



# TRM342CI

DVBS/S2 -> DVBT/C  
Transmodulator  
with double CI slot



USER MANUAL V1.0

**CONTENTS**

1 - Safety considerations.....	page 3
2 - Functional description of TRM342CI.....	page 4
3 - Description of the different elements.....	page 4
4 - Installing the software DTVIface .....	page 5
5. Programming the TRM342CI.....	page 5
5.1 Programming the satellite receiver module (DTVRR7).....	page 6
5.2 Programming the modulator module (DTVDM4).....	page 7
5.3 Conversion to DVBC mode.....	page 7
5.4 Adding programs to the output.....	page 8
5.5 Descrambling programs.....	page 8
5.6 Accessing the CAM menu.....	page 9
5.7 CAM Watchdog.....	page 10
5.8 Remove CAT/EMM.....	page 10
6. Technical specifications.....	page 11

## **1. - Safety considerations**

### 1.1 CONNECTING TO THE MAINS SUPPLY

This product has to be connected to the mains supply. If there is the slightest doubt concerning the type of connection available on the installation, please contact your supplier of electricity. Before carrying out maintenance operation or modification of the installation, the modulator has to be disconnected. Remark : only use the supplied power adaptor.

### 1.2 OVERVOLTAGE

An overvoltage on the mains supply, can cause shortcircuits or fire. Never overload the power lines.

### 1.3 LIQUIDS

This module should be protected from splashes. Please assure yourself that no containers containing liquids are placed on this module. Also be aware of other persons splashing liquids on the module.

### 1.4 CLEANING

Disconnect the module before cleaning. Use only a humid cloth without solvent.

-

### 1.5 VENTILATION

In order to assure an adequate air circulation and to prevent overheating, the ventilation holes should not be obstructed. The module may not be installed in a hermetically sealed environment. Other electronic products or heat producing items may not be placed upon or near the module.

### 1.6 ACCESSORIES

The use of accessories not manufactured by the manufacturer can cause damage to the module.

