TM2HD

**Dual HD encoder
DVBT modulator
USB record and play**

Congratulations on your purchase of the TM2HD !

This 'state of the art' product, is a **dual HD encoder.** Two HDMI sources (A and B) can be encoded and modulated simultaneously into **<u>one</u> DVBT channel.** Furthermore an USB port is available which allows you to play a .ts file instead of using input A. The .ts file and input B are then available on the same DVBT channel.

Sequential files (eg. file001, file002, file003 etc.) make it possible to play several files after each other in a loop.

The record function allows you to record your source connected to input A in a .ts file on a USB stick or drive.

Using TMHDIface to operate the TM2HD a wide scala of **digital signage functions** becomes available. Using a battery powered time and date function, different files can be played according to a schedual you can define by hour, day and week etc.

At the same time, different recordings can be programmed using TMHDIface.

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 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 - Description of the different elements

C1   Power supply input (5V/2A)   **C5**   HDMI input A
C2   USB input (PC programming)   **C6**   USB input record and play
C3   RF input   **C7**   HDMI input B
C4   RF output

A1   Display

T1   **ENTER** button

T2   **LEFT** button

T3   **RIGHT** button

3 - Informations on the LCD screen

In normal operation the LCD screen of the TM2HD shows some information on the status of the modulator. The status of input A and input B is alternated with the actual date and time set in the modulator. Possible informations can be :

TM2HD 2.2 A: --- B: ---	Nothing connected to input A and input B	TM2HD 2.2 A:PLAY B: 1080P	Input A playing .ts file Input B encoding, resolution 1080P
TM2HD 2.2 A: 720P B: 1080P	Input A encoding, resolution 720P Input B encoding, resolution 1080P	TM2HD 2.2 A: REC B: 1080P	Input A recording Input B encoding, resolution 1080P

4 - Software settings :

The TM2HD has a quick menu to allow for quick basic settings. For advanced settings an advanced menu is available.

4.1 - Quick menu :

To enter the quick menu please push following sequence of buttons ⏎ ⏎ ← ←

When entered succesfully, the quick menu comes accessible, use the → ← buttons to move between the different menu options, <u>PRESS AND HOLD</u> ⏎ to select that option and use → ← to change the value for that option. Changes are automatically saved.

TM2HD 2.2 CHANNEL → ↓↑ ←	TM2HD 2.2 21 (474 MHz) ← →	Change the output channel.
TM2HD 2.2 ATTENUATION → ↓↑ ←	TM2HD 2.2 5 dB ← →	Change the output level.
TM2HD 2.2 COUNTRY → ↓↑ ←	TM2HD 2.2 [FRANCE] ← →	Change the country
TM2HD 2.2 TS ID. → ↓↑ ←	TM2HD 2.2 100 ← →	Change the TS ID.
TM2HD 2.2 LANGUAGE → ↓↑ ←	TM2HD 2.2 [ENGLISH] ← →	Change the language.
TM2HD 2.2 DEFAULT CONFIG. → ↓↑ ←	TM2HD 2.2 [YES] ← →	Go back to factory settings
TM2HD 2.2 EXIT	TM2HD 2.2 [YES]	Leave this menu.

4.2 - Advanced menu

To enter the advanced menu please push following sequence of buttons ↵ ↵ → →

TM2HD 2.2 DVB SETTINGS	↵	TM2HD 2.2 FREQUENCY	↵	TM2HD 2.2 474000 kHz	Set the output frequency

→ ↓↑ ←   ← →

		TM2HD 2.2 BANDWIDTH	↵	TM2HD 2.2 [8 MHz]	Select the bandwidth. 6,7 or 8 MHz

→ ↓↑ ←   ← →

		TM2HD 2.2 CONSTELLATION	↵	TM2HD 2.2 [QAM64]	Select the constellation QPSK, QAM16 or QAM64.

