TM250

A/V to DVBT encoder/modulator

CONTENTS

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 hte mains supply,can cause shortcircuits are fire. Never overload the power lines.

1.3 LIQUIDS

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

1.4 CLEANING

Disconnect the module before cleaning. Using only a humid cloth without solvant.
solvant.

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 places.Do not install near heating elements or other devices producing heat. Assure yourself that the module is placed at least 10 cm form other equipment with is susceptible to electromagnetic radiation. Do not install the module on instable items. A fall cans cause physical or material damage.

2 - Description of the different elements
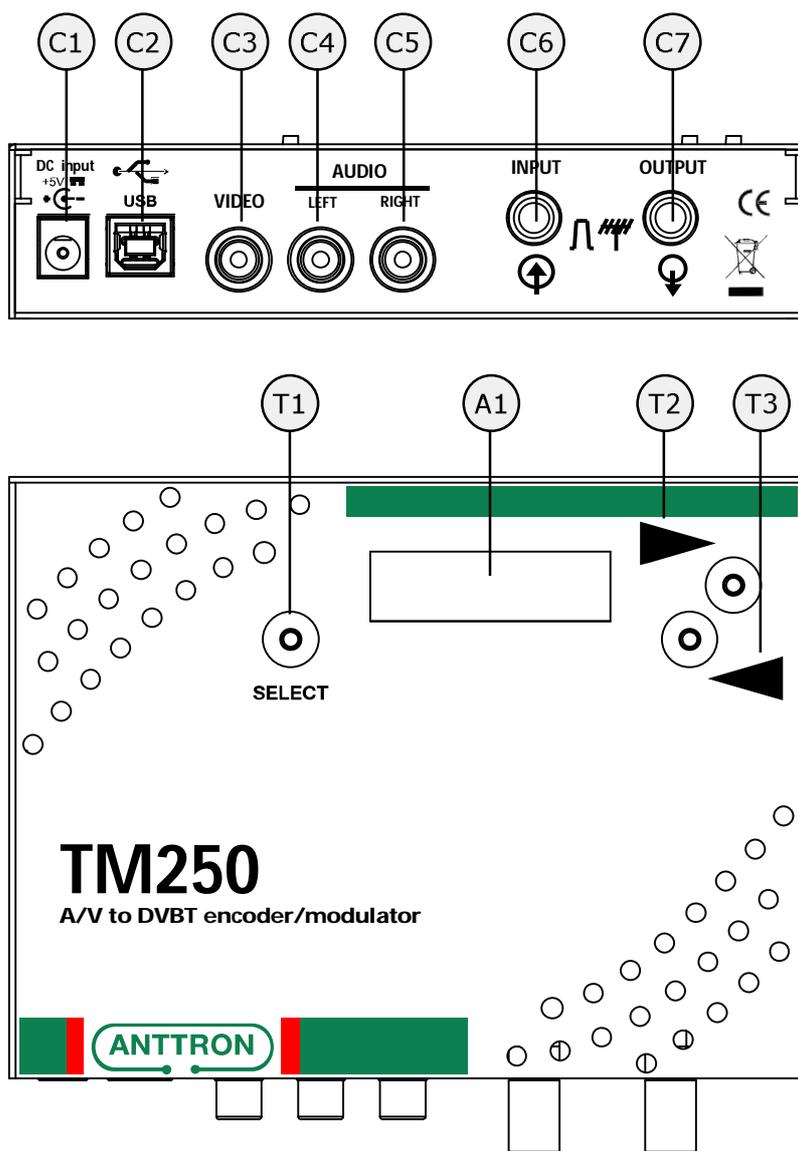
C1	Power supply input of the modulator (5 VDC / 4 A)
C2	USB input(for programming the TM250 by PC)
C3	Video input
C4	Audio left input
C5	Audio right input
C6	RF input
C7	RF output