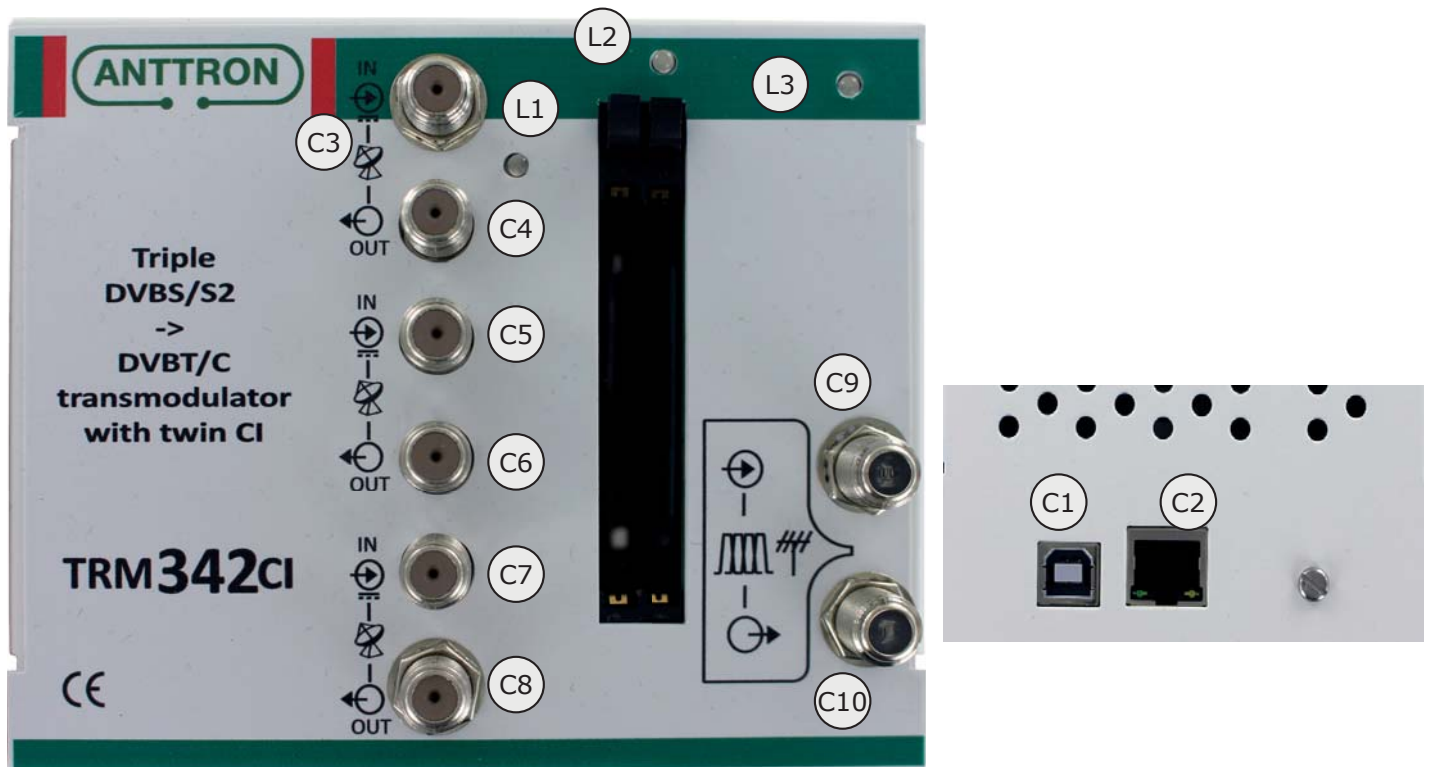
### 1.7 INSTALLATION OF THE MODULE

The module must be installed in a place well protected from direct sunlight. All measures have to be taken to avoid installation in humid or sunny place. Do not install near heating elements or other devices producing heat. Assure yourself that the module is placed at least 10 cm from other equipment with is susceptible to electromagnetic radiation. Do not install the module on instable items. A fall can cause physical or material damage.

## 2 - Function of TRM342CI

The TRM342CI is a transmodulator. It allows to receive satellite programs (DVBS/S2) from three different satellite transponders. The programs of these transponders can be selected and decrypted using two CI slots and modulated in DVBT or DVBC . For this, you have available four adjacent DVBT/ DVBC channels.

## 3 - Description of the different elements



- C1** USB input( for programming the TRM342CI by PC)
- C2** RJ45 connection (for programming TRM342CI by LAN or over web)
- C3** LNB A input
- C4** LNB A output
- C5** LNB B input
- C6** LNB B output
- C7** LNB C input
- C8** LNB C output
- C9** RF input
- C10** RF output