→ ↓↑ ←   ← →

		TM2HD 2.2 F.E.C.	↵	TM2HD 2.2 [7/8]	Select the F.E.C. 1/2, 3/4, 5/6 or 7/8

→ ↓↑ ←   → ↓↑ ←   ← →

		TM2HD 2.2 GUARD INTERVAL	↵	TM2HD 2.2 [1/32]	Select the guard interval 1/2, 1/4, 1/8,1/16 or 1/32

→ ↓↑ ←   ← →

		TM2HD 2.2 MODE	↵	TM2HD 2.2 [2K]	Select the mode 2K or 8K

→ ↓↑ ←   ← →

		TM2HD 2.2 EXIT	↵	TM2HD 2.2 [YES]	Leave this menu.

← →

TM2HD 2.2 TS SETTINGS	↵	TM2HD 2.2 NIT RELEASE	↵	TM2HD 2.2 30	Set the NIT version

→ ↓↑ ←   ← →

		TM2HD 2.2 NET ID.	↵	TM2HD 2.2 10000	Set then Network ID.

→ ↓↑ ←   ← →

		TM2HD 2.2 ORIG. NET ID.	↵	TM2HD 2.2 8442	Set the original network ID for your country

→ ↓↑ ←   → ↓↑ ←   ← →

		TM2HD 2.2 LCN ID.	↵	TM2HD 2.2 [EACEM]	Set the LCN system, EACEM, ITC, Nordig or Austral.

← →

TM2HD 2.2
NETWORK NAME
→ ↓↑ ←

TM2HD 2.2
INPUT A
→ ↓↑ ←

TM2HD 2.2
INPUT B

Identical menu for INPUT A or INPUT B

6789.[A]BCDEF
Anttron
← →

Set the network name

TM2HD 2.2
EXIT

TM2HD 2.2
[YES]
← →

Leave this menu

TM2HD 2.2
PROGRAM ID.
→ ↓↑ ←

TM2HD 2.2
1
← →

Set the program ID for input A or input B

TM2HD 2.2
SERVICE NAME
→ ↓↑ ←

6789.[A]BCDEF
Channel A
← →

Set the program name for input A or input B

TM2HD 2.2
L.C.N.
→ ↓↑ ←

TM2HD 2.2
801
← →

Set the LCN number for input A or input B

TM2HD 2.2
VIDEO RATE
→ ↓↑ ←

TM2HD 2.2
9000
← →

Set the video rate for input A or input B

TM2HD 2.2
AUDIO RATE
→ ↓↑ ←

TM2HD 2.2
[192 Kb/s]
← →

Set the audio rate for input A or input B

TM2HD 2.2
AUD. COMPRESSION
→ ↓↑ ←

TM2HD 2.2
[MPEG1-L2]
← →

Set the audio compression for input A or input B

TM2HD 2.2
PMT PID
→ ↓↑ ←

TM2HD 2.2
100
← →

Set the PMT PID for input A or input B

TM2HD 2.2
VIDEO PID
→ ↓↑ ←

TM2HD 2.2
101
← →

Set the video PID for input A or input B

TM2HD 2.2
AUDIO PID
→ ↓↑ ←

TM2HD 2.2
102
← →

Set the audio PID for input A or input B

TM2HD 2.2
EXIT

TM2HD 2.2
[YES]
← →

Leave this menu

In order to operate the USB menu, please connect at first an **USB Stick 3.0** and then power up the TM2HD.

With the USB stick connected you can play files. Please note that only files with the extension .ts can be played through this device. If you play a file, the source connected to input A will be interrupted and in the output you will find your .ts file.

| TM2HD 2.2 | | TM2HD 2.2 | | TM2HD 2.2 | Set the file you want to play |
| USB | ↵ | PLAY | ↵ | x | from the USB stick |

→ ↓↑ ←   ← →

| TM2HD 2.2 | | efgh[i]jkl | Enter the filename where you |
| RECORD | ↵ | TM2HD001.ts | want to record to. |

