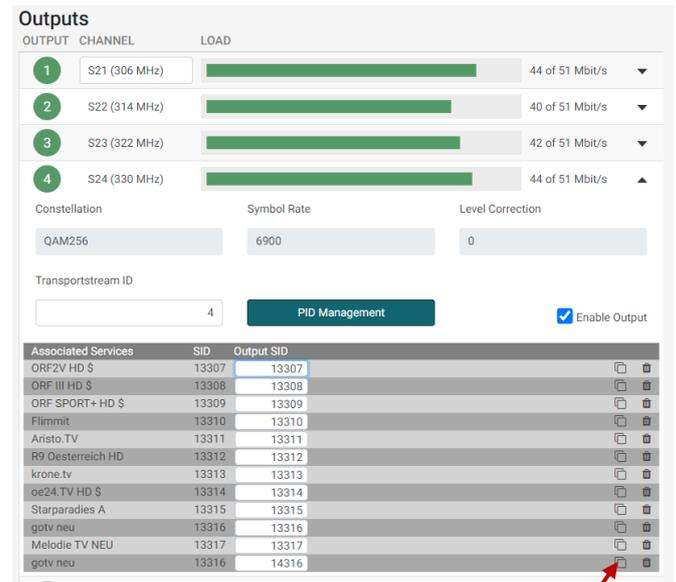
The TDcH supports sending out services multiple times.

This functionality can be used to send out the service with different audio languages.

This has the advantage that the services is available multiple times in the service list, so the customer can choose the service with the desired audio language by simply changing the channel. They do not have to use the audio function of the television.

With this function it is also possible to make language packages in the channel plan so the services with the same languages are in one block in the channel list.

If you press the copy button the service will be added as a copy.



Note:

The stream will only be a replication, so this is not a one-to-one increase in the payload!

The Service name of the duplicated service is not able to be renamed. This will come in a further software update!

5.7.7 IP Output

IP output licenses need to be purchased from TRIAX to be able to distribute IP services through the TDcH headend system.

Required license numbers:

Item No.: 418740 TDcH IP-out license

Licenses are activated using License handling in the Administration window.

Note:

The TDcH headend system must be connected to a Gigabit network switch to receive and deliver IP services. The network switch must support IGMP version 2, and contain an adequate number of ports

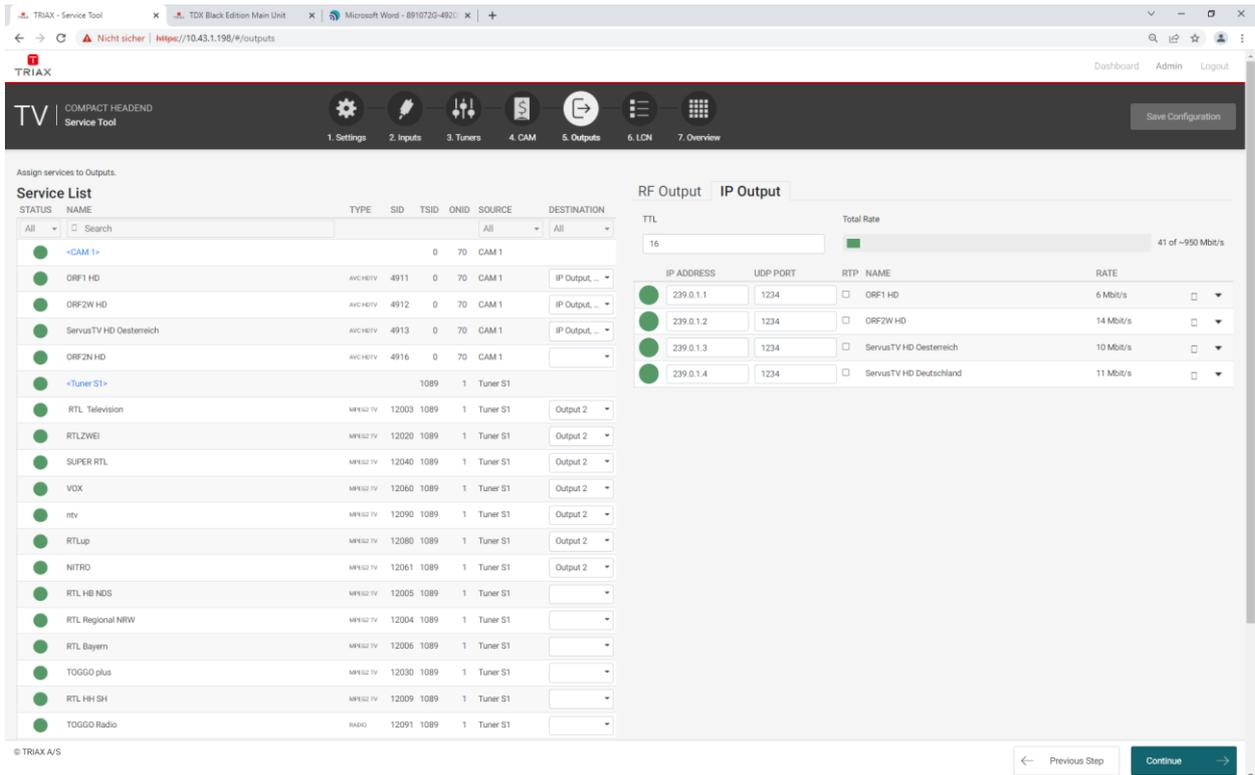
Cat 5e shielded or better network cables must be used.