A1   LCD display 1 x 8 characters with backlight

T1	SELECT button
T2	▶ button
T3	◀ button

3 - Installation and menu structure

3.1 - Installation
Install the TM250 against a wall using the wall fixation brackets to ensure cooling of the housing through natural convection. (see drawing)
Connect the audio and video source using CINCH connectors. Connect the RF input cable (if present) and the RF output cable. If the RF input is not used, please connect a 75 ohm terminating resistor to it. Once the modulator installed and the cables connected, please proceed connecting the power supply to the modulator.
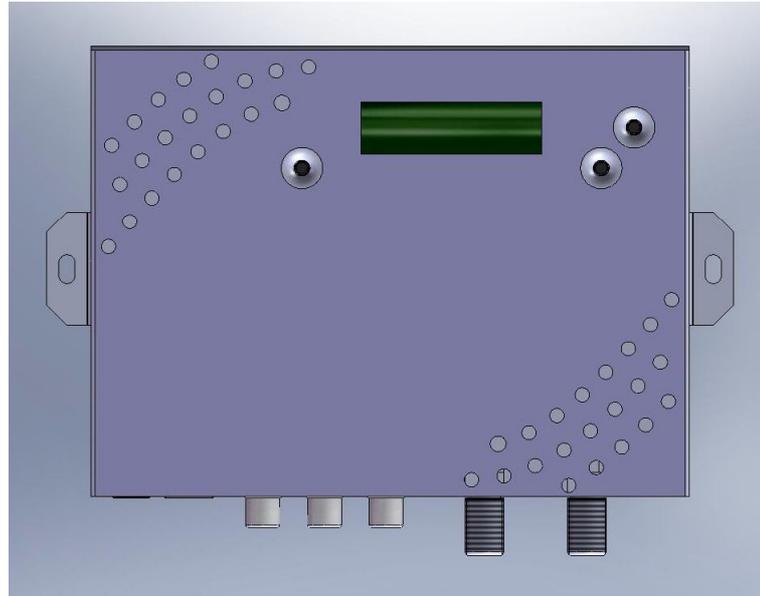
3.2 - Powering up
Plug in the connector of the power supply. The LCD display will light up and shows the message "Init…" followed by a bargraph, during starting up of the TM250. After starting up the message "TM250' and "V1.9' (firmware version) are displayed alternating.

3.3 - Menu structure
The TM250 has different menus allowing easy access to the differents parameters and to change them when necessary. Below you will find the structure of the different menus.

INPUT		OUTPUT		EXTRA		MISC.	
	<STDARD>		< FREQ >		<TS. ID>		<LANG.>
	<FORMAT>		<BNDWDT>		<PRG.ID>		<RESET>
	< LIGHT >		< MODE >		<NET ID>		<RETURN>
	<CONTR.>		< CONST. >		<ONETID>		
	< SAT. >		< FEC >		<NETWRK>		
	<RETURN>		<G. INT.>		<PMTPID>		
			<ATTEN.>		<VIDPID>		
			<A. RATE>		<AUDPID>		
			<V. RATE>		<RETURN>		
			<L.C.N.>				
			<CHANNL>				
			<RETURN>				

4 - Programming mode

To access the menus press and keep pressed the SELECT button. Use the buttons ▶ and ◀ to choose between menus INPUT / OUTPUT / EXTRA and MISC. When you have reached the menu of your choice, release the SELECT button.
Now you have access to the different parameters of the selected menu and inspect and change their values if necessary.
Use the buttons ▶ and ◀ to go from one parameter to the other. Once you have reached the wanted parameter, press and **keep pressed** the SELECT button : the value of the parameter is now displayed. To modify this value, use the ▶ and ◀ buttons while keeping the SELECT button pressed. Once the parameter changed you can release the SELECT button.

4.1 - The INPUT menu :

| 1 | <STDARD> |

Setting the input standard
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change this option in PAL or NTSC.

| 2 | <FORMAT> |

Setting the picture format
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the picture format between 4/3 - 16/9 or AUTO (automatic).

| 3 | < LIGHT > |

Setting the luminosity
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to adjust the luminosity. (0-255).

| 4 | <CONTR. > |

Setting the contrast
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to adjust the contrast.(0-255).

| 5 | < SAT. > |

Setting the saturation
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to adjust the saturation.(0-255).

| 6 | <RETURN> |

To leave this menu. Press the SELECT button to leave this menu.