→ ↓↑ ←   ← →   Finish with the enter character to start recording

| TM2HD 2.2 | | TM2HD 2.2 | Select yes or no to stop the |
| STOP | ↵ | [YES] | current action |

→ ↓↑ ←   ← →

| TM2HD 2.2 | | TM2HD 2.2 | |
| EXIT | ↵ | [YES] | Leave this menu |

← →
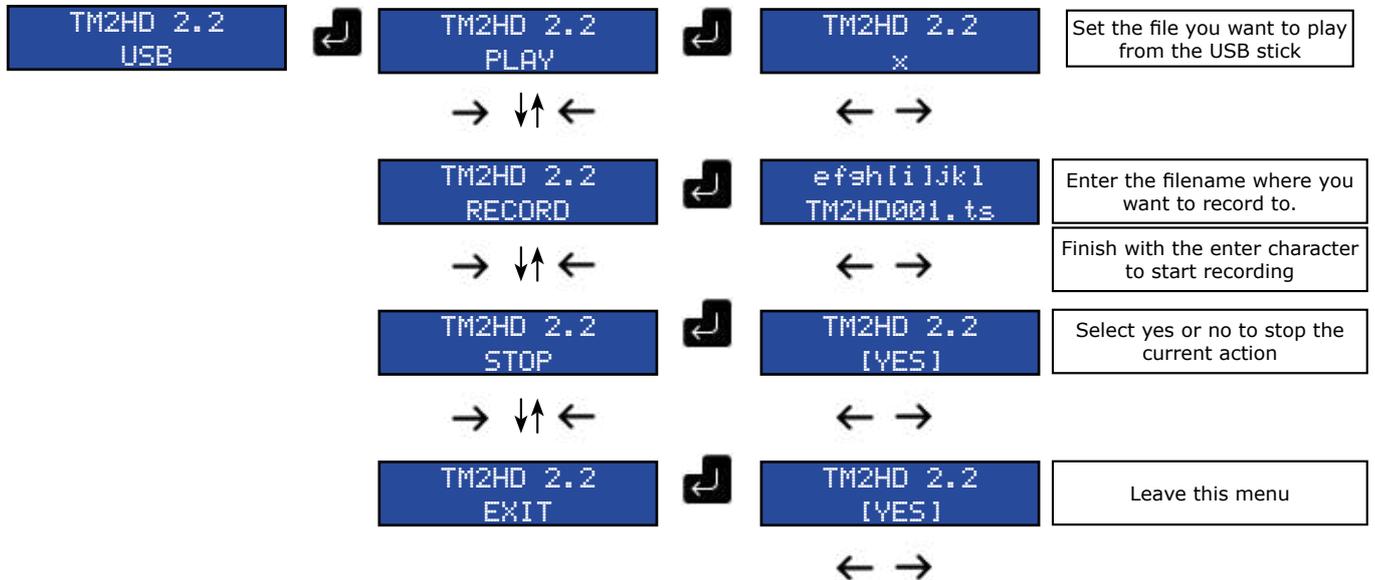
As mentioned in the introduction, if you select a file this will played continuously. At the end of the file, the TM2HD will play again the same file.

If you want to **play a selection of files**, then name your files sequentially. For instance, file001, file002, file 003. (all with .ts extension). Then, if you select a file from this list, the file will start to play. At the end the TM2HD will look for the same file name with a higher number (for instance if you start with file002, it will look at the end of this file for file003 etc. and play the following file). When no higher number is found it will start again with file001..

To easily create your .ts files please see section 6.5 in this manual. Indeed on the Anttron website you can find some easy to use software to produce appropriate .ts files for your TM2HD.

5 - Programming using a PC

The settings of the TM2HD can also be changed using a PC.

