



User guide

891075B

| GB |

PAL module 492050/51

PAL HD downscale module 492052/53



Contents

Contents

- Box content..... 3**
- PAL module..... 3**
- Labels 4**
- Module installation..... 4**
- Module removal..... 5**
- CAM/Smart card..... 5**
- Status LED 6**
- Log in..... 7**
- CA Modules window 8**
 - CA Modules configuration window..... 9
 - Status information..... 15
- Output window 16**
 - Configuration of output modules 17
 - Status information 23
 - Delete output modules 25
- Network window..... 26**
- Channel list 28**
- Save configuration 29**
- Manufacturer 30**
- Your notes 31**

Disposal



Within in the European Union this label indicates that the product cannot be disposed of with the general household waste. Neither the headend nor the input and output modules can be disposed of with the general household waste.

For proper treatment and recycling of old products, please take them to designated collection points in accordance with your national legislation.

Box content

A new output module is wrapped in antistatic bubble wrap and packed in a cardboard box when you receive it.

Included in the box is a user guide instructing you in how to use the TDX Service Tool to configure the module.

PAL module

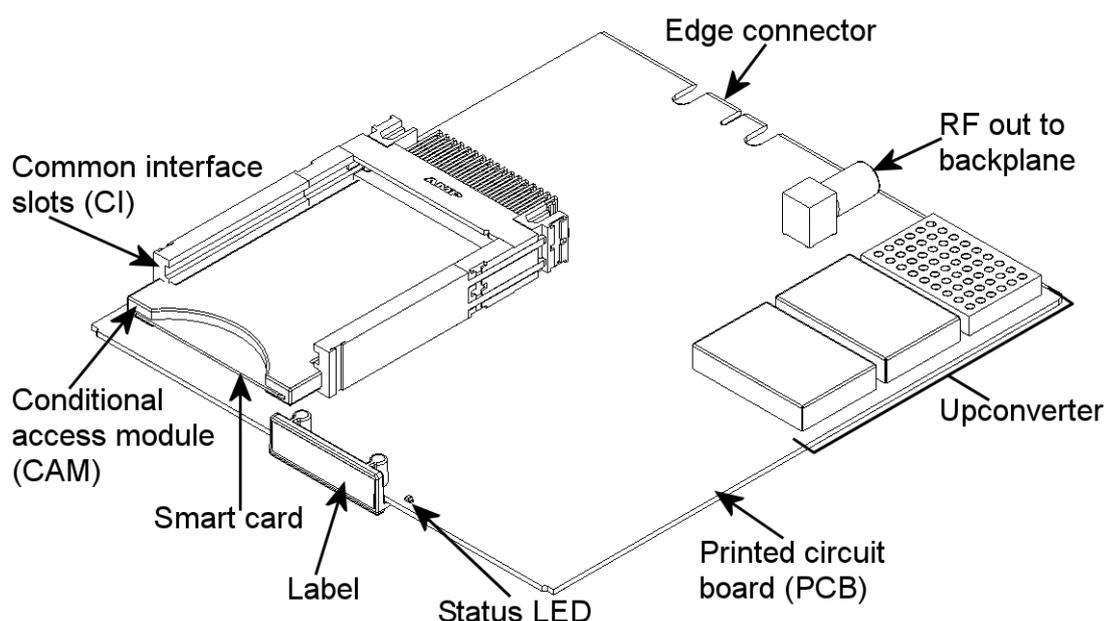
The PAL output module is one of the output modules that you can install in the output section of your TDX headend unit.

The PAL output module is available in four versions:

- PAL
- PAL with Common Interface (CI)
- PAL HD downscale
- PAL HD downscale with Common Interface (CI)

The PAL HD downscaling module enables the TDX system to downscale HD services to SD services before they are output.

Below you can see an illustrated description of a PAL module with CI slots.



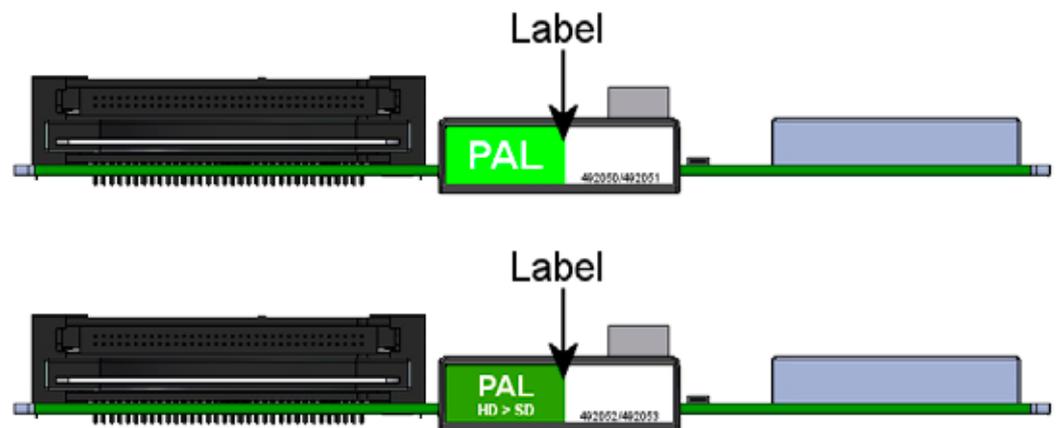
Basics

Labels

A label is placed on the output module where you can write the information regarding the configuration of the module.

Besides the information that you write on the label, the module type and part number are also displayed on the label.

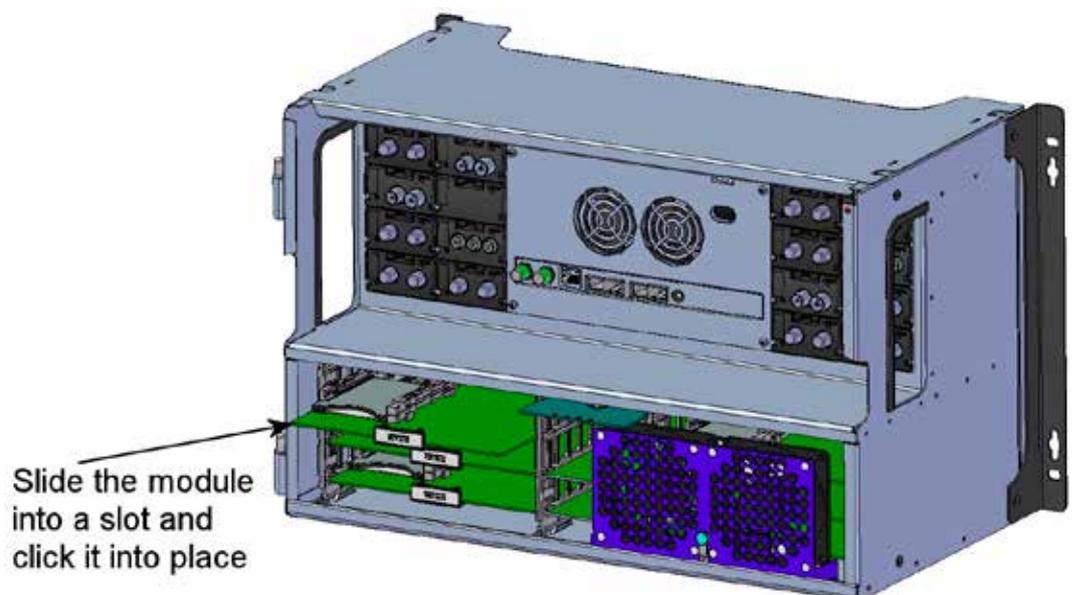
Note The coloured part of the label informs you of the module type. Each type of module is allocated a unique coloured label.



On the bottom of the module you will find a label with the bar code and a serial number printed on it.

Module installation

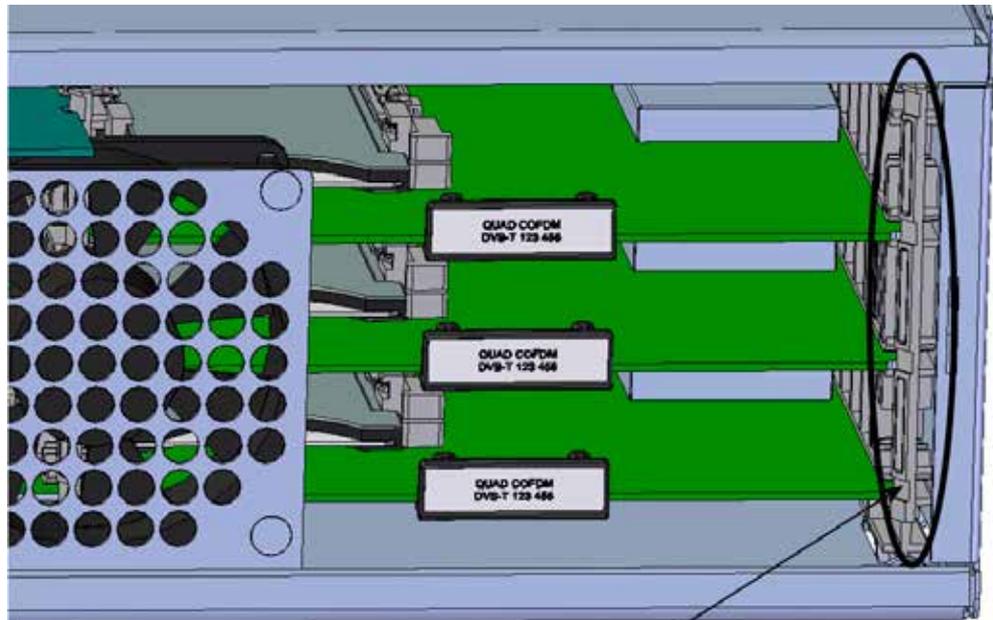
You install an output module by sliding the module into a module slot in the lower section of the headend unit and click it into place.



