



# TRM23F

DVBS/S2 -> DVBT  
Transmodulator



USER MANUAL V1.0

**CONTENTS**

1 - Safety considerations.....	page 3
2 - Functional description of TRM23F.....	page 4
3 - Description of the different elements.....	page 4
4 - Installing the software DTVIface .....	page 5
5. Programming the TRM23F.....	page 5
5.1 Programming the satellite receiver module (DTVRR2).....	page 6
5.2 Programming the modulator module (DTVDM3F).....	page 7
5.3 Adding programs to the output.....	page 7
6. Technical specifications.....	page 8

## **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.

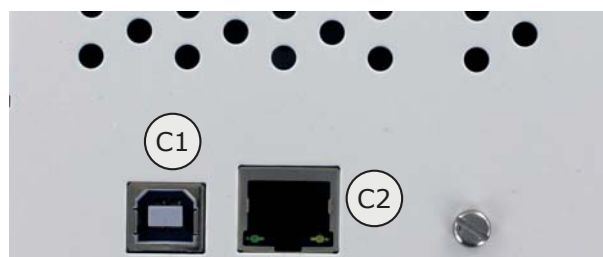
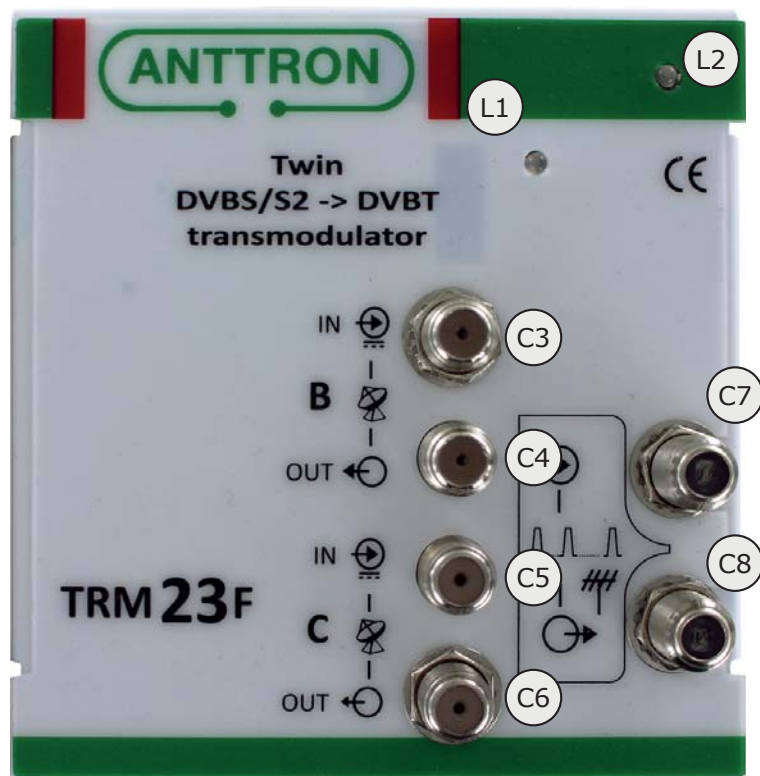
### 1.7 INSTALLATION OF THE MODULE

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 TRM23F

The TRM23F is a transmodulator. It allows to receive satellite programs (DVBS/S2) from two different satellite transponders. The programs of these transponders can be selected and modulated in DVBT. For this, you have available three DVBT channels. The output channel of these three can be freely chosen in VHF or UHF band.

