TRIAX
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User Manual

TDcH – Compact Headend

Article		Article no.
TDcH 16S-I-Q	Compact Headnend	492780
TDcH 16S-I		492781
TDcH 22STC-I		492782
TDcH 16S-Q		492790

Version	V1.2	Date	2021/7	EN

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Content

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 of 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

3 TDcH Compact Headend

3.1 Packing contents

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

3.2 Technical data

3.2.1 TDcH 16S-I-Q (492780)

Interfaces

Satellite inputs	4 x F connectors 75 Ω 400 mA per input LNB power feed
RF out	1 x F connector 75 Ω
HF measuring output	1 x F connector 75 Ω -20 dB
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

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

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	

CI interfaces

Supported CAM vendors	Aston, Neotion, SMARDTV, SMiT
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

QAM output

Frequency range	306 – 862 MHz
Channels	S 21 – C 69
Channel settings	16 channels in a row, single channel can be switched off
Modulation scheme	QAM 16, 32, 64, 128, 256
Output level range	85 – 95 dBµV
Dynamic phase error	< 0.3
MER	> 43 dB
Return loss	> 10dB
Symbol rate	3.5 – 7.2 MS/s

General

Mains supply	100 - 264 V AC, 50/60 Hz
Ground connection	Ground clamp
Power consumption	typ. 35W, 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

3.2.2 TDcH 16S-Q (492790)

Interfaces

Satellite inputs	4 x F connectors 75 Ω 400 mA per input LNB power feed
RF out	1 x F connector 75 Ω

HF measuring output	1 x F connector 75 Ω -20 dB
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
USB	USB 2.0 Type A conn (Data transfer, additional storage,…) not supported with current software release

DVB-S2X input

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
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

QAM output

Frequency range	306 – 862 MHz
Channels	S 21 – C 69
Channel settings	16 channels in a row, single channel can be switched off
Modulation scheme	QAM 16, 32, 64, 128, 256
Output level range	85 – 95 dBµV
Dynamic phase error	< 0.3
MER	> 43 dB
Return loss	> 10dB
Symbol rate	3.5 – 7.2 MS/s

General

Mains supply	100 - 264 V AC, 50/60 Hz
Ground connection	Ground clamp
Power consumption	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	3,4 kg

3.2.3 TDcH 16S-I (492781)

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 with 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
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

CI interfaces

Supported CAM vendors	Aston, Neotion, SMARDTV, SMiT
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 75 Ω
HF measuring output	1 x F connector 75 Ω -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

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

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

General

Mains supply	100 - 264 V AC, 50/60 Hz
Ground connection	Ground clamp
Power consumption	typ. 35W, 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

3.2.4 TDcH 22STC-I (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 with 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	
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
FFT modes	1k, 2k, 4k, 8k, 16k, 32k
Channel bandwidth:	6/7/8 MHz
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, SMiT
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 75 Ω
HF measuring output	1 x F connector 75 Ω -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

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

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

General

Mains supply	100 - 264 V AC, 50/60 Hz
Ground connection	Ground clamp
Power consumption	typ. 50W, 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

3.3 Description

TDcH compact Headend supports dependent from the version DVB-S/S2, DVB-T/T2 and DVB-C conversion to QAM or 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.

3.3.1 Features

4 x SAT IF inputs
- Integrated multi switch
- 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

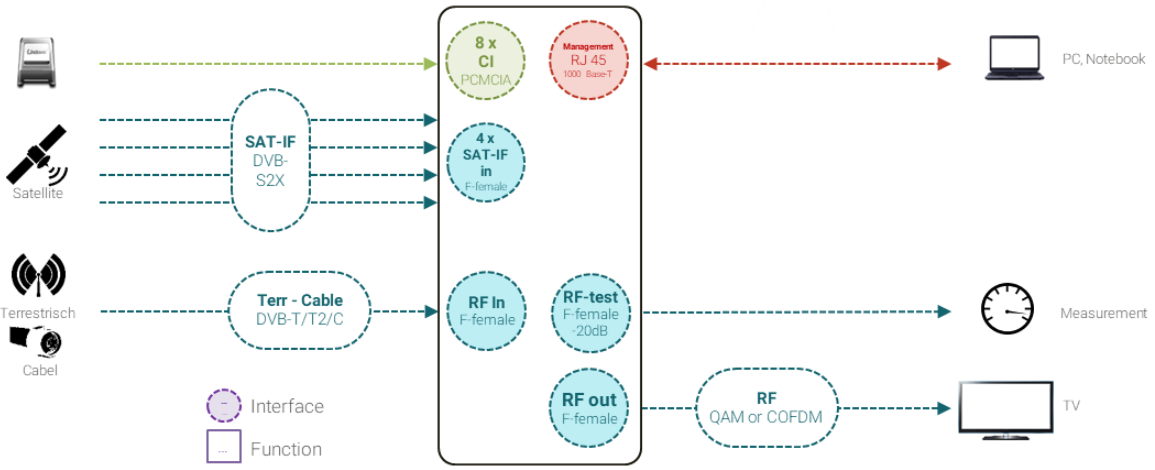
EPG management
- EPG handling to manage the amount of EPG-data distributed in a output transponder

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

3.3.2 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

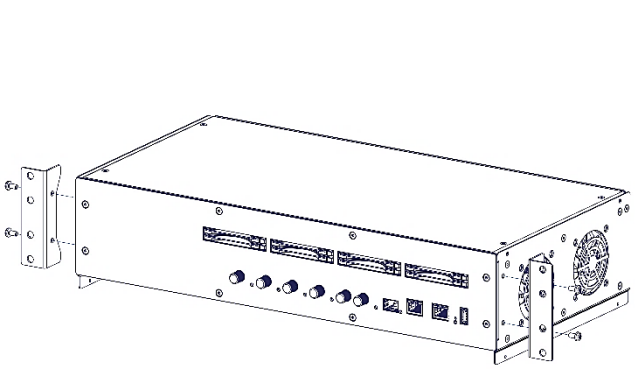
4 Mounting the TDcH rack

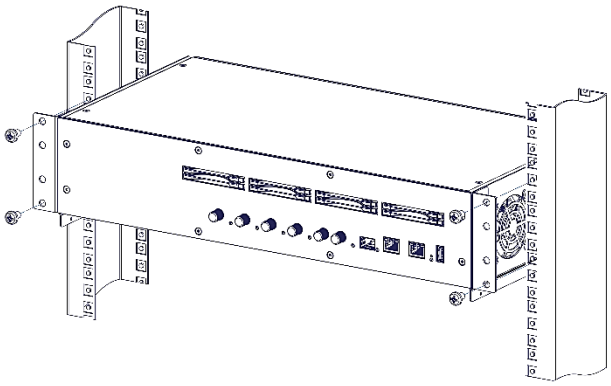
4.1 Installing the device

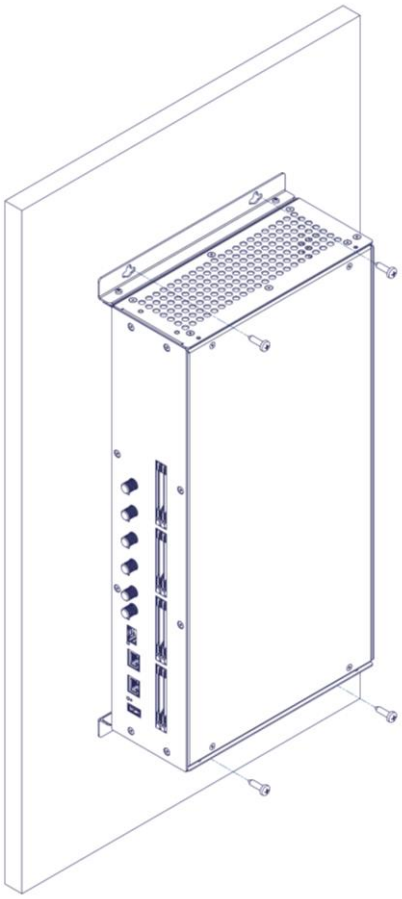
The TDcH can be mounted in a 19” rack or wall mounted in any direction needed.

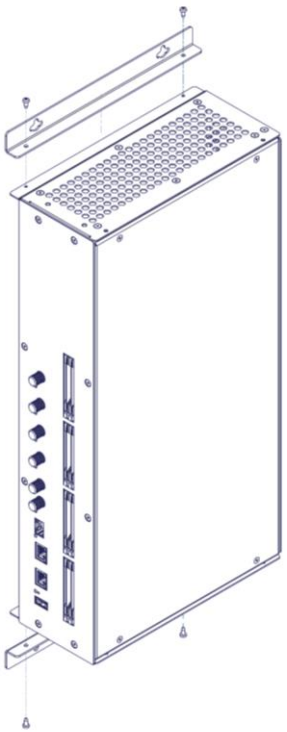
Ensure that the TDcH is correctly grounded, according to applicable national regulations.

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!







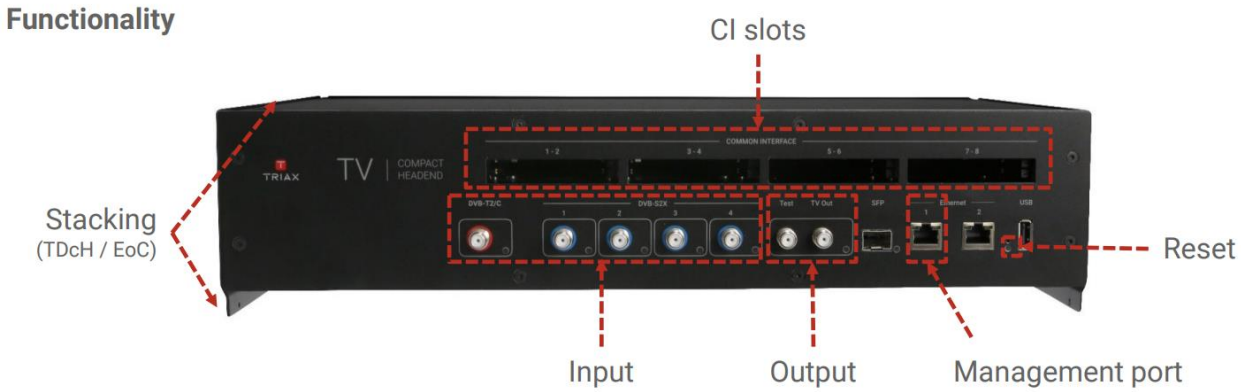


Potential equalisation:

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

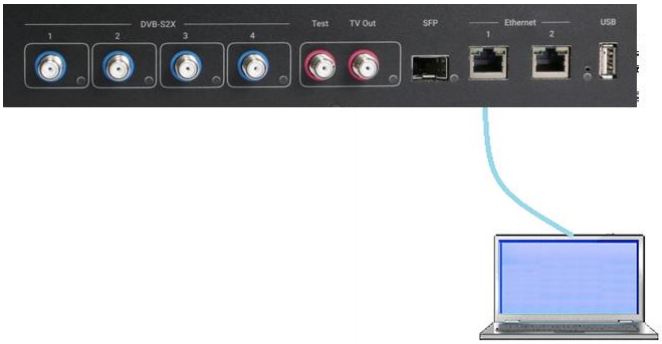
5.1 Installation

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.

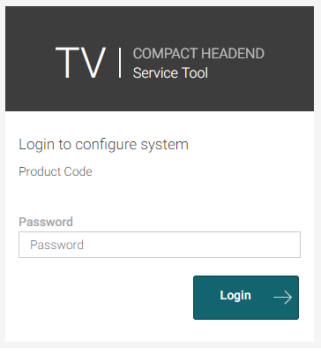


Note:
Please use Ethernet port 1 to connect your PC to the headend

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 DCHP.

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 = **triax1234** 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):	SW update under process

Steady green: System is up running OK

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

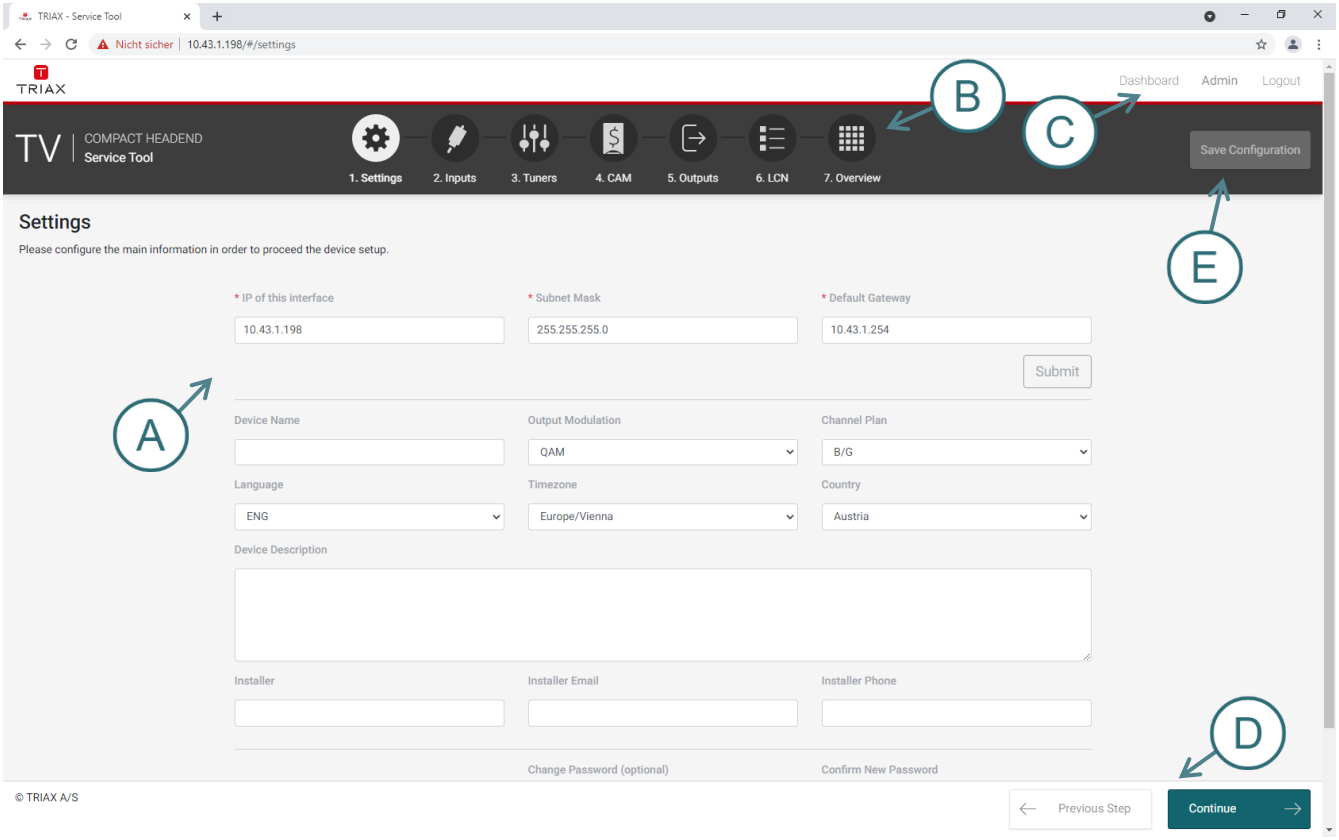
Note:
Please note that the status LED on the Inputs and TV-out is not supported in current software version.