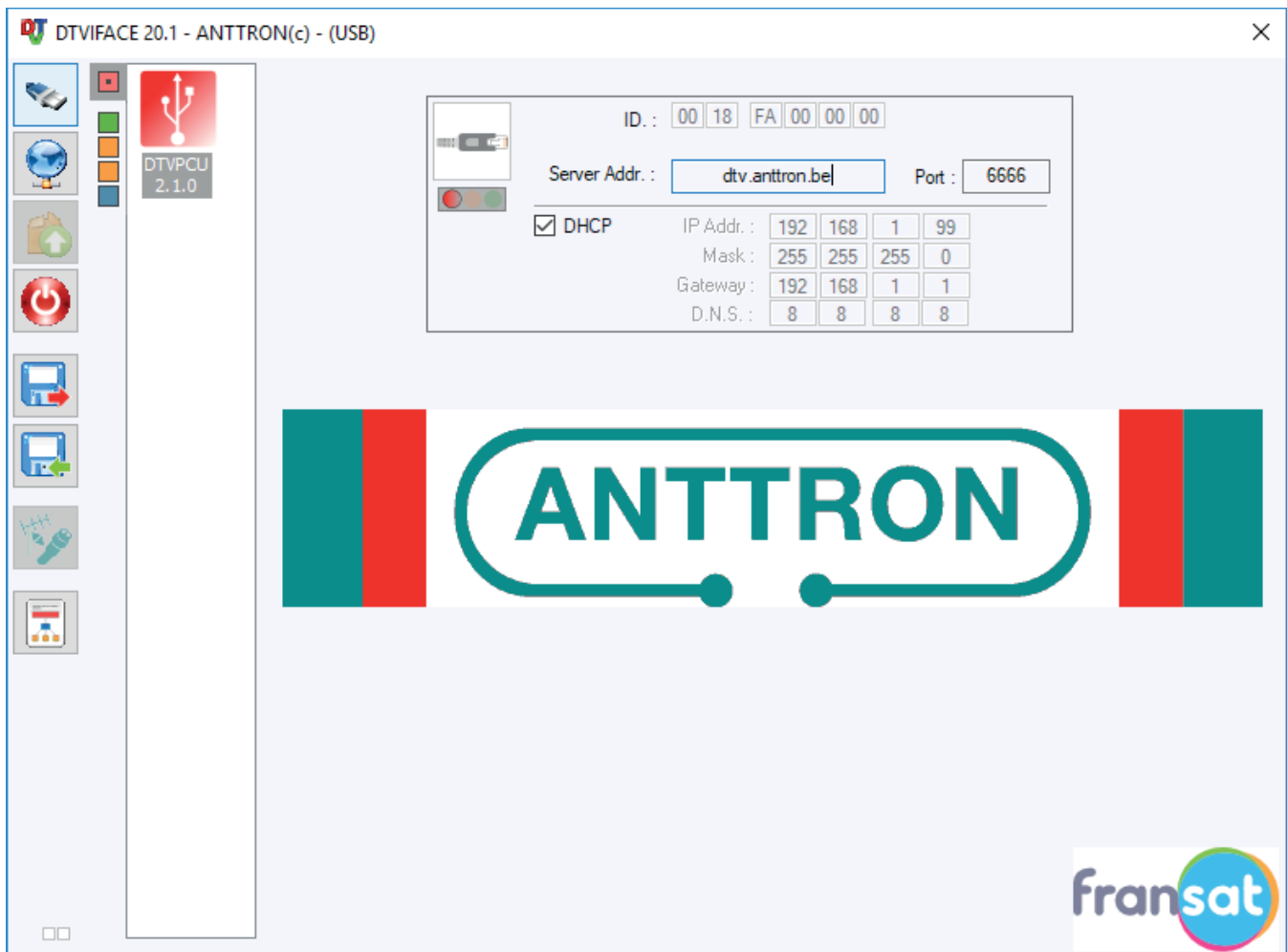
- L1** Status LED - satellite receiver module (this LED blinks three times green if all tuners are locked, a red blink (first,second, or third) indicates that a tuner is not locked.)
- L2** Status LED - twin CI module (this LED blinks two times green if two CAMs have been inserted and recognised by the TRM342CI)
- L3** Status LED - DVBT/C modulator module (this LED blinks green in normal operation, in the case no valid transport stream received by the modulator, it blinks red).

#### **4. - Installing the software DTVIface**

Before you can start to configure the TRM342CI, you need to install the software DTVIface. Please refer to the manual of DTVIface for installing the software on your computer.