Optional hardware:

A fibre-optic transceiver can be used instead of an RJ45 SFP transceiver. This is especially relevant for pre-existing optical installations, or for installations with high levels of interference and/or total cable lengths exceeding 100m. The fibre-optic transceiver must be ordered separately.

Item No.: 492087 SFP Fiber 850nm EOLS-8512-MXX (500m)

Item No.: 492088 SFP Fiber 1310nm EOLS-1324-02XX (2km)



TTL

Time to live (TTL) or hop limit is a mechanism which limits the lifespan or lifetime of data in a computer or network. TTL may be implemented as a counter or timestamp attached to or embedded in the data. Once the prescribed event count or timespan has elapsed, data is discarded or revalidated. In computer networking, TTL prevents a data packet from circulating indefinitely. In computing applications, TTL is commonly used to improve the performance and manage the caching of data. Standard value is 16.

TOTAL RATE (LOAD monitor)

The payload monitor is a real time monitor, which visually indicates the amount of data that is currently being transmitted. The figure shows the total bandwidth of all IP-out services!

Select service:

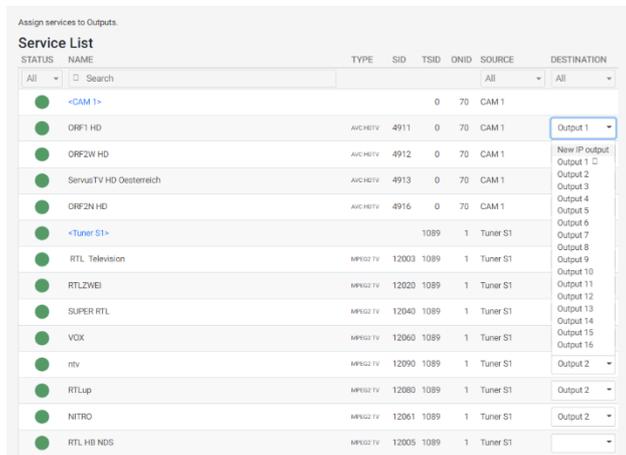
Services can be assigned to a IPTV output.

Note:

Start the IP-out configuration with assigning the first services which should be send out as IPTV service. Administrate the IP address. All following IPTV services will follow the IP address range by increasing the last number by 1.

IP ADDRESS

Specifies IP address of a IPTV service. Enter a multicast IP address between 224.0.0.0 and 239.255.255.255 in the IP address field.



UDP PORT

Enter the desired IP port number in the Port field within the range '1025 to '65535'.

RTP

Select the RTP check box to enable Real-Time

Open the detailed output configuration menu with the extend button.

5.7.8 TSID and SID Management – IP Output

Transportstream ID

In the field Transportstream ID you will find the actual used Transportstream ID.

If you would like to change this you can type a new value into the field.

Note:

If there is a conflict with another Transportstream using the same ID the field and the ID number will have a read indication!

Output SID

In the field Output SID you will find the actual used Output SID.

If you would like to change this you can type a new value into the field.

Note:

If there is a conflict with another Output using the same ID the field and the ID number will have a read indication!

5.7.9 PID Management – IP Output

Pressing the PID Management button opens the PID management menu.

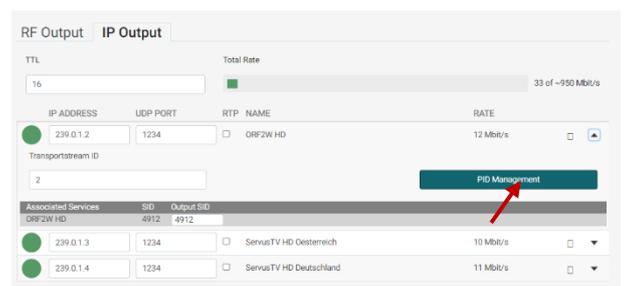
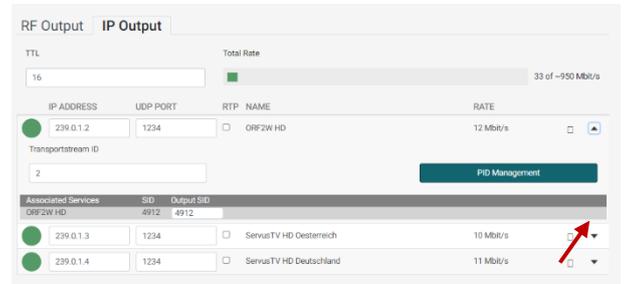
In PID Management window you will find the following informations:

- Service Name
- Output SID
- Stream Type
- Details like CAS ID, Audio type, etc.
- Original PID
- Selected YES/NO
- Conflicts
- FIXED PID
- Output PID

Filter PID's

With deselecting the filter check box you can deselect (filter) PID's.

This can be used if you would like to reduce audio or other information from the service.



Fixed PID

If you enter a PID in the “FIXED PID” field the PID will be changed to this setting.

Note:

If a PID is used twice there will be an error indication shown and the PID with the same value will be highlighted.

5.7.10 Multiple services – IP Output

The TDcH supports sending out IPTV services multiple times.

This functionality can be used to send out the service with different audio languages.

This has the advantage that the services is available multiple times in the service list, so the customer can choose the service with the desired audio language by simply changing the channel. They do not have to use the audio function of the television.

With this function it is also possible to make language packages in the channel plan so the services with the same languages are in one block in the channel list.