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)

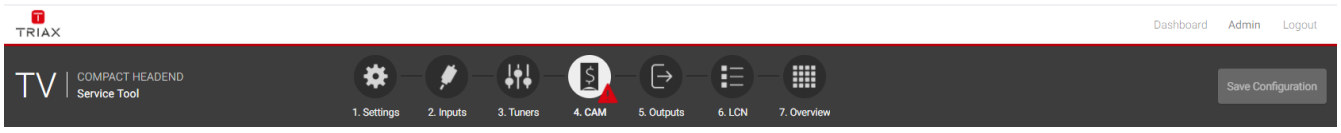


A. Information window
B. Navigation bar
C. Administrator and Dashboard menu
D. Installation wizard function to continue or go one step back
E. Save Configuration

When logged in, you will be met by 7 panes

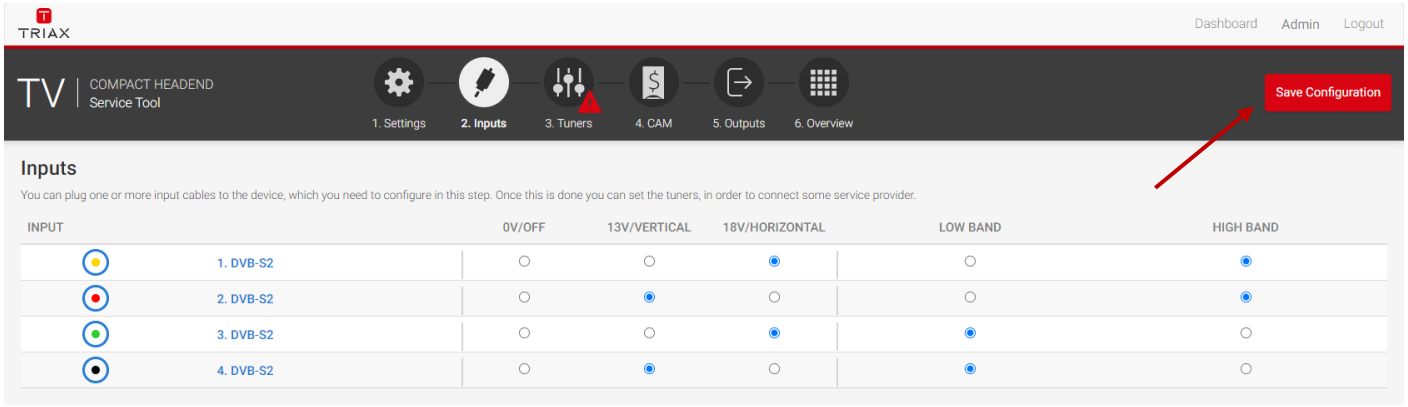
1. Settings — basic settings of the system (TDcH setup)
2. Inputs — assign input cables to available tuners
3. Tuners — configure to desired provider and services
4. CAM — assign services to CAMs
5. Outputs — assign services to outputs
6. LCN — assign services to required LCN number and configure the 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.

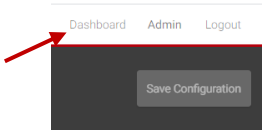
Click the “Save Configuration” button to save the changes. When changes have been saved, the “Save Configuration” button loses the red colour.

5.2.3 Admin options

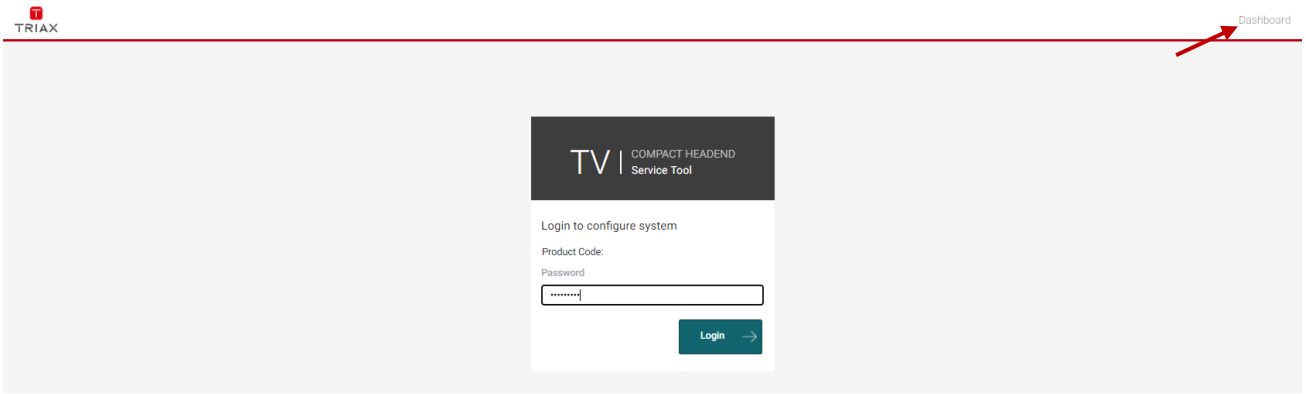
At the top right you can switch between the Dashboard and the Configuration. Enter the Admin menu or Logout.

5.2.4 Dashboard

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

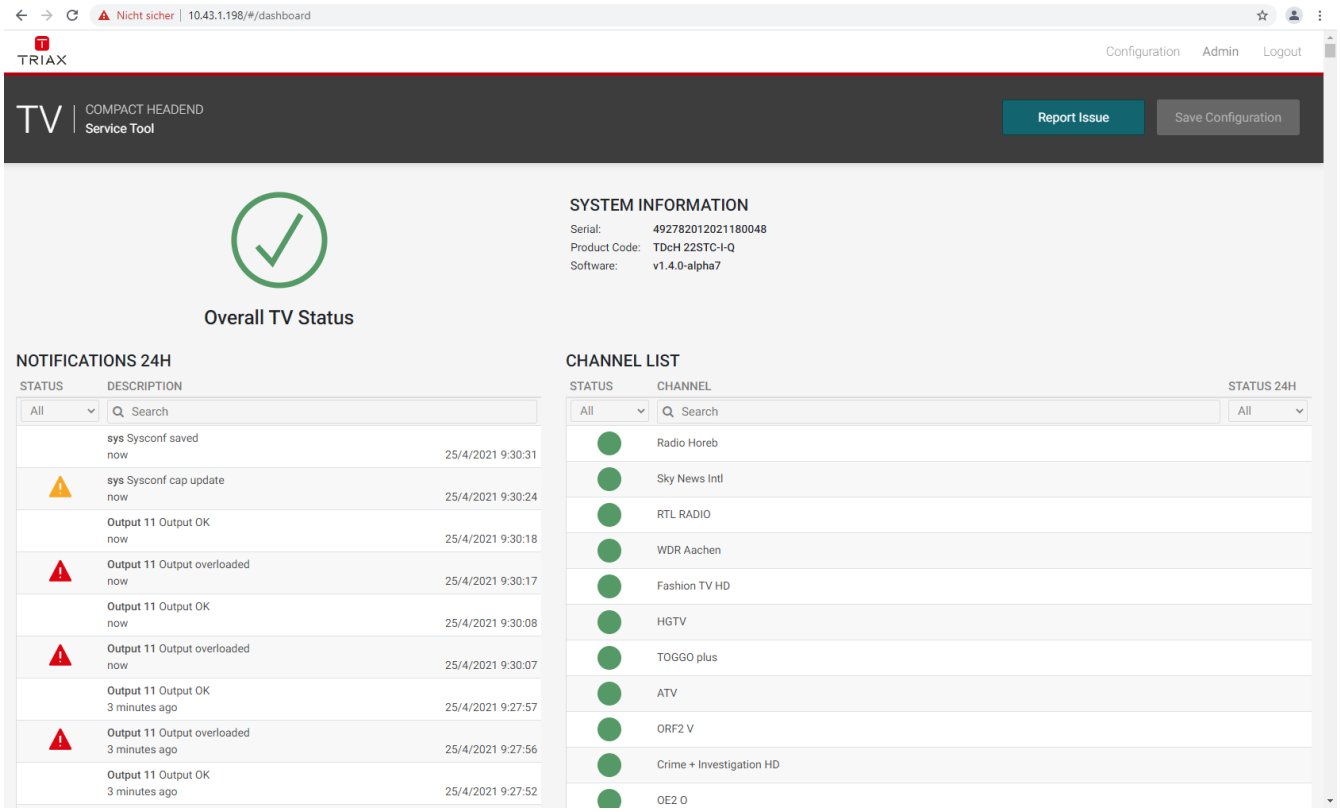


- One possibility is to open the Dashboard when you are logged in to the system by pressing the Dashboard in the Administrator menu.
- Or you can open the Dashboard from the login page.

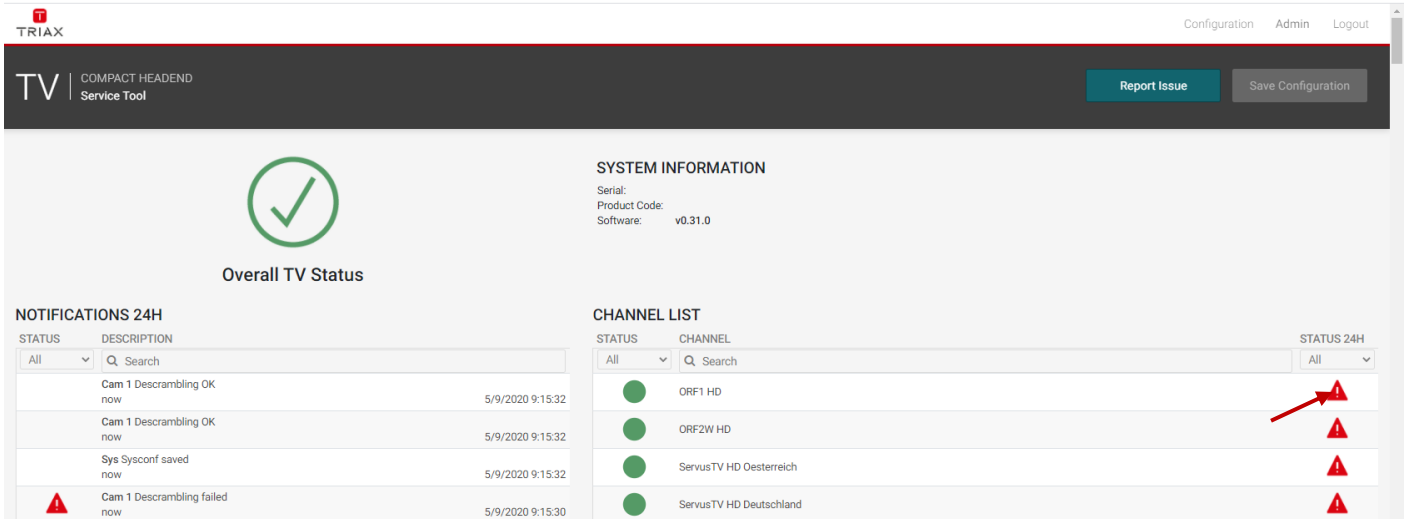


Note:
For the Dashboard, it is not required to log in and to know the password.
This Dashboard is also for hotel employees to give an overview during a failure analysis or report an issue to the installer.

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.



5.2.5 Channel Status Details

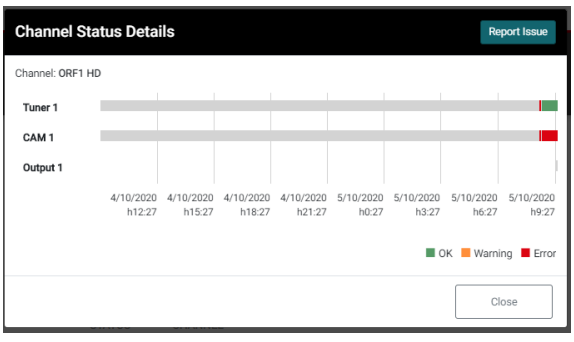


When you are in the Dashboard mode and click on the error indication on the right side, a Channel Status Details window will pop up.

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

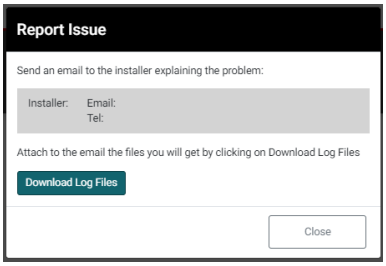
The window also shows where the failure has occurred, such as the tuner, CAM or output.

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



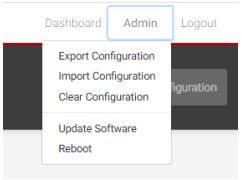
5.2.6 Report Issue:

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.



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.



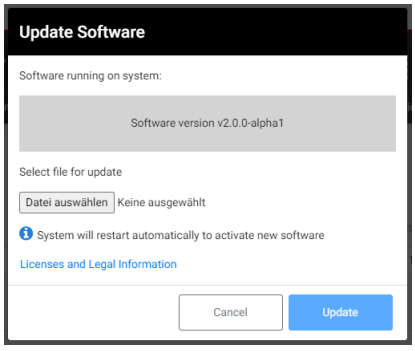
Export Configuration

Note:
The configuration file is not human readable!

Clear Configuration

Note:
The function “Clear Configuration” will set the delete the configuration, set the IP address to the default IP address and also set the password to the default password!

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

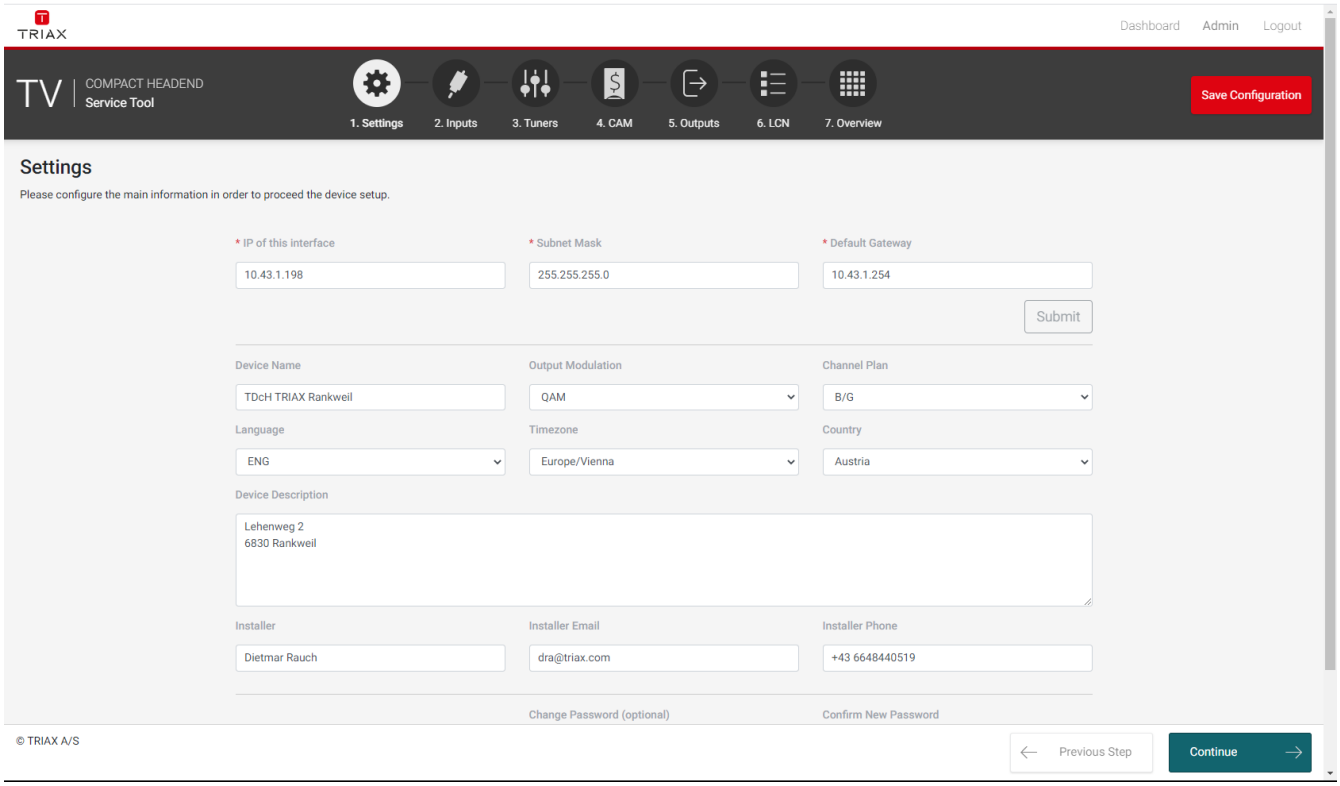


Reboot

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 IP address of this interface:

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

It may be necessary to specify 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.