First, please install the software **TMHDIFace** on your PC. You can download this software from our internet site **anttron.com**
After installation of this software, connect the TM2HD using a USB cable (not included) to your computer. Then launch the program **TMHDIface.**

On the display of the TM2HD the message <USB> appears, indicating that the programming is now performed through your PC. The following window appears on your screen.
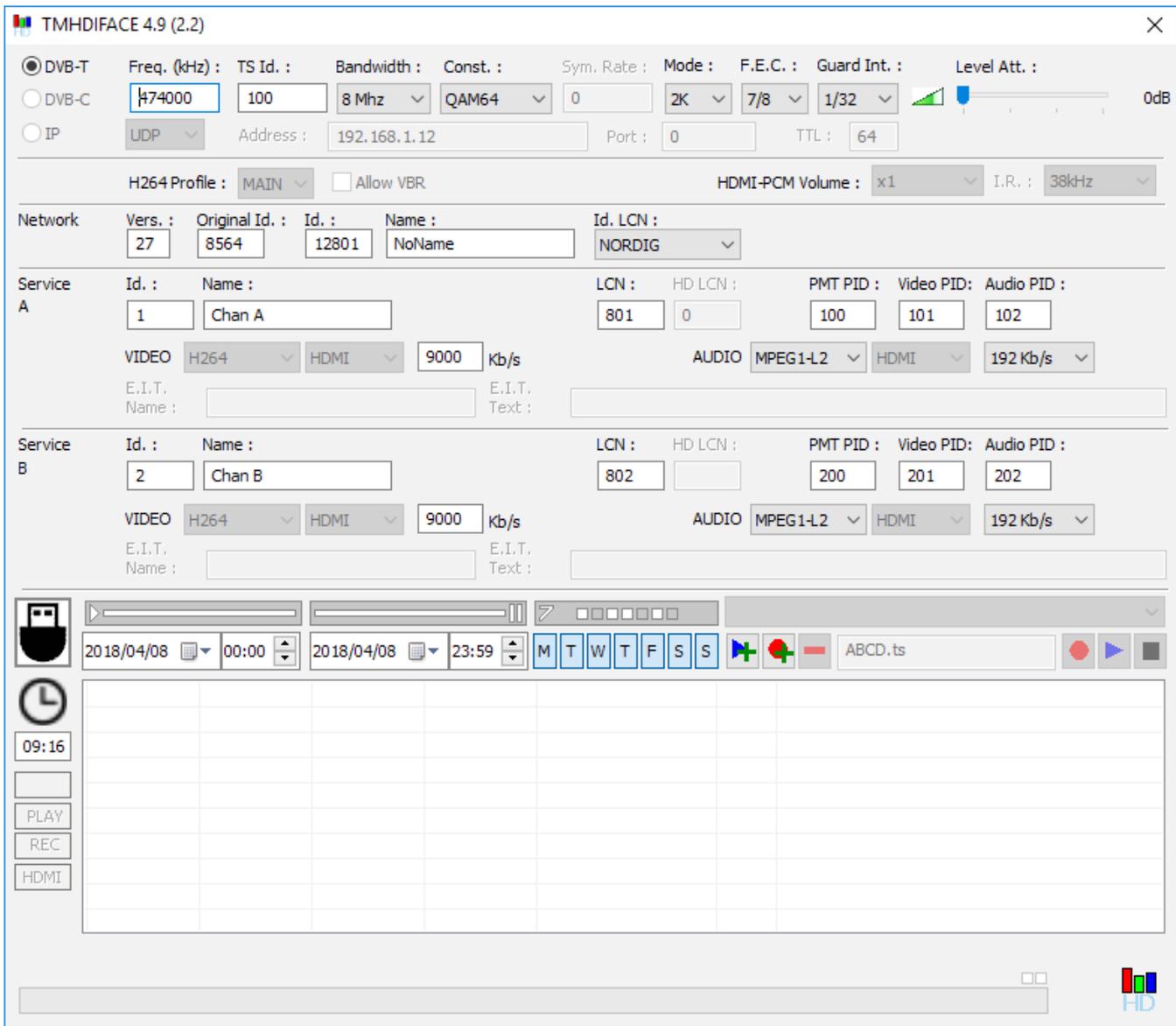
Now, all parameters discussed in Chapter 4 of this user manual can be modified by TMHDIface.