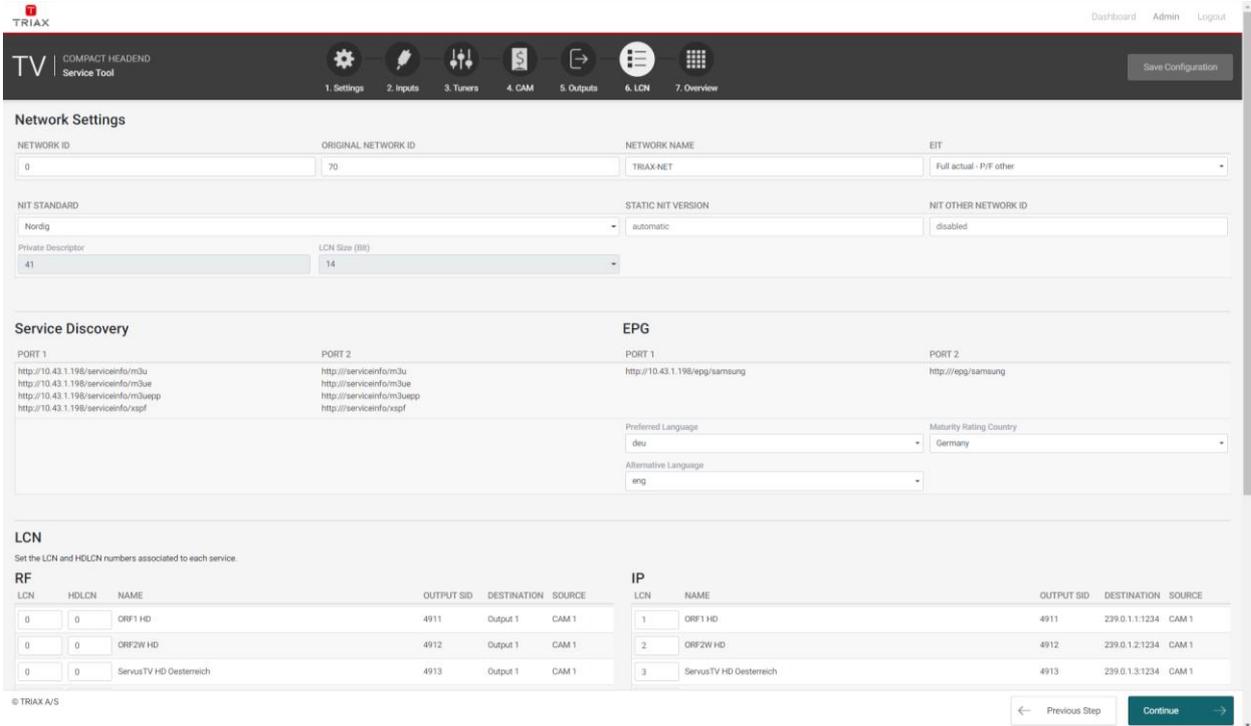
To have a service multiple time as IPTV out select the services and generate a new IP address.

Note:

The Service name of the duplicated service is not able to be renamed. This will come in a further software update!

5.8 LCN

Under the page LCN it is possible to set the Network Settings parameters and administer the LCN (Local Channel Number) numbers.



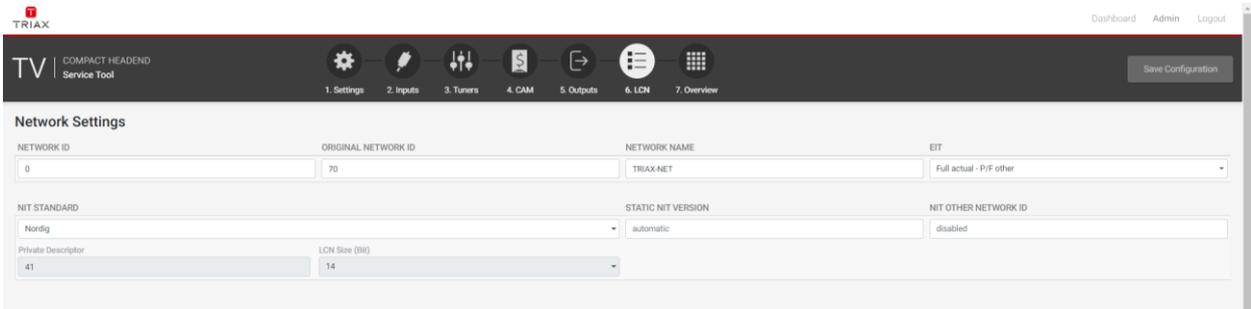
The screenshot shows the 'Network Settings' page in the TRIAX Compact Headend Service Tool. The interface includes a navigation bar with icons for Settings, Inputs, Tuners, CAM, Outputs, LCN, and Overview. The main content area is divided into several sections:

- Network Settings:** Contains input fields for NETWORK ID (0), ORIGINAL NETWORK ID (70), NETWORK NAME (TRIAX-NET), and EIT (Full actual - P/F other).
- NIT STANDARD:** Includes a dropdown for NIT STANDARD (Nordig), a dropdown for STATIC NIT VERSION (automatic), and a dropdown for NIT OTHER NETWORK ID (disabled).
- Service Discovery:** Lists PORT 1 and PORT 2 with their respective URLs.
- EPG:** Includes a dropdown for Preferred Language (deu) and a dropdown for Maturity Rating Country (Germany).
- LCN:** A section for setting LCN and HDLCN numbers, containing two tables:

LCN	HDLCN	NAME	OUTPUT SID	DESTINATION	SOURCE
0	0	ORF1 HD	4911	Output 1	CAM 1
0	0	ORF2W HD	4912	Output 1	CAM 1
0	0	ServusTV HD Osterreich	4913	Output 1	CAM 1