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 Subnet Mask

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

5.3.4 Default Gateway

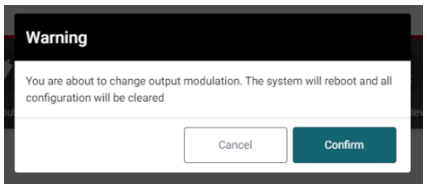
This is the Default Gateway in the network the Management Port is connected to.

5.3.5 Device Name:

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

5.3.6 Output Modulation

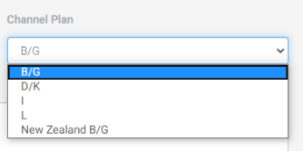
The TDcH versions TDcH 16S-I and TDcH 22STC-I supports QAM and COFDM modulation. With this menu it is possible to switch between the QAM and COFDM output modulation.



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

5.3.7 Channel Plan

Klick 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

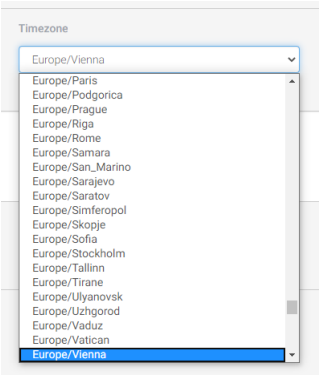
CH24	498,00	CH24	498,00	CH24	498,00	CH24	498,00	CH45	666,00
CH25	506,00	CH25	506,00	CH25	506,00	CH25	506,00	CH46	674,00
CH26	514,00	CH26	514,00	CH26	514,00	CH26	514,00	CH47	682,00
CH27	522,00	CH27	522,00	CH27	522,00	CH27	522,00	CH48	690,00
CH28	530,00	CH28	530,00	CH28	530,00	CH28	530,00	CH49	698,00
CH29	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
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 ups 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 the headend is installed.

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

5.3.11 Device Description

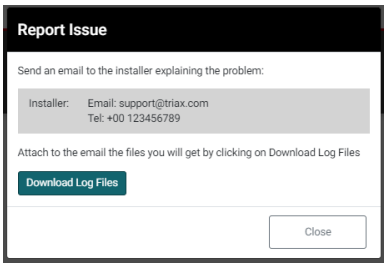
Text field for project description and notes.

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.

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.

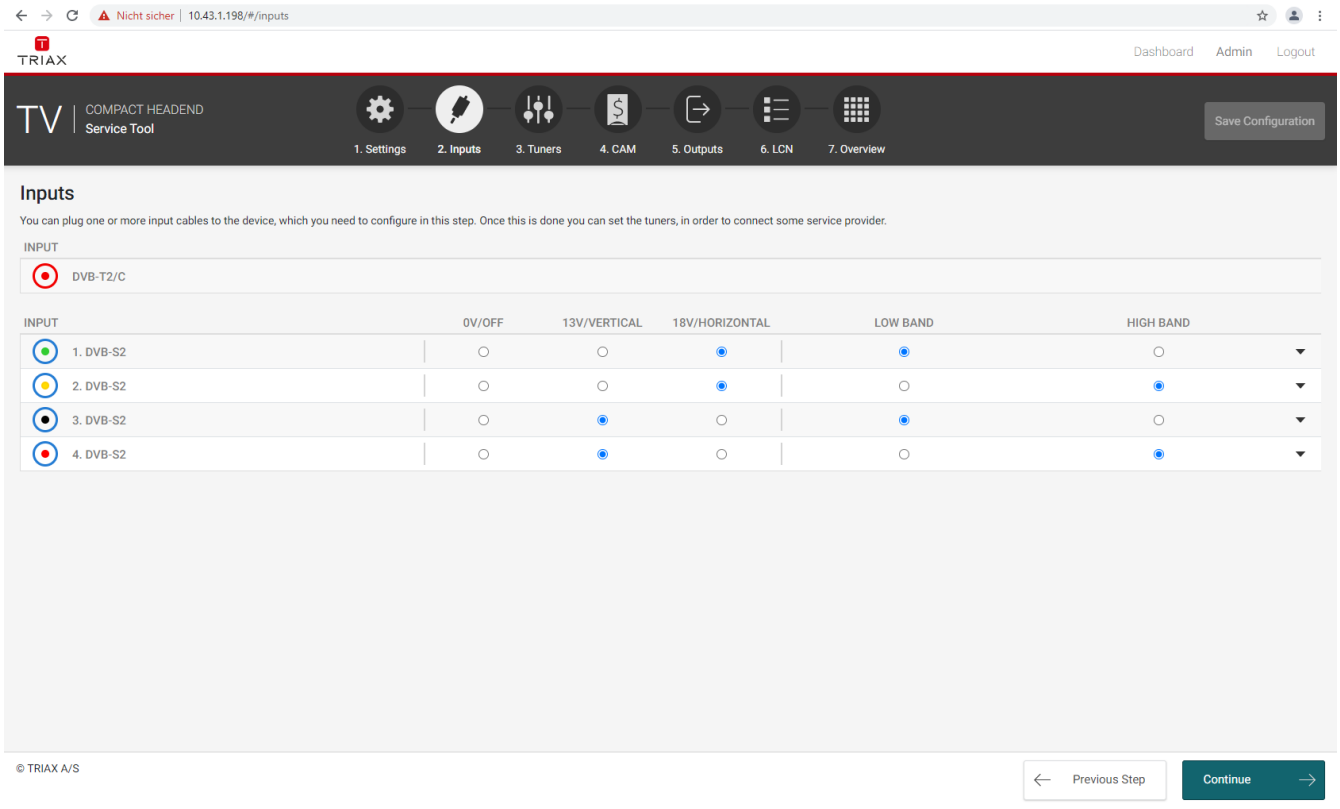
Note:
The Input has a LED indicator. The LED indicator is not supported in the current software release.

5.4.2 DVB-S2X inputs

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

Note:
The Inputs has a 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.



Select the required parameters for each DVB-S2X input:

13/18V	for Vertical or Horizontal polarisation
LOW/HIGH	for the Band

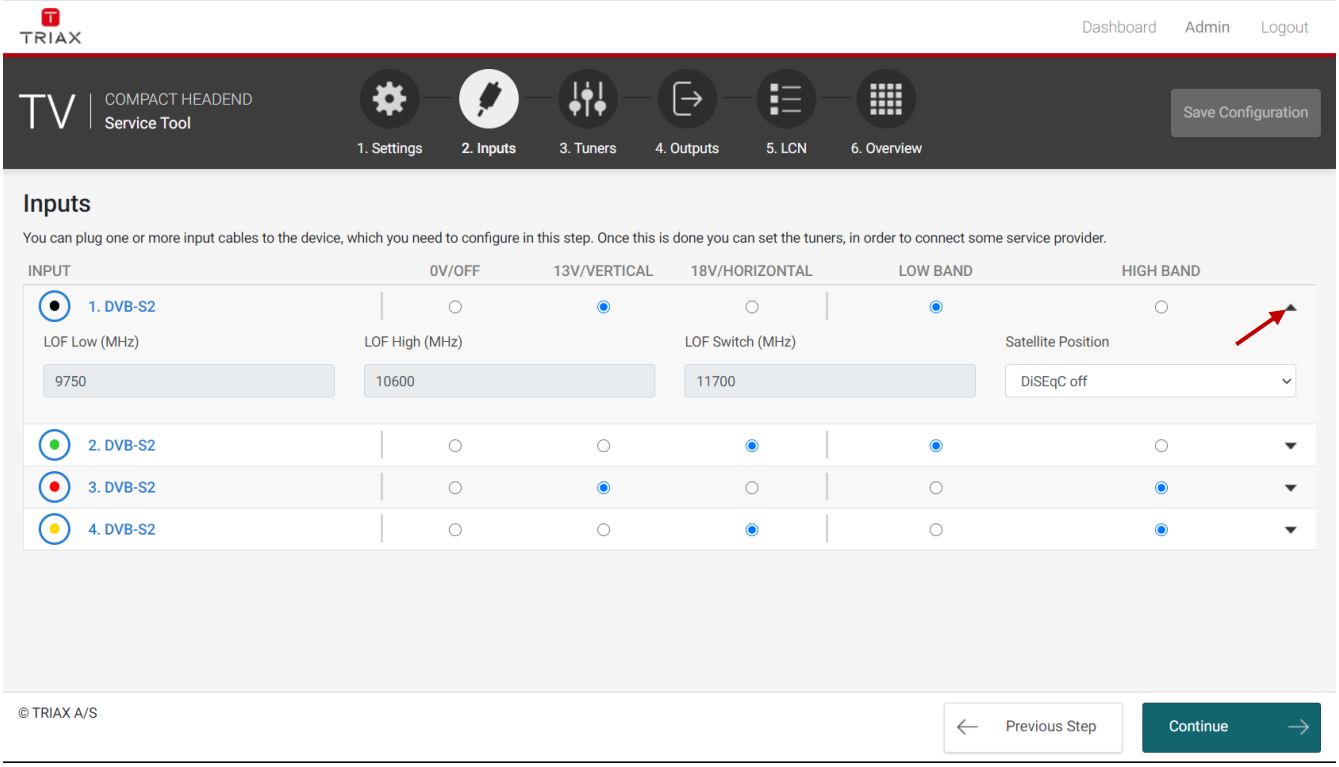
Note:
The input colour shows the setting following the same colour codes TRIAX uses on LNBs and multiswitches.

Yellow: Horizontal, High Band

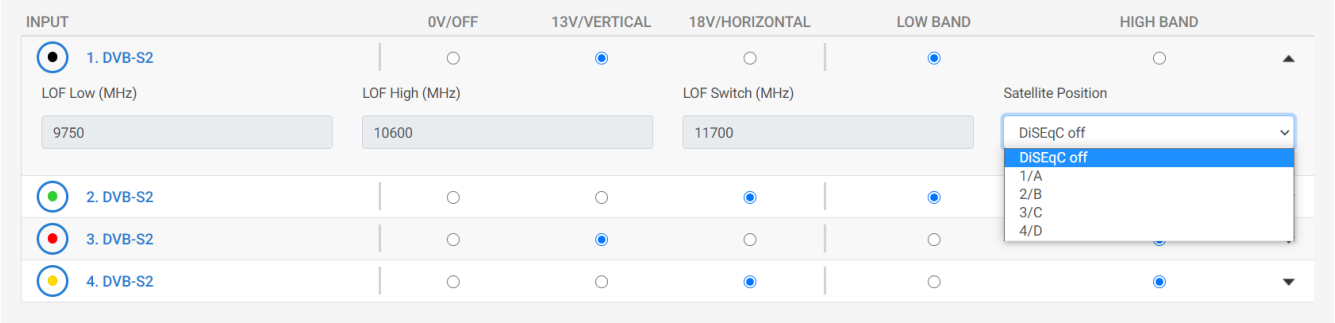
Red: Vertical, High Band

Green: Horizontal, Low Band

Black: Vertical, Low Band



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



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

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

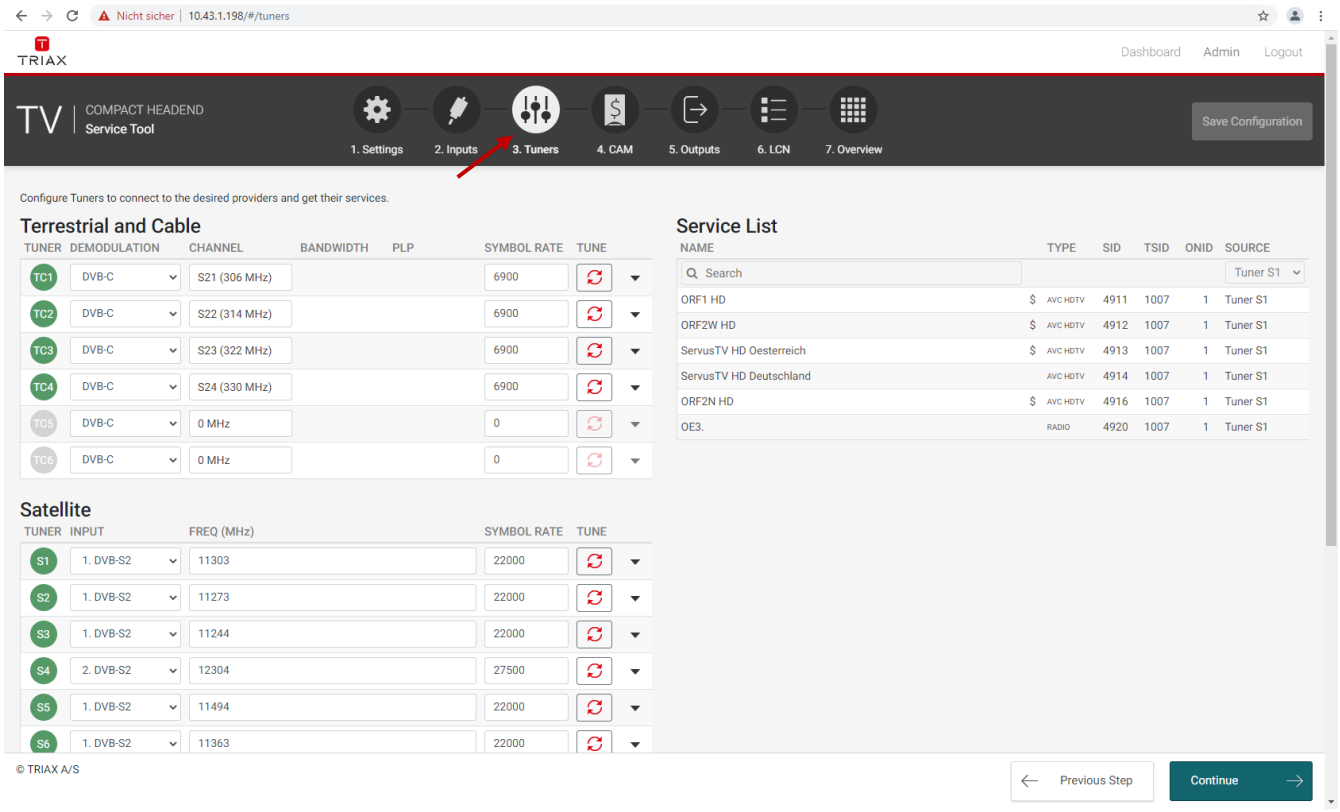
LOF Low: Local Oscillator Frequency for the low band Frequencies

LOF High: Local Oscillator Frequency for the high band Frequencies

LOF Switch: Border frequency between low and high band

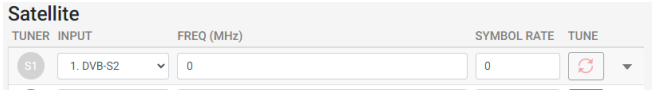
5.5 Tuners

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

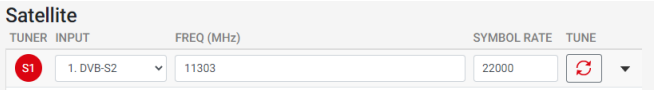


The “Tuner” folder shows all input tuners. The colour of the tuner number shows the status of each tuner.