#### **5. - Programming the TRM342CI**

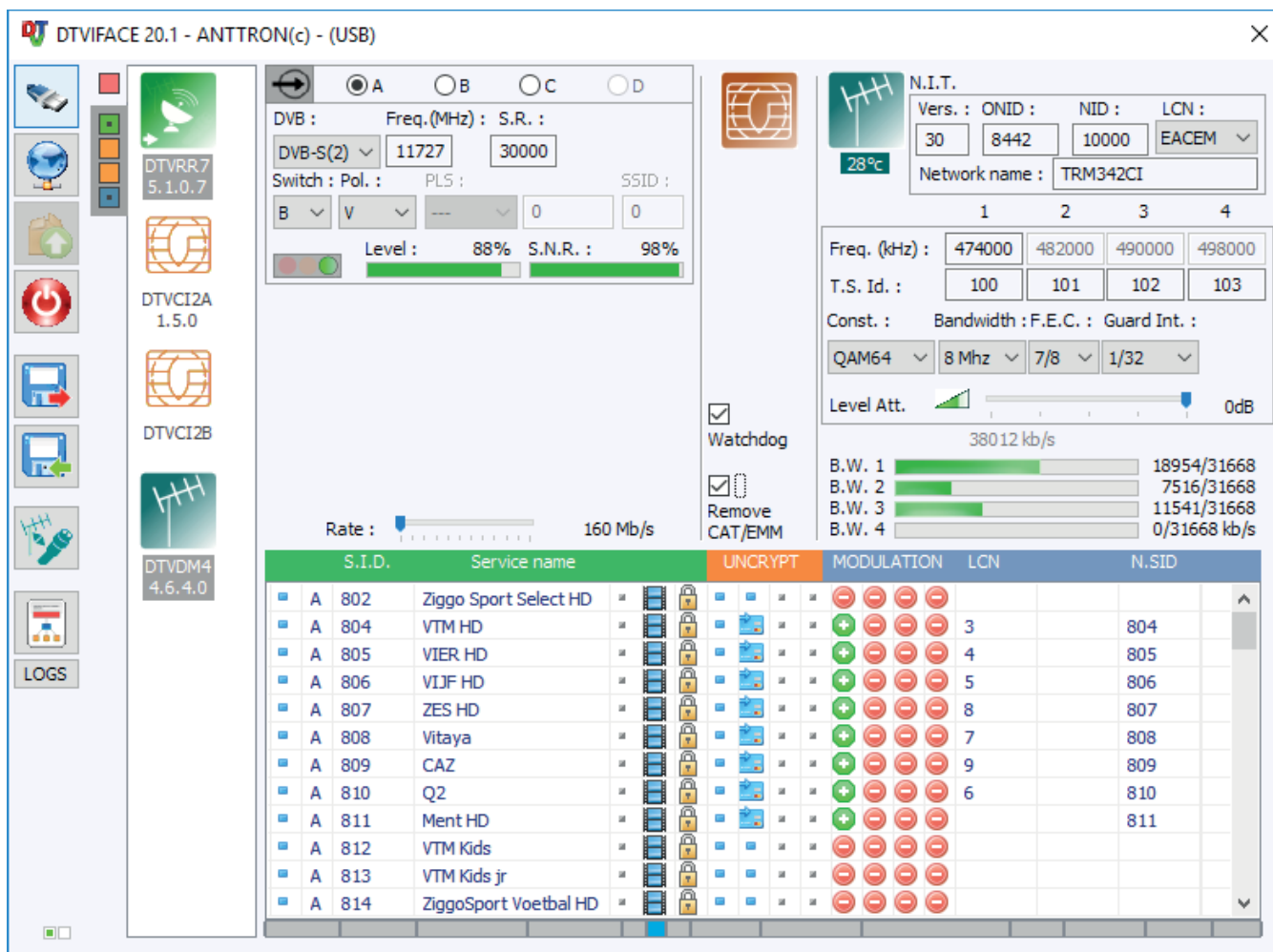
When you first connect the TRM342CI with an USB cable to your PC and you launch DTVIface, you will see following screen :



On the left side you see the icons related to the DTVIface functions. (see DTVIface). In the column right to this you have five squares (red square = control unit / green square = satellite receiver module / two orange squares for the twin CI module / blue square = quad DVBT/C modulator).

Clicking on the red square gives you information on the network settings which are usefull when you want to program the unit over LAN or over web.

When you click on the green or blue square you enter the settings of the combination receiver/twin CI module / modulator.



### 5.1 - Programming the satellite receiver module (DTVRR7)

In the left corner above you can select the tuners A, B, or C. For each tuner you can input the satellite frequency, symbol rate, polarity and DiSEqC input (in the case you are making connection to a satellite multiswitch.)

If valid parameters are entered and a satellite signal is present, the LED indication besides Level and S.N.R indication will turn into green indicating that the tuner has locked. At the same time an indication is given on signal strength and quality.

Below these fields you have a slider for rate.

The settings for the slider are dependent of the CAMs you are using. It should be set to a value that is lower than the permissible rate for the CAM used. Check the technical information of the CAM to find out this value.