Note You can use hot swapping when you insert an output module into or remove an output module from the TDX system.

Module removal

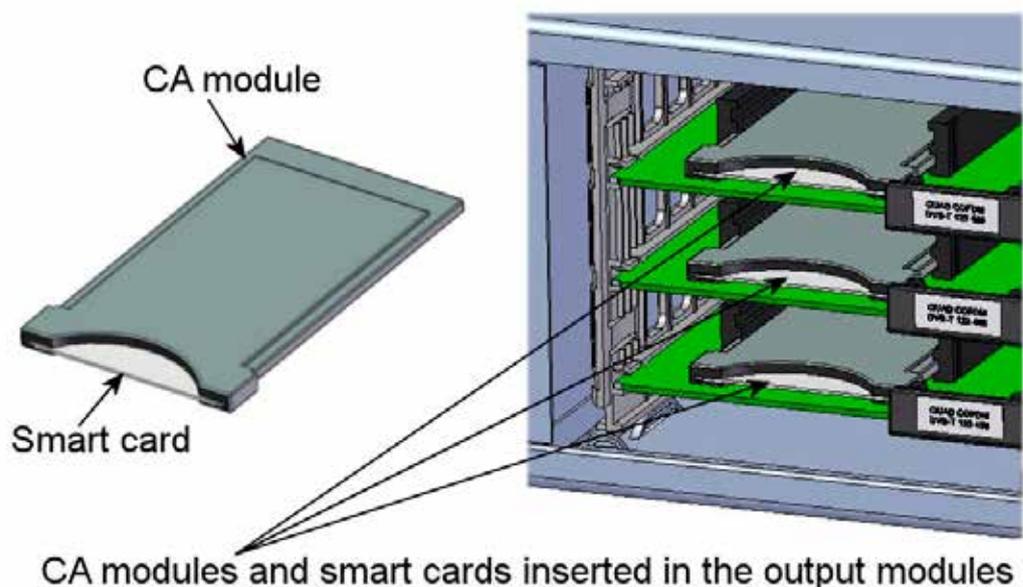
You release an output module from a slot by using the lock mechanism that is placed to the right of the modules in the output section. Move the lock mechanism slightly to release the module.



To take a module out of a slot in the output section, tip the lock mechanism and then pull the module out

CAM/Smart card

You can insert 2 Conditional Access modules (CA) into each of those output modules that have Common Interface (CI) slots. 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.



Basics

Status LED

There is a status LED on the front of each module. The LED indicates whether the module functions according to its purpose or fails.

Green - flashing The output module receives data.

Green - constant on The output module receives valid services.

Red When starting the TDX system the output module and the system controller negotiate connection speed. If the LED continues to be red either the output module or the system controller has not been inserted correctly.

No colour The output module has not been configured yet or the module has not been inserted correctly.



When you update the software of a module the status LED provides you with information about the updating process.

Orange Boot loader state.

Temporary off Initiation of the software update.

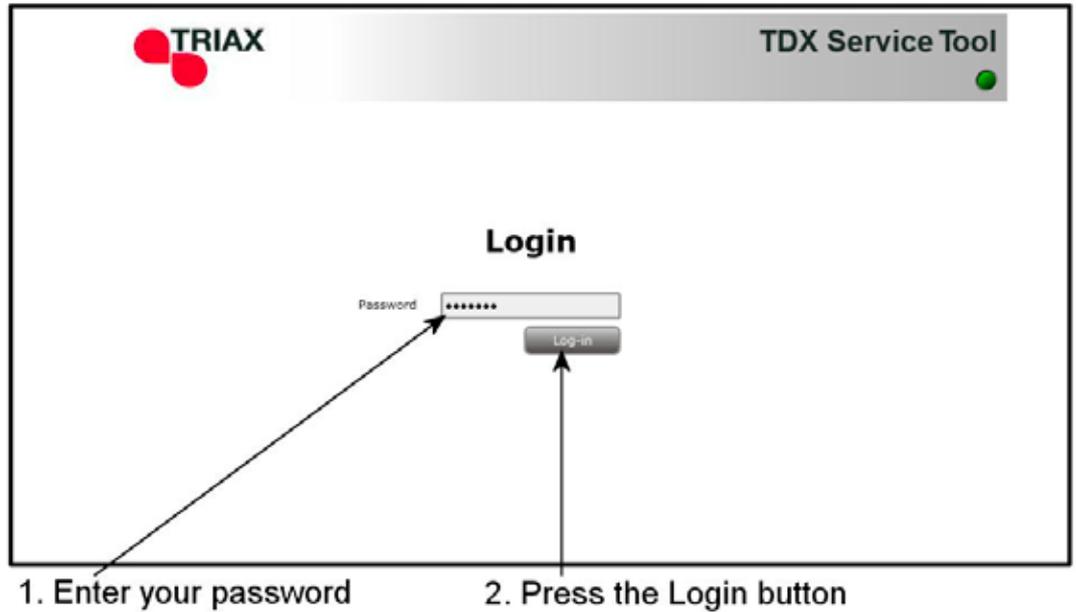
Temporary green Every time the modules receives a valid data package. Repeated until the update is completed without errors.

Red Software update failed.

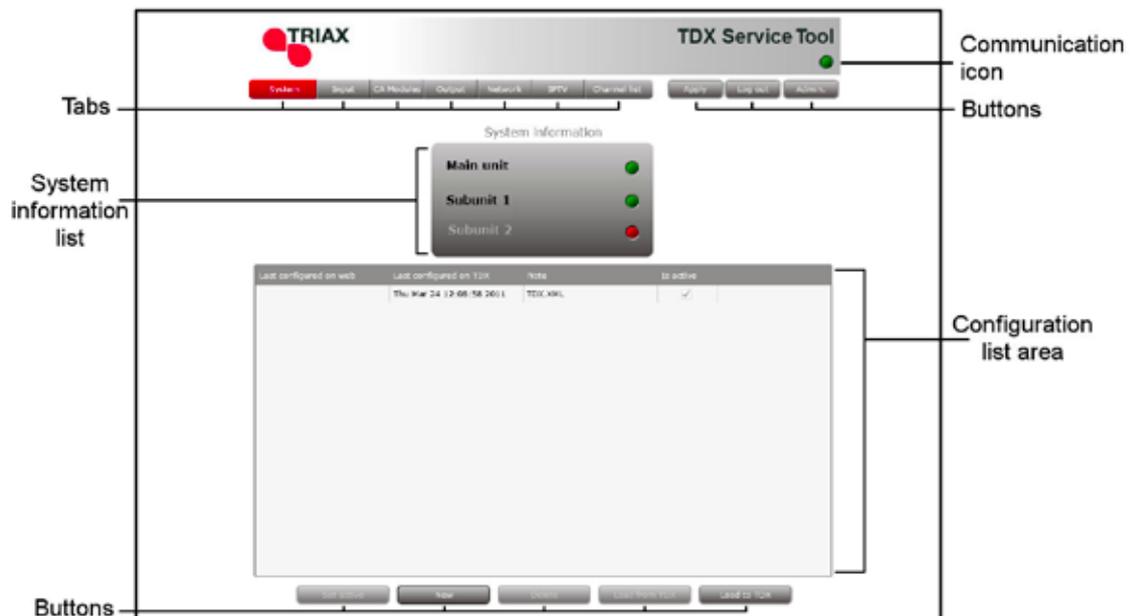
TDX Service Tool

Log in

When you have loaded the TDX Service Tool from your TDX headend system to your laptop/computer the Login window of TDX Service Tool is displayed.



When you have pressed the Log in button the System window is displayed.