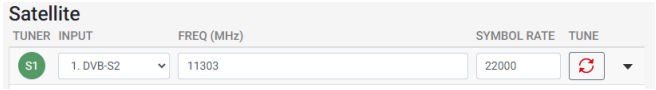
Grey: Tuner is not used



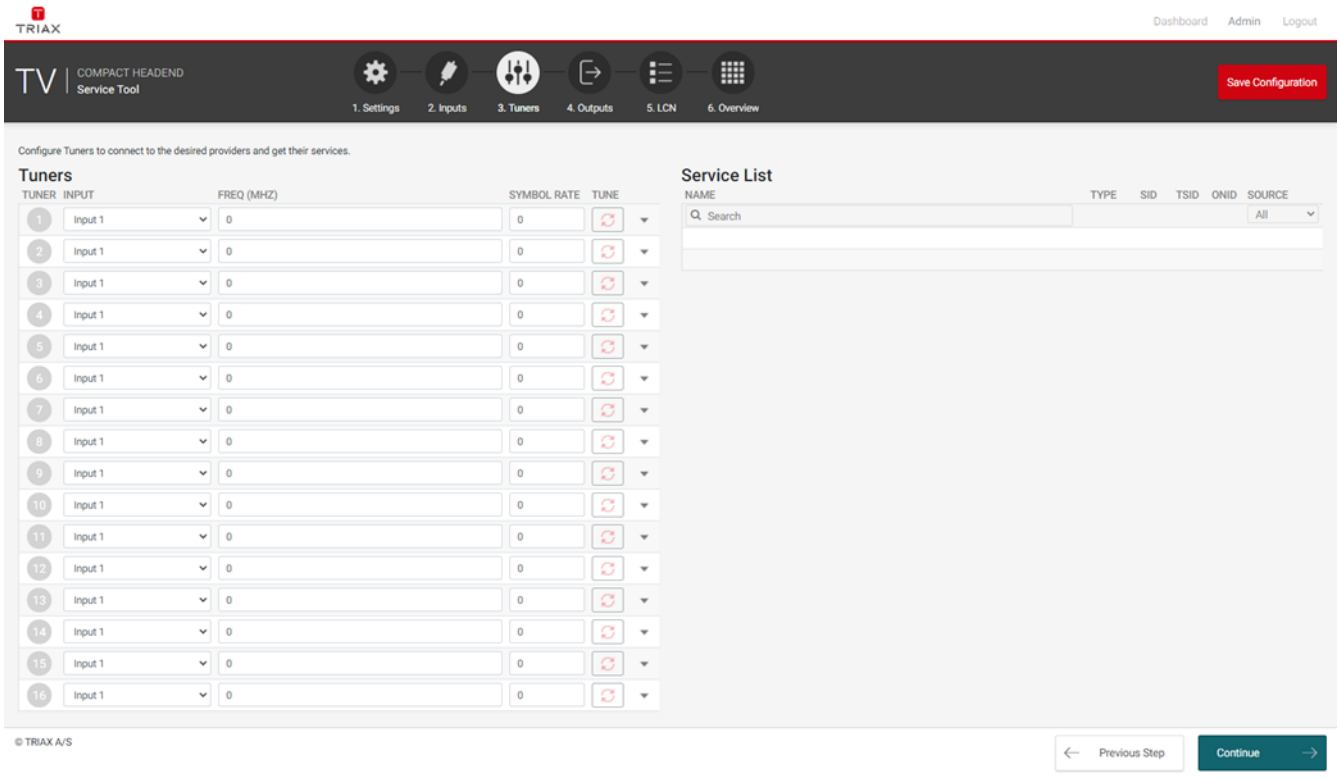
Red: Tuner is not set up correctly or input signal is missing.



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.

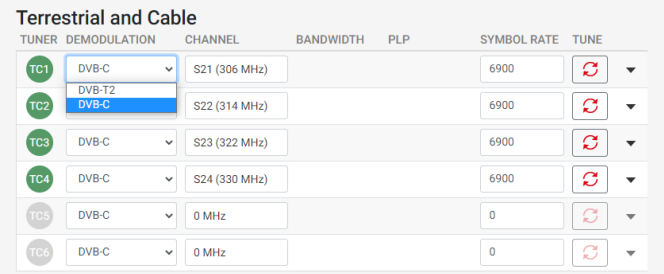


5.5.1 Terrestrial and Cable tuner setup

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

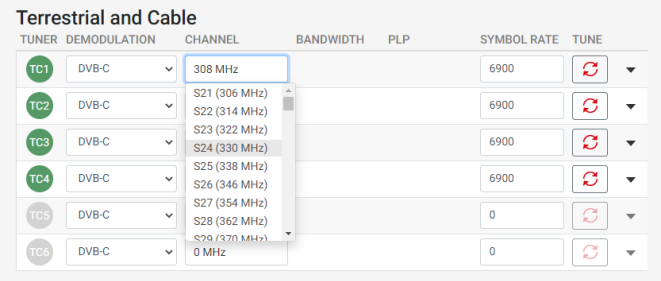
To set up a tuner you have to follow the following steps:

1. Select the “Demodulation”:

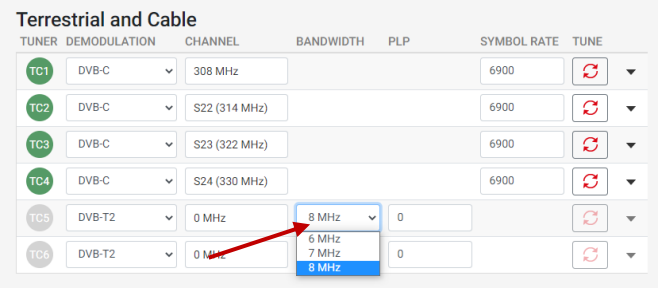


- To select the required demodulation, click on the demodulation field to open the drop-down list with demodulations you can choose from.
- Select the demodulation you want to use.

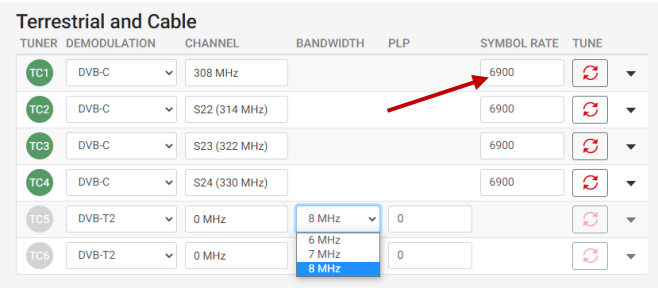
2. Enter the desired frequency in MHz in the channel field or select the corresponding channel from the dropdown list:



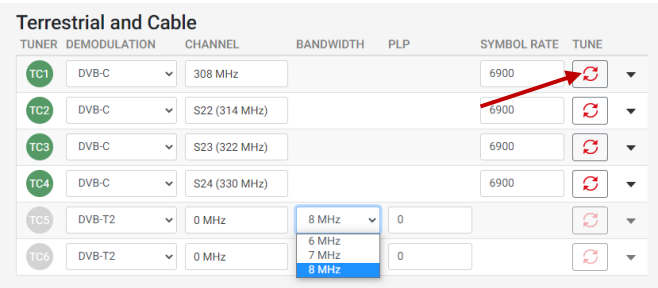
3. If the tuner is used as DVB-T/T2 than please select the required cannel bandwidth and PLP number:



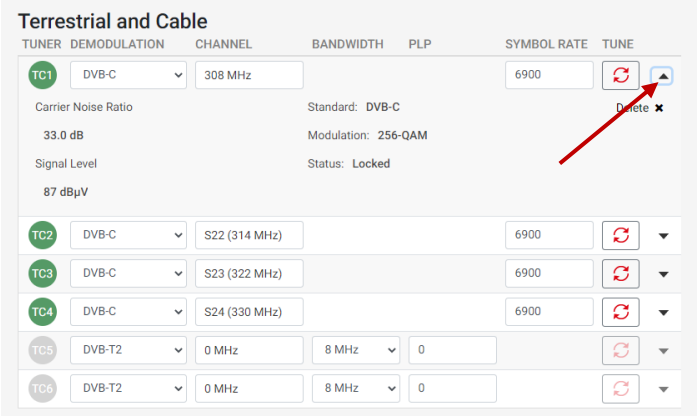
4. If the tuner is used as DVB-C than please select the required symbol rate:



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



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



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

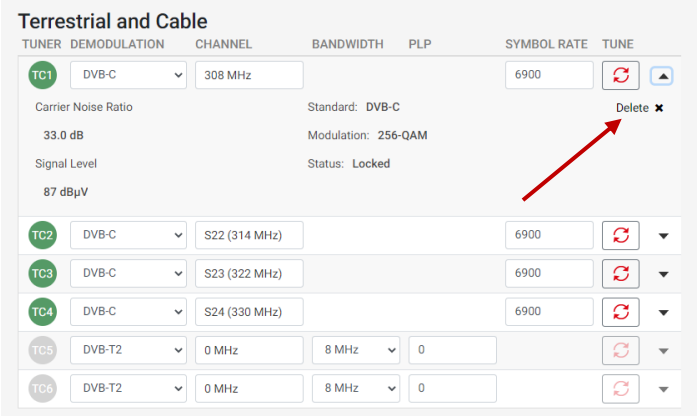
Signal Level: Displays the actual signal Level

Standard: Shows the standard of the input signal

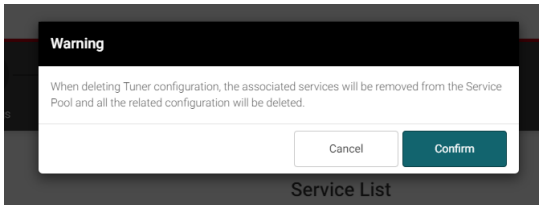
Modulation: Shows the modulation of the input signal

Status: shows the status of the tuner

To delete the tuner input, press the “Delete **x**” – a warning will appear:



A warning will appear:



5.5.2 Satellite tuner setup

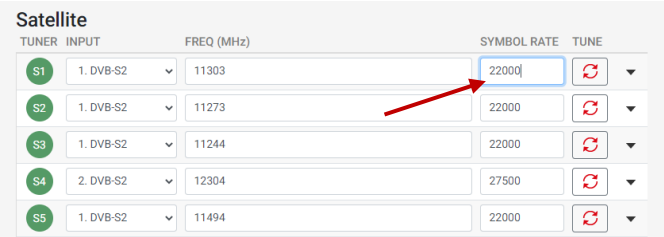
To set up a satellite tuner you have to follow the following steps:

6. Select the “Input”:

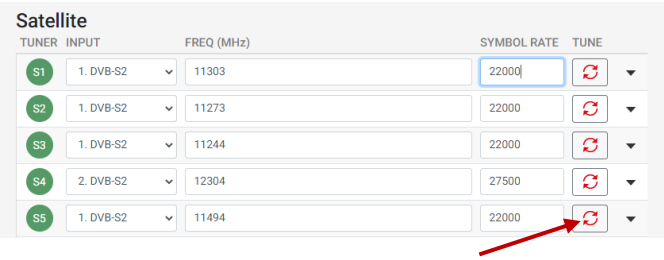
- To select the required input / SAT-IF signal, click on the input field to open the drop-down list with the inputs you can choose from.
- Select the input you want to use.

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

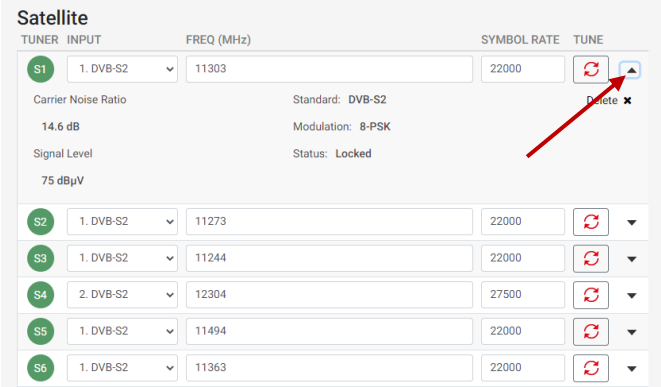
8. Enter the desired symbol rate:



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



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



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

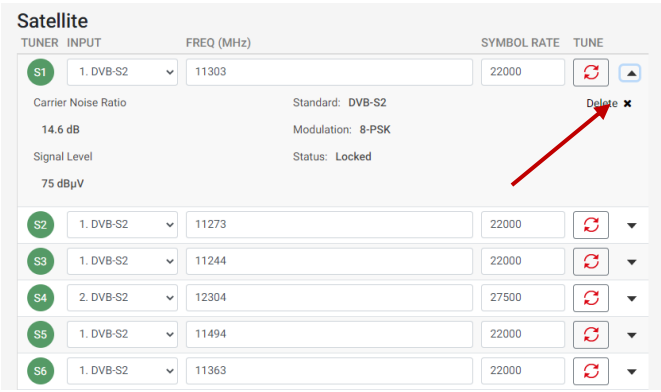
Signal Level: Displays the actual signal Level

Standard: Shows the standard of the input signal

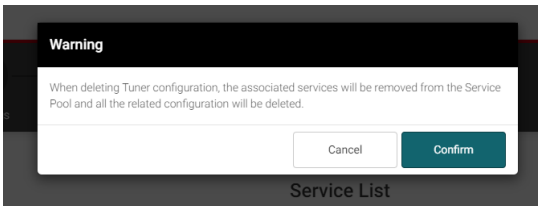
Modulation: Shows the modulation of the input signal

Status: shows the status of the tuner

To delete the tuner input, press the “Delete **x**” – a warning will appear:



A warning will appear:

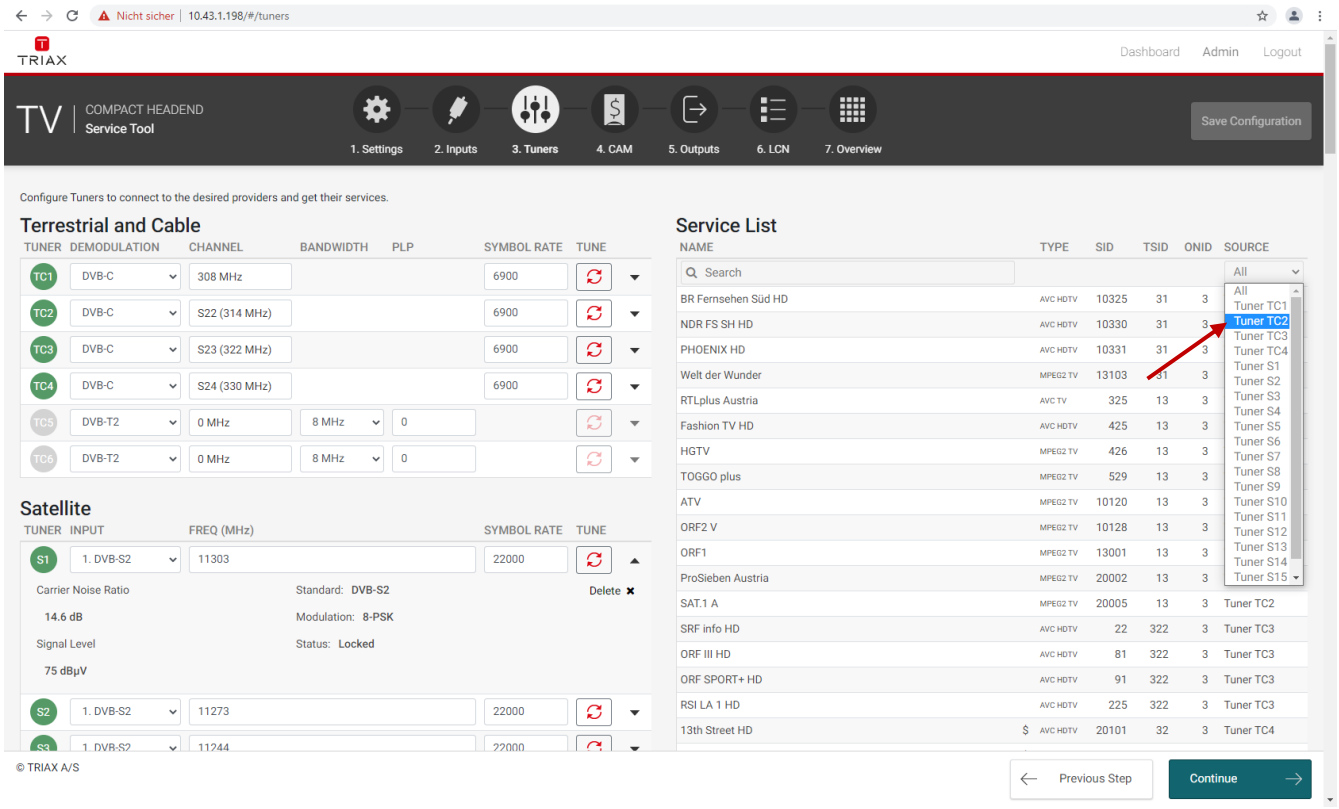


5.5.3 Service List:

Select at the source filed the tuner number to see available streams with name, type, SID, TSID and ONID:

First Click → sort ricing

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

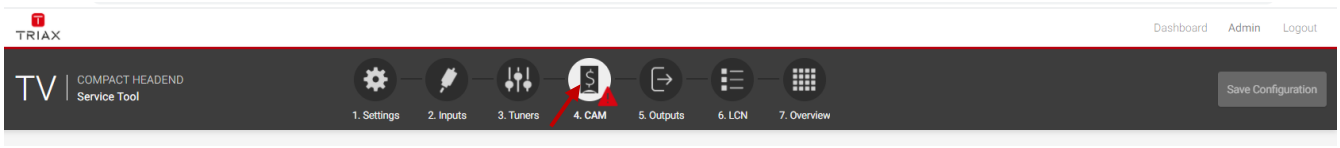
ONID: Original Network Identifier

Source: Tuner number the service is received

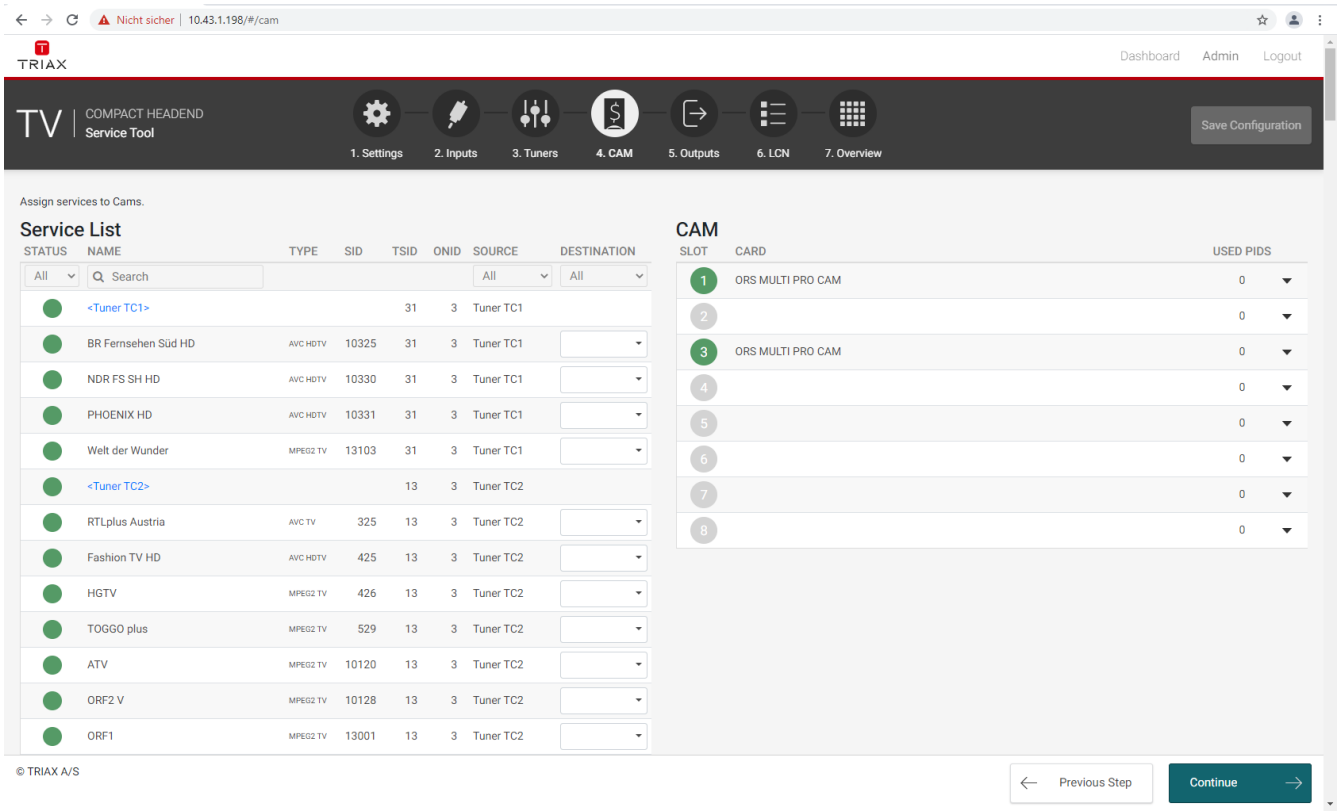
5.6 CAM

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.

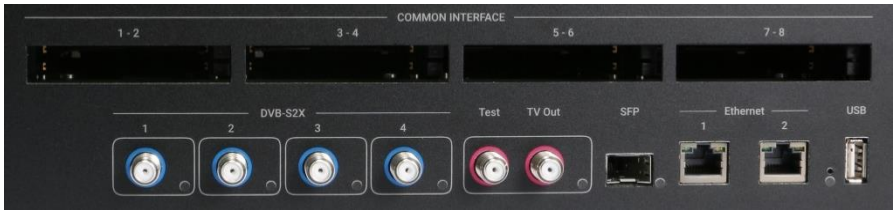


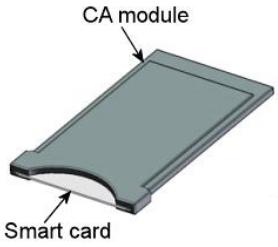
The first time you display the CAM window in a new configuration the module list only displays the number and type of the CA modules that you have inserted in the TDcH.



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



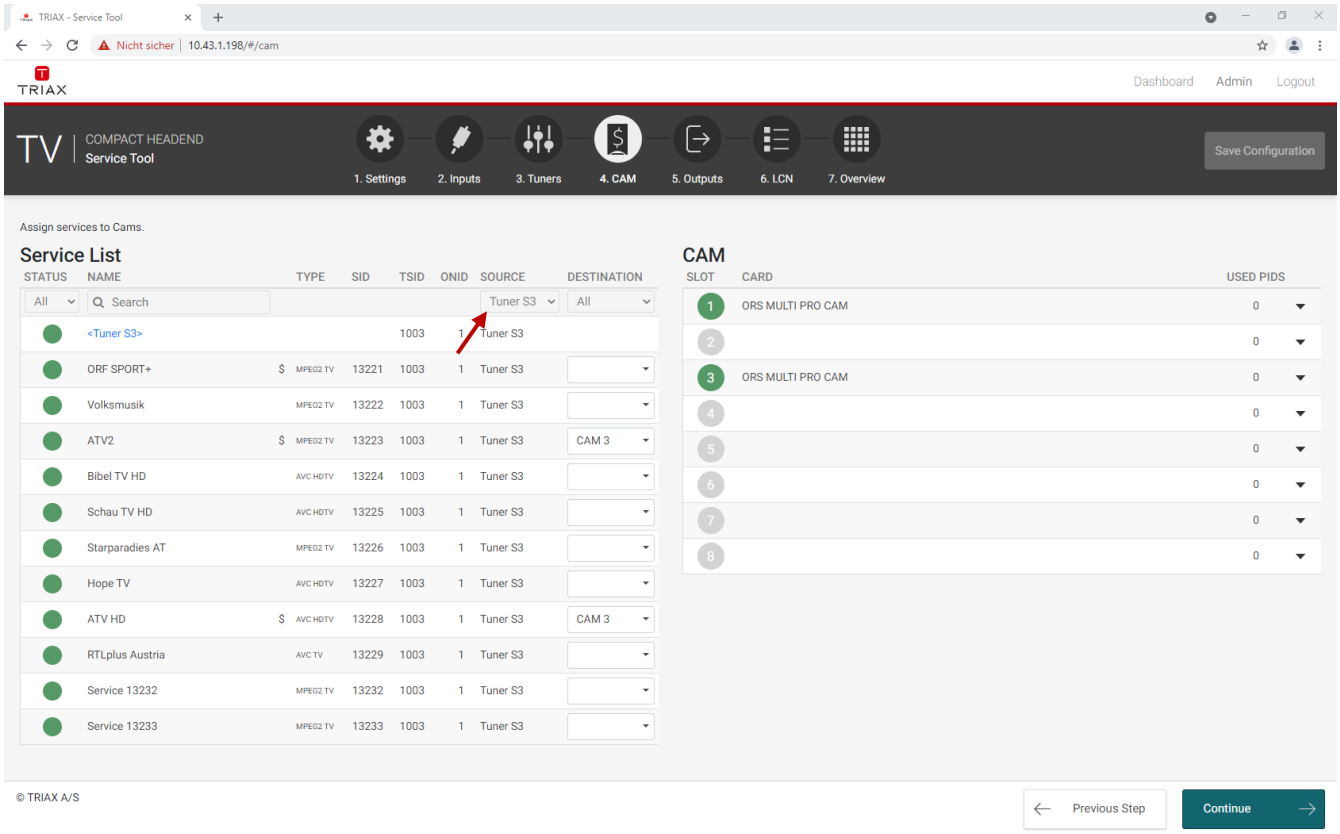


You can insert 8 Conditional Access Modules (CAM) into a TDcH compact Headend

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.

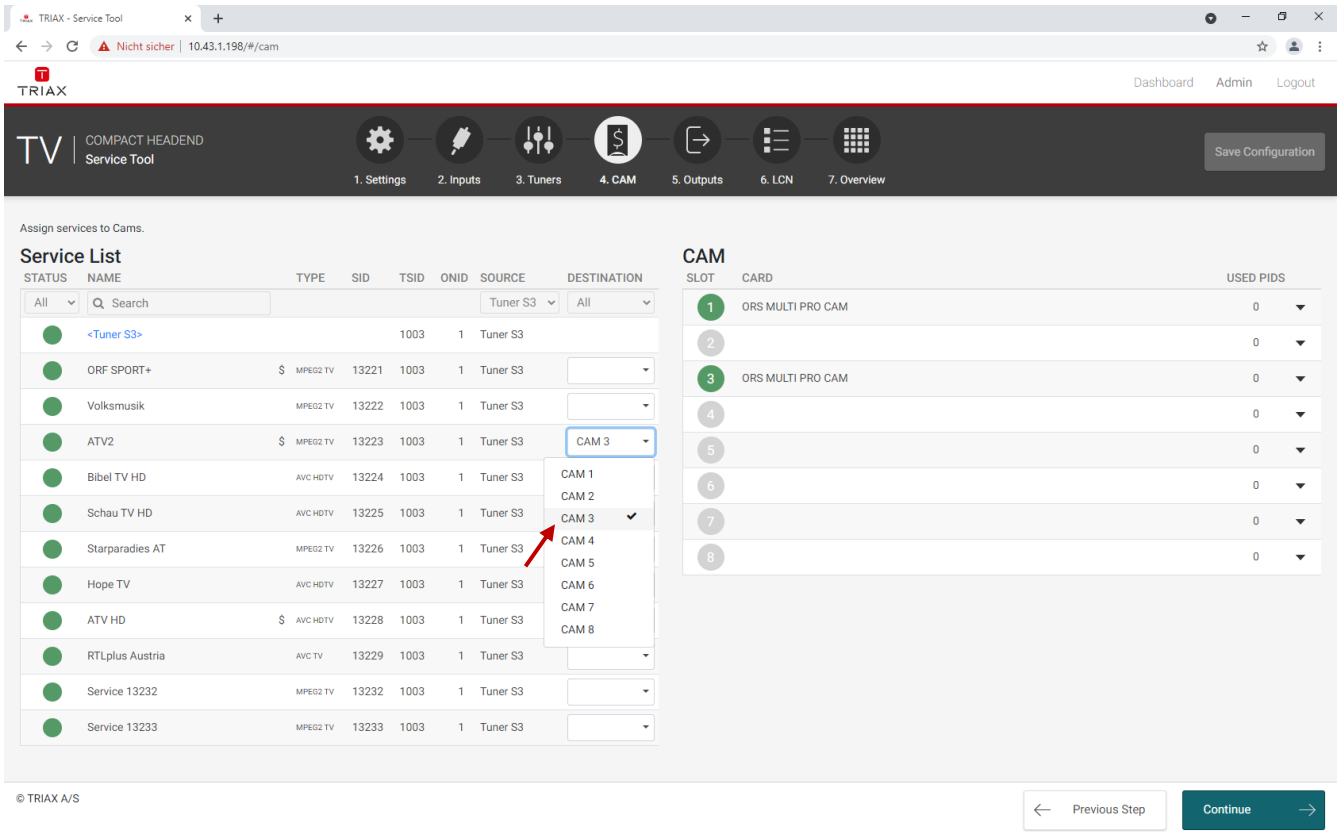
5.6.2 CAM configuration

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.

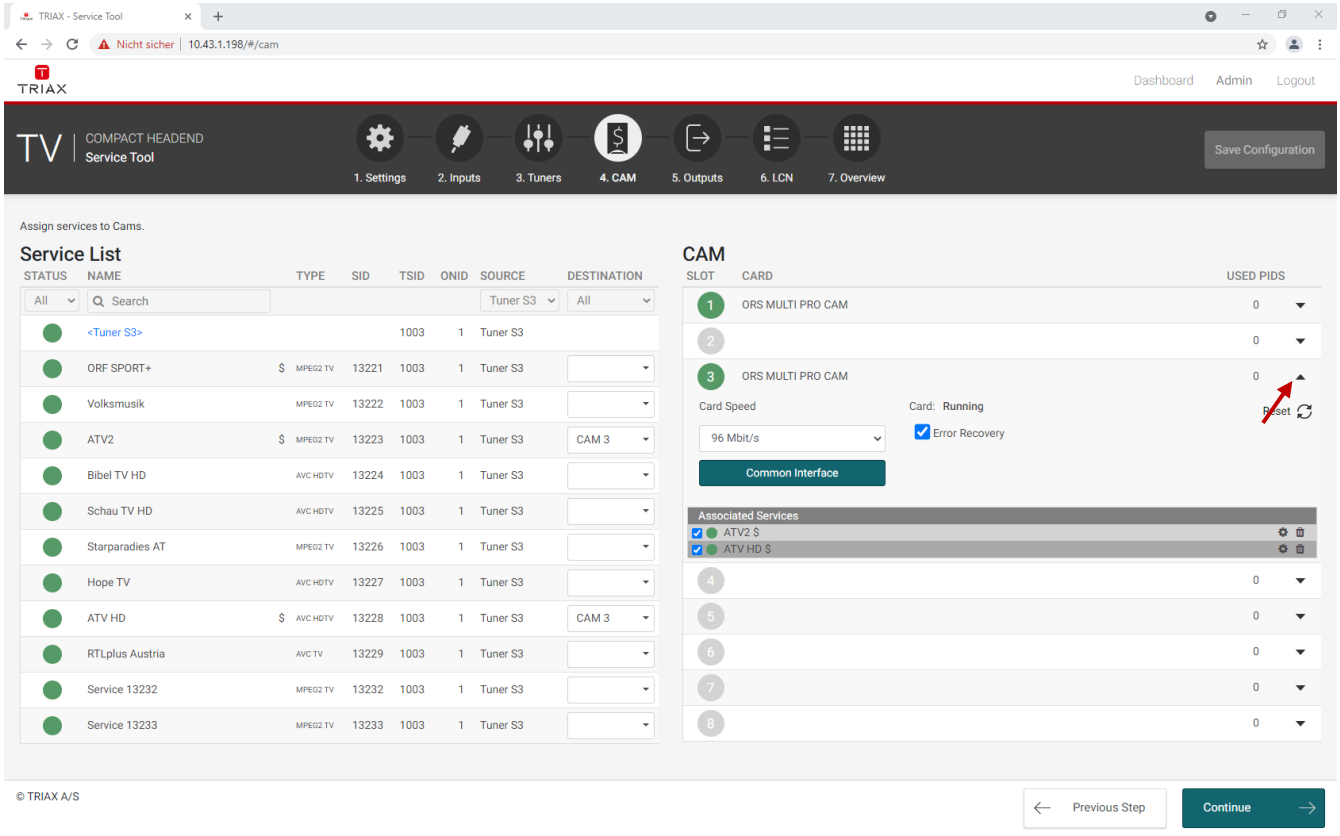


In the DESTINATION column you can now choose the services you would like to send to a CA module.

