

TM160HD

HD encoder - DVB-T out



USER MANUAL VERSION 1.0

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

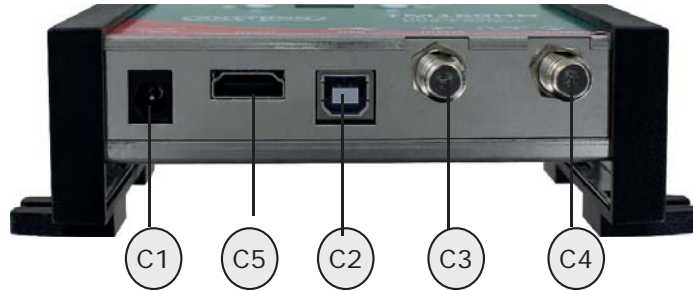
The module must be installed in a place well protected from direct sunlight. All measures have to be taken to avoid installation in humid or sunny place. Do not install near heating elements or other devices producing heat. Assure yourself that the module is placed at least 10 cm from other equipment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

2 - Technical specifications

Video input	Input	HDMI
	Resolution modes	480p -576p -720p - 1080i - 1080P
	Compression	H.264 – bitrate 5-15 Mb/s
Audio input	Input	HDMI
	Sample Rate	HDMI (32kHz / 44.1 kHz / 48 kHz)
	Compression	AAC-LC / MPEG1-L2– bitrate 128-384 Kb/s
DVB Processing	Table insertion	PAT, PMT, SDT, NIT
	Configuration	Channel/network name, SID, LCN, TSID, ONID, NID, versions, audio, video PIDs...
DVB-T output	Output frequency / level	170-230 MHz + 470-862 MHz / > 85 dBμV
	Constellation - FEC	QPSK/16QAM/64QAM - 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
Power	DC 2.1 mm connector	+5V
	Consumption	10 Watts
Dimensions	LxWxH	150x130x35mm
	Weight	0.45 kg
EAN code	TM160HD	5420037691609

3 - Description of the different elements

- C1 Power supply input (5V/2A)
- C2 USB input (for programming the TM160HD by PC)
- C3 RF input
- C4 RF output
- C5 HDMI input



- A1 Alphanumeric display
- T1 **SELECT** button
- T2 ▲ (UP) button
- T3 ▼ (DOWN) button



4 - Installation and quick menu

4.1 - Installation

Connect the audio and video source using a HDMI cable. 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.

4.2 - Powering up and quick menu

Plug in the connector of the power supply. The display will show a red dot in the left uppercorner. Once the modulator has booted correctly the display will show : **ch**

With the buttons UP and DOWN, you can toggle between **ch** (channel) and **At** (attenuation).

Once selected the right option, press and hold the select button.

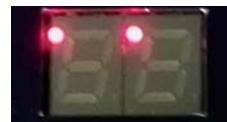
In channel mode, the display will show you the actual output channel. For instance **21**

With the select button pressed use the up and down buttons to change the output channel.

In attenuation mode, with the select button pressed, the display will show the actual level of attenuation at the the output for instance **00** . Keep the select button pressed and use the up or down buttons to change this value (00 - 15).

The selected values are automatically saved in the memory of the TM160HD.

Once these settings made, the display on the TM160HD will return to its standby state. The display shows one or two dots. One dot to indicate that power is applied to the unit. The second dot to the right indicating that a HDMI source is connected to the unit.



4.3 - Return to factory settings.

To return to factory settings, power down the modulator. Now, with the UP button pressed, put the power again to the modulator. Keep the UP button pressed and wait until the message **r5** appears on the display. The modulator has returned to its factory settings.

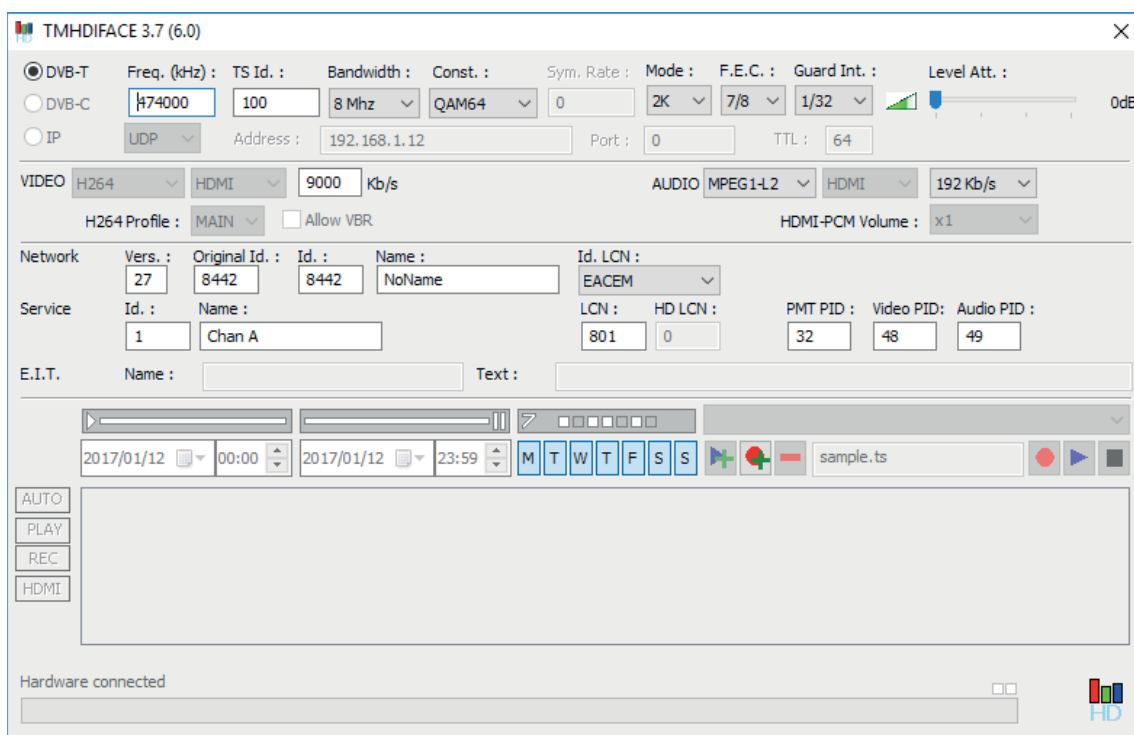
5 - Advanced settings using a PC

More, advanced settings of the TM160HD can be changed using a PC.

First, please install the software **TMHDI Face** on your PC. You can download this software from our internet site anttron.com

After installation of this software, connect the TM160HD using a USB cable (not included) to your personal computer. Then launch the program **TMHDI face**.

On the display of the TM160HD the message **[]** appears, indicating that the programming is now performed through your PC. The following window appears on your screen.



Now, further parameters can be edited in the TM160HD.