TDX Service Tool

CA Modules window

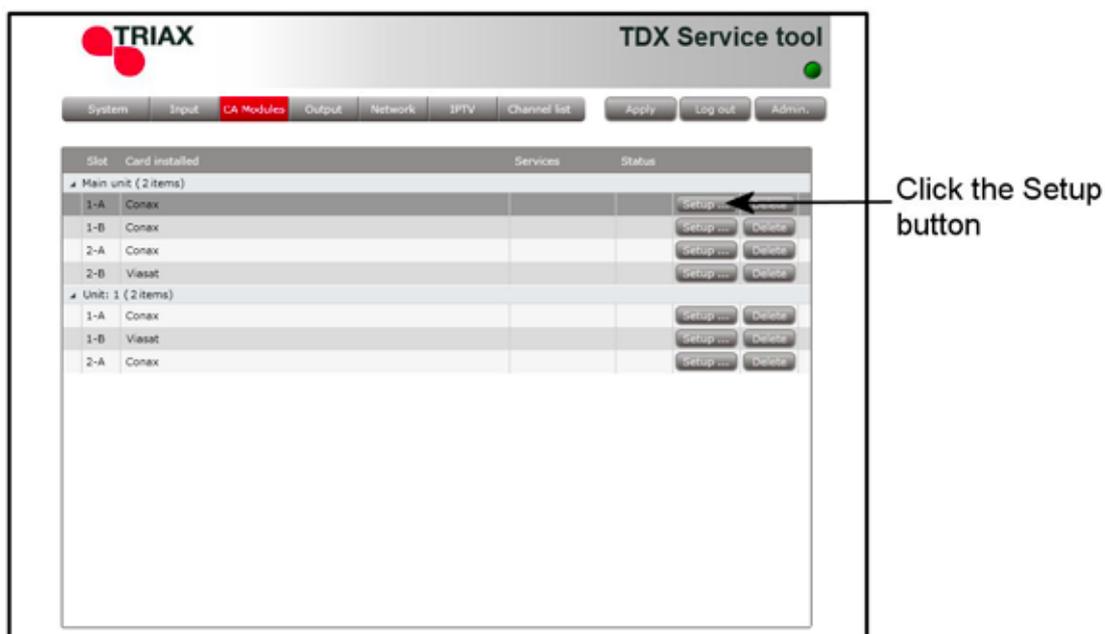
Click the CA Modules tab in the TDX Service Tool to display the CA Modules window.

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



You configure the CA modules individually.

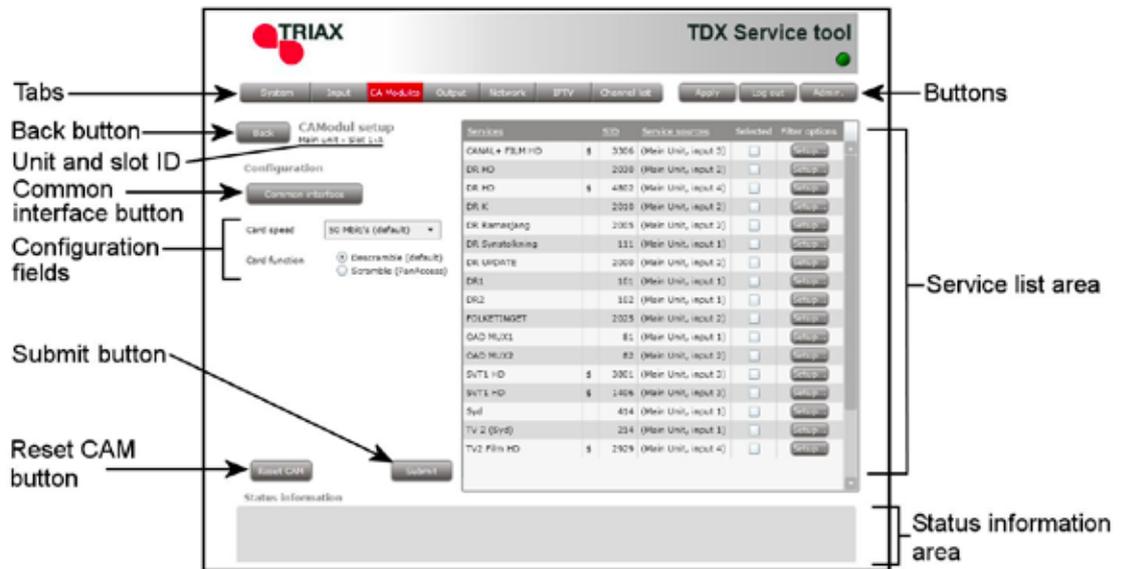
To display the Configuration window, click the Setup button of the CA module you want to configure.



TDX Service Tool

CA Modules configuration window

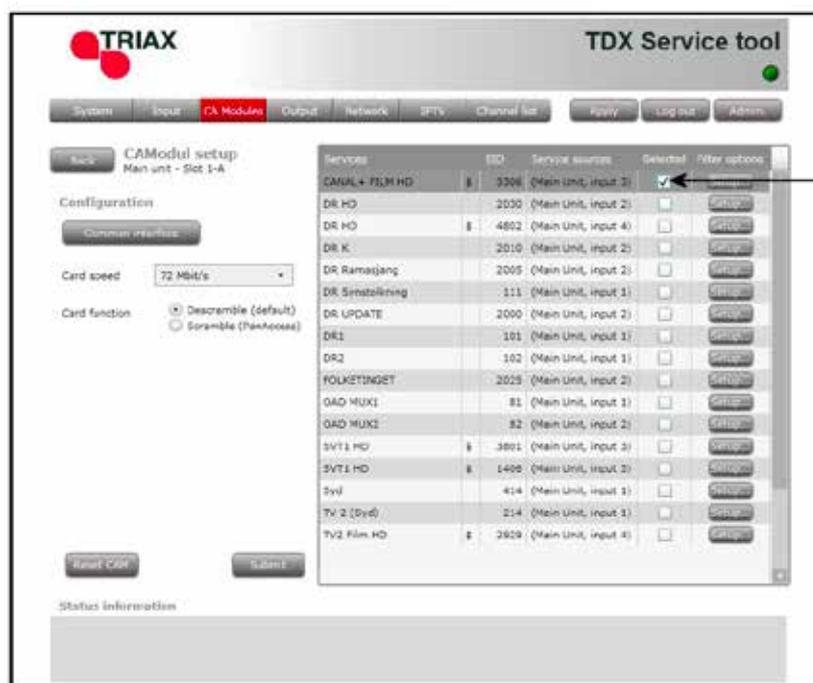
The first time the TDX Service Tool displays the Configuration window for a CA module in a new configuration the fields and radio buttons display default values and nothing is selected in the service list area.



Card speed

If your smart card is able to use a higher card speed than the default card speed, open the drop-down list with the card speeds you can choose from.

Select the card speed you want to use.



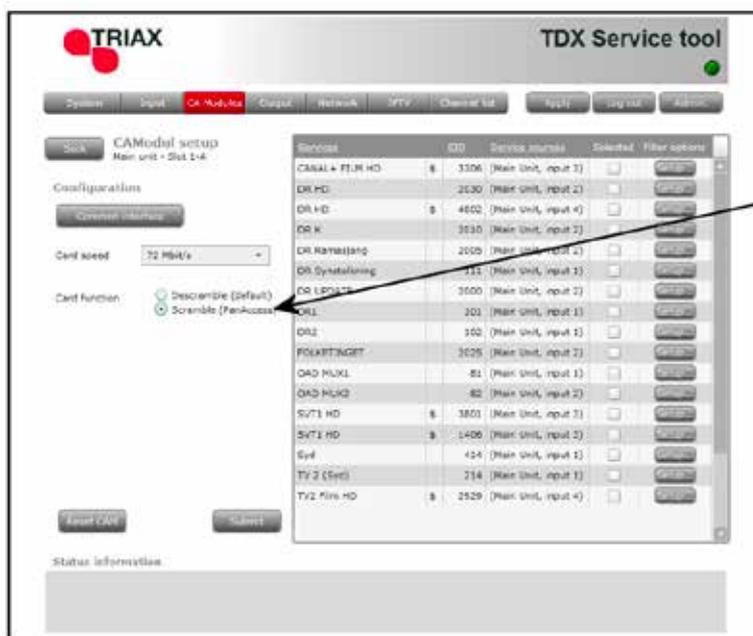
TDX Service Tool

Card function

You can use the Card function radio buttons to determine whether you want the CA module to descramble services that are scrambled or you want the module to scramble services that are not scrambled .

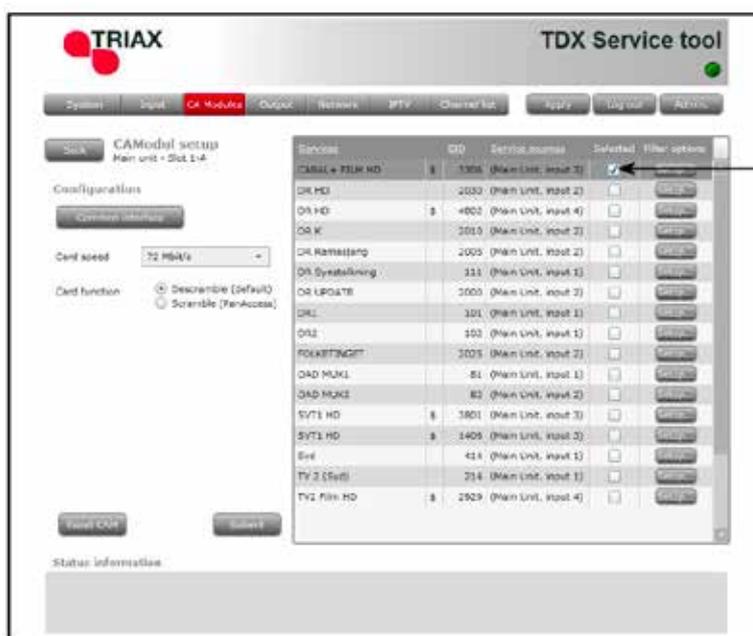
Click the Descramble (default) button if you want to descramble services .