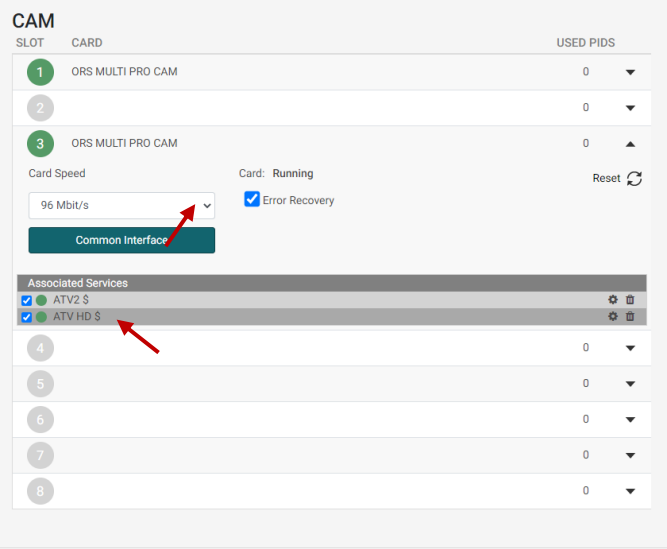
Note:
It is possible to send services from different transponders to the same CA-module. So that the amount of needed CA-modules can be reduced.
Please do not overload the CA-module with services and please secure that the supported amount of PID's is not overloaded.
The supplier of the CA-module can inform you about how many PID's the CA-module can support.



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



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

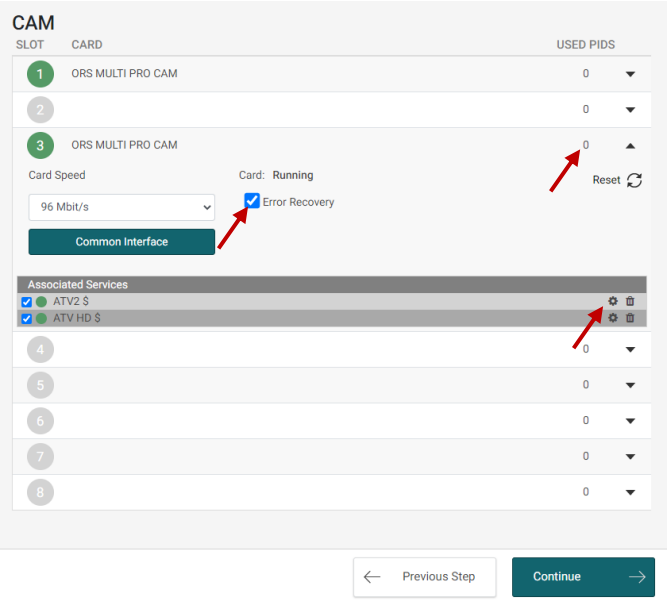


Service list area (Associated Services)
Select the service(s) that you want to descramble in the Service list area by clicking the service(s) at the selected button. Scrambled services are marked with a dollar sign - $.

Note:
Please notice that the services in the CAM menu has to be assigned with the check boy to be descrambled!

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

Please secure that the CA module is not overloaded with used PIDs. How many PIDS a CA module can support depends from the CA module. Please ask the CAM supplier or the program operator in cases you are unsure how many PIDs the CA module is able to support.



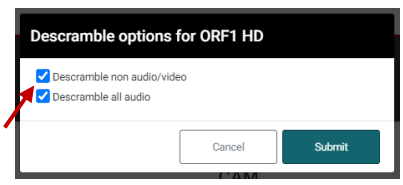
Error Recovery
If you select the “Error Recovery” checkbox then the automatic error recovery is enabled for all services assigned to this CA-module.

Note:
The Error Recovering 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.

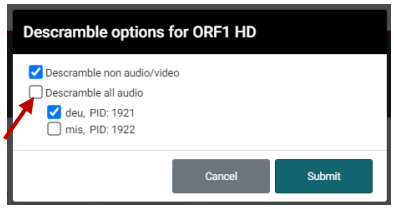
Filter options
To change the Filter options for a service, click the Setup button of the service in question to open the Filter options window.

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.



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.

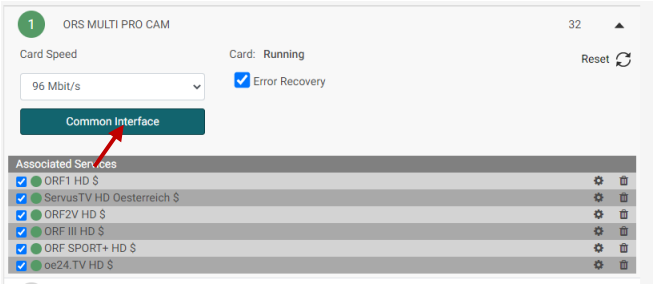


Open the drop-down list and select the language of the audio PID you want to descramble.

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

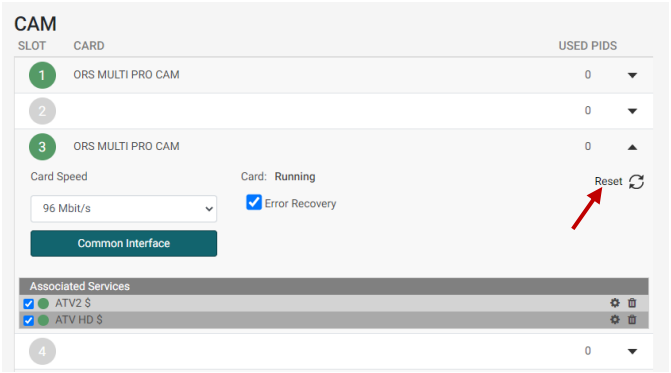
Clicking the Common interface button gives you access to information from the smart card inserted in the CA module. The type of information provided by the smart card depends on the card itself and its make.



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

5.6.4 Reset CAM

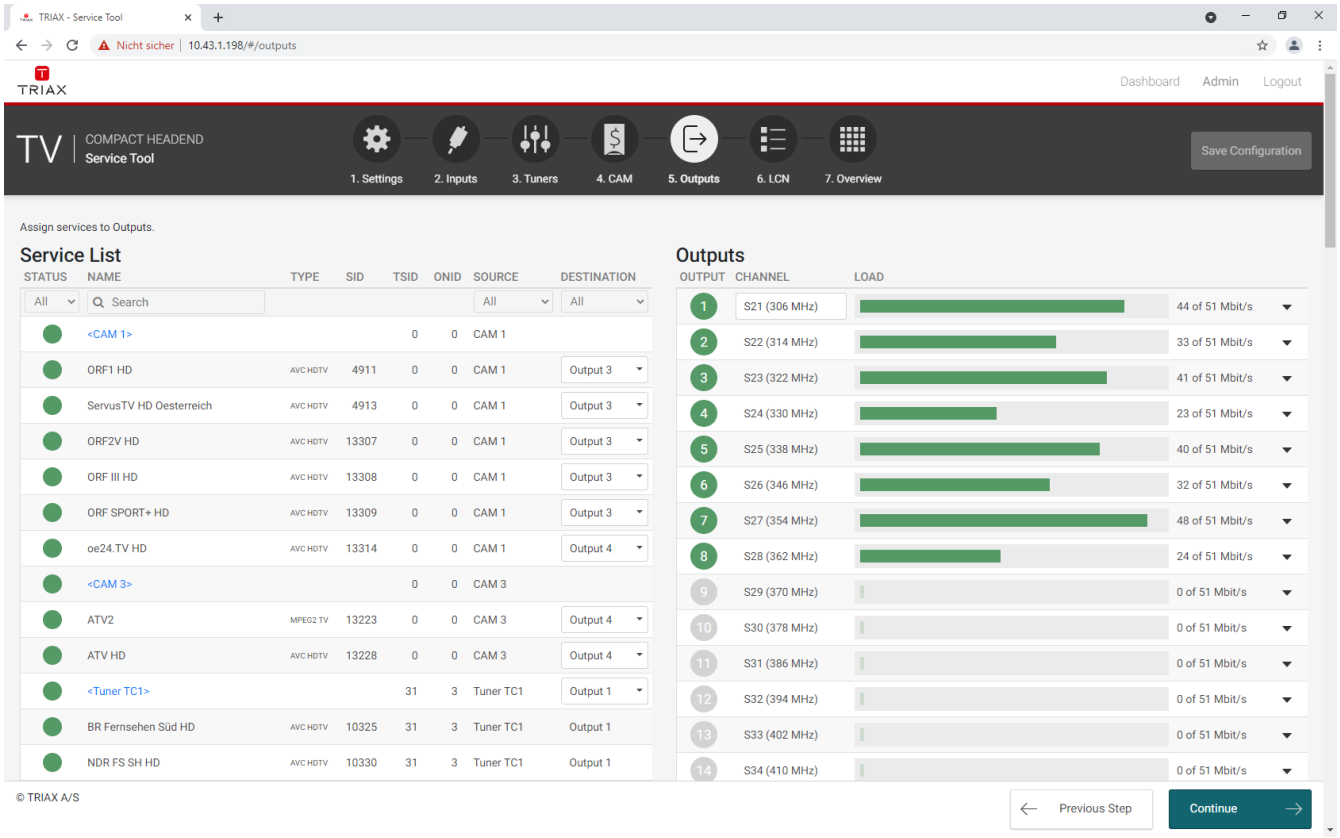
If the CA module malfunctions, click the Reset CAM button to reboot the CA module. When a CA module is reset, the signal transmission is interrupted for all the services associated with that CA module.



5.7 Outputs

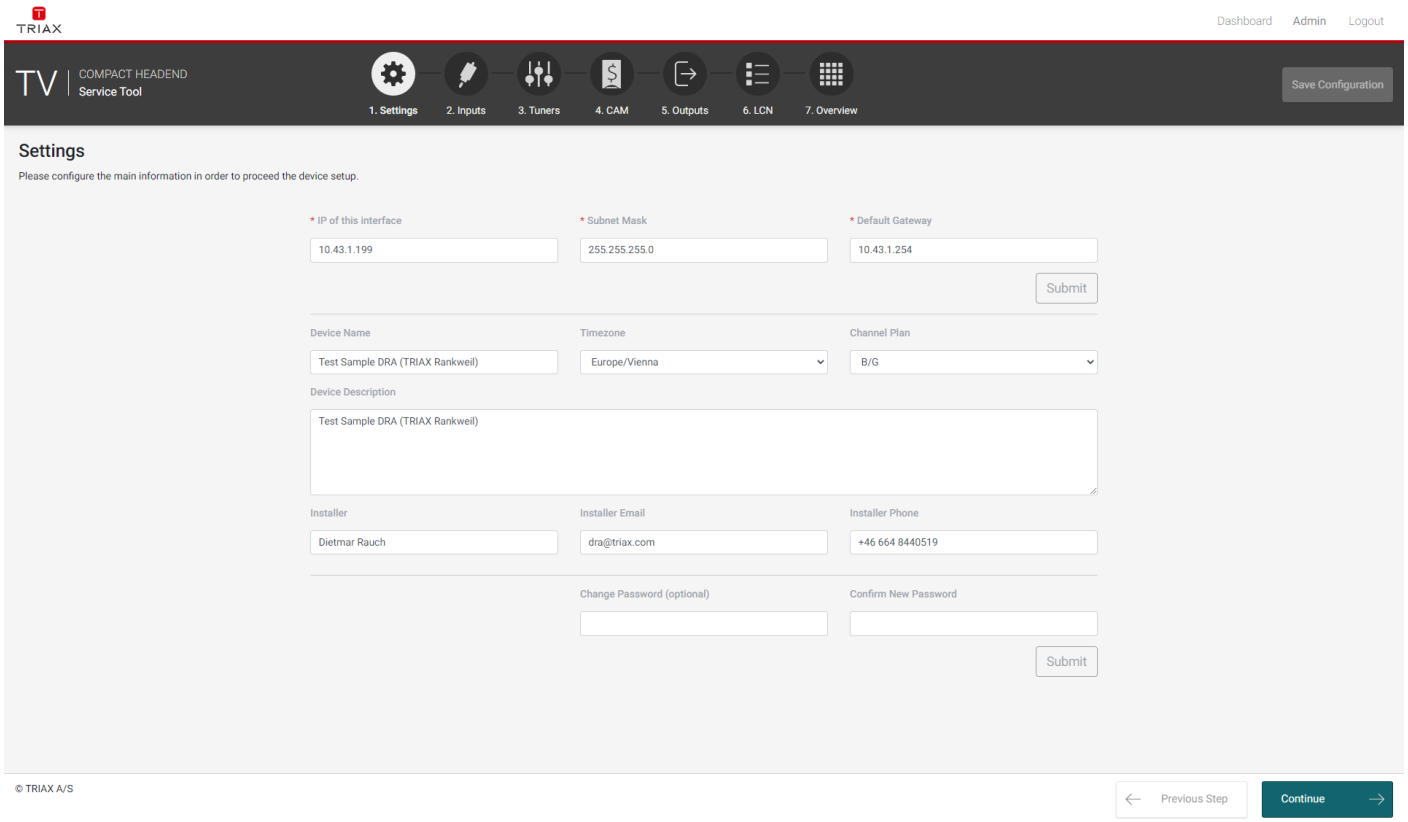
The Output folder is for assigning services to the output channels.

Note:
At the versions 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.



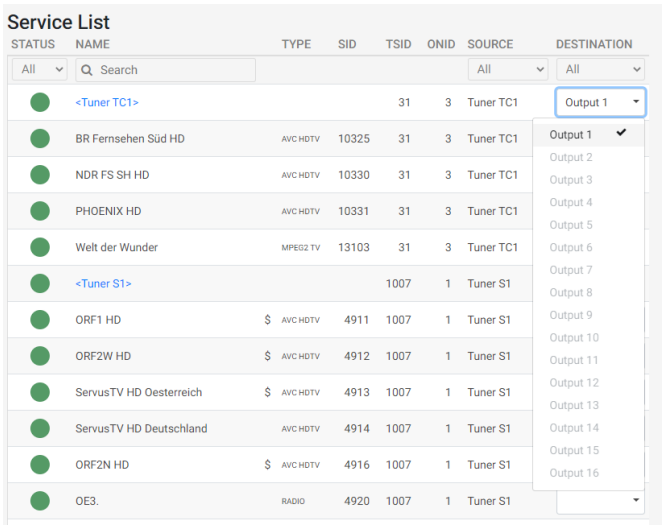
The first time the Service Tool displays the configuration window for the output in a new configuration, the fields in the window will display default values and/or be empty, and the output will be disabled.

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 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 functionality direct conversion.

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

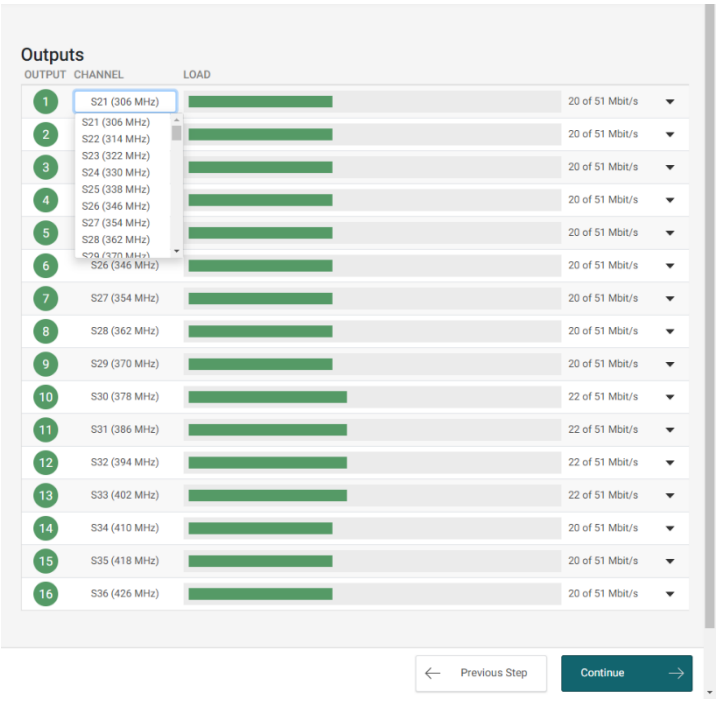
Please notice that services allocated in direct conversion to a output are not shown in the LCN table. Only services allocated in new multiplexes are shown in the LCN list!