LCN	NAME	OUTPUT SID	DESTINATION	SOURCE
1	ORF1 HD	4911	239.0.1.1:1234	CAM 1
2	ORF2W HD	4912	239.0.1.2:1234	CAM 1
3	ServusTV HD Osterreich	4913	239.0.1.3:1234	CAM 1

5.8.1 Network Settings



This screenshot is identical to the one above, showing the 'Network Settings' page in the TRIAX Compact Headend Service Tool. It highlights the 'Network Settings' section with the following details:

- NETWORK ID:** 0
- ORIGINAL NETWORK ID:** 70
- NETWORK NAME:** TRIAX-NET
- EIT:** Full actual - P/F other
- NIT STANDARD:** Nordig
- STATIC NIT VERSION:** automatic
- NIT OTHER NETWORK ID:** disabled

Network ID

Enter the required network ID in the Network ID field. If it is an open network, the network ID has to follow the “ETSI TR 101 211” guidelines. If it is a closed network you can determine the ID yourself.

ORIGINAL NETWORK ID

Enter the required original network ID in the Original Network ID field.

NETWORK NAME

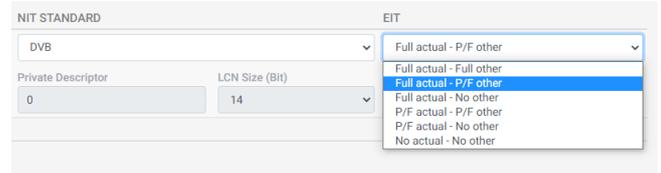
Enter a network name in the Network name field. The maximum number of characters you can enter in the field is 255.

EIT (EPG Management)

The Event Information Table (EIT) dropdown list enables you to change the EIT settings for both DVB-T and DVB-C.

Note:

Please note that the TDcH EPG management function supports 4 days EPG informations per service independent if the EPG is set to “Full” or “P/F”. That the EPG is available at the input source is of course a general requirement.



The following settings are able to set up:

- **Full Actual - Full Other**
All outputs will have all EIT information available, so all actual present/following, actual schedule, other present/following and other schedule EIT are sent out with all muxes.
- **Full Actual - P/F Other**
All outputs will have actual present/following and actual schedule EIT information, but only other present/following EIT information.
- **Full Actual - No Other**
All outputs will have actual present/following and actual schedule EIT information, and no other EIT information.
- **P/F Actual - P/F Other**
All outputs will have actual present/following EIT information and other present/following EIT information only.
- **P/F Actual - No Other**
All outputs will have actual present/following EIT information.

No Actual - No Other

No EIT information is output.

NIT STANDARD

Select which standard you want to use, DVB or NorDig. By default DVB is selected.

STATIC NIT VERSION (“Freeze” NIT)

If programs of a transponder change, then the NIT is recreated. In most countries, the end user does not notice, because the receivers automatically read in the new NIT. However, in some countries (eg France) end users are asked to start a channel search.

If it comes to the case that one or more stations are weak to receive, then the NIT changes frequently and the end users are always unnecessarily prompted to start a channel search. In this case, the NIT version can be "frozen" (recommended for use in France).

Under “Static NIT version” enter a version between 1 and 31.

Note:

If the service list really changes, the channel search must be done manually.

NIT OTHER NETWORK ID

Enter the required nit other network ID in the Network ID field.

In some country’s TV’s requires an Network ID in the “NIT OTHER NETWORKD ID” filed to support an network search when connected to the local CATV provider. It the headend is used for such TV’s it is also required to send the required NIT OTHER NETWORK ID in the EIT table.

5.8.2 Service Discovery

The TDcH supports different formats for external devices and end user devices to get automatically the actual service list.

It is possible to get the list of services at IP out in the following formats:

- XSPF
- M3U
- Extended M3U
- Extended++ M3U

Service Discovery	
PORT 1	PORT 2
http://10.43.1.198/serviceinfo/m3u	http://serviceinfo/m3u
http://10.43.1.198/serviceinfo/m3ue	http://serviceinfo/m3ue
http://10.43.1.198/serviceinfo/m3uapp	http://serviceinfo/m3uapp
http://10.43.1.198/serviceinfo/xspf	http://serviceinfo/xspf

The service lists are available at Ethernet Port 1 and 2. How to get access to the data is noted in the user interface.

XSPF

Sample:

```
<?xml version="1.0" encoding="UTF-8"?>
<playlist version="1" xmlns="http://xspf.org/ns/0/">
<trackList>
<track><title>DR1</title><location>udp://@239.194.0.1:50172</location>
<extension application="http://www.triax.com"><poolserviceid>4</poolserviceid></extension></track>
<track><title>Syd</title><location>udp://@239.194.0.2:50172</location>
<extension application="http://www.triax.com"><poolserviceid>6</poolserviceid></extension></track>
</trackList>
</playlist>
```

M3U

This service list contains

- IP addresses and port numbers

Sample:

```
udp://239.194.0.1:50172
udp://239.194.0.2:50172
```

Extended M3U

The service list is compliant to SAT>IP Protocol Specification (ver. 1.2.2) and is defined as “extended M3U channel list” In the standard under appendix A2.1

This service list contains

- IP address and port number
- Service name
- LCN

Sample:

```
#EXTM3U
#EXTINF:0,1. DR1
udp://239.194.0.1:50172
```

TDcH Compact Headend

```
#EXTINF:0,3. Syd
udp://239.194.0.2:50172
```

Extended++ M3U

The service list is based at the Extended M3U with further extensions.