## 3 - Description of the different elements



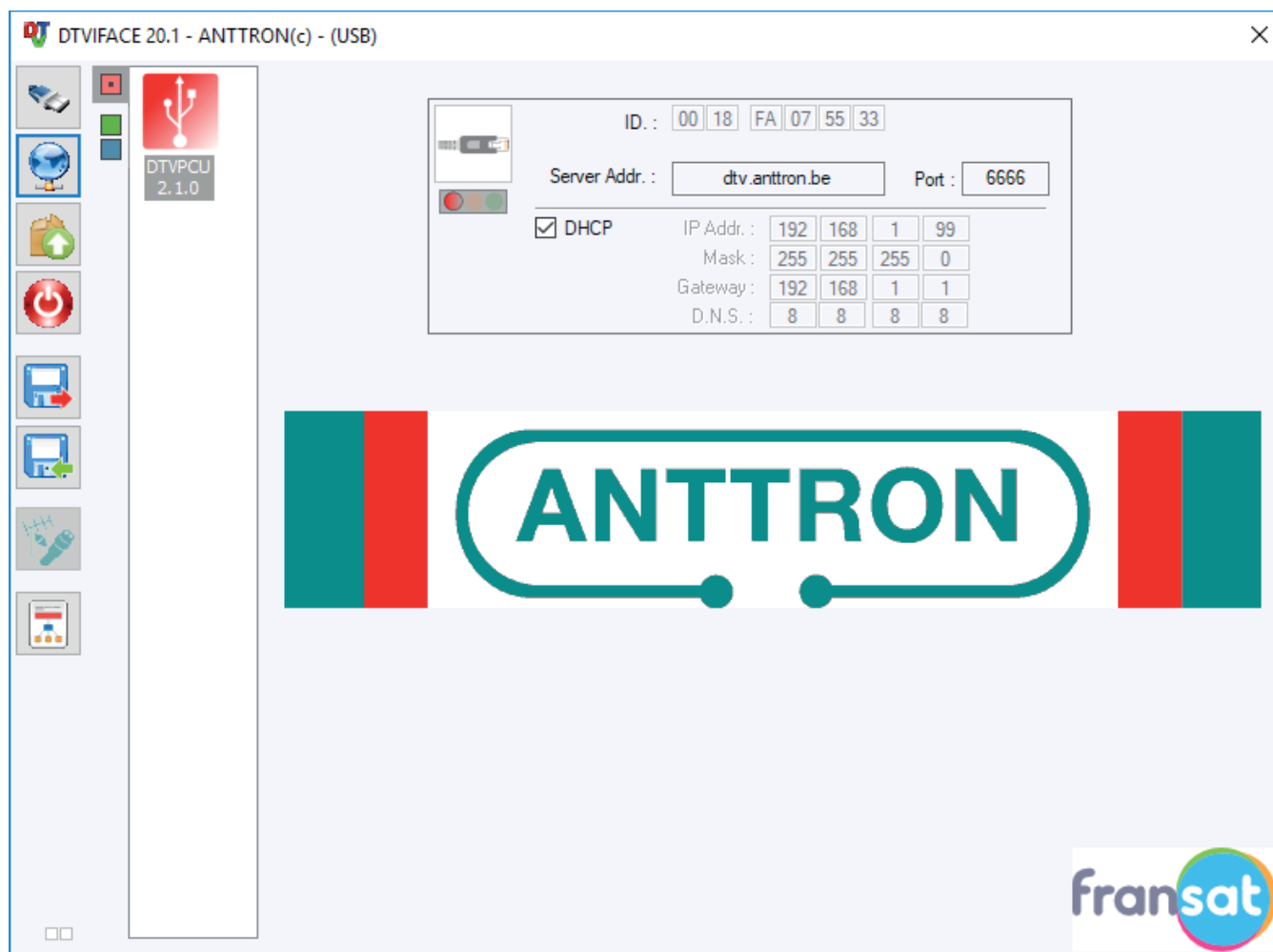
- C1** USB input( for programming the TRM23F by PC)
- C2** RJ45 connection (for programming TRM23F by LAN or over web)
- C3** LNB B input
- C4** LNB B output
- C5** LNB C input
- C6** LNB C output
- C7** DVBT input (bypass)
- C8** DVBT output
- L1** Status LED - satellite receiver module (this LED blinks two times green if both tuners are locked, a red blink (first or last) indicates that a tuner is not locked.)
- L2** Status LED - DVBT 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 TRM23F, you need to install the software DTViface. Please refer to the manual of DTViface for installing the software on your computer.