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 secure that in both variations the output bandwidth is not overloaded!

5.7.1 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.



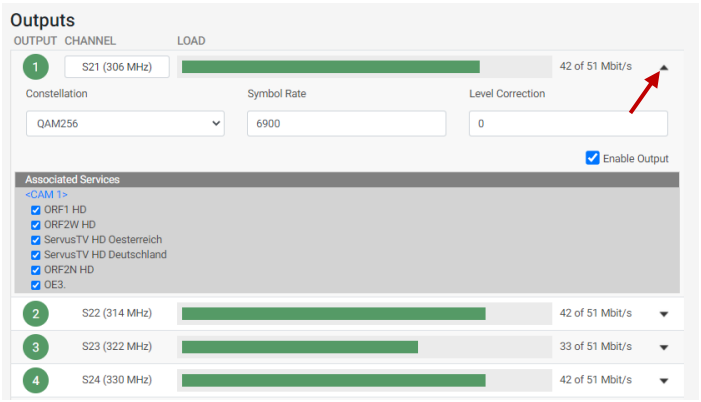
Using the channel plan definitions:
Open the drop-down list with the predefined channels and select the channel you want to use.

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 direct. 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 with the expand button the detailed output configuration menu.



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

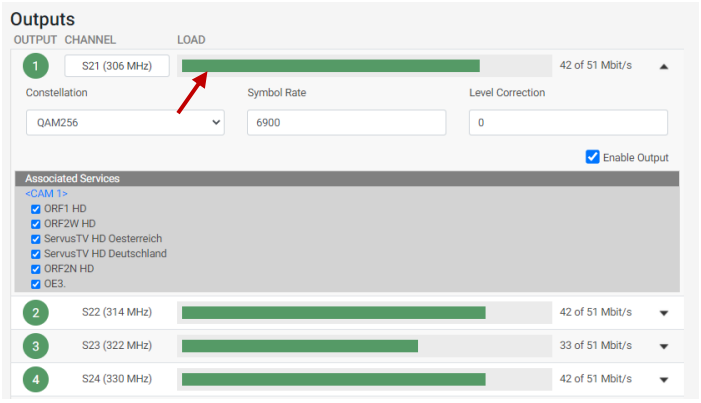
Symbol rate:
Enter the desired symbol rate (from 3150 to 7200 kS) in the Symbol rate field.

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.

LOAD monitor

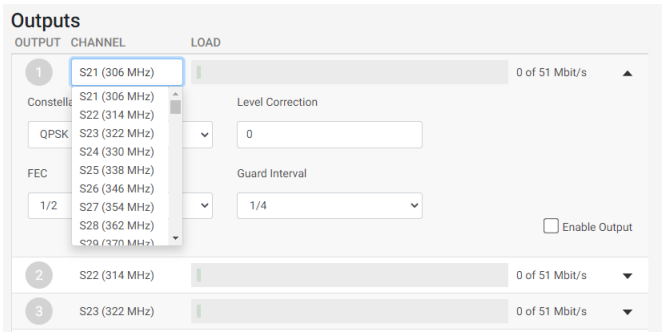
The payload monitor is a real time monitor, which visually indicates the amount of data that is currently being transmitted.



5.7.2 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 direct. Enter the desired frequency in MHz in the Frequency field.

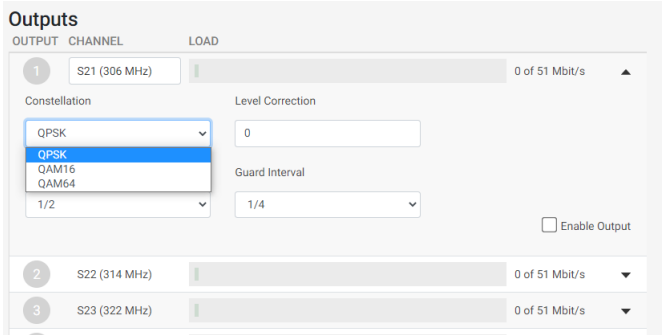
Note:

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

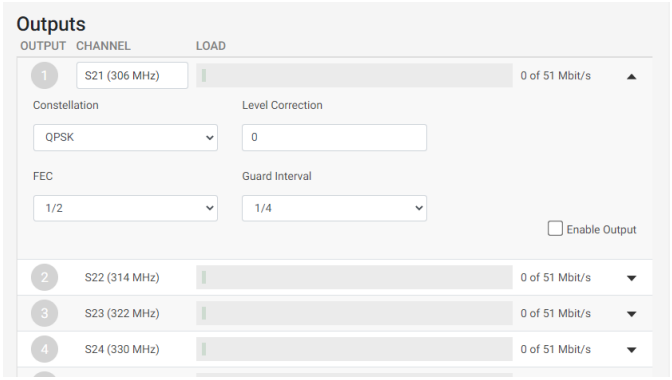


Level Correction:

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.

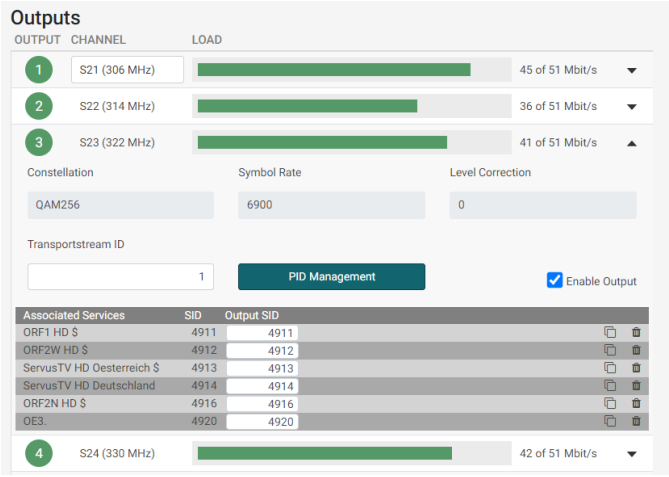
LOAD monitor
The payload monitor is a real time monitor, which visually indicates the amount of data that is currently being transmitted.

5.7.3 TSID and SID Management

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 filed.

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



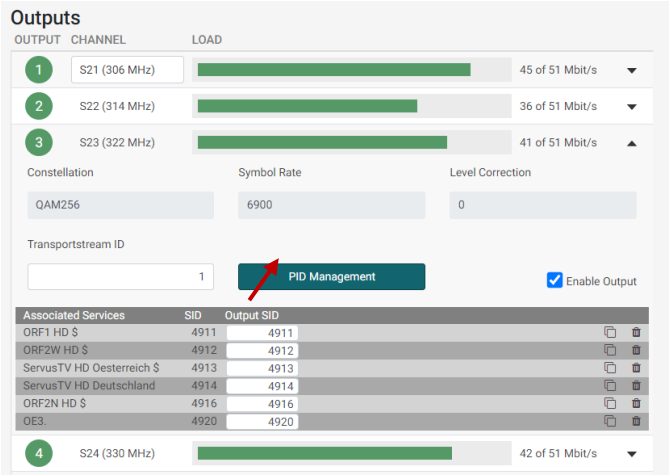
Output SID
In the field Output SID you will find the actual used Output SID.

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

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

5.7.4 PID Management

Pressing the PID Management button opens the PID management menu.



In PID Management window you will find the following information's:

- Service Name
- Output SID
- Stream Type
- Details lice CAS ID, Audio type, etc.
- Original PID
- Selected YES/NO
- Conflict's
- FIXED PID
- Output PID

Filter PID's

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

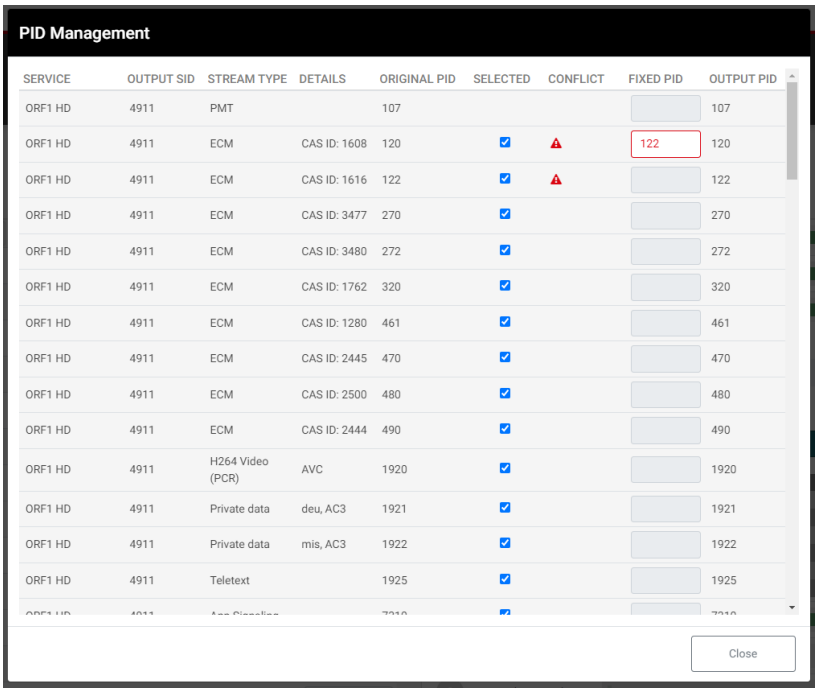
This can be used if you would like to reduce audio or other information from the service.

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.



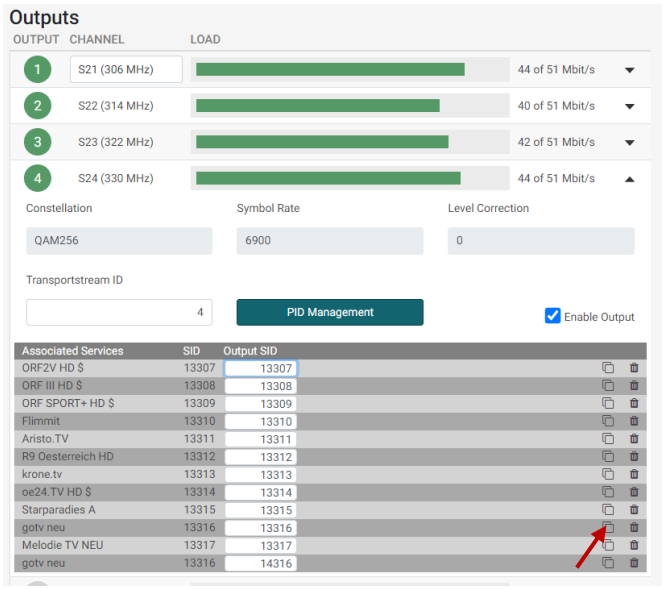
5.7.5 Multiple services

The TDcH supports to send 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 multiple times available in the service list the customer can choose the service with the different audio language only with changing the channel and have not to use the audio function of the television.

With this function it is also possible to make language packages in the channel plan so that 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.

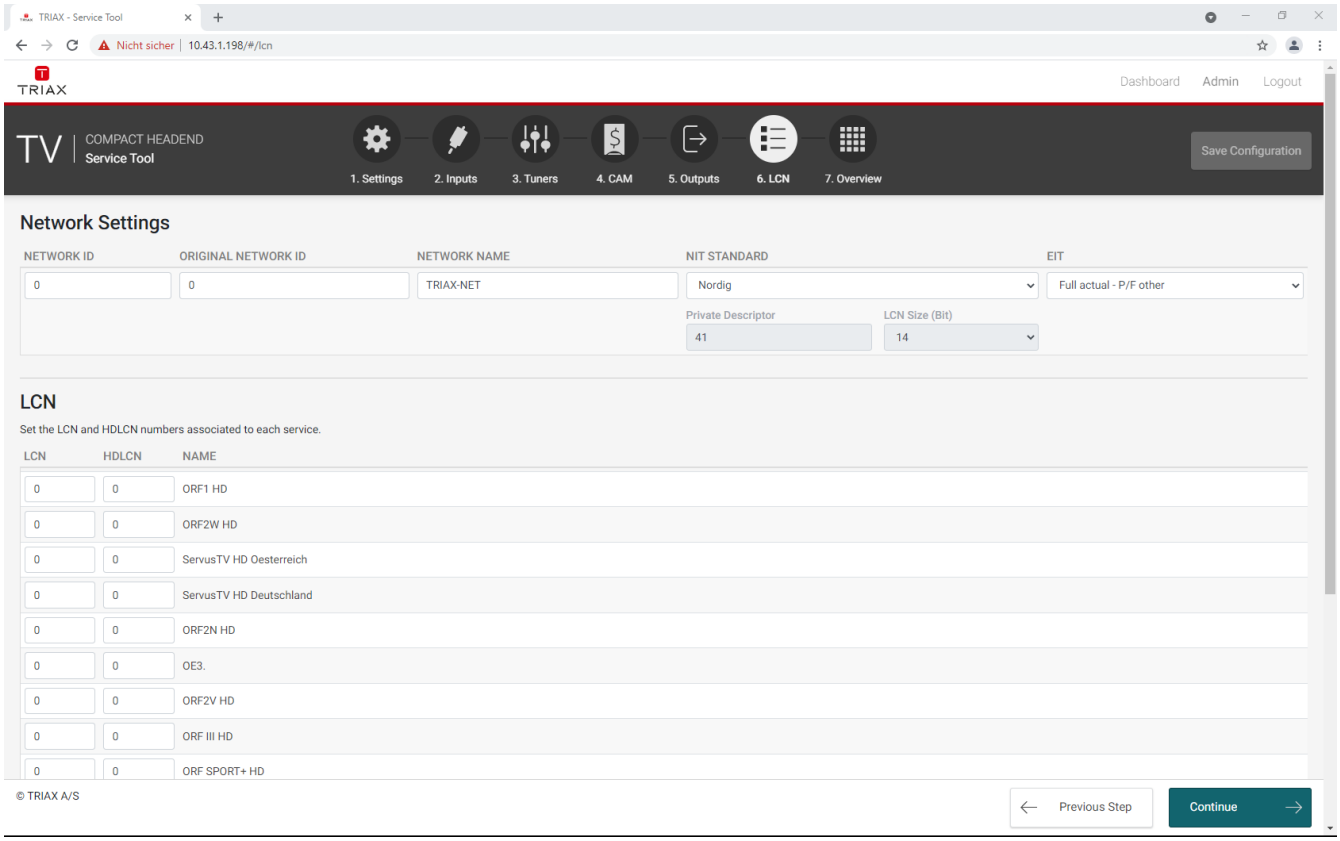


Note:
The stream will only be a replication so this is not a one to one increase in the payload!

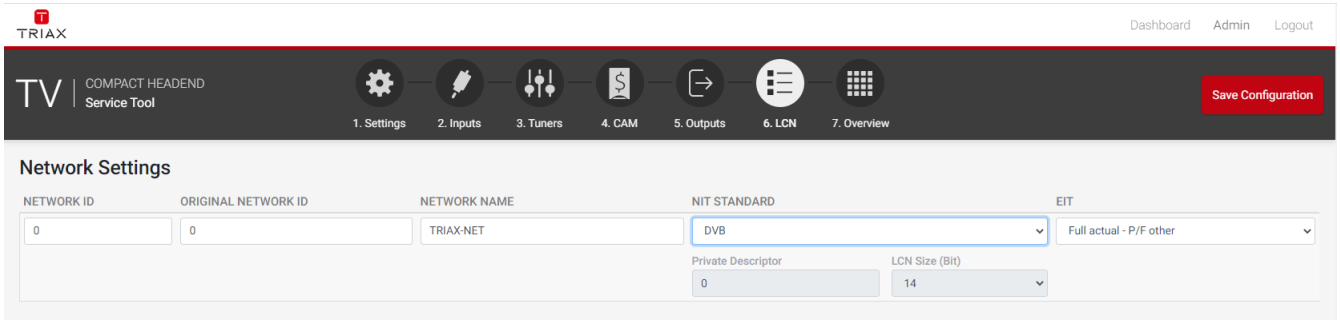
The Service name of the duplicated service is not able to rename. This will come in a further software update!