Click the Scramble (PanAccess) button if you want to scramble services using the PanAccess Scrambler.



To scramble services click the Scramble (Pan-Access) radio button

In the Service list area you can select the service or services that you want to descramble and you can set up individual filter options for each service. The services that are scrambled are marked with a dollar sign - \$.

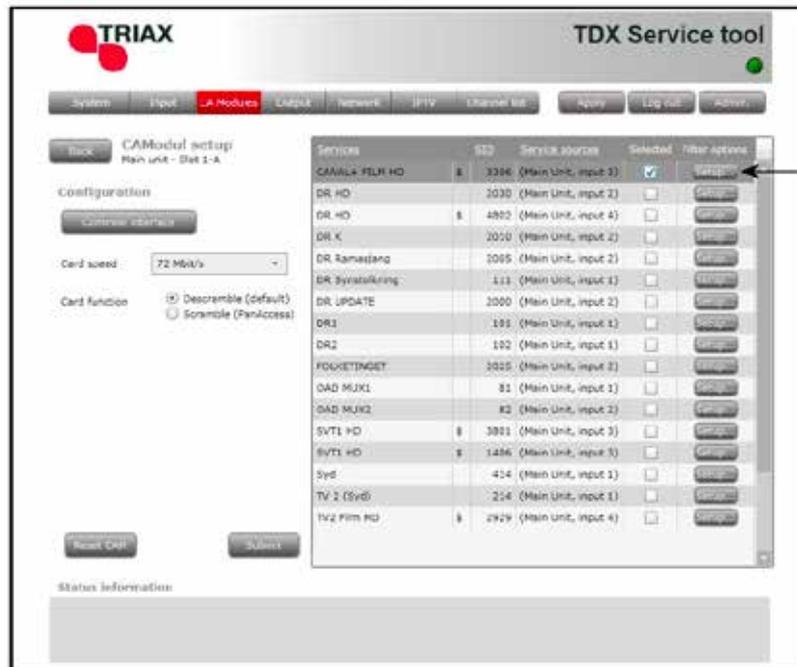


Click the square to select the service

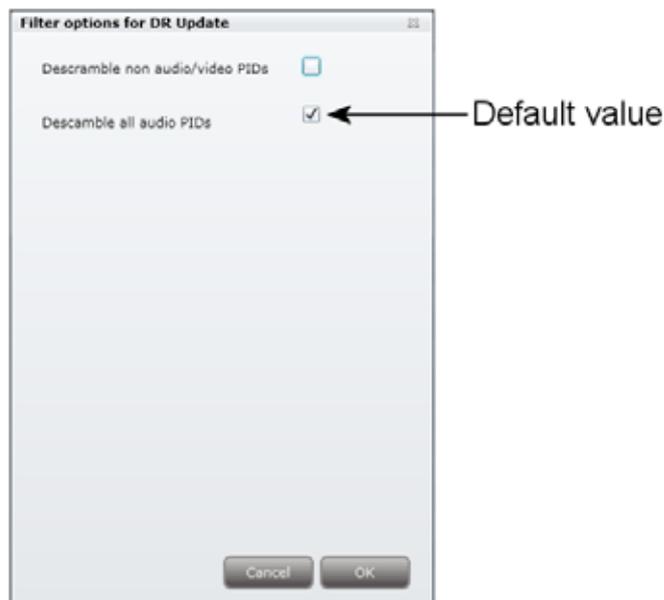
TDX Service Tool

To select a service, click the check box (square) to the right of the service in question.

If you want to change the filter options for a service, click the Setup button of the service in question to open the Filter options window.



The first time you open the Filter options window the default value Descramble all audio PIDs has been selected.



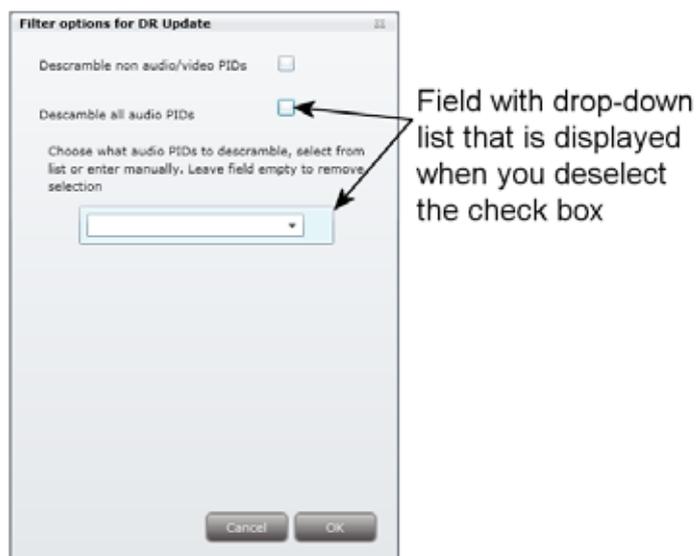
TDX Service Tool

If you want to descramble PIDs (Packet Identifier) that are not audio or video PIDs, click the Descramble non audio/video PIDs check box.



In case you do not want to descramble all audio PIDs you can select which audio PIDs you want to descramble.

To descramble only selected audio PIDs you have to deselect the Descramble all audio PIDs check box.

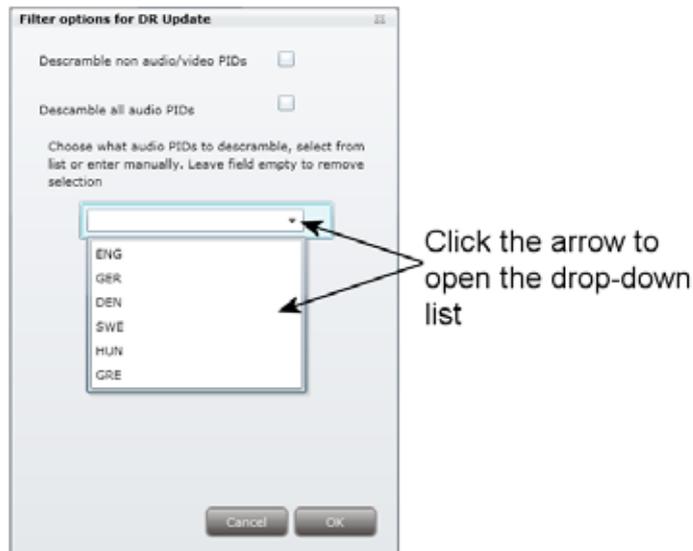


When you have deselected the Descramble all audio PIDs check box a field with a drop-down list is displayed below the check box.

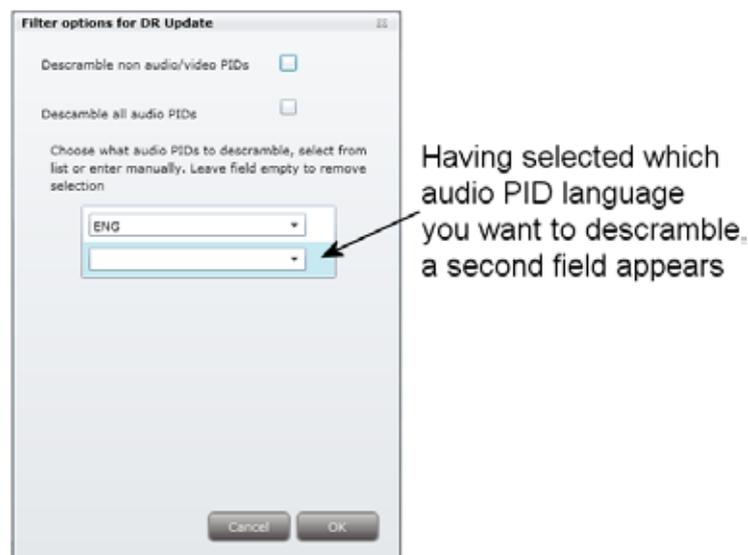
To select which audio PID you want to descramble, open the drop-down list with the languages you can choose from.

TDX Service Tool

Select the language of the audio PID you want to descramble.



When you have selected the required language, a second field is displayed below the first field so you can descramble another audio PID. You can descramble as many audio PIDs as you need.



If the language of the audio PID you want to descramble is not displayed in the list you can enter a three letter string signifying the language you need. To remove your selection leave the field empty.

Click OK to return to the Configuration window.