4.2 - The OUTPUT menu :

| 1 | < FREQ > |

Setting the output frequency.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change teh output frequency 47 - 862 MHz.

| 2 | <BNDWDT> |

Setting the bandwidth
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the bandwidth in 6, 7 or 8 MHz.

| 3 | < MODE > |

Setting the modulation mode
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the modulation mode. (2K or 8K).

| 4 | <CONST. > |

Setting the constellation
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the constellation. (QPSK, QAM16 or QAM64).

| 5 | < FEC > |

Setting the FEC.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the FEC. (1/2, 2/3, 3/4, 5/6 or 7/8).

| 6 | <G. INT> |

Setting the guard interval.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the guard interval (1/32, 1/16, 1/8, or 1/4).

| 7 | <ATTEN.> |

Setting the output level.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the value of the ouput attenuator . (0 - 29 dB).

| 8 | < A.RATE > |

Setting the audio bit rate
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the audio bit rate. (128 Kb/s - 192 Kb/s - 256 Kb/s - 320 Kb/s - 384 Kb/s).

| 9 | <V.RATE> |

Setting the video bit rate
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the video bit rate. (100 - 20000) Kb/s).

10	<L.C.N.>

Setting the LCN number
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the LCN number of the program.

11	< CHANNL >

Setting the channel name.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to select a character. Then release the SELECT button to set the following character. Some characters have a special function, namely :
→   forward space
←   backspace
■   delete whole line

12	<RETURN>

To leave this menu. Press the SELECT button to leave this menu.

4.3 - The menu EXTRA :

1	< TS. ID>

Setting the Transport Stream ID
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the number of the transport stream ID.

2	<PRG. ID>

Setting the program ID (Service ID)
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the number of the program ID.

3	< ONETID >

Setting the Original Network ID.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the number of the original network ID.

4	< NET ID >

Setting the Network ID.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the number of the network ID.

5	<NETWRK>

Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to select a character. Then release the SELECT button to set the following character. Some characters have a special function, namely :
→   forward space
←   backspace
■   delete whole line

6 | <PMTPID>

Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the
PID of the PMT (Program Map Table)

7 | <VIDPID>

Setting the VIDEO PID.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the
VIDEO PID.

8 | <AUDPID>

Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the
AUDIO PID.

9 | <RETURN

To leave this menu. Press the SELECT button to leave this menu.

4.4 - The MISC. (miscellanous) MENU:

1 | < LANG.>

Setting the language of the menus.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to change the
language between option en FRANCAIS , ENGLISH, ITALIANO, DEUTSCH and
POLSKI

2 | <RESET>

Return to factory settings.
Use the buttons ▶ and ◀ (while keeping SELECT button pressed) to return to
the factory settings of the TM250.

3 | <RETURN

To leave this menu. Press the SELECT button to leave this menu.

5 - Programming using a PC

The settings of the TM250 can also be changed using a PC.

First, please install the software **TMIFace** on your PC. You can download this software from our internet site **anttron.com**
After installation of this software, connect the TM250 using a USB cable (not included) to your personal computer. Then launch the program **TMIface.**