5.8 LCN

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



5.8.1 Network Settings



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 a closed network you can determine the ID yourself.

ORIGINAL NETWORK ID

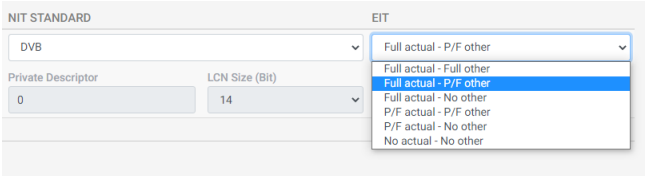
Enter the required original network ID in the Orig. network ID field.

NETWORK NAME

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

NIT STANDARD
Select which standard you want to use, DVB or Nordig. By default DVB is selected.

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



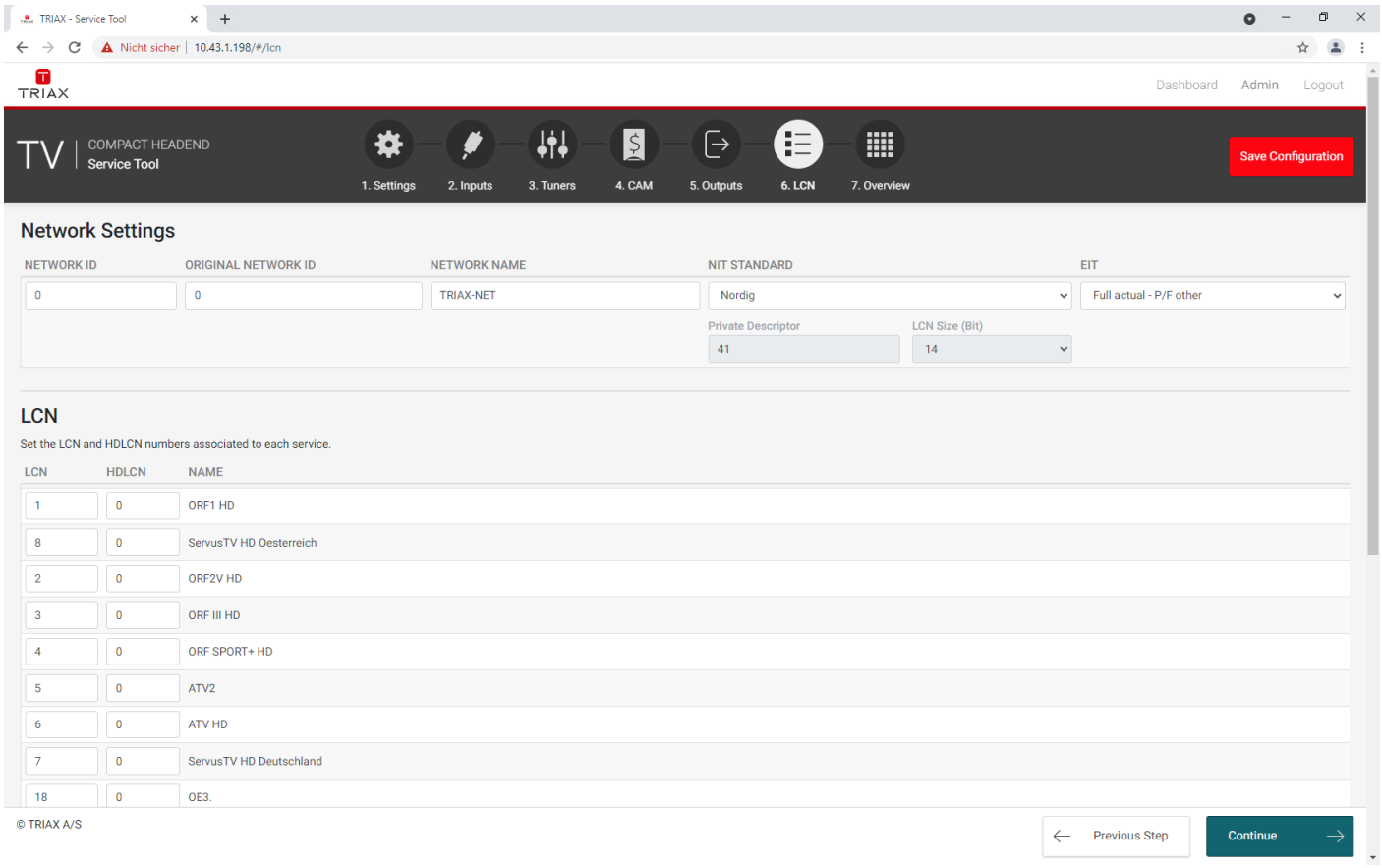
Note:
Please note that the TDcH EPG management function supports 4 days EPG information's per service independent if the EPG is set to "Full" or "P/F". That the EPG is available at the input source is of course a general requirement.

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.

5.8.2 LCN

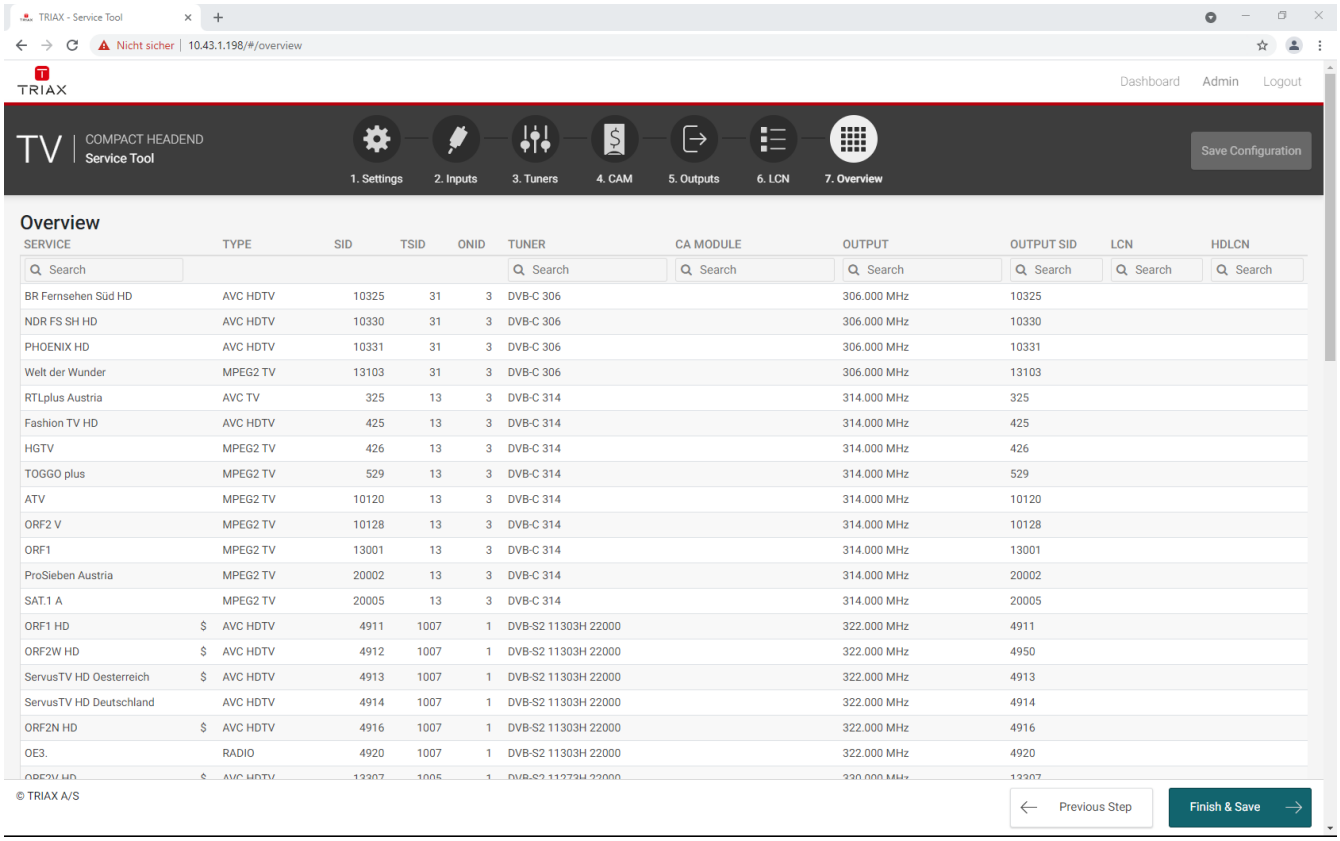
Assign LCN numbers to desired services. LCN and HD-LCN numbers in the range 0 - 1023 can be set.



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	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.

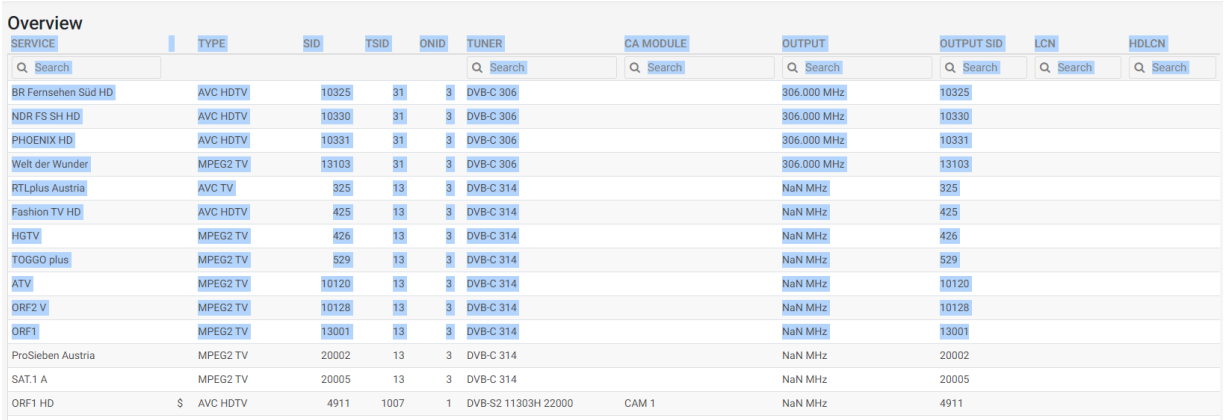
Search
In the Search fields it is possible to search for a specific text. Start typing and the list will show only names with the characters included in the same row as in the search field.

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.

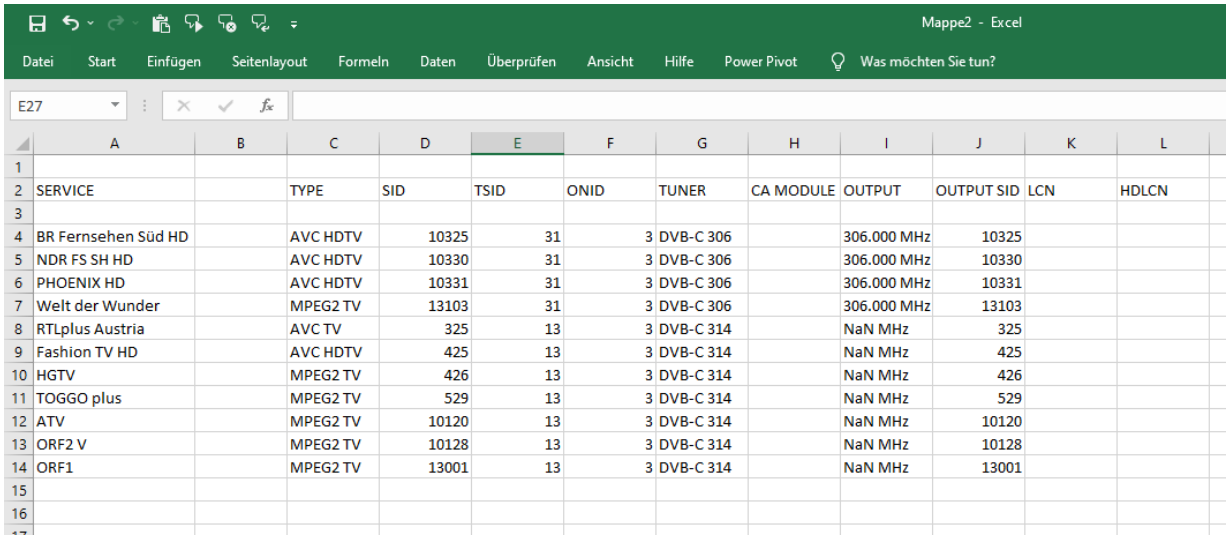
Step 1. Mark the information in the overview and copy the information with Strg+C



Overview

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



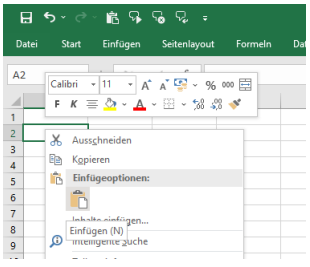
Mappe2 - Excel

Datei Start Einfügen Seitenlayout Formeln Daten Überprüfen Ansicht Hilfe Power Pivot Was möchten Sie tun?

E27

	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												

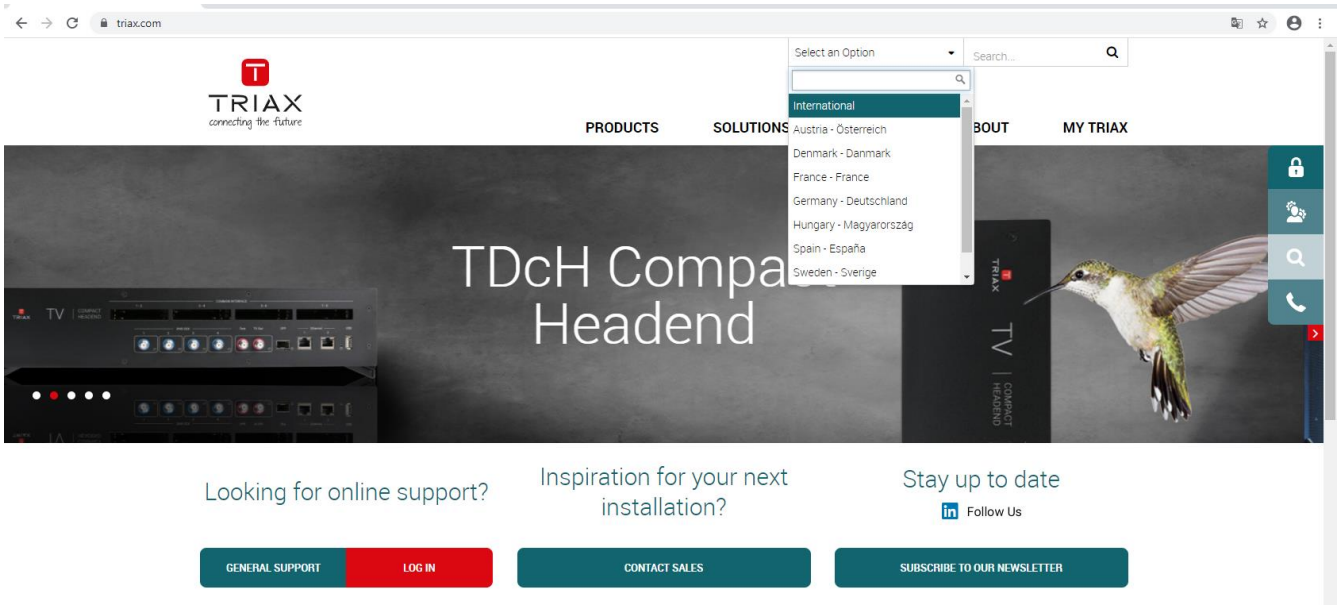
Note:
To past the information into the excel please use the function only Text so that no format is taken over.



6 Support

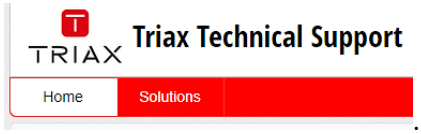
Support information in your language will be found on our country sites.

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



Registered users can access our support sites at: https://www.triax.com/mytriax

If not a registered user, please create a login.



....Support site is located at: https://triax.freshdesk.com/en/support/home

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