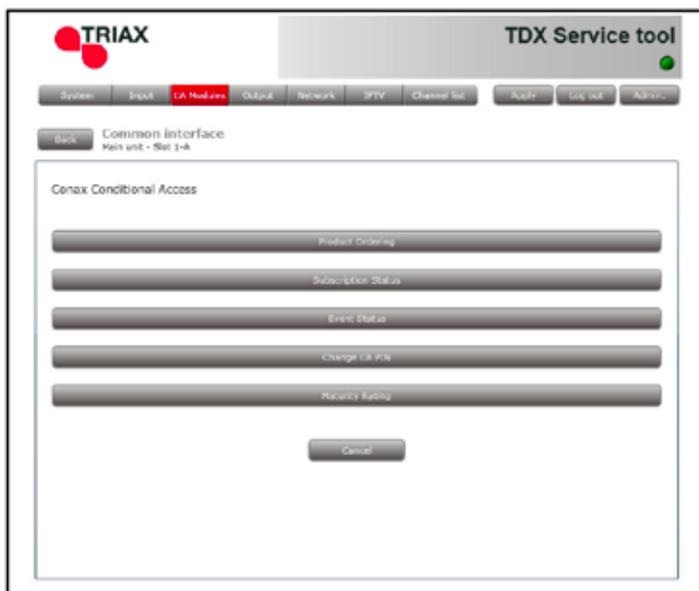
When you have selected the services you want to descramble and changed the filter options you want to change, you have to click the Submit button to save this information in the headend system and return to the CA Modules window.

TDX Service Tool

You use the Common interface button to open the common interface menu.

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.

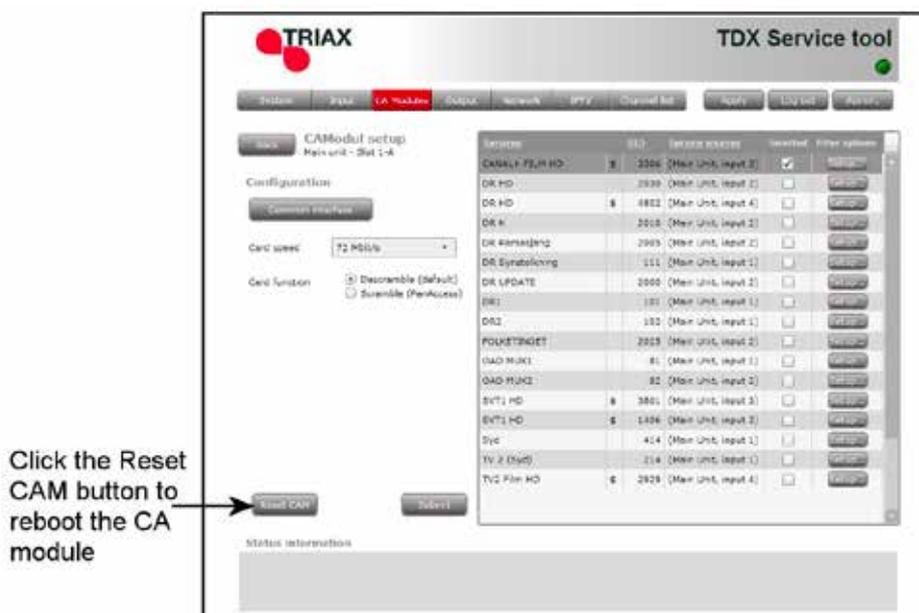
Below is an example of the interface of a Conax card.



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

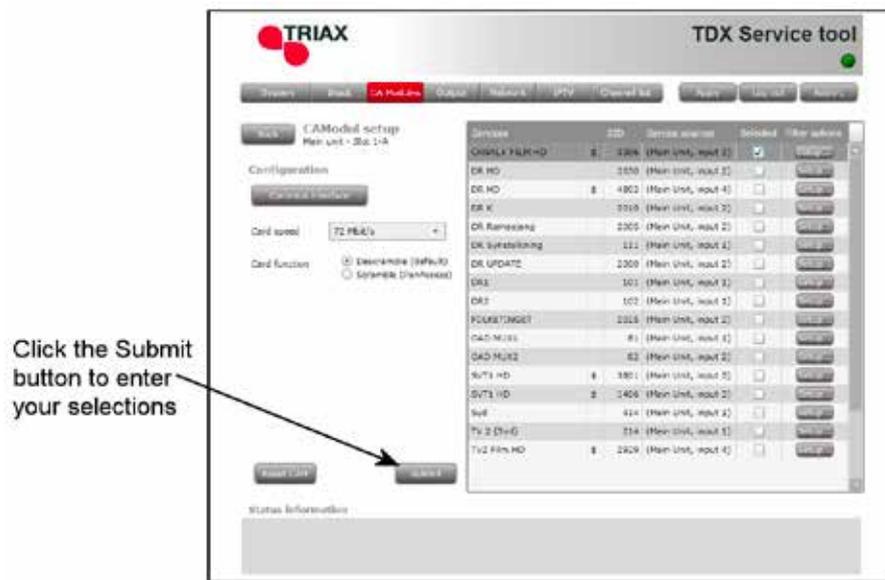
If you need to reboot the CA module you can use the Reset CAM button.

Click the Reset CAM button to reboot the TDX headend system.

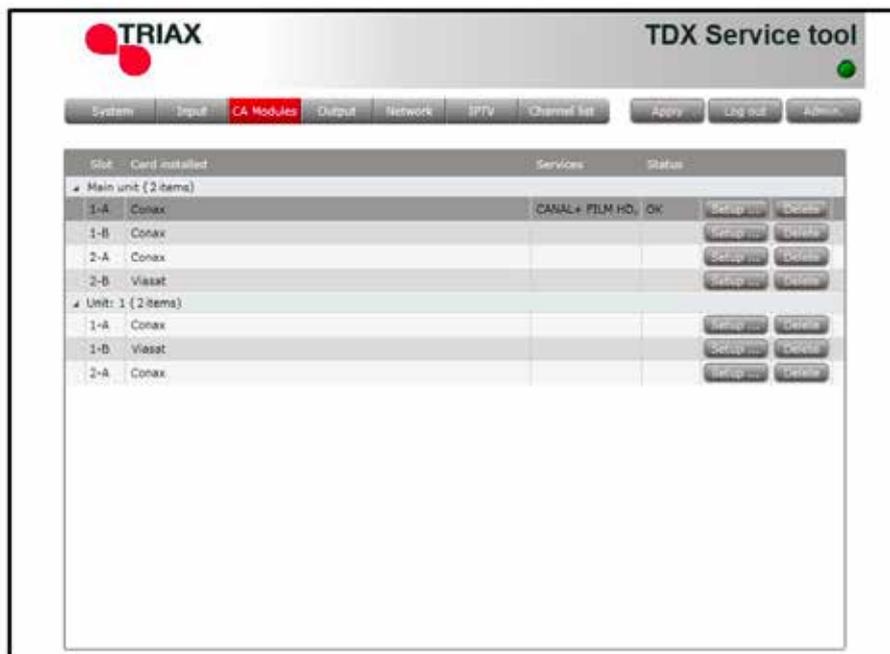


TDX Service Tool

When you have selected the services you want to descramble or scramble you have to click the Submit button to enter this information into the head-end system and return to the CA Modules window.



When you return to the CA Modules window the descrambled services will be displayed next to the CA module you have configured.



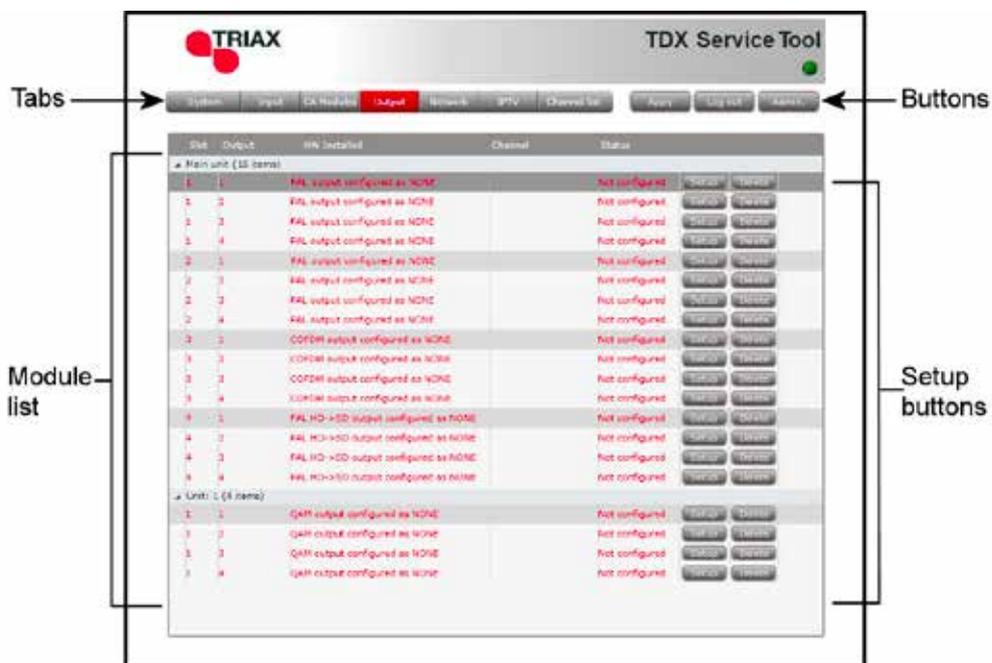
Remember to click the Apply button in the upper right-hand corner to save new settings in the configuration.

Status information

To be implemented later.