The service list can be used for TV sets. Panasonic is one TV set vendor that supports this service list as service discovery.

This service list contains

- IP address and port number
- Service name, transport stream ID, original network ID
- LCN
- Service type (1=TV, 2=Radio)

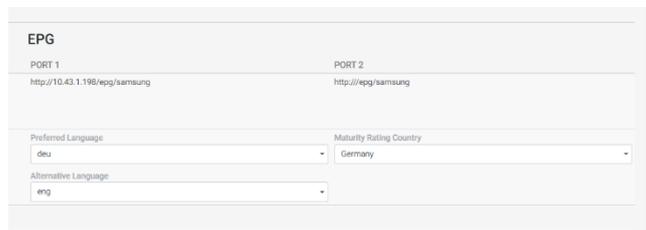
Sample:

```
#EXTM3U
#EXTINF:0,1. DR1
udp://239.194.0.1:50172?styp=1&onid=43962&tsid=0&svcid=4
#EXTINF:0,3. Syd
udp://239.194.0.2:50172?styp=1&onid=43962&tsid=0&svcid=6
```

5.8.3 EPG

The TDcH has an integrated EPG server to support external devices with EPG data. This could be a middleware server or a TV management server or end user devices directly.

The service lists are available at Ethernet Port 1 and 2. How to get access to the data is noted in the user interface.



EPG

PORT 1: http://10.43.1.196/egg/samsung

PORT 2: http://egg/samsung

Preferred Language: deu

Maturity Rating Country: Germany

Alternative Language: eng

5.8.4 LCN

Assign LCN numbers to desired services. LCN and HD-LCN numbers in the range 0 - 1023 can be set.



LCN

Set the LCN and HDLCN numbers associated to each service.

RF						IP				
LCN	HDLCN	NAME	OUTPUT SID	DESTINATION	SOURCE	LCN	NAME	OUTPUT SID	DESTINATION	SOURCE
0	0	ORF1 HD	4911	Output 1	CAM 1	1	ORF1 HD	4911	239.0.1.1:1234	CAM 1
0	0	ORF2W HD	4912	Output 1	CAM 1	2	ORF2W HD	4912	239.0.1.2:1234	CAM 1
0	0	ServusTV HD Oesterreich	4913	Output 1	CAM 1	3	ServusTV HD Oesterreich	4913	239.0.1.3:1234	CAM 1

© TRIAX A/S

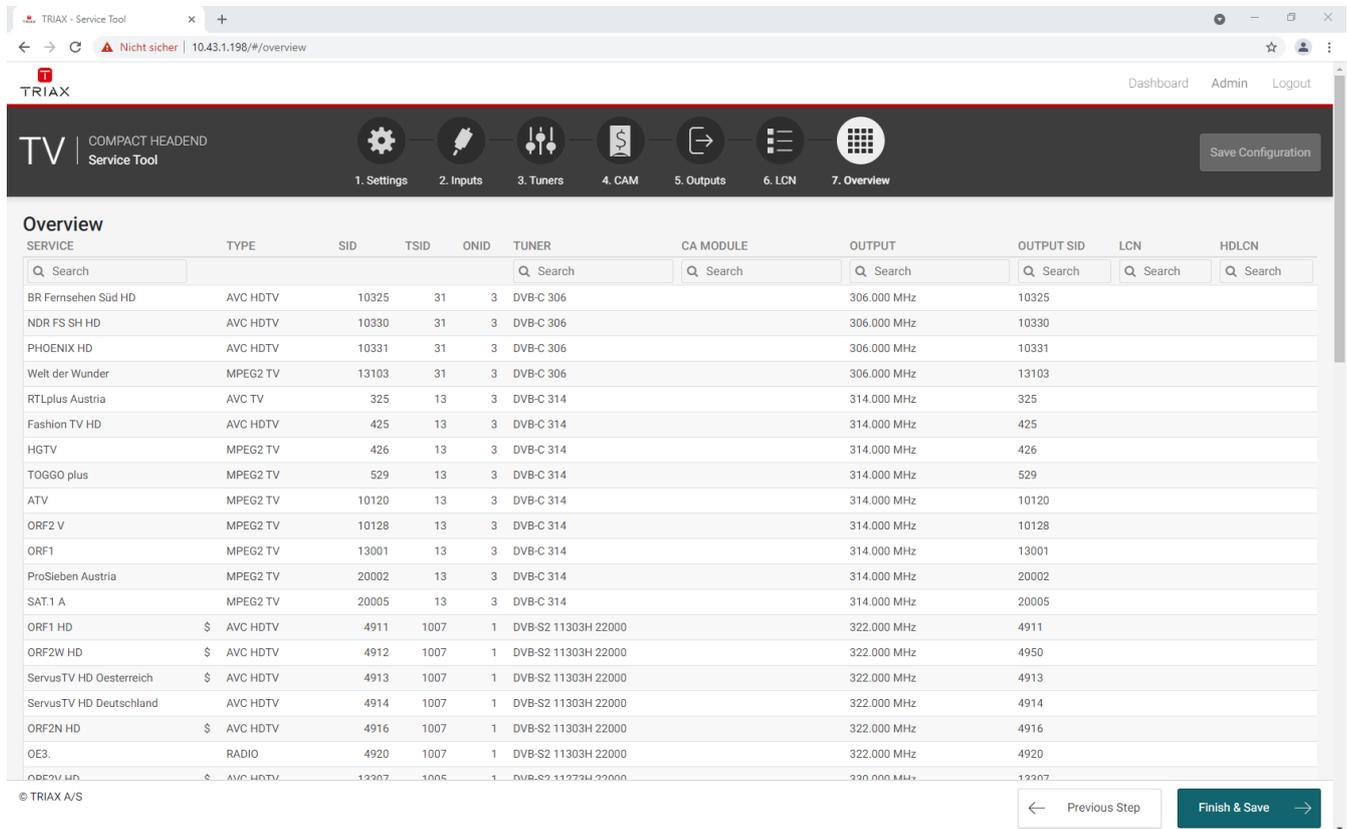
← Previous Step Continue →

The LCN numbers can be administrated for the RF outputs (QAM and COFDM) on the left sight and at the right side for the IPTV services (IP Output).