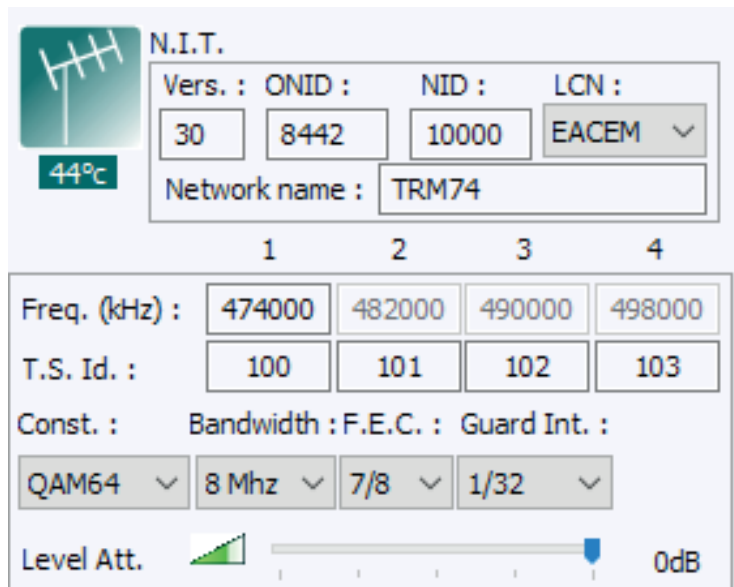


### 5.2 - Programming the modulator module (DTVDM4)

In the right corner above you can program the DVBT/C modulator DTVDM4.

You can enter NIT version, ONID, NID, LCN mode and Network Name.


The four output channels are adjacent. This means that you can enter the output frequency for the first channel only. The frequency of the other channels will be adjusted automatically. Furthermore you can adjust for each channel the T.S. Id. For the group of channels, modulation parameters and output level can be set.

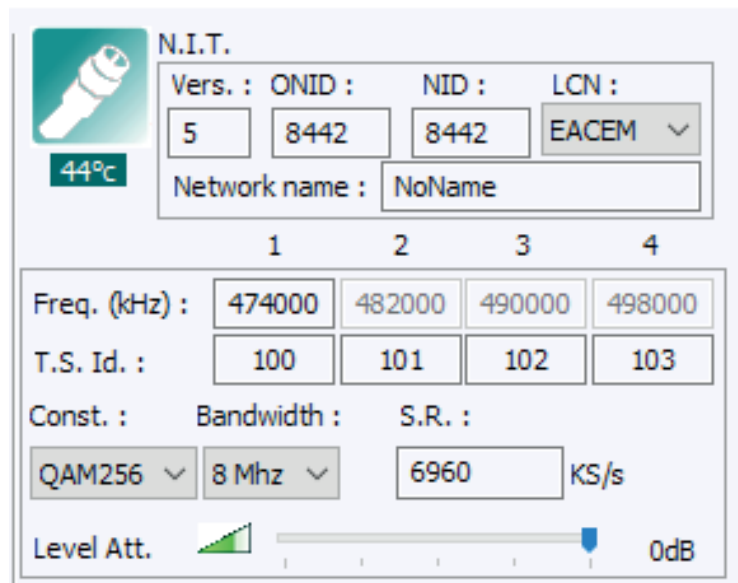


### 5.3 - Conversion to DVBC mode (DTVCM4)

The TRM342CI has the ability to modulate in DVBC mode as well as in DVBT mode. In order to switch between DVBC and DVBT mode, press the  button in the left column. After confirming your choice the TRM342CI will reboot and will be set in DVBC mode.



Now, DVBC modulation parameters can be entered.




















































To switch back to DVBT mode press the  button again.



### 5.4 - Adding programs to the output

If satellite programs are being received, they will be listed in the table below the settings for input and output. The list contains the origin (input A,B,or C) the service ID, service name, the symbol for a TV program or radio program and a symbol indicating if it concerns a FTA or scrambled program.

In the modulation column, you have the ability to add this program to one of the four adjacent output channels by double clicking the  symbol. The symbol will change into , indicating that the program has been added to this specific channel.