TDX Service Tool

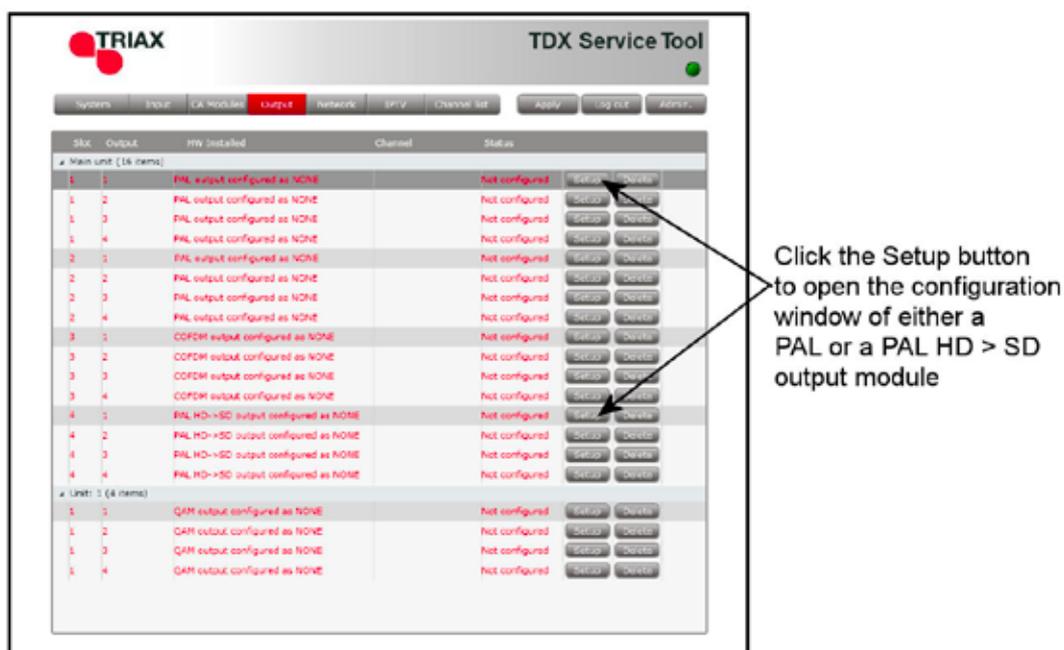
Output window Click the Output tab in the TDX Service Tool to display the Output window. The first time you display the Output window in a new configuration the module list only displays the number and type of output modules that you have inserted in the main and subunits.



You have to configure the output modules individually.

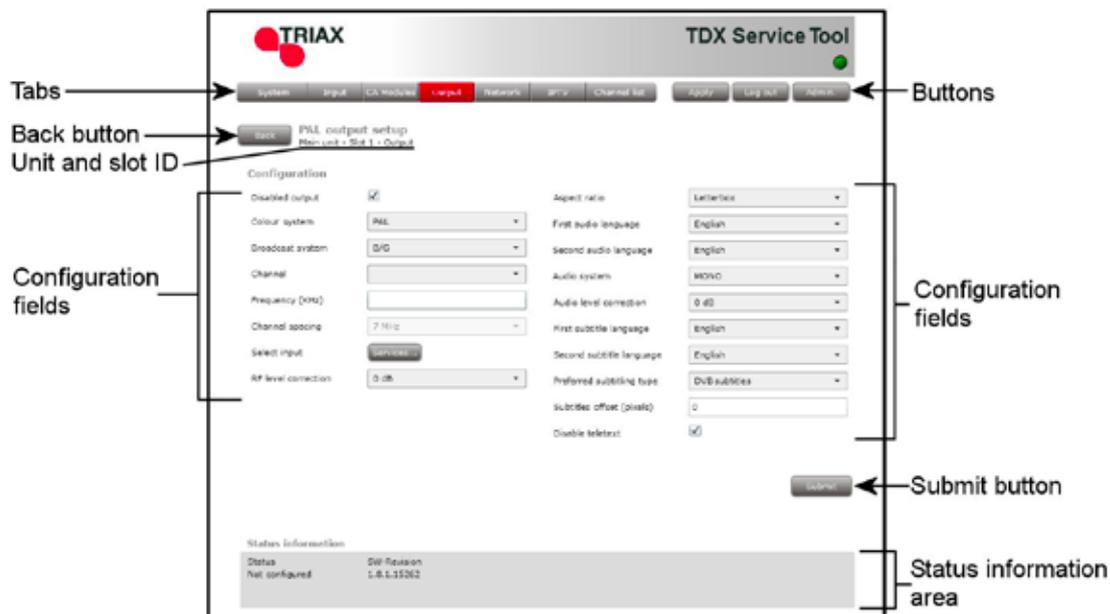
Note The four channels on an output module is locked together so you can only change the first channel.

To display the Configuration window, click the Setup button of either the PAL module or the PAL HD > SD downscaling module you want to configure.



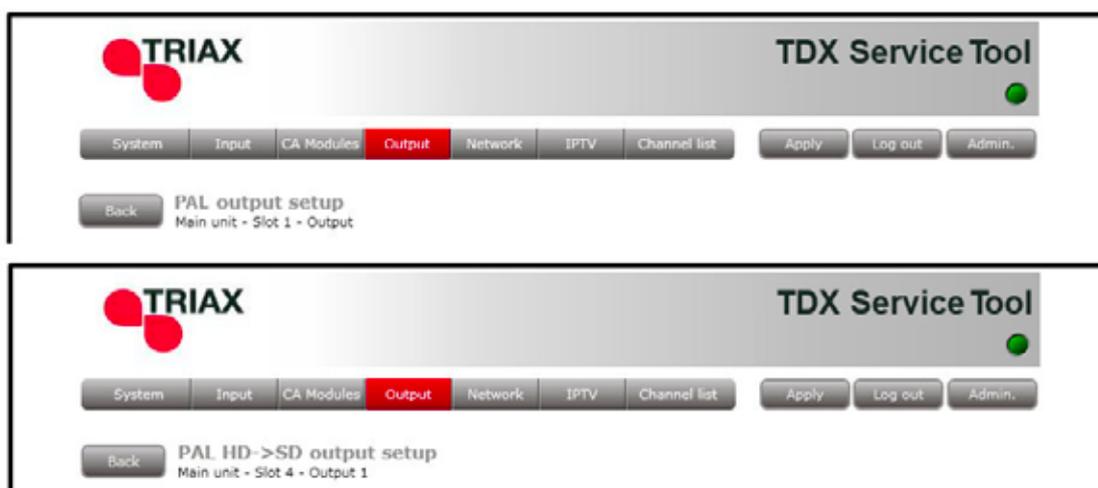
TDX Service Tool

Configuration of output modules



The first time the TDX Service Tool displays the Configuration window for an output module in a new configuration the fields in the window will either display a default value or be empty.

Note The only difference between the configuration windows of a PAL module and a PAL HD downscale module is the module name next to the Back button.



Disabled output If you want to disable this output, click the Disabled output check box.

Colour system To select another colour system, open the drop-down list with the systems you can choose from. Select the system you want to use.

TDX Service Tool

Click the arrow to open the drop-down list

Broadcast system To select another TV system open the drop-down list with the systems you can choose from. Select the system you want to use.

Channel, Frequency and Channel spacing You have two possibilities when you configure a PAL module:

- You can use the specifications of the channel plan, or
- You can enter a frequency manually.

Using the channel plans:

To select the required channel, open the drop-down list with the channels you can choose from.

Select the channel you want to use.

When you have selected a channel the Frequency and Channel spacing fields are automatically filled in.

Enter a frequency manually:

To be able to enter a frequency manually, open the drop-down list with the channels you can choose from. Select "Frequency" from the drop-down list.

Enter the desired frequency in kHz in the Frequency field.

To select the required channel spacing, open the drop-down list with the channels spacings you can choose from.

Select the channel spacing you want to use.

TDX Service Tool

Note When you have selected a channel on the first output of the output module using the channel plan or entered a frequency manually then you have also set up the other three RF channels on the module in question.

You only need to select services for each of the three other RF channels, or disable one or more of the three channels.

Select input

To select services, click the Services... button next to Select input label to open the Select services window.

The screenshot shows the 'PAL output setup' configuration page in the TRIAX TDX Service Tool. The page is divided into several sections: Configuration, Status information, and a navigation bar at the top. The Configuration section includes fields for Disabled output, Colour system, Broadcast system, Channel, Frequency (kHz), Channel spacing, Select input, and RF level correction. The Select input field has a 'Services...' button next to it, which is highlighted with a red arrow pointing to the text 'Click the Service button'. The Status information section shows the status as 'not configured' and the version as '1.8.1.15262'.