When **Continue** is pressed, the next menu pane is shown.

5.9 Overview

The overview page is a fast and easy overview with a “sort” and “search” function. By pressing the underlined links there is also the possibility to navigate direct to specific information and settings if needed. Please see mouse over description below.



SERVICE	TYPE	SID	TSID	ONID	TUNER	CA MODULE	OUTPUT	OUTPUT SID	LCN	HDLCN
BR Fernsehen Süd HD	AVC HDTV	10325	31	3	DVB-C 306		306.000 MHz	10325		
NDR FS SH HD	AVC HDTV	10330	31	3	DVB-C 306		306.000 MHz	10330		
PHOENIX HD	AVC HDTV	10331	31	3	DVB-C 306		306.000 MHz	10331		
Welt der Wunder	MPEG2 TV	13103	31	3	DVB-C 306		306.000 MHz	13103		
RTLplus Austria	AVC TV	325	13	3	DVB-C 314		314.000 MHz	325		
Fashion TV HD	AVC HDTV	425	13	3	DVB-C 314		314.000 MHz	425		
HGTV	MPEG2 TV	426	13	3	DVB-C 314		314.000 MHz	426		
TOGGO plus	MPEG2 TV	529	13	3	DVB-C 314		314.000 MHz	529		
ATV	MPEG2 TV	10120	13	3	DVB-C 314		314.000 MHz	10120		
ORF2 V	MPEG2 TV	10128	13	3	DVB-C 314		314.000 MHz	10128		
ORF1	MPEG2 TV	13001	13	3	DVB-C 314		314.000 MHz	13001		
ProSieben Austria	MPEG2 TV	20002	13	3	DVB-C 314		314.000 MHz	20002		
SAT.1 A	MPEG2 TV	20005	13	3	DVB-C 314		314.000 MHz	20005		
ORF1 HD	AVC HDTV	4911	1007	1	DVB-S2 11303H 22000		322.000 MHz	4911		
ORF2W HD	AVC HDTV	4912	1007	1	DVB-S2 11303H 22000		322.000 MHz	4950		
ServusTV HD Osterreich	AVC HDTV	4913	1007	1	DVB-S2 11303H 22000		322.000 MHz	4913		
ServusTV HD Deutschland	AVC HDTV	4914	1007	1	DVB-S2 11303H 22000		322.000 MHz	4914		
ORF2N HD	AVC HDTV	4916	1007	1	DVB-S2 11303H 22000		322.000 MHz	4916		
OE3.	RADIO	4920	1007	1	DVB-S2 11303H 22000		322.000 MHz	4920		
ORF3V HD	AVC HDTV	13207	1005	1	DVB-S2 11273H 22000		320.000 MHz	13207		

Service	Name of the TV or Radio Service
Type	Type of the Service (HD, SD, TV, Radio, ...)
SID	Service identifier of the service used at the Output
TSID	Transport stream identifier used at the output
ONID	Original network identifier of the service
TUNER	Location from where the service is received
CA MODULE	Used CA module for decrypting the service
OUTOUT	Output channel information of a Service
OUTPUT SID	SID at the output
LCN	Local Channel number of the Services
LCN HD	Local Channel number of the HD Services

Alphabetic order

With a click on the Column description as a sample “SERVICE” the corresponding column will be sorted in alphabetical order. With a second click the alphabetical order is reversed.

Search

In the Search fields it is possible to search for a specific text. Start typing and the list will show only names with the characters included in the same row as in the search field.

Mouseover

Mouseover entries can be clicked to switch to the main table of this entry.