■	A	12020	RTL2									1		12020
■	A	12030	TOGGO plus											
■	A	12040	SUPER RTL											
■	A	12060	VOX									2		12060
■	A	12061	NITRO									3		12061
■	A	12080	RTLplus									4		12080
■	A	12090	n-tv									5		12090

Furthermore you can add a LCN number to the program and you can change the service ID (most right column) of the program when it is transmitted in the output.





















































When adding programs to the output channel(s), you will see that the bandwidth occupation for a specific channel increases. It is wise not to exceed about 80% of the channel capacity in order not to create possible overflows.



### 5.5 - Descrambling programs

In the program list window besides the padlock, you have two columns available where you can descramble the programs. The left column indicates the CI slot to the left, the right column the CI slot to the right.

In the list of programs received, double-click on the first or the second column in order to indicate where you want to unscramble the program. You can select multiple services in the list using CTRL key when single clicking on the services you want to descramble in the same CI slot (multiple selection) and just double-click on the last service maintaining the CTRL key on the keyboard.

■	A	804	VTM HD									3		804
■	A	805	VIER HD									4		805
■	A	806	VIJF HD									5		806
■	A	807	ZES HD									8		807
■	A	808	Vitaya									7		808
■	A	809	CAZ									9		809
■	A	810	Q2									6		810



The programs you have indicated to be decrypted will show a creditcard symbol in the first or second column depending of where you wanted to descramble the service. Double click again on the symbol to remove the decryption.

The number of programs that can be decrypted for each CI slot are dependant on the CAM and CARD used.