#### 5. - Programming the TRM23F

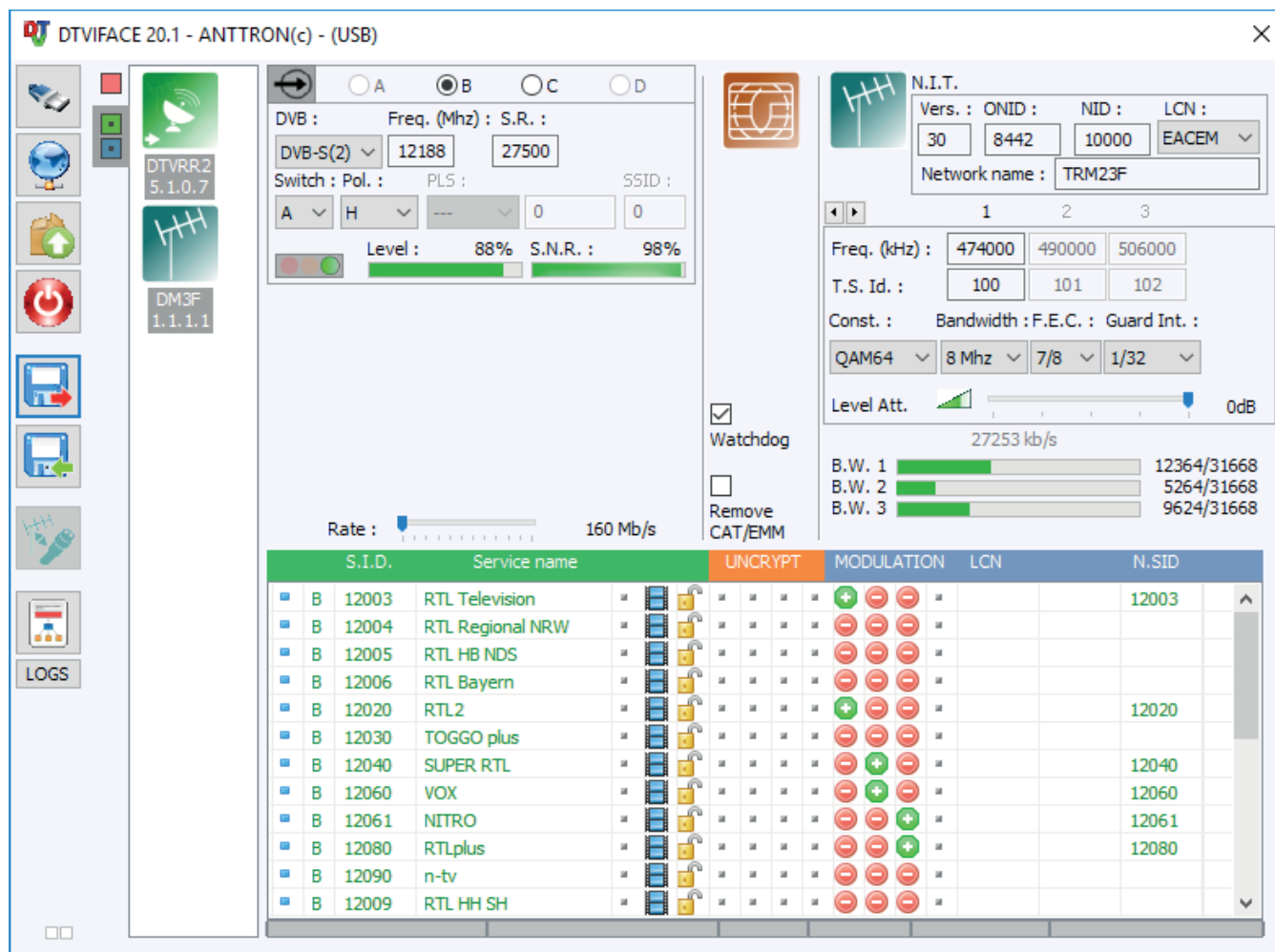
When you first connect the TRM23F with an USB cable to your PC and you launch DTViface, you will see following screen :



On the left side you see the icons related to the DTViface functions. (see DTViface). In the column right to this you have three squares (red square = control unit / green square = satellite receiver module / blue square = triple DVBT 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 setting of the combination receiver/modulator.