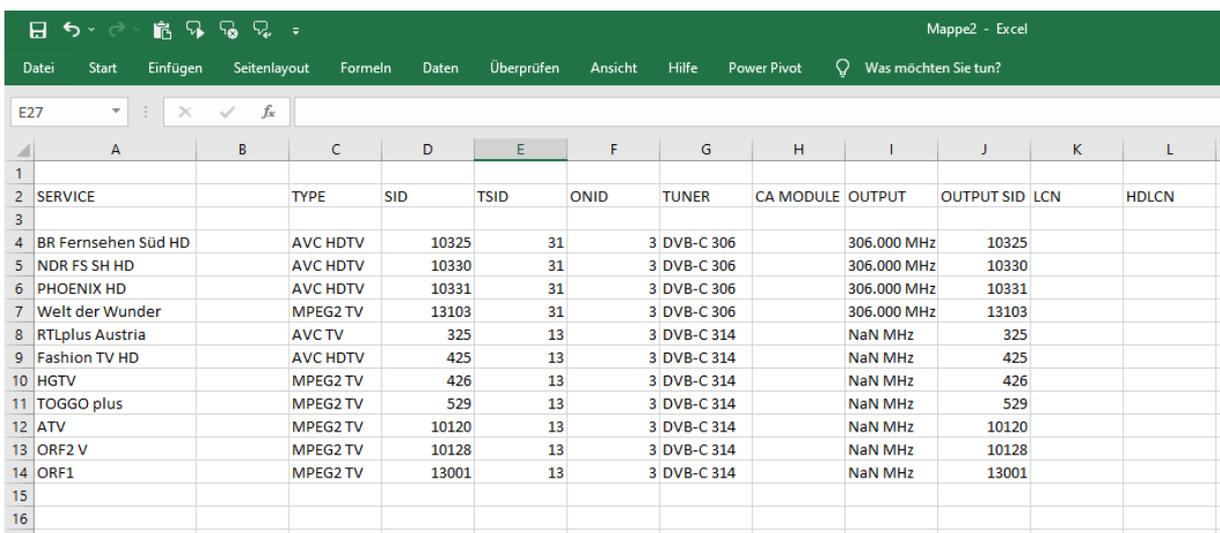
5.9.1 Export to Excel

The Export to excel is not available at the current software. But it is easy to copy the information from the Overview page.

Step 1. Mark the information in the overview and copy the information with Strg+C

SERVICE	TYPE	SID	TSID	ONID	TUNER	CA MODULE	OUTPUT	OUTPUT SID	LCN	HDLCN
BR Fernsehen Süd HD	AVC HDTV	10325	31	3	DVB-C 306		306.000 MHz	10325		
NDR FS SH HD	AVC HDTV	10330	31	3	DVB-C 306		306.000 MHz	10330		
PHOENIX HD	AVC HDTV	10331	31	3	DVB-C 306		306.000 MHz	10331		
Welt der Wunder	MPEG2 TV	13103	31	3	DVB-C 306		306.000 MHz	13103		
RTLplus Austria	AVC TV	325	13	3	DVB-C 314		NaN MHz	325		
Fashion TV HD	AVC HDTV	425	13	3	DVB-C 314		NaN MHz	425		
HGTV	MPEG2 TV	426	13	3	DVB-C 314		NaN MHz	426		
TOGGO plus	MPEG2 TV	529	13	3	DVB-C 314		NaN MHz	529		
ATV	MPEG2 TV	10120	13	3	DVB-C 314		NaN MHz	10120		
ORF2 V	MPEG2 TV	10128	13	3	DVB-C 314		NaN MHz	10128		
ORF1	MPEG2 TV	13001	13	3	DVB-C 314		NaN MHz	13001		
ProSieben Austria	MPEG2 TV	20002	13	3	DVB-C 314		NaN MHz	20002		
SAT.1 A	MPEG2 TV	20005	13	3	DVB-C 314		NaN MHz	20005		
ORF1 HD	AVC HDTV	4911	1007	1	DVB-S2 11303H 22000	CAM 1	NaN MHz	4911		

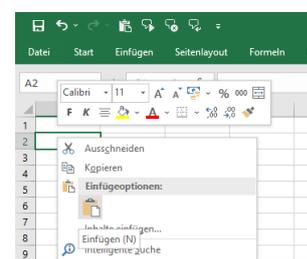
Step 2. Open a new Excel Sheet and paste the information with Strg (Ctrl)+V



	A	B	C	D	E	F	G	H	I	J	K	L
1												
2	SERVICE		TYPE	SID	TSID	ONID	TUNER	CA MODULE	OUTPUT	OUTPUT SID	LCN	HDLCN
3												
4	BR Fernsehen Süd HD		AVC HDTV	10325	31	3	DVB-C 306		306.000 MHz	10325		
5	NDR FS SH HD		AVC HDTV	10330	31	3	DVB-C 306		306.000 MHz	10330		
6	PHOENIX HD		AVC HDTV	10331	31	3	DVB-C 306		306.000 MHz	10331		
7	Welt der Wunder		MPEG2 TV	13103	31	3	DVB-C 306		306.000 MHz	13103		
8	RTLplus Austria		AVC TV	325	13	3	DVB-C 314		NaN MHz	325		
9	Fashion TV HD		AVC HDTV	425	13	3	DVB-C 314		NaN MHz	425		
10	HGTV		MPEG2 TV	426	13	3	DVB-C 314		NaN MHz	426		
11	TOGGO plus		MPEG2 TV	529	13	3	DVB-C 314		NaN MHz	529		
12	ATV		MPEG2 TV	10120	13	3	DVB-C 314		NaN MHz	10120		
13	ORF2 V		MPEG2 TV	10128	13	3	DVB-C 314		NaN MHz	10128		
14	ORF1		MPEG2 TV	13001	13	3	DVB-C 314		NaN MHz	13001		
15												
16												

Note:

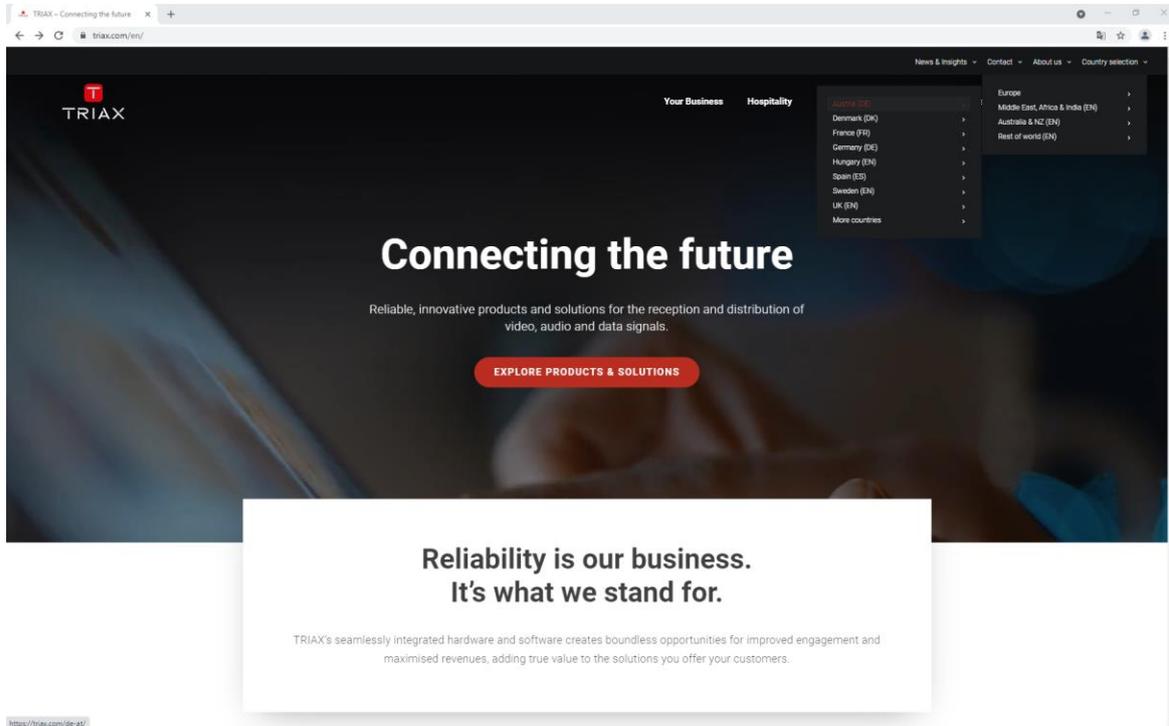
To past the information into the excel please use the function only Text so that no format is taken over.



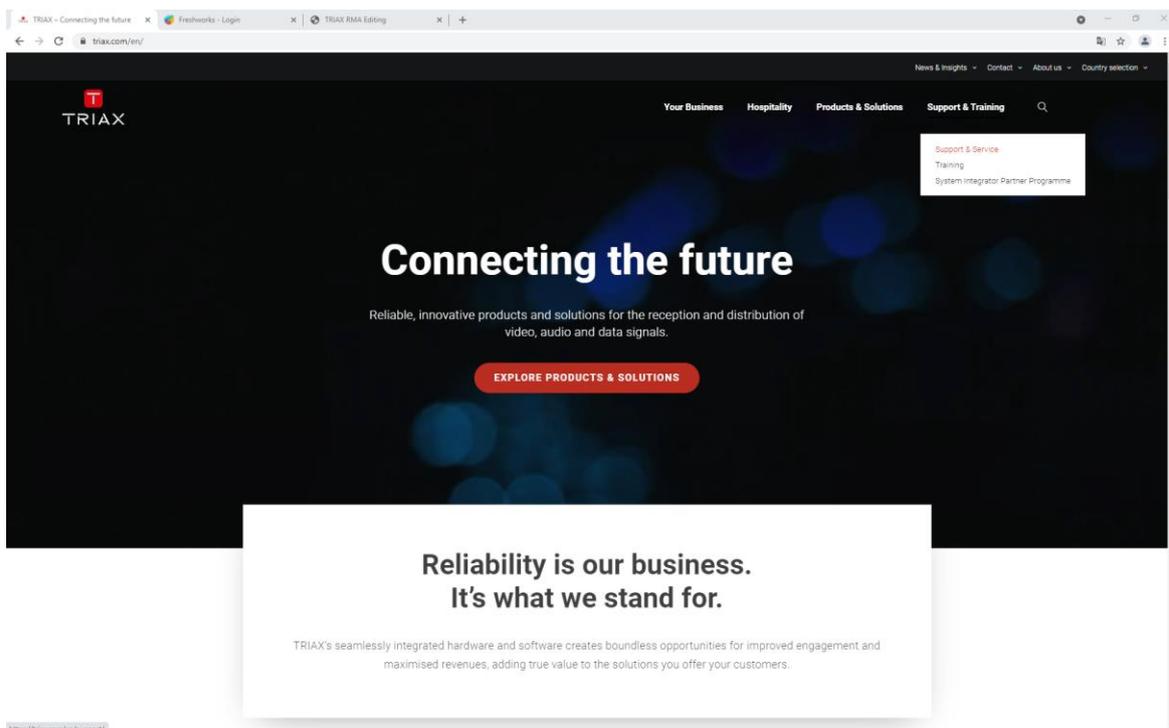
6 Support

Support information in your language will be found on our country sites.

Go to www.triax.com and select your country.



Below the Support & Training menu you will find additional help and support information.



7 Terms and Abbreviations

Term	Explanation
TBA	To Be Added
TBD	To Be Determined
PID	Packet Identification; According to standard ISO 13818-1
SID	Service Identification; According to standard ISO 13818-1
TSID	Transport Stream Identification
NIT	Network Identification Table; According to standard ETSI EN 300 468
NID	Network Identification used in NIT; According to standard ETSI EN 300 468
ONID	Original Network Identification used in NIT; According to standard ETSI EN 300 468
STB	Set Top Box; DVB receiver that is connected to a TV set
Receiver	A device that receives a signal from a headend. An example could be a TV-set or a STB.
end-user	A person that uses a TV or receiver.
Installer	A person that installs, deploys and maintains the headend system
i/f	Interface
TS	Transport Stream; According to standard ISO 13818-1
ES	Elementary Stream; According to standard ISO 13818-1
Service	According to ETSI EN 300 468