6 - Making play and recording lists using TMHDIface

Due to the ability of recording and playing using a USB 3.0 key, together with the presence of a clock, the TM2HD is an ideal product to use in <u>DIGITAL SIGNAGE APPLICATIONS</u>. Indeed different .ts files present on the USB key can be played over your DVB-T network according to a predefined time table , specifiying over a given period the start time and end time and also the days of the week.
TMHDIface allows easy setup of these timetables.
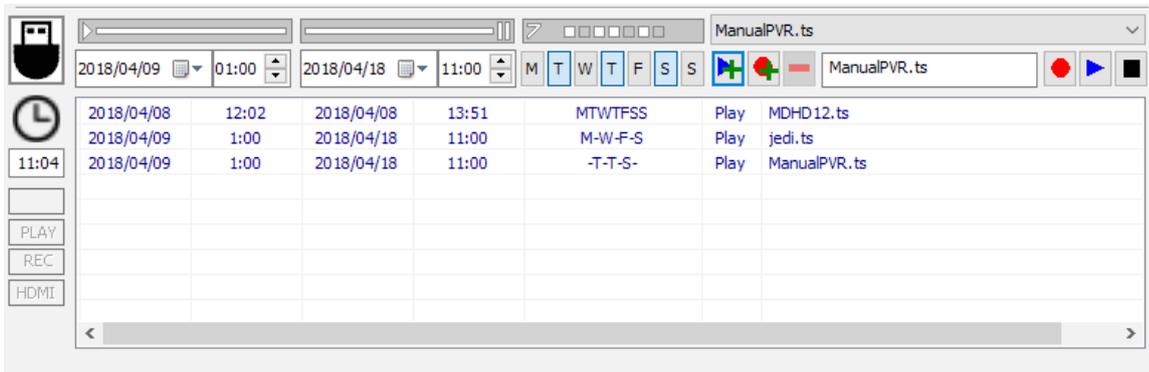
6.1 - Direct play and record.

Select a file in the dropdown list of files available on the USB key and press
Create a "file.ts" in TMHDIface and press ● to record the HDMI source.
Press ■   to end playing or recording.

6.2 - Adjusting time and date

Before starting to use play and recordlist, please check that the time and date in the TM2HD is set appropriate. In order to adjust time and date, please click on the time in TMHDIFace.

A new window will popup where you can adjust the date and time in the modulator.
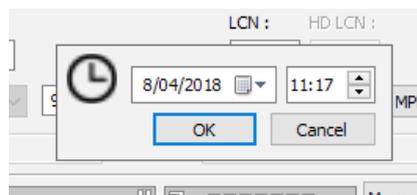
6.3 - Making a playlist.

a/ Select a .ts file from the files present on the USB key

b/ Select the start date/time and the end date/time :

c/ Select the days of the week when to play this.ts

d/ Press the add to playlist button.
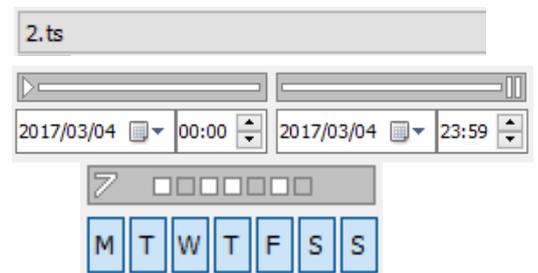
2017/03/04	9:35	2017/03/04	9:40	MTWTFSS	Play	BMWX6M4.ts
2017/03/04	9:40	2017/03/04	9:42	MTWTFSS	Play	test170226.ts
2017/03/04	9:43	2017/03/04	9:45	MTWTFSS	Play	2.ts

e/ For removing an item from the playlist, select that line and press the ▬   button

6.4 - Making a recordlist.