Click the Service button

The 'Select services' dialog box displays a list of services available for selection. The table below shows the data from the dialog:

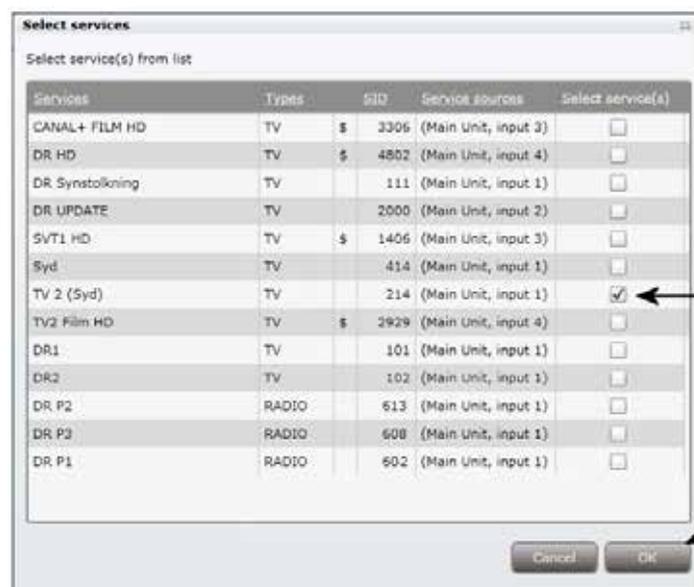
Services	Type	SID	Service source	Select service(s)
CANAL+ FILM HD	TV	3306	(Main Unit, input 3)	<input type="checkbox"/>
DR HD	TV	4802	(Main Unit, input 4)	<input type="checkbox"/>
DR Synstolkning	TV	111	(Main Unit, input 1)	<input type="checkbox"/>
DR UPDATE	TV	2000	(Main Unit, input 2)	<input type="checkbox"/>
SVT1 HD	TV	1406	(Main Unit, input 3)	<input type="checkbox"/>
Syd	TV	414	(Main Unit, input 1)	<input type="checkbox"/>
TV 2 (Syd)	TV	214	(Main Unit, input 1)	<input type="checkbox"/>
TV2 Film HD	TV	2929	(Main Unit, input 4)	<input type="checkbox"/>
DR1	TV	101	(Main Unit, input 1)	<input type="checkbox"/>
DR2	TV	102	(Main Unit, input 1)	<input type="checkbox"/>
DR P2	RADIO	613	(Main Unit, input 1)	<input type="checkbox"/>
DR P3	RADIO	608	(Main Unit, input 1)	<input type="checkbox"/>
DR P1	RADIO	602	(Main Unit, input 1)	<input type="checkbox"/>

TDX Service Tool

Note Using a PAL or PAL HD downscale module you can only output one service on each RF channel.

In the Select Services window you can select the service that you want to output.

Note By clicking one of those column headlines that are underlined in the Select services window you can sort the list into alphabetical or numerical order depending on which column headline you click.



1. Click the square to select a service

2. Click OK to save and leave the window

To select a service, click the check box (square) to the right of the service you want.

Click OK to return to the Configuration window.

Now you continue to select or enter values in the other fields in the Configuration window.

RF level correction

To select another RF level correction, open the drop-down list with the levels you can choose from.

Select the level you want to use.

Aspect ratio

To select the desired picture format, open the drop-down list with the formats you can choose from.

Select the format you want to use.

TDX Service Tool

The screenshot shows the TRIAX TDX Service Tool interface. At the top, there is a navigation menu with tabs for System, Input, CA Modules, Output (highlighted in red), Network, IPTV, and Channel list. Below the navigation menu, there are buttons for Apply, Log out, and Admin. The main content area is titled 'PAL output setup' and includes a 'back' button. The configuration is divided into two columns. The left column includes: Disabled output (checked), Colour system (PAL), Broadcast system (R/G), Channel (CH21 (471250)), Frequency (KHz) (471250), Channel spacing (8 MHz), Select input (SERVO), and RF level correction (-3 dB). The right column includes: Aspect ratio (Letterbox), First audio language (English), Second audio language (English), Audio system (MONO), Audio level correction (0 dB), First subtitle language (English), Second subtitle language (English), Preferred subtitling type (DVB subtitles), Subtitles offset (pixels) (0), and Disable teletext (checked). A 'Submit' button is located at the bottom right. At the bottom, there is a 'Status information' section showing 'Status: Not configured' and 'SW-Revision: 1.8.1.15262'.

First audio language

To select the preferred audio language, open the drop-down list with the languages you can choose from. Select the language you want to use.

Second audio language

To select the second choice of audio language, open the drop-down list with the languages you can choose from. Select the language you want to use.

Audio system

To select audio system, open the drop-down list with the audio systems you can choose from. Select the audio system you want to use.

Audio level correction

To make a correction to the audio level, open the drop-down list with the correction in decibel (dB) you can choose from. Select the audio level correction you want to use.

First subtitle language

To select the preferred subtitle language, open the drop-down list with the languages you can choose from. Select the language you want to use.

TDX Service Tool

Second subtitle language

To select the second choice of subtitle language, open the drop-down list with the languages you can choose from.

Select the language you want to use.

Preferred subtitling type

To select the desired subtitling type or to turn subtitling off, open the drop-down list with the options you can choose from.

Select the subtitling type you want to use.

Subtitles offset

To move the position of the subtitles on a TV screen a bit up or down you can enter the number of pixels (from -40 to +40) you want to move the subtitles up or down in the Subtitles offset field.

Disable teletext

If you want to make teletext unavailable, click the Disabled teletext check box.

The screenshot shows the TRIAX TDX Service Tool interface. At the top, there is a navigation bar with tabs for System, Input, CA Modules, Output (selected), Network, DTV, and Channel list. Below the navigation bar, there are buttons for Apply, Logout, and Admin. The main content area is titled 'PAL output setup' and 'Main unit - Slot 1 - Output'. It contains a 'Configuration' section with various settings:

- Disabled output:
- Colour system: PAL
- Broadcast system: B/G
- Channel: CH21 (471250)
- Frequency (KHz): 471250
- Channel spacing: 8 MHz
- Select input: Genlock
- RF level correction: -3 dB
- Aspect ratio: Letterbox
- First audio language: Danish
- Second audio language: English
- Audio system: MONO
- Audio level correction: +3 dB
- First subtitle language: Danish
- Second subtitle language: English
- Preferred subtitling type: DVB subtitles
- Subtitles offset (pixels): 0
- Disable teletext:

At the bottom right of the configuration section is a 'Submit' button. Below the configuration section is a 'Status information' section with the following data:

Status	SW-Revision
Not configured	1.8.1.13262

Note

When you display the Configuration window for an output module that has been configured, all fields are filled in and services have been selected.

If you want to change the existing values or services just follow the same procedure as when you configure an output module for the very first time.

When you have selected or inserted the values you want, you have to click the Submit button to enter this information into the headend system and return to the Output window.

TDX Service Tool

TRIAX TDX Service Tool

System Input CA Module **Output** Network IPTV Channel list Apply Log out Admin

back PAL output setup
Main unit - Slot 1 - Output

Configuration

Disabled output	<input checked="" type="checkbox"/>	Aspect ratio	Letterbox
Colour system	PAL	First audio language	Danish
Broadcast system	B/G	Second audio language	English
Channel	CH21 (471250)	Audio system	MONO
Frequency (KHz)	471250	Audio level correction	+3 dB
Channel spacing	8 MHz	First subtitle language	Danish
Select input	VIDEO1	Second subtitle language	English
RF level correction	-3 dB	Preferred subtitling type	DVB subtitles
		Subtitles offset (pixels)	0
		Disable teletext	<input checked="" type="checkbox"/>

Submit

Status Information

Status	SW-Revision
Not configured	1.8.1.15262

Click the Submit button to save your selections

Remember to click the Apply button in the upper right-hand corner to save new settings in the configuration.

Status information

Status information is placed at the bottom of the Configuration window. The information displayed in the configuration window of a PAL module includes status and revision of software.

Status Informs you about the state of the output module.

SW revision Displays the software version of the output module.

TRIAX TDX Service Tool

System Input CA Module **Output** Network IPTV Channel list Apply Log out Admin

back PAL output setup
Main unit - Slot 1 - Output

Configuration

Disabled output	<input checked="" type="checkbox"/>	Aspect ratio	Letterbox
Colour system	PAL	First audio language	Danish
Broadcast system	B/G	Second audio language	English
Channel	CH21 (471250)	Audio system	MONO
Frequency (KHz)	471250	Audio level correction	+3 dB
Channel spacing	8 MHz	First subtitle language	Danish
Select input	VIDEO1	Second subtitle language	English
RF level correction	-3 dB	Preferred subtitling type	DVB subtitles
		Subtitles offset (pixels)	0
		Disable teletext	<input checked="" type="checkbox"/>

Submit

Status Information

Status	SW-Revision
OK	1.8.1.15262

Information

TDX Service Tool

When you return to the Output window the configuration of the output module is displayed in the module list.

The screenshot shows the TRIAX TDX Service Tool interface. The 'Output' window is active, displaying a table of output modules. The table has the following columns: Slot, Output, HW installed, Channel, and Status. The table is organized into sections for 'Main unit (16 items)' and 'Unit 1 (4 items)'. The 'Status' column shows 'OK' for module 4-1 and 'Not configured' for all other modules. An arrow points to the 'OK' status of module 4-1, with the text 'Output modules that have been configured' next to it.