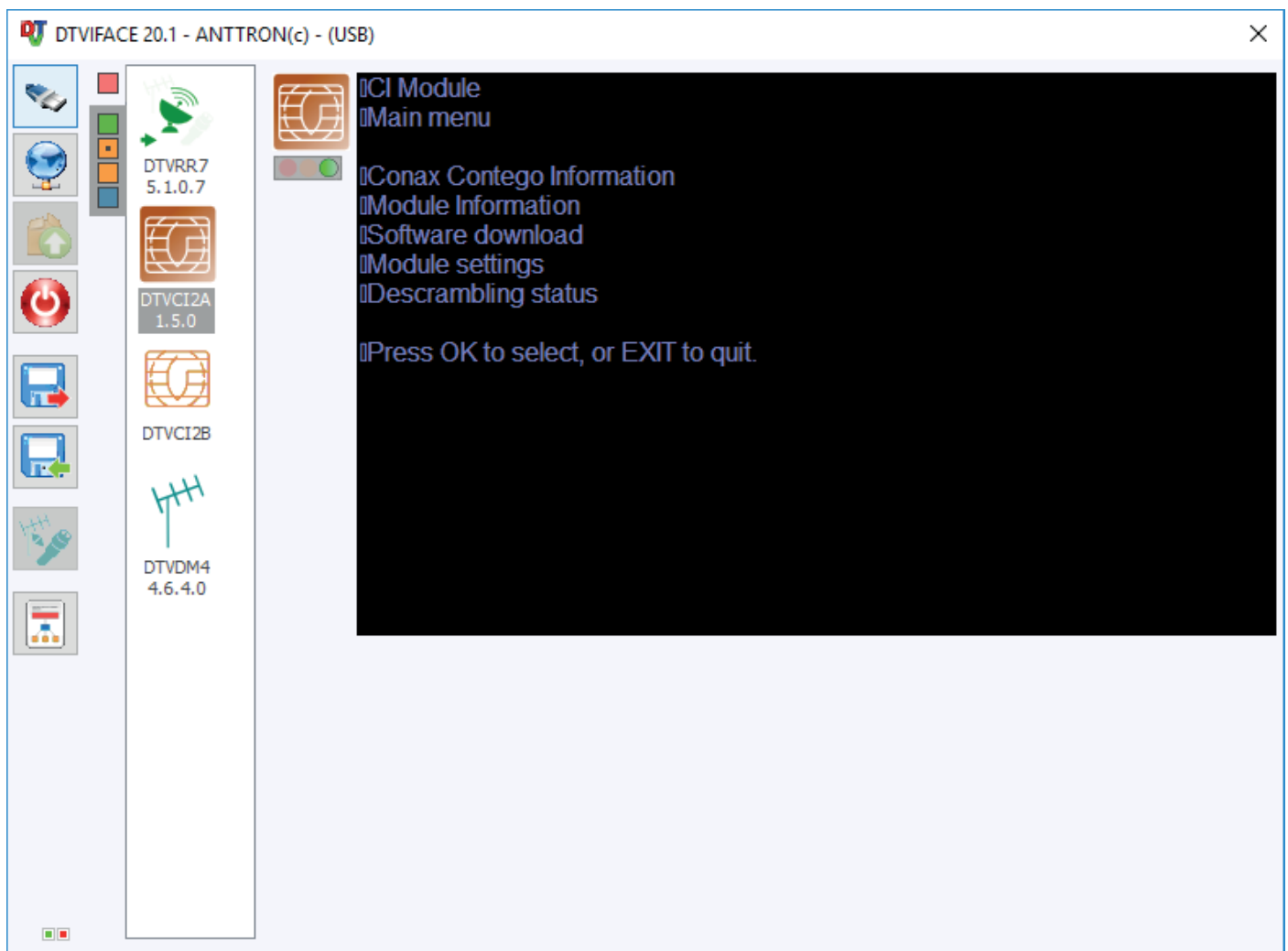
## **5.6 - Accessing the CAM menu**

In order to access the CAM menu, you have to make sure that at least one program is descrambled using that CAM.

You can enter the CAM menu by clicking on the first or second orange square in the left column :



Once clicked, the CAM menu appears.



## **5.7 - CAM watchdog**

By activating watchdog in the CI field, you will activate a watchdog for the CAMs. This means that the modulator will monitor if the programs you asked to be descrambled are really descrambled. In the case a problem is seen the CAM will be reset by the headend automatically after 60 seconds.



## **5.8 - Remove CAT/EMM**

By activating this option, all tables containing CAT and EMM information will be removed from the modulator output.



## 6. Technical specifications

<b>SAT inputs</b> (x3 - TRM342CI)	Frequency	950-2150 MHz
	Input level	-65 dBm à -25 dBm
	Insertion loss	< 2.5 dB
	LNB supply	13/18V - Tone - DiSEqC (300mA each input)
<b>Demodulator/decoder</b>		
DVB-S	Modulation - symbol rate	QPSK - 1....45 MSps
	Code rate (Viterbi)	1/2, 2/3, 3/4, 5/6, 7/8
DVB-S2	Modulation - symbol rate	QPSK/8PSK - 1....45 MSps
DVB-S2	Code Rate (LDPC)	QPSK = 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
		8PSK = 3/5, 2/3, 3/, 5/6, 8/9,9/10
<b>DVBT output</b> (4 adjacent channels TRM342CI)	Maximum output Attenuation Insertion loss	> 90 dB $\mu$ V 1 - 20dB (using DTVIface) < 2 dB
	Output frequency	170-230 MHz + 470-862 MHz
	Constellation	QPSK/16QAM/64QAM
	FEC	1/2, 2/3, 3/4, 5/6, 7/8
	Guard interval	1/4, 1/8, 1/16, 1/32
	Mode - MER	2K - >35 dB
<b>DVBC output</b> (4 adjac. channels TRM342CI)	Maximum output Attenuation Insertion loss	> 90 dB $\mu$ V 1 - 20dB (using DTVIface) < 2 dB
	Output frequency	50-862 MHz
	Constellation	16,32,64,128,256 QAM (EN 300 429)
	Symbol Rate	4 - 6.96 Mb/s
	MER	> 41 dB
	DVB Processing	TsID, NIT version, ONID, NID, Network Name, SID, LCN, HDLCN
<b>Power</b>	Input	100-240 VAC / 50-60Hz / 18 W
<b>Dimensions</b>	Length x Height x Width	181mm x 103 mm x 130mm
	Weight	T1.7 kg
<b>EAN code</b>	TRM342CI	5420037699674