Similarly a recordlist can be created as described above. Instead, you have to first name the .ts file and then press the add to recordlist button
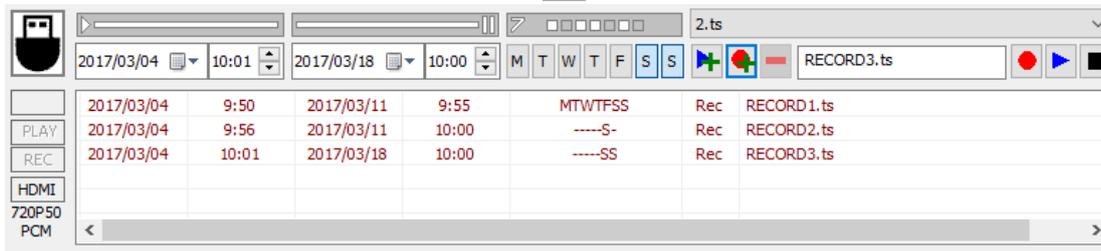
6.5 - Creating your .ts files

In order for you to create your .ts files, a **.ts convertor is available on the Anttron website**. This allows you to easily convert your files from .avi or .mp4 into .ts
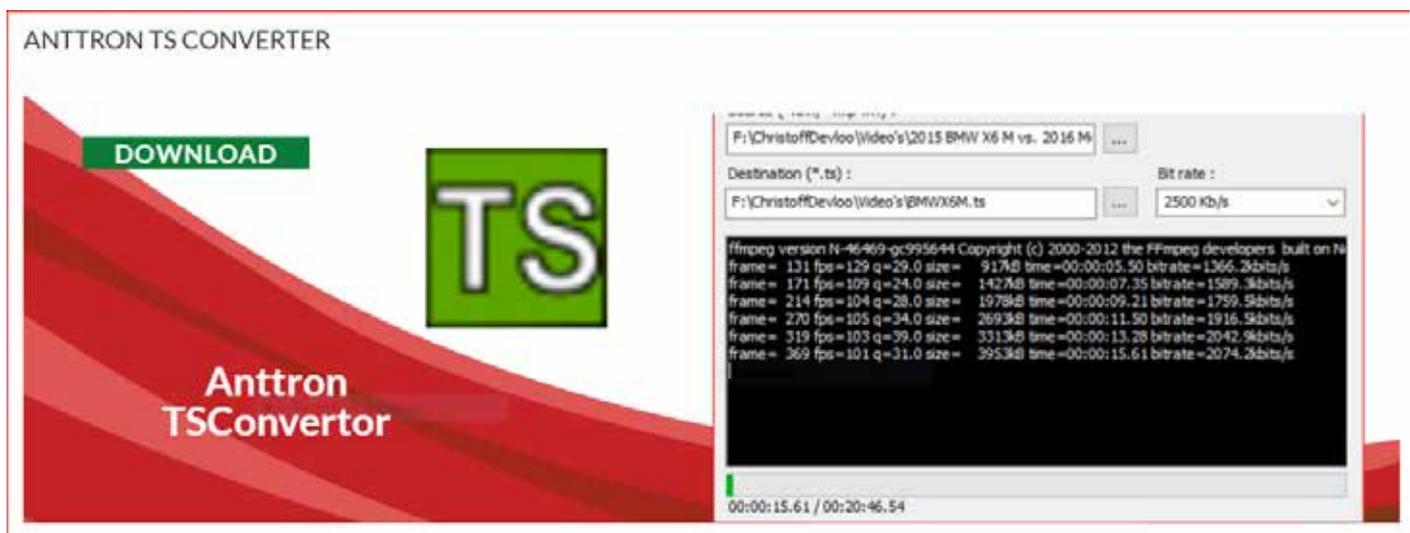
7 - Technical specifications

Video inputs (x2)	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 128-320 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 - 33 dB
Power	DC 2.1 mm connector	+5V
	Consumption	10 Watts
Dimensions	LxWxH	150x130x35mm
	Weight	0.9 kg
EAN code	TM2HD	5420037690022