Slot	Output	HW installed	Channel	Status
Main unit (16 items)				
1	1	FAL	Ch-21	OK
1	2	FAL	Ch-22	Not configured
1	3	FAL	Ch-23	Not configured
1	4	FAL	Ch-24	Not configured
2	1	FAL output configured as NONE		Not configured
2	2	FAL output configured as NONE		Not configured
2	3	FAL output configured as NONE		Not configured
2	4	FAL output configured as NONE		Not configured
3	1	COFDM output configured as NONE		Not configured
3	2	COFDM output configured as NONE		Not configured
3	3	COFDM output configured as NONE		Not configured
3	4	COFDM output configured as NONE		Not configured
4	1	FAL HD->SD	Ch-35	OK
4	2	FAL HD->SD	Ch-36	Not configured
4	3	FAL HD->SD	Ch-37	Not configured
4	4	FAL HD->SD	Ch-38	Not configured
Unit 1 (4 items)				
1	1	QAM output configured as NONE		Not configured
1	2	QAM output configured as NONE		Not configured
1	3	QAM output configured as NONE		Not configured
1	4	QAM output configured as NONE		Not configured

Now you can continue to configure the other output modules one by one, following the procedure described on the previous pages.

Delete output modules

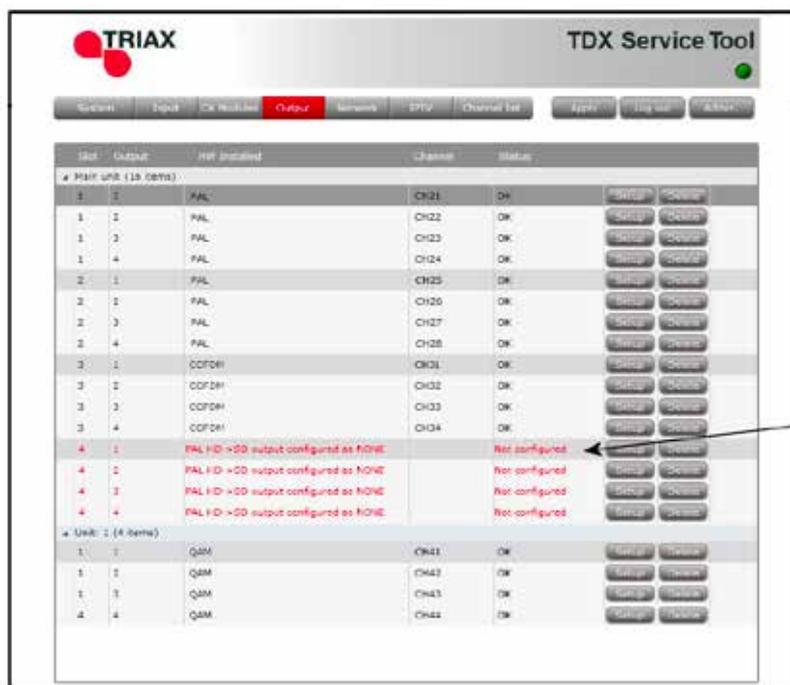
If you want to remove an output module and the associated configuration you can use the Delete button of the module in question in the Output window.

Click the Delete button of the PAL or PAL HD downscale output module you want to remove.

A message window is displayed asking you to confirm that you want to remove the output module.



Until you have removed the output module physically from the headend unit the module list will display four lines with the writing in red.



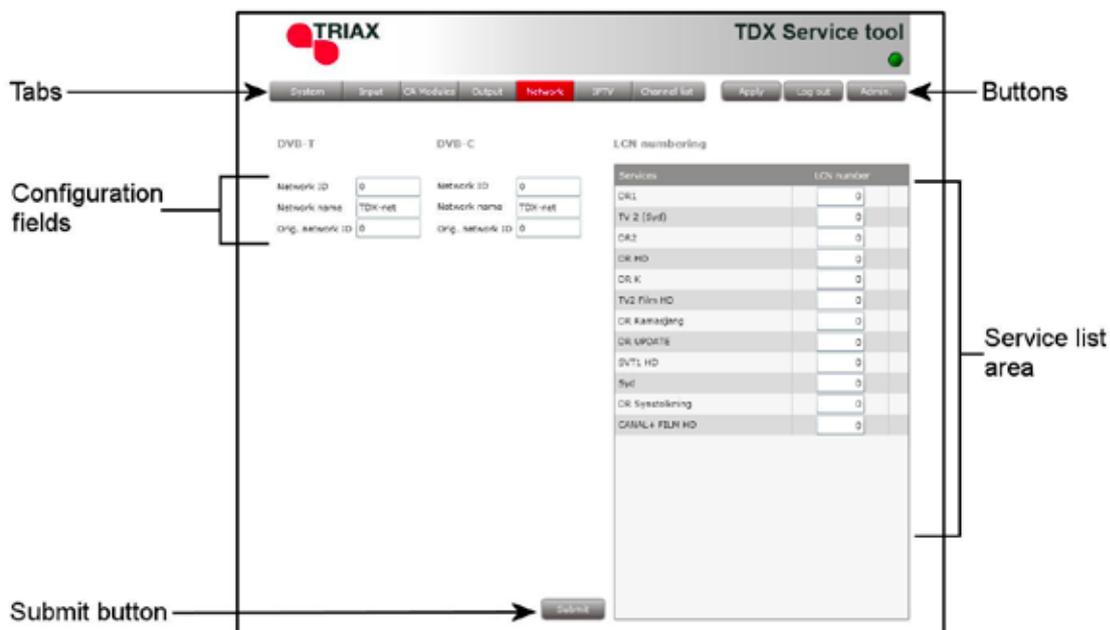
The configuration has been deleted

TDX Service Tool

Network window

Click the Network tab in the TDX Service Tool to display the Network window.

The first time you display the Network window the fields in the window will display a default value. The service list area will display all the digital services you have configured to output using the Output tab.



End-users may need the network ID if they have to make a NIT (Network Information Table) search when searching for services on their televisions or set-top boxes. Some set-top boxes may also need the original network ID in connection with a NIT search.

You have to state network ID's and names for both DVB-T and DVB-C.

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.

Network name

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

Set original ID

If you want to change the default values of the original network ID, click Set original ID check box to enable the Orig. network ID field.

Orig. network ID

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

A barker channel carries all EIT information for a number of services.

TDX Service Tool

Using a barker channel all EIT information will be transferred from the individual outputs to the barker channel thereby making more room/ payload available to the output of services.

Note If you to use a barker channel to carry the EIT information you have to make sure that the set-top boxes used by end-users are NorDig compliant, i.e. they can read a Linkage Descriptor from a NIT.

Enable barker channel for DVB-T/ DVB-C Click the this check box to enable a barker channel for DVB-T and/or DVB-C .

Unit Enter the ID number of the unit you where you want to place the barker channel. You can enter values 1-3.
"1" = main unit
"2" = unit 1
"3" = unit 2

Backend Enter the number of the output module where you want to place the barker channel. You can enter values 1-6

Output Enter the number of the output where you want to place the barker channel. You can enter values 1-4.

In the service list area you determine the numerical output order of the digital services on the television or set-top box of the end-user.

LCN number Enter the desired number in the LCN number field to the right of each service in the service list area.

Note You cannot give the same LCN number to more services.

When you have inserted the values you require you have to click the Submit button to enter this information in to the headend system.

The screenshot shows the TRIAX TDX Service tool interface. At the top, there is a navigation bar with tabs for System, Input, CA Modules, Output, Network (highlighted in red), IPTV, and Channel list. Below the navigation bar, there are three main sections: DVB-T, DVB-C, and LCN numbering. The DVB-T section has fields for Network ID (13313), Network name (Triax Net), and Orig. network ID (73). The DVB-C section has fields for Network ID (43264), Network name (Triax Net), and Orig. network ID (73). The LCN numbering section is a table with two columns: Tjenester and LCN number. The table contains 15 rows of services with their corresponding LCN numbers. A Submit button is located at the bottom right of the interface, with an arrow pointing to it from the text 'Click the Submit button to enter the information'.

Tjenester	LCN number
DR1	1
TV 2 (Syd)	2
DR2	3
DR HD	4
DR K	5
TV2 Film HD	7
DR Ramasjang	8
DR UPDATE	9
SVT1 HD	11
Syd	12
DR Syratolking	13
CANAL+ FILM HD	15

TDX Service Tool

Remember to click the Apply button in the upper right-hand corner to save new settings.

Channel list

Click the Channel list tab in the TDX Service Tool to display the Channel list window.

When you have finished configuring all the output modules you have inserted in to the headend units the Channel list tab displays a list with all the channels and services that you have selected.

Channel	Mux name	Services	Output
CH21		DR 1	PAL (Main Unit, Slot 1-1)
CH22		DR Update	PAL (Main Unit, Slot 1-2)
CH23		DR 2	PAL (Main Unit, Slot 1-3)
CH24		TV2	PAL (Main Unit, Slot 1-4)

TDX Service Tool

Save configuration

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



Click the Apply button to save the changes

Apply

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

Click the Apply button to **save** the changes. When changes have been saved the “Apply” text loses the red colour.

WARNING - All unsaved changes will be lost in case of a power cut

Manufacturer

Manufacturer

Dear Customer,

Should you require technical assistance in the event that your expert dealer is unable to help you, please contact us at:

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