On the display of the TM250 the message <USB> appears, indicating that the programming is now performed through your PC. The following window appears on your screen.
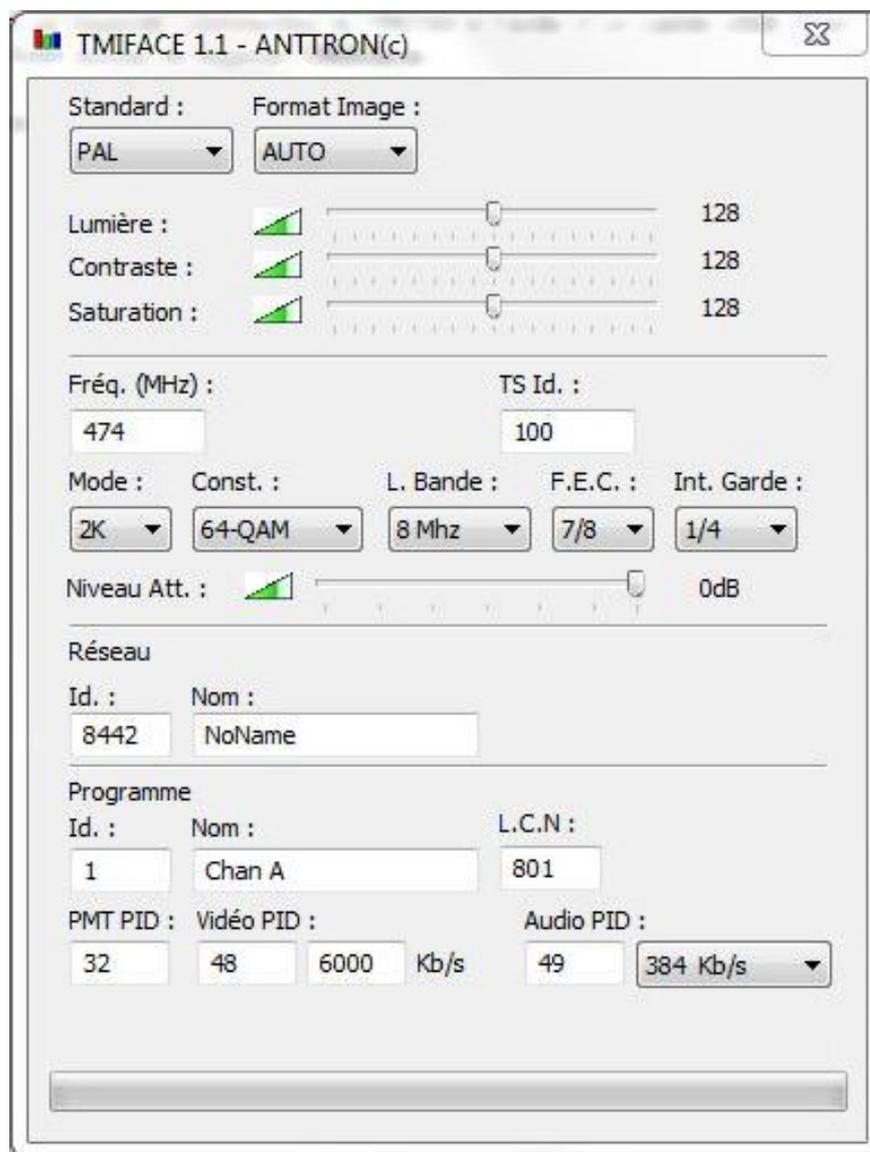
Now, all parameters discussed in Chapter 3 of this user manual can be modified by TMIface.

6 – Technical specifications :

Input	Video	CVBS
	Video input level	0.7 .... 1.4 Vpp
	Impedance	75 ohm
	Standards	PAL / NTSC
	Audio input	0.5 - 2.5 Vpp
Compression	Video	MPEG2
	Video bitrate	100....20 MBit/s
	Audio	MPEG1, Layer II
	Audio bitrate	128, 160, 192, 224, 256, 320, 384 Kbit/s
DVB Processing	Table insertion	PAT, PMT, SDT, NIT
	Configuration	Channel name, SID, LCN, Network Name, Network ID, TSID, ONID, LCN, PMT PID, Video PID , Audio PID
Output		DVBT
	Carriers - Bandwidth - MER	2K/8K - 6/7/8 MHz - > 35 dB
	Frequency - Output level	47-862 MHz - > 80 dBμV (adjustable 0 / -29 dB)
	Insertion loss RF bypass	< 3 dB
Supplied power adaptor	Input // Output	100 - 240V / 0.5A / 50-60Hz // 5V - 4A
	Power consumptionTM250	<9 W
Dimensions	L / W / H	160 mm / 110 mm / 35 mm

7 – Factory settings :

INPUT		OUTPUT		EXTRA	
<STDARD>	PAL	< FREQ >	474 MHz	<TS. ID>	100
<FORMAT>	AUTO	<BNDWDT>	8 MHz	<PRG.ID>	1
< LIGHT >	128	< MODE >	2K	<NET ID>	8442
<CONTR.>	128	< CONST. >	64QAM	<NETWRK>	NoName
< SAT. >	128	< FEC >	7/8	<PMTPID>	32
		<G. INT>	1/4	<VIDPID>	48
		<ATTEN.>	0 dB	<AUDPID>	49
		<A. RATE >	384 Kb/s		
		<V. RATE>	6000 Kb/s		
		<L.C.N.>	801		
		<CHANNL>	Chan A		