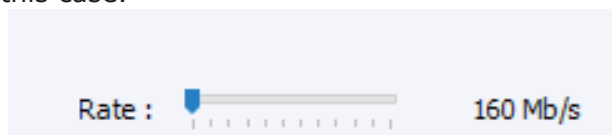
## 5.1 - Programming the satellite receiver module (DTVRR2)

In the left corner above you can select the tuner 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.)

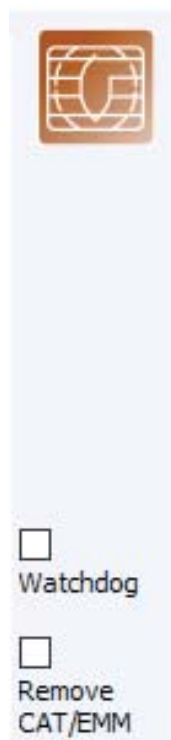
If valid parameters are entered and a satellite signal is present, the LED indication besides Level and S.N.R indication will turn into green indicating that the tuner has locked. At the same time an indication is given on signal strength and quality.

Below these fields you have a slider for rate.

This is only needed for systems having a CI slot, the value can be left at 160 Mb/s in this case.



Also, the indications for watchdog and Remove CAT/EMM are only intended for systems having a CI slot.





## 5.2 - Programming the modulator module (DTVDM3F)

In the right corner above you can program the DVBT modulator DTVDM3F.

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

For each output channel (use the small arrows to go from one output channel to the next and vice versa) you can adjust the frequency, T.S. Id, modulation parameters and output level.

N.I.T.

Vers. : ONID : NID : LCN :

30 8442 10000 EACEM

Network name : TRM23F

1 2 3

Freq. (kHz) : 474000 490000 506000

T.S. Id. : 100 101 102

Const. : Bandwidth : F.E.C. : Guard Int. :

QAM64 8 Mhz 7/8 1/32

Level Att. 0dB

## 5.3 - Adding programs to the output

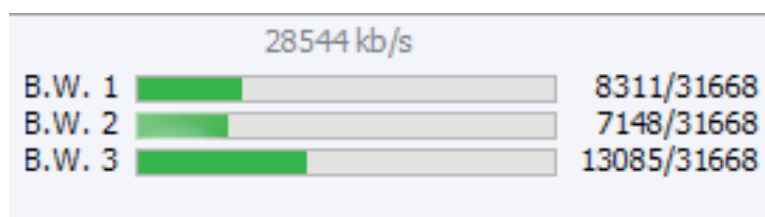
If satellite programs are being received, they will be listed in the table below the settings for input and output. The list contains the origin (input B or C) the service ID, service name, the symbol for a TV program or radio program and a symbol indicating if it concerns a FTA or scrambled program.

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

	B	12020	RTL2									1	12020
	B	12030	TOGGO plus									2	12040
	B	12040	SUPER RTL									3	12060
	B	12060	VOX									4	12061
	B	12061	NITRO									5	12080
	B	12080	RTLplus										

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 channels 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.



## 6. Technical specifications

<b>SAT inputs : 2</b>	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
<b>DVBT output</b> (3 channels)	Maximum output	> 90 dBμV
	Attenuation	1 - 20dB (using DTViface)
	Insertion loss	< 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 / 8K- >31 dB
<b>Power</b>	Input	100-240 VAC / 50-60Hz / 15 Watt
<b>Dimensions</b>	Length x Height x Width	181mm x 103 mm x 100mm
	Weight	1.5 kg
<b>EAN code</b>	TRM23